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Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Hauptergebnis

Berechnung: Dörenhagen GB

Annahmen für Schattenwurfberechnung

Beschattungsbereich der WEA
Schatten nur relevant, wo Rotorblatt mind. 20% der Sonne verdeckt
Siehe WEA-Tabelle

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

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

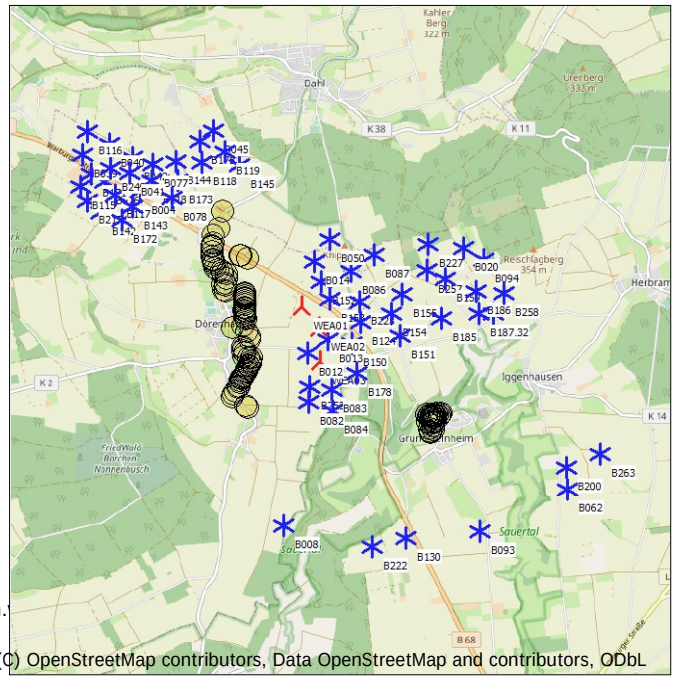
Betriebsstunden ermittelt aus WEA in Berechnung und Windverteilung: TD met. wahrsch.

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Monatliche Aggregation der met. wahrsch. Reduzierung
Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie
Eine WEA wird nicht berücksichtigt, wenn sie von keinem Teil der Rezeptorfläche aus sichtbar ist. Die Sichtbarkeitsberechnung basiert auf den folgenden Annahmen:
Verwendete Höhenlinien: Höhenlinien: oro_DGM5_5m_DGM5_10m_20x20km.
Rasterauflösung: 1.0 m

Alle Koordinatenangaben in:
UTM (north)-ETRS89 Zone: 32



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

Maßstab 1:100,000

Neue WEA | Existierende WEA | Schattenrezeptor

WEA

	Ost	Nord	Z	Beschreibung	WEA-Typ Aktuell	Hersteller	Typ	Nennleistung	Rotordurchmesser	NH	Schattendaten Beschatt.-Bereich	U/min
			[m]					[kW]	[m]	[m]	[m]	[U/min]
B004	487,455	5,725,778	270.0	MICON M150...	Nein	MICON	M1500-600/150	600	43.0	46.0	2,500	27.0
B008	489,353	5,721,350	305.0	ENERCON E-1...	Ja	ENERCON	E-175 EP5-6,000	6,000	175.0	162.0	1,737	-
B012	489,667	5,723,639	317.7	ENERCON E-5...	Ja	ENERCON	E-53-800	800	53.0	73.3	996	29.0
B013	489,937	5,723,815	326.1	ENERCON E-8...	Ja	ENERCON	E-82 E2-2,300	2,300	82.0	138.4	1,599	18.0
B014	489,757	5,724,846	314.0	ENERCON E-1...	Ja	ENERCON	E-160 EP5 E3-5,560	5,560	160.0	166.6	1,750	9.6
B020	491,745	5,725,016	338.1	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B039	486,702	5,726,268	246.6	NORDEX N62...	Ja	NORDEX	N62-1,300/250	1,300	62.0	69.0	1,276	19.0
B040	487,053	5,726,394	248.1	NORDEX N62...	Ja	NORDEX	N62-1,300/250	1,300	62.0	69.0	1,276	19.0
B041	487,314	5,726,022	260.5	ENERCON E-5...	Ja	ENERCON	E-53-800	800	53.0	73.3	996	29.0
B042	487,347	5,726,225	255.5	NORDEX N62...	Ja	NORDEX	N62-1,300/250	1,300	62.0	69.0	1,276	19.0
B045	488,435	5,726,571	256.4	ENERCON E-9...	Ja	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	138.4	1,513	17.0
B050	489,975	5,725,142	318.3	ENERCON E-1...	Ja	ENERCON	E-138 EP3-3,500	3,500	138.3	160.0	1,679	10.8
B062	493,116	5,721,831	320.0	ENERCON E-1...	Ja	ENERCON	E-101-3,050	3,050	101.0	149.0	2,213	14.5
B076	486,983	5,725,905	257.9	TACKE TW 60...	Nein	TACKE	TW 600-600/200	600	43.0	50.0	2,500	27.0
B077	487,621	5,726,136	261.5	VESTAS V80-...	Nein	VESTAS	V80-2.0MW-2,000	2,000	80.0	60.0	1,583	16.7
B078	487,872	5,725,691	273.2	VESTAS V80-...	Nein	VESTAS	V80-2.0MW-2,000	2,000	80.0	60.0	1,583	16.7
B082	489,685	5,722,998	316.8	NEG MICON ...	Nein	NEG MICON	NM64C/1500-1,500/400	1,500	64.0	68.0	2,500	17.3
B083	489,988	5,723,160	329.8	ENERCON E-1...	Ja	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	160.0	1,679	13.0
B084	490,004	5,722,877	330.0	ENERCON E-1...	Ja	ENERCON	E-115 EP3 E3-4,200	4,200	115.7	149.0	1,618	12.9
B086	490,246	5,724,719	328.7	ENERCON E-9...	Ja	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	138.4	1,513	17.0
B087	490,552	5,724,933	313.1	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B093	491,952	5,721,275	316.9	ENERCON E-1...	Ja	ENERCON	E-175 EP5-6,000	6,000	175.0	162.0	1,737	-
B094	491,999	5,724,865	345.6	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B115	486,668	5,725,839	250.8	GE WIND EN...	Nein	GE WIND ENERGY	GE 1.5s-1,500	1,500	70.5	64.7	2,500	20.0
B116	486,758	5,726,563	240.0	NORDEX N62...	Ja	NORDEX	N62-1,300/250	1,300	62.0	69.0	1,276	19.0
B117	487,121	5,725,729	262.7	ENERCON E-4...	Ja	ENERCON	E-48-800	800	48.0	75.6	1,047	30.0
B118	488,272	5,726,162	271.0	ENERCON E-7...	Ja	ENERCON	E-70 E4 2,3 MW-2,300	2,300	71.0	64.0	1,644	20.0
B119	488,577	5,726,307	266.9	ENERCON E-1...	Ja	ENERCON	E-101-3,050	3,050	101.0	149.0	2,213	14.5
B124	490,369	5,724,047	330.0	NORDEX N13...	Ja	NORDEX	N131/3600-3,600	3,600	131.0	120.0	1,723	11.9
B130	490,960	5,721,176	305.0	ENERCON E-1...	Ja	ENERCON	E-175 EP5-6,000	6,000	175.0	162.0	1,737	-
B132	492,133	5,724,152	360.0	NORDEX N14...	Ja	NORDEX	N149/5.X-5,700	5,700	149.0	164.0	1,836	10.7

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SHADOW - Hauptergebnis

Berechnung: Dörenhagen GB

...(Fortsetzung von vorheriger Seite)

	Ost	Nord	Z	Beschreibung	WEA-Typ Aktuell	Hersteller	Typ	Nennleistung	Rotordurchmesser	NH	Schattendaten Beschatt.-Bereich	U/min
			[m]					[kW]	[m]	[m]	[m]	[U/min]
B142	486,940	5,725,502	260.0	NEG MICON ...	Nein	NEG MICON	NM72C/1500-1,500/400	1,500	72.0	64.0	2,500	17.3
B143	487,347	5,725,580	270.0	NEG MICON ...	Nein	NEG MICON	NM72C/1500-1,500/400	1,500	72.0	64.0	2,500	17.3
B144	487,933	5,726,171	265.7	VESTAS V80-...	Nein	VESTAS	V80-2.0MW-2,000	2,000	80.0	60.0	1,583	16.7
B145	488,780	5,726,129	274.7	ENERCON E-1...	Ja	ENERCON	E-101-3,050	3,050	101.0	135.4	2,214	14.5
B150	490,256	5,723,763	326.1	ENERCON E-9...	Ja	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	138.4	1,513	17.0
B151	490,901	5,723,869	328.5	ENERCON E-9...	Ja	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	138.4	1,513	17.0
B152	489,854	5,724,585	318.3	ENERCON E-8...	Ja	ENERCON	E-82 E2-2,300	2,300	82.0	138.4	1,599	18.0
B153	489,973	5,724,360	317.8	ENERCON E-1...	Ja	ENERCON	E-101-3,050	3,050	101.0	149.0	2,213	14.5
B154	490,772	5,724,155	330.0	ENERCON E-1...	Ja	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	160.0	1,679	13.0
B155	490,915	5,724,416	322.2	ENERCON E-9...	Ja	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	138.4	1,513	17.0
B159	491,496	5,724,618	346.2	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B171	486,805	5,726,011	253.3	TACKE TW 60...	Nein	TACKE	TW 600-600/200	600	43.0	50.0	2,500	27.0
B172	487,204	5,725,400	265.0	NEG MICON ...	Nein	NEG MICON	NM72C/1500-1,500/400	1,500	72.0	64.0	2,500	17.3
B173	487,951	5,725,924	273.2	VESTAS V80-...	Nein	VESTAS	V80-2.0MW-2,000	2,000	80.0	60.0	1,583	16.7
B175	488,254	5,726,445	261.8	ENERCON E-7...	Ja	ENERCON	E-70 E4 2,3 MW-2,300	2,300	71.0	64.0	1,644	20.0
B178	490,327	5,723,378	320.0	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B185	491,442	5,724,098	350.7	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B186	491,901	5,724,454	354.9	ENERCON E-1...	Ja	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	160.0	1,679	13.0
B187	491,936	5,724,153	360.0	ENERCON E-9...	Ja	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	138.4	1,513	17.0
B200	493,104	5,722,130	311.9	ENERCON E-1...	Ja	ENERCON	E-101-3,050	3,050	101.0	99.0	2,216	14.5
B217	486,758	5,725,649	253.8	TACKE TW 60...	Nein	TACKE	TW 600-600/200	600	43.0	60.0	2,500	27.0
B218	487,614	5,725,923	267.9	ENERCON E-5...	Ja	ENERCON	E-53-800	800	53.0	73.3	996	29.0
B222	490,525	5,721,065	330.0	ENERCON E-1...	Ja	ENERCON	E-175 EP5-6,000	6,000	175.0	162.0	1,737	-
B223	490,366	5,724,314	329.7	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B227	491,260	5,725,072	325.8	ENERCON E-9...	Ja	ENERCON	E-92 2,3 MW-2,350	2,350	92.0	138.4	1,513	17.0
B249	487,063	5,726,086	255.0	NORDEX N62...	Ja	NORDEX	N62-1,300/250	1,300	62.0	69.0	1,276	19.0
B253	489,700	5,723,196	313.8	ENERCON E-8...	Ja	ENERCON	E-82 E2-2,300	2,300	82.0	138.4	1,599	18.0
B257	491,254	5,724,731	335.0	ENERCON E-1...	Ja	ENERCON	E-138 EP3 E2-4,200	4,200	138.3	160.0	1,679	13.0
B258	492,269	5,724,419	360.0	ENERCON E-1...	Nein	ENERCON	E-115-3,000	3,000	115.7	149.0	2,066	12.4
B263	493,539	5,722,288	315.7	ENERCON E-1...	Ja	ENERCON	E-101-3,050	3,050	101.0	149.0	2,213	14.5
WEA01	489,595	5,724,255	299.1	ENERCON E-1...	Ja	ENERCON	E-175 EP5-6,000	6,000	175.0	162.0	1,737	-
WEA02	489,827	5,723,972	320.3	ENERCON E-1...	Ja	ENERCON	E-175 EP5-6,000	6,000	175.0	162.0	1,737	-
WEA03	489,840	5,723,525	321.6	ENERCON E-1...	Ja	ENERCON	E-175 EP5-6,000	6,000	175.0	162.0	1,737	-

Schattenrezeptor-Eingabe

Nr.	Name	Ost	Nord	Z	Breite	Höhe	Höhe ü.Gr.	Neigung des Fensters	Ausrichtungsmodus	Augenhöhe (ZVI) ü.Gr.
				[m]	[m]	[m]	[m]	[°]		[m]
IO001	Dahler Str. 2a, Borchen	488,429	5,725,188	273.2	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO002	Dahler Str. 3, Borchen	488,502	5,725,285	275.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO003	Dahler Str. 5, Borchen	488,547	5,725,507	278.6	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO004	Am Bogen 11, Dörenhagen	488,844	5,723,634	286.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO005	Am Bogen 18, Dörenhagen	488,825	5,723,590	286.7	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO006	Am Bogen 9, 9a, Dörenhagen	488,817	5,723,659	285.2	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO007	Am Dorfteich 1, Dörenhagen	488,587	5,724,565	259.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO008	Am Dorfteich 2, Dörenhagen	488,606	5,724,621	255.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO009	Am Dorfteich 4, Dörenhagen	488,611	5,724,679	257.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO010	Am Rüenmarkt 4, Dörenhagen	488,826	5,723,696	285.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO011	Am Rüenmarkt 9, Dörenhagen	488,816	5,723,725	285.6	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO012	Am Wallgraben 2, Dörenhagen	488,823	5,723,993	284.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO013	An d. Trift 23, Dörenhagen	488,842	5,724,153	282.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO014	An d. Trift 25, Dörenhagen	488,842	5,724,131	282.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO015	An d. Trift 27, Dörenhagen	488,844	5,724,108	283.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO016	An d. Trift 30/32, Dörenhagen	488,849	5,724,090	284.2	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO017	Beerengrund 1, Dörenhagen	488,914	5,723,496	290.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO018	Beerengrund 3, Dörenhagen	488,892	5,723,475	289.2	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO019	Beerengrund 5, Dörenhagen	488,883	5,723,457	288.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO020	Beerengrund 7, Dörenhagen	488,875	5,723,440	287.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO021	Beerengrund 9, Dörenhagen	488,866	5,723,421	287.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO022	Beerengrund 11, Dörenhagen	488,859	5,723,403	286.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0

(Fortsetzung nächste Seite)...

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SHADOW - Hauptergebnis

Berechnung: Dörenhagen GB

...(Fortsetzung von vorheriger Seite)

Nr.	Name	Ost	Nord	Z	Breite	Höhe	Höhe ü.Gr.	Neigung des Fensters	Ausrichtungsmodus	Augenhöhe (ZVI) ü.Gr.
				[m]	[m]	[m]	[m]	[°]		[m]
IO023	Beerengrund 13, Dörenhagen	488,848	5,723,385	285.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO024	Beerengrund 15, Dörenhagen	488,840	5,723,367	285.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO025	Beerengrund 17, Dörenhagen	488,831	5,723,338	283.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO026	Beerengrund 19, Dörenhagen	488,820	5,723,326	281.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO027	Beerengrund 21, 21a, Dörenhagen	488,810	5,723,309	280.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO028	Beerengrund 23, Dörenhagen	488,799	5,723,290	277.7	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO029	Beerengrund 25, Dörenhagen	488,785	5,723,270	277.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO030	Beerengrund 27, Dörenhagen	488,777	5,723,246	278.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO031	Beerengrund 31, Dörenhagen	488,771	5,723,203	280.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO032	Beerengrund 33, Dörenhagen	488,756	5,723,183	280.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO033	Ebbinghauser Str. 13, Dörenhagen	488,707	5,723,125	282.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO034	Ebbinghauser Str. 15, Dörenhagen	488,689	5,723,088	283.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO035	Ebbinghauser Str. 15a, Dörenhagen	488,851	5,722,941	287.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO036	Ebbinghauser Str. 17, Dörenhagen	488,880	5,722,913	287.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO037	Ebbinghauser Str. 20a, Dörenhagen	488,671	5,723,052	285.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO038	Eggestr. 15, Dörenhagen	488,863	5,723,916	286.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO039	Eggestr. 16, Dörenhagen	488,905	5,723,811	288.7	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO040	Eggestr. 17, 17a, Dörenhagen	488,907	5,723,865	288.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO041	Eggestr. 25, 25a, Dörenhagen	488,942	5,723,572	291.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO042	Eggestr. 29, Dörenhagen	488,917	5,723,526	290.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO043	Eggestr. 30, 32, Dörenhagen	488,891	5,723,577	290.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO044	Im Kirchenfelde 22, Dörenhagen	488,839	5,724,183	281.6	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO045	Im Kirchenfelde 24, Dörenhagen	488,833	5,724,205	280.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO046	Im Kirchenfelde 26, Dörenhagen	488,838	5,724,228	280.6	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO047	Im Kirchenfelde 30, Dörenhagen	488,837	5,724,273	280.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO048	Im Kirchenfelde 30, Dörenhagen	488,843	5,724,245	280.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO049	Im Kirchenfelde 32, Dörenhagen	488,845	5,724,303	279.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO050	Im Kirchenfelde 34, Dörenhagen	488,842	5,724,325	278.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO051	Kirchborchener Str. 28, Dörenhagen	488,674	5,723,971	278.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO052	Kirchborchener Str. 52, Dörenhagen	488,557	5,724,468	267.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO053	Kirchborchener Str. 54, Dörenhagen	488,579	5,724,521	263.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO054	Kirchborchener Str. 56, Dörenhagen	488,551	5,724,547	260.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO055	Kirchborchener Str. 58,Dörenhagen	488,550	5,724,707	255.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO056	Kirchborchener Str. 60, Dörenhagen	488,532	5,724,724	257.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO057	Kirchborchener Str. 60a, Dörenhagen	488,491	5,724,741	257.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO058	Kirchborchener Str. 62, Dörenhagen	488,455	5,724,759	259.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO059	Kirchborchener Str. 64, Dörenhagen	488,437	5,724,811	262.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO060	Kirchborchener Str. 66, Dörenhagen	488,435	5,724,837	265.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO061	Kirchborchener Str. 68, Dörenhagen	488,430	5,724,861	265.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO062	Kirchborchener Str. 70, Dörenhagen	488,425	5,724,883	265.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO063	Kirchborchener Str. 72, Dörenhagen	488,418	5,724,919	266.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO064	Kirchborchener Str. 74, Dörenhagen	488,405	5,724,972	267.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO065	Kirchborchener Str. 82, Dörenhagen	488,410	5,725,064	270.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO066	Kirchborchener Str. 82, Dörenhagen	488,402	5,725,040	269.6	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO067	Kirchborchener Str. 84, Dörenhagen	488,427	5,725,096	271.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO068	Sebastianstr. 7, Dörenhagen	488,598	5,724,450	269.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO069	Sebastianstr. 45, Dörenhagen	488,838	5,724,433	272.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO070	Sebastianstr. 47, Dörenhagen	488,843	5,724,415	273.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO071	Sebastianstr. 49, Dörenhagen	488,839	5,724,391	275.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO072	Sebastianstr. 51, Dörenhagen	488,838	5,724,368	276.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO073	Sebastianstr. 53, Dörenhagen	488,844	5,724,345	277.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO074	Warburger Str. 2, Dörenhagen	488,789	5,724,933	281.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO075	Warburger Str. 3, Dörenhagen	488,798	5,724,928	282.3	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO076	Warburger Str. 3a, Dörenhagen	488,881	5,724,895	284.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO077	Am Schulberg 1, Grundsteinheim	491,286	5,722,801	260.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO078	Am Schulberg 2, Grundsteinheim	491,309	5,722,793	260.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO079	Am Schulberg 3, Grundsteinheim	491,318	5,722,816	264.2	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO080	Am Schulberg 3a, Grundsteinheim	491,308	5,722,831	267.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO081	Am Schulberg 4, Grundsteinheim	491,325	5,722,784	260.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO082	Am Schulberg 5, Grundsteinheim	491,255	5,722,824	263.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO083	Am Schulberg 6, Grundsteinheim	491,343	5,722,784	262.5	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO084	Am Schulberg 7, Grundsteinheim	491,347	5,722,831	270.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO085	Am Schulberg 8, Grundsteinheim	491,368	5,722,756	256.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0

(Fortsetzung nächste Seite)...

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SHADOW - Hauptergebnis

Berechnung: Dörenhagen GB

...(Fortsetzung von vorheriger Seite)

Nr.	Name	Ost	Nord	Z	Breite	Höhe	Höhe ü.Gr.	Neigung des Fensters	Ausrichtungsmodus	Augenhöhe (ZVI) ü.Gr.
				[m]	[m]	[m]	[m]	[°]		[m]
IO086	Am Schulberg 9, Grundsteinheim	491,375	5,722,834	270.7	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO087	Am Schulberg 10, Grundsteinheim	491,353	5,722,798	265.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO088	Am Schulberg 12, Grundsteinheim	491,374	5,722,798	266.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO089	Am Schulberg 14, Grundsteinheim	491,394	5,722,800	268.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO090	Am Schulberg 15, Grundsteinheim	491,423	5,722,821	271.4	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO091	Am Schulberg 16, Grundsteinheim	491,415	5,722,796	270.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO092	Am Schulberg 26, Grundsteinheim	491,438	5,722,836	273.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO093	Dorfstr. 11, Grundsteinheim	491,336	5,722,672	240.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO094	Dorfstr. 11a, Grundsteinheim	491,302	5,722,692	241.7	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO095	Dorfstr. 13, Grundsteinheim	491,264	5,722,717	245.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO096	Ecke 1, Grundsteinheim	491,297	5,722,579	240.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO097	Ecke 2, Grundsteinheim	491,328	5,722,609	240.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO098	Ecke 3, Grundsteinheim	491,292	5,722,588	240.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO099	Ecke 6, Grundsteinheim	491,291	5,722,635	240.0	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO100	Futterweg 1, Grundsteinheim	491,350	5,722,705	244.9	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO101	Futterweg 3, Grundsteinheim	491,334	5,722,721	247.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO102	Futterweg 4, Grundsteinheim	491,351	5,722,737	250.8	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO103	Futterweg 6, Grundsteinheim	491,298	5,722,761	254.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0
IO104	Futterweg 8, Grundsteinheim	491,269	5,722,788	257.1	0.1	0.1	2.0	0.0	"Gewächshaus-Modus"	2.0

Berechnungsergebnisse

Schattenrezeptor

		astron. max. mögl. Beschattungsdauer			met. wahrsch. Beschattungsdauer
Nr.	Name	Stunden/Jahr	Schattentage/Jahr	Max.Schattendauer/Tag	Stunden/Jahr
		[h/a]	[d/a]	[h/d]	[h/a]
IO001	Dahler Str. 2a, Borchen	44:39	177	0:28	7:57
IO002	Dahler Str. 3, Borchen	66:33	235	0:28	11:20
IO003	Dahler Str. 5, Borchen	69:49	246	0:27	11:13
IO004	Am Bogen 11, Dörenhagen	142:36	294	0:56	34:04
IO005	Am Bogen 18, Dörenhagen	138:43	282	0:56	33:33
IO006	Am Bogen 9, 9a, Dörenhagen	133:47	295	0:56	31:47
IO007	Am Dorfteich 1, Dörenhagen	106:24	262	0:52	23:20
IO008	Am Dorfteich 2, Dörenhagen	104:57	254	0:51	22:36
IO009	Am Dorfteich 4, Dörenhagen	102:06	268	0:50	21:19
IO010	Am Rüenmarkt 4, Dörenhagen	130:13	303	0:57	30:28
IO011	Am Rüenmarkt 9, Dörenhagen	126:43	305	0:55	29:20
IO012	Am Wallgraben 2, Dörenhagen	179:08	322	1:05	41:57
IO013	An d. Trift 23, Dörenhagen	168:27	322	1:02	38:08
IO014	An d. Trift 25, Dörenhagen	174:53	323	1:04	40:12
IO015	An d. Trift 27, Dörenhagen	183:22	320	1:05	42:37
IO016	An d. Trift 30/32, Dörenhagen	194:10	317	1:05	45:19
IO017	Beerengrund 1, Dörenhagen	132:49	271	0:58	32:00
IO018	Beerengrund 3, Dörenhagen	125:08	260	0:55	30:23
IO019	Beerengrund 5, Dörenhagen	121:04	253	0:56	29:34
IO020	Beerengrund 7, Dörenhagen	116:57	246	0:57	28:45
IO021	Beerengrund 9, Dörenhagen	112:41	239	0:58	27:54
IO022	Beerengrund 11, Dörenhagen	109:03	233	0:59	27:14
IO023	Beerengrund 13, Dörenhagen	105:12	229	1:00	26:27
IO024	Beerengrund 15, Dörenhagen	101:53	226	1:00	25:47
IO025	Beerengrund 17, Dörenhagen	97:25	216	1:02	24:54
IO026	Beerengrund 19, Dörenhagen	95:17	212	1:00	24:27
IO027	Beerengrund 21, 21a, Dörenhagen	80:13	210	0:49	20:15
IO028	Beerengrund 23, Dörenhagen	80:18	202	0:48	20:21
IO029	Beerengrund 25, Dörenhagen	79:07	196	0:47	20:08
IO030	Beerengrund 27, Dörenhagen	79:00	191	0:46	20:11
IO031	Beerengrund 31, Dörenhagen	77:55	180	0:38	19:55
IO032	Beerengrund 33, Dörenhagen	77:23	177	0:39	19:53
IO033	Ebbinghauser Str. 13, Dörenhagen	78:03	167	0:42	20:07
IO034	Ebbinghauser Str. 15, Dörenhagen	77:53	163	0:43	20:04
IO035	Ebbinghauser Str. 15a, Dörenhagen	63:55	153	0:46	16:43
IO036	Ebbinghauser Str. 17, Dörenhagen	59:07	152	0:47	15:54
IO037	Ebbinghauser Str. 20a, Dörenhagen	75:34	161	0:44	19:29

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SHADOW - Hauptergebnis

Berechnung: Dörenhagen GB

...(Fortsetzung von vorheriger Seite)

		astron. max. mögl. Beschattungsdauer			met. wahrsch. Beschattungsdauer
Nr.	Name	Stunden/Jahr	Schattentage/Jahr	Max.Schattendauer/Tag	Stunden/Jahr
		[h/a]	[d/a]	[h/d]	[h/a]
IO038	Eggestr. 15, Dörenhagen	172:57	335	1:06	38:54
IO039	Eggestr. 16, Dörenhagen	149:59	341	0:59	32:59
IO040	Eggestr. 17, 17a, Dörenhagen	158:55	334	0:58	35:04
IO041	Eggestr. 25, 25a, Dörenhagen	157:26	292	1:05	37:25
IO042	Eggestr. 29, Dörenhagen	142:01	279	1:00	34:09
IO043	Eggestr. 30, 32, Dörenhagen	150:28	287	1:01	36:07
IO044	Im Kirchenfelde 22, Dörenhagen	164:03	304	1:05	36:26
IO045	Im Kirchenfelde 24, Dörenhagen	158:17	296	0:59	34:30
IO046	Im Kirchenfelde 26, Dörenhagen	160:11	305	1:01	34:04
IO047	Im Kirchenfelde 30, Dörenhagen	156:38	294	1:04	32:07
IO048	Im Kirchenfelde 30, Dörenhagen	160:17	300	1:03	33:38
IO049	Im Kirchenfelde 32, Dörenhagen	159:06	311	1:07	32:09
IO050	Im Kirchenfelde 34, Dörenhagen	162:45	316	1:08	32:42
IO051	Kirchborchener Str. 28, Dörenhagen	141:13	304	0:48	33:26
IO052	Kirchborchener Str. 52, Dörenhagen	112:10	268	0:51	25:30
IO053	Kirchborchener Str. 54, Dörenhagen	111:09	277	0:52	24:45
IO054	Kirchborchener Str. 56, Dörenhagen	100:56	254	0:50	22:14
IO055	Kirchborchener Str. 58,Dörenhagen	75:52	199	0:46	16:52
IO056	Kirchborchener Str. 60, Dörenhagen	73:06	199	0:44	16:04
IO057	Kirchborchener Str. 60a, Dörenhagen	65:29	190	0:42	14:13
IO058	Kirchborchener Str. 62, Dörenhagen	61:48	181	0:40	13:19
IO059	Kirchborchener Str. 64, Dörenhagen	61:00	201	0:39	12:49
IO060	Kirchborchener Str. 66, Dörenhagen	62:04	211	0:39	12:54
IO061	Kirchborchener Str. 68, Dörenhagen	63:00	216	0:38	12:59
IO062	Kirchborchener Str. 70, Dörenhagen	62:28	220	0:38	12:48
IO063	Kirchborchener Str. 72, Dörenhagen	59:01	205	0:37	11:59
IO064	Kirchborchener Str. 74, Dörenhagen	46:05	178	0:30	9:34
IO065	Kirchborchener Str. 82, Dörenhagen	44:21	169	0:29	8:42
IO066	Kirchborchener Str. 82, Dörenhagen	44:29	173	0:28	8:51
IO067	Kirchborchener Str. 84, Dörenhagen	44:46	174	0:29	8:33
IO068	Sebastianstr. 7, Dörenhagen	124:48	266	0:53	28:11
IO069	Sebastianstr. 45, Dörenhagen	162:19	291	1:08	33:25
IO070	Sebastianstr. 47, Dörenhagen	161:11	292	1:08	33:08
IO071	Sebastianstr. 49, Dörenhagen	159:16	290	1:09	32:47
IO072	Sebastianstr. 51, Dörenhagen	168:56	320	1:10	33:37
IO073	Sebastianstr. 53, Dörenhagen	166:33	315	1:09	33:15
IO074	Warburger Str. 2, Dörenhagen	97:00	226	0:51	18:29
IO075	Warburger Str. 3, Dörenhagen	98:35	226	0:52	18:50
IO076	Warburger Str. 3a, Dörenhagen	139:06	289	0:58	25:26
IO077	Am Schulberg 1, Grundsteinheim	54:08	171	0:27	12:40
IO078	Am Schulberg 2, Grundsteinheim	53:15	171	0:27	12:27
IO079	Am Schulberg 3, Grundsteinheim	53:40	174	0:26	12:34
IO080	Am Schulberg 3a, Grundsteinheim	54:59	175	0:27	12:52
IO081	Am Schulberg 4, Grundsteinheim	52:26	169	0:26	12:15
IO082	Am Schulberg 5, Grundsteinheim	26:40	105	0:25	6:29
IO083	Am Schulberg 6, Grundsteinheim	52:03	170	0:26	12:10
IO084	Am Schulberg 7, Grundsteinheim	54:36	179	0:26	12:45
IO085	Am Schulberg 8, Grundsteinheim	50:37	166	0:26	11:48
IO086	Am Schulberg 9, Grundsteinheim	54:20	181	0:26	12:39
IO087	Am Schulberg 10, Grundsteinheim	52:54	173	0:26	12:20
IO088	Am Schulberg 12, Grundsteinheim	52:45	175	0:25	12:17
IO089	Am Schulberg 14, Grundsteinheim	55:41	190	0:25	12:52
IO090	Am Schulberg 15, Grundsteinheim	42:44	164	0:25	9:33
IO091	Am Schulberg 16, Grundsteinheim	38:44	153	0:25	8:41
IO092	Am Schulberg 26, Grundsteinheim	45:06	167	0:25	10:05
IO093	Dorfstr. 11, Grundsteinheim	50:04	171	0:30	10:51
IO094	Dorfstr. 11a, Grundsteinheim	50:32	171	0:30	11:04
IO095	Dorfstr. 13, Grundsteinheim	51:05	170	0:30	11:25
IO096	Ecke 1, Grundsteinheim	58:49	175	0:43	10:35
IO097	Ecke 2, Grundsteinheim	48:34	177	0:24	9:39
IO098	Ecke 3, Grundsteinheim	57:41	177	0:40	10:34
IO099	Ecke 6, Grundsteinheim	56:36	176	0:34	11:26
IO100	Futterweg 1, Grundsteinheim	47:45	155	0:27	11:01
IO101	Futterweg 3, Grundsteinheim	48:56	158	0:26	11:20

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SHADOW - Hauptergebnis

Berechnung: Dörenhagen GB

...(Fortsetzung von vorheriger Seite)

Nr.	Name	astron. max. mögl. Beschattungsdauer Stunden/Jahr [h/a]	Schattentage/Jahr [d/a]	Max.Schattendauer/Tag [h/d]	met. wahrsch. Beschattungsdauer Stunden/Jahr [h/a]
IO102	Futterweg 4, Grundsteinheim	49:48	161	0:26	11:34
IO103	Futterweg 6, Grundsteinheim	51:42	162	0:27	12:02
IO104	Futterweg 8, Grundsteinheim	53:34	165	0:27	12:31

Gesamtdauer Beschattung an Rezeptoren pro WEA

Nr.	Name	Maximal [h/a]	Erwartet [h/a]
B004	MICON M1500 600-150 43.0 !O! NH: 46.0 m (Ges:67.5 m) (309)	0:08	0:01
B008	ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (310)	0:00	0:00
B012	ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (314)	69:59	16:31
B013	ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)	128:04	29:40
B014	ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m) (511)	192:48	47:04
B020	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (320)	0:00	0:00
B039	NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (333)	0:00	0:00
B040	NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (334)	0:00	0:00
B041	ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (335)	0:00	0:00
B042	NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (336)	0:00	0:00
B045	ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (338)	0:00	0:00
B050	ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (340)	114:10	29:30
B062	ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (350)	12:41	2:18
B076	TACKE TW 600 600-200 43.0 !O! NH: 50.0 m (Ges:71.5 m) (363)	0:00	0:00
B077	VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (364)	3:59	0:47
B078	VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (365)	27:36	6:08
B082	NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0 m) (367)	87:28	14:22
B083	ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)	214:50	45:08
B084	ENERCON E-115 EP3 E3 4200 115.7 !O! NH: 149.0 m (Ges:206.9 m) (510)	115:02	23:19
B086	ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (369)	25:43	6:49
B087	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)	65:20	17:24
B093	ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (375)	18:29	1:37
B094	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (376)	0:00	0:00
B115	GE WIND ENERGY GE 1.5s 1500 70.5 !O! NH: 64.7 m (Ges:99.9 m) (389)	0:00	0:00
B116	NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (390)	0:00	0:00
B117	ENERCON E-48 800 48.0 !O! NH: 75.6 m (Ges:99.6 m) (391)	0:00	0:00
B118	ENERCON E-70 E4 2,3 MW 2300 71.0 !O! NH: 64.0 m (Ges:99.5 m) (392)	0:00	0:00
B119	ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (393)	0:00	0:00
B124	NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)	88:34	21:35
B130	ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (401)	0:00	0:00
B132	NORDEX N149/5.X 5700 149.0 !O! NH: 164.0 m (Ges:238.5 m) (513)	0:00	0:00
B142	NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (408)	0:56	0:14
B143	NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (409)	21:22	4:56
B144	VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (410)	0:00	0:00
B145	ENERCON E-101 3050 101.0 !-! NH: 135.4 m (Ges:185.9 m) (411)	0:00	0:00
B150	ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (415)	50:09	11:37
B151	ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (416)	0:00	0:00
B152	ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)	108:07	26:36
B153	ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)	135:55	32:16
B154	ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (419)	0:00	0:00
B155	ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (420)	0:00	0:00
B159	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (424)	0:00	0:00
B171	TACKE TW 600 600-200 43.0 !O! NH: 50.0 m (Ges:71.5 m) (434)	0:00	0:00
B172	NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (435)	12:44	3:03
B173	VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (436)	8:49	1:45
B175	ENERCON E-70 E4 2,3 MW 2300 71.0 !O! NH: 64.0 m (Ges:99.5 m) (437)	0:00	0:00
B178	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)	107:56	23:16
B185	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (443)	0:00	0:00
B186	ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (444)	0:00	0:00
B187	ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (445)	0:00	0:00
B200	ENERCON E-101 3050 101.0 !-! NH: 99.0 m (Ges:149.5 m) (454)	12:45	2:20
B217	TACKE TW 600 600-200 43.0 !O! NH: 60.0 m (Ges:81.5 m) (466)	0:00	0:00
B218	ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (467)	0:00	0:00
B222	ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (469)	5:34	0:36
B223	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)	104:34	25:53
B227	ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (473)	0:00	0:00

(Fortsetzung nächste Seite)...

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SHADOW - Hauptergebnis

Berechnung: Dörenhagen GB

...(Fortsetzung von vorheriger Seite)

Nr.	Name	Maximal [h/a]	Erwartet [h/a]
B249	NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (488)	0:00	0:00
B253	ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)	146:08	27:43
B257	ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (512)	0:00	0:00
B258	ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (491)	0:00	0:00
B263	ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (496)	2:54	0:31
WEA01	ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)	406:43	88:02
WEA02	ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)	302:30	68:35
WEA03	ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)	360:52	78:57

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

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

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
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Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO001 - Dahler Str. 2a, Borchen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:30			08:04		08:47 (WEA01)	07:12		08:00 (B152)	07:02		07:43 (B050)	05:57		20:10 (B143)	05:12			05:08			05:43			06:32		19:42 (B172)	07:21		08:07 (B014)	07:14		08:22 (WEA01)	08:05		
	16:22			17:09	28	09:15 (WEA01)	18:00	11	08:11 (B152)	19:54	19	08:02 (B050)	20:44	8	20:18 (B143)	21:30			21:45			21:14			20:13	6	19:48 (B172)	19:04	26	08:33 (B014)	16:58	19	08:41 (WEA01)	16:18		
2	08:29			08:03		08:47 (WEA01)	07:10		08:01 (B152)	07:00		07:41 (B050)	05:56		20:10 (B143)	05:11			05:09			05:45			06:34		19:42 (B172)	07:22		08:07 (B014)	07:16		08:21 (WEA01)	08:06		
	16:23			17:11	28	09:15 (WEA01)	18:02	9	08:10 (B152)	19:55	21	08:02 (B050)	20:46	10	20:20 (B143)	21:31			21:44			21:13			20:11	4	19:46 (B172)	19:02	24	08:31 (B014)	16:57	21	08:42 (WEA01)	16:17		
3	08:29			08:01		08:48 (WEA01)	07:08		08:03 (B152)	06:57		07:41 (B050)	05:54		20:10 (B143)	05:10			05:09			05:46			06:36		19:41 (B172)	07:24		08:07 (B014)	07:17		08:20 (WEA01)	08:07		
	16:24			17:12	28	09:16 (WEA01)	18:04	5	08:08 (B152)	19:57	21	08:02 (B050)	20:47	11	20:21 (B143)	21:32			21:44			21:11			20:09	2	19:43 (B172)	19:00	23	08:30 (B014)	16:55	23	08:43 (WEA01)	16:16		
4	08:29			08:00		08:48 (WEA01)	07:05			06:55		07:41 (B050)	05:52		20:11 (B143)	05:10			05:10			05:48			06:37			07:26		08:08 (B014)	07:19		08:19 (WEA01)	08:09		
	16:25			17:14	27	09:15 (WEA01)	18:05			19:59	20	08:01 (B050)	20:49	10	20:21 (B143)	21:33			21:44			21:09			20:07			18:58	21	08:29 (B014)	16:53	24	08:43 (WEA01)	16:16		
5	08:29			07:58		08:48 (WEA01)	07:03			06:53		07:41 (B050)	05:50		20:13 (B143)	05:09			05:11			05:49			06:39		07:42 (B050)	07:27		08:10 (B014)	07:21		08:18 (WEA01)	08:10		
	16:26			17:16	27	09:15 (WEA01)	18:07			20:00	19	08:00 (B050)	20:51	7	20:20 (B143)	21:34			21:43			21:08			20:04	10	07:52 (B050)	18:55	18	08:28 (B014)	16:51	26	08:44 (WEA01)	16:15		
6	08:29			07:56		08:48 (WEA01)	07:01			06:51		07:41 (B050)	05:48			05:08			05:12			05:51			06:40		07:39 (B050)	07:29		08:11 (B014)	07:23		08:18 (WEA01)	08:11		
	16:28			17:18	27	09:15 (WEA01)	18:09			20:02	18	07:59 (B050)	20:52			21:35			21:43			21:06			20:02	14	07:53 (B050)	18:53	14	08:25 (B014)	16:49	26	08:44 (WEA01)	16:15		
7	08:28			07:55		08:48 (WEA01)	06:59			06:48		07:42 (B050)	05:46			05:08			05:12			05:52			06:42		07:38 (B050)	07:31		08:14 (B014)	07:24		08:18 (WEA01)	08:13		
	16:29			17:20	26	09:14 (WEA01)	18:11			20:04	16	07:58 (B050)	20:54			21:36			21:42			21:04			20:00	17	07:55 (B050)	18:51	8	08:22 (B014)	16:48	27	08:45 (WEA01)	16:14		
8	08:28			07:53		08:50 (WEA01)	06:57		07:38 (B014)	06:46		07:44 (B050)	05:45			05:07			05:13			05:54			06:44		07:36 (B050)	07:32			07:26		08:18 (WEA01)	08:14		
	16:30			17:22	25	09:15 (WEA01)	18:12	7	07:45 (B014)	20:05	12	07:56 (B050)	20:55			21:37			21:42			21:02			19:57	19	07:55 (B050)	18:48			16:46	27	08:45 (WEA01)	16:14		
9	08:28			07:51		08:50 (WEA01)	06:54		07:34 (B014)	06:44		07:47 (B050)	05:43			05:06			05:14			05:56		20:23 (B143)	06:45		07:36 (B050)	07:34			07:28		08:18 (WEA01)	08:15		
	16:31			17:24	24	09:14 (WEA01)	18:14	14	07:48 (B014)	20:07	6	07:53 (B050)	20:57			21:38			21:41			21:00	6	20:29 (B143)	19:55	19	07:55 (B050)	18:46			16:44	27	08:45 (WEA01)	16:14		
10	08:27			07:50		08:51 (WEA01)	06:52		07:32 (B014)	06:42		19:43 (B172)	05:41			05:06			05:15			05:57		20:21 (B143)	06:47		07:35 (B050)	07:36			07:30		08:18 (WEA01)	08:16		
	16:33			17:25	22	09:13 (WEA01)	18:16	18	07:50 (B014)	20:09	1	19:44 (B172)	20:59			21:38			21:40			20:59	9	20:30 (B143)	19:53	20	07:55 (B050)	18:44			16:43	28	08:46 (WEA01)	16:13		
11	08:27			07:48		08:52 (WEA01)	06:50		07:30 (B014)	06:39		19:43 (B172)	05:39			05:06			05:16			05:59		20:20 (B143)	06:48		07:35 (B050)	07:37			07:32		08:18 (WEA01)	08:17		
	16:34			17:27	19	09:11 (WEA01)	18:18	21	07:51 (B014)	20:10	3	19:46 (B172)	21:00			21:39			21:40			20:57	11	20:31 (B143)	19:51	20	07:55 (B050)	18:42			16:41	28	08:46 (WEA01)	16:13		
12	08:26			07:46		08:54 (WEA01)	06:48		07:29 (B014)	06:37		19:43 (B172)	05:38			05:05			05:17			06:00		20:19 (B143)	06:50		07:34 (B050)	07:39		08:37 (B152)	07:33		08:19 (WEA01)	08:18		
	16:36			17:29	16	09:10 (WEA01)	18:19	24	07:53 (B014)	20:12	5	19:48 (B172)	21:02			21:40			21:39			20:55	9	20:28 (B143)	19:48	20	07:54 (B050)	18:40	5	08:42 (B152)	16:40	27	08:46 (WEA01)	16:13		
13	08:25			07:44		08:56 (WEA01)	06:45		07:28 (B014)	06:35		19:44 (B172)	05:36			05:05			05:18			06:02		20:18 (B143)	06:52		07:34 (B050)	07:41		08:34 (B152)	07:35		08:19 (WEA01)	08:20		
	16:37			17:31	11	09:07 (WEA01)	18:21	24	07:52 (B014)	20:14	6	19:50 (B172)	21:03			21:41			21:38			20:53	9	20:27 (B143)	19:46	20	07:54 (B050)	18:37	9	08:43 (B152)	16:38	26	08:45 (WEA01)	16:13		
14	08:25			07:42		08:21 (B153)	06:43		07:27 (B014)	06:33		19:45 (B172)	05:35			05:05			05:19			06:04		20:18 (B143)	06:53		07:35 (B050)	07:42		08:33 (B152)	07:37		08:20 (WEA01)	08:21		
	16:38			17:33	6	08:27 (B153)	18:23	26	07:53 (B014)	20:15	6	19:51 (B172)	21:05			21:41			21:37			20:51	7	20:25 (B143)	19:44	18	07:53 (B050)	18:35	11	08:44 (B152)	16:37	25	08:45 (WEA01)	16:13		
15	08:24			07:40		08:19 (B153)	06:41		07:27 (B014)	06:31		19:47 (B172)	05:33			05:04			05:20			06:05		20:18 (B143)	06:55		07:35 (B050)	07:44		08:33 (B152)	07:39		08:21 (WEA01)	08:21		
	16:40			17:35	10	08:29 (B153)	18:25	26	07:53 (B014)	20:17	5	19:52 (B172)	21:06			21:42			21:36			20:49	5	20:23 (B143)	19:41	16	07:51 (B050)	18:33	12	08:45 (B152)	16:35	24	08:45 (WEA01)	16:13		
16	08:23			07:38		08:18 (B153)	06:39		07:26 (B014)	06:28		19:53 (B142)	05:31			05:04			05:22			06:07		20:17 (B143)	06:56		07:37 (B050)	07:46		08:33 (B152)	07:40		08:22 (WEA01)	08:22		
	16:42			17:36	12	08:30 (B153)	18:26	26	07:52 (B014)	20:19	1	19:54 (B142)	21:08			21:42			21:35			20:47	4	20:21 (B143)	19:39	13	07:50 (B050)	18:31	12	08:45 (B152)	16:34	23	08:45 (WEA01)	16:13		
17	08:22			07:36		08:17 (B153)	06:36		07:26 (B014)	06:26			05:30			05:04			05:23		21:04 (B004)	06:08		20:18 (B143)	06:58		07:38 (B050)	07:48		08:33 (B152)	07:42		08:23 (WEA01)	08:23		
	16:43			17:38	13	08:30 (B153)	18:28	26	07:52 (B014)	20:20			21:10			21:43			21:34	1	21:05 (B004)	20:45	2	20:20 (B143)	19:37	8	07:46 (B050)	18:29	12	08:45 (B152)	16:32	21	08:44 (WEA01)	16:13		
18	08:21			07:35		08:17 (B153)	06:34		07:26 (B014)	06:24			05:28			05:04			05:24		21:03 (B004)	06:10			07:00			07:49		08:33 (B152)	07:44		08:23 (WEA01)	08:24		
	16:45			17:40	13	08:30 (B153)	18:30	26	07:52 (B014)	20:22			21:11			21:43			21:33	1	21:04 (B004)	20:43			19:34			18:27	10	08:43 (B152)	16:31	20	08:43 (WEA01)	16:13		
19	08:20			07:33		08:17 (B153)	06:32		07:26 (B014)	06:22			05:27			05:04			05:25			06:12			07:01			07:51		08:34 (B152)	07:45		08:24 (WEA01)	08:25		
	16:46			17:42	13	08:30 (B153)	18:31	24	07:50 (B014)	20:24			21:12			21:44			21:32			20:41			19:32			18:24	7	08:41 (B152)	16:30	18	08:42 (WEA01)	16:14		
20	08:19			07:31		08:17 (B153)	06:29		07:26 (B014)	06:20			05:26			05:04			05:27			06:13			07:03			07:53			07:47		08:26 (WEA01)	08:25		
	16:48			17:44	13	08:30 (B153)	18:33	24	07:50 (B014)	20:26			21:14			21:44			21:31			20:39			19:30			18:22			16:29	15	08:41 (WEA01)	16:14		
21	08:18			07:29		08:18 (B153)	06:27		07:27 (B014)	06:18			05:24			05:04			05:28			06:15			07:05		08:19 (B014)	07:55		08:51 (B153)	07:49		08:29 (WEA01)	08:26		
	16:50			17:46	11	08:29 (B153)	18:35	22	07:49 (B014)	20:27			21:15			21:44			21:30			20:37			19:27	9	08:28 (B014)	18:20	6	08:57 (B153)	16:27	10	08:39 (WEA01)	16:14		
22	08:17		08:55 (WEA01)	07:27		08:20 (B153)	06:25		07:29 (B014)	06:16			05:23			05:04			05:29			06:16			07:06		08:15 (B014)	07:56		08:49 (B153)	07:51		08:33 (WEA01)	08:27		
	16:51	8	09:03 (WEA01)	17:47	8	08:28 (B153)	18:37	18	07:47 (B014)	20:29			21:17			21:45			21:29			20:35			19:25	15	08:30 (B014)	18:18	10	08:59 (B153)	16:26	3	08:36 (WEA01)	16:15		
23	08:16		08:52 (WEA01)	07:25			06:23		07:30 (B014)	06:14			05:22			05:05			05:30			06:18			07:08		08:13 (B014)	07:58		08:48 (B153)	07:52			08:27		
	16:53	13	09:05 (WEA01)	17:49			18:38	14	07:44 (B014)	20:31			21:18			21:45			21:27			20:33			19:23	19	08:32 (B014)	18:16	12	09:00 (B153)	16:25			16:15		
24	08:15		08:51 (WEA01)	07:22		08:03 (B152)	06:20		07:33 (B014)	06:11			05:20			05:05			05:32			06:20			07:09		08:11 (B014)	08:00		08:47 (B153)	07:54			08:28		
	16:55	16	09:07 (WEA01)	17:51	7	08:10 (B152)	18:40	8	07:41 (B014)	20:32			21:20			21:45			21:26			20:31			19:21	21	08:32 (B014)	18:14	13	09:00 (B153)	16:24			16:16		
25	08:14		08:51 (WEA01)	07:20		08:02 (B152)	06:18			06:09			05:19			05:05			05:33			06:21			07:11		08:10 (B014)	08:01		08:47 (B153)	07:55			08:28		
	16:56	18	09:09 (WEA01)	17:53	9	08:11 (B152)	18:42			20:34			21:21			21:45			21:25			20:29			19:18	23	08:33 (B014)	18:12	13	09:00 (B153)	16:23			16:16		
26	08:13		08:49 (WEA01)	07:18		08:01 (B152)	07:16			06:07			05:18			05:05			05:35			06:23			07:13		08:09 (B014)	08:03		08:47 (B153)	07:57			08:28		
	16:58	21	09:10 (WEA01)	17:55	11	08:12 (B152)	19:43			20:36			21:22			21:45			21:23			20:26			19:16	25	08:34 (B014)	18:10	13	09:00 (B153)	16:22			16:17		
27	08:11		08:49 (WEA01)	07:16		08:00 (B152)	07:13			06:05		20:11 (B143)	05:17		20:54 (B004)	05:06			05:36			06:24			07:14		08:08 (B014)	08:05		08:47 (B153)	07:59			08:29		
	17:00	22	09:11 (WEA01)	17:56	13	08:13 (B152)	19:45			20:37	1	20:12 (B143)	21:24	1	20:55 (B004)	21:45			21:22			20:24			19:14	26	08:34 (B014)	18:08	12	08:59 (B153)	16:21			16:18		
28	08:10		08:48 (WEA01)	07:14		08:00 (B152)	07:11		07:49 (B050)	06:03		20:10 (B143)	05:16		20:55 (B004)	05:06			05:37			06:26		19:56 (B142)	07:16		08:08 (B014)	08:07		08:48 (B153)	08:00			08:29		
	17:02	24	09:12 (WEA01)	17:58	13	08:13 (B152)	19:47	10	07:59 (B050)	20:39	3	20:13 (B143)	21:25	1	20:56 (B004)	21:45			21:20			20:22	1	19:57 (B142)	19:11	26	08:34 (B014)	18:06	11	08:59 (B153)	16:20			16:18		
29	08:09		08:48 (WEA01)				07:09		07:46 (B050)	06:01		20:09 (B143)	05:15			05:07			05:39			06:28		19:54 (B142)	07:17		08:07 (B014)	07:09		07:50 (B153)	08:02			08:29		
	17:03	25	09:13 (WEA01)				19:48	14	08:00 (B050)	20:41	5	20:14 (B143)	21:26			21:45			21:19			20:20	1	19:55 (B142)	19:09	26	08:33 (B014)	17:04	7	07:57 (B153)	16:19			16:19		
30	08:07		08:47 (WEA01)				07:07		07:44 (B050)	05:59		20:10 (B143)	05:14			05:07			05:40			06:29		19:45 (B172)	07:19		08:07 (B014)	07:10		08:27 (WEA01)	08:03			08:29		
	17:05	26	09:13 (WEA01)				19:50	17	08:01 (B050)	20:42	7	20:17 (B143)	21:27			21:45			21:17			20:18	7	19:52 (B172)	19:07	26	08:33 (B014)	17:02	9	08:36 (WEA01)	16:18			16:20		
31	08:06		08:48 (WEA01)				07:04		07:43 (B050)				05:13						05:42			06:31		19:44 (B172)				07:12		08:24 (WEA01)				08:29		
	17:07	27	09:15 (WEA01)				19:52	19	08:02 (B050)				21:29						21:16			20:15	7	19:51 (B172)				17:00	15	08:39 (WEA01)				16:21		
Sonnenscheinstunden	259						366			414			483			497	502					454			382			333			268			245		
astr.max.mögl.Beschattung		200			460			433			195			48				2				78			442			333			488				
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43				0.39				0.40			0.32			0.29			0.23				
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95				0.95				0.95			0.95			0.95			0.95				
Reduktion Windrichtung		0.58			0.60			0.67			0.71			0.65				0.62				0.66			0.69			0.65			0.58				
Gesamte Reduktion		0.10			0.18			0.18			0.24			0.27				0.23				0.25			0.21			0.18			0.13				
Met.wahrsch.Beschattung		21			85			79			48			13				0				20			93			59			61				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO002 - Dahler Str. 3, Borchen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:30			08:04			09:06 (WEA01)	07:12			07:53 (B014)	07:02			07:56 (B050)	05:57			05:12			20:46 (B078)	05:08			20:51 (B078)	05:43			06:32			07:21			08:24 (B014)	07:14			08:00 (B153)	08:05			08:45 (WEA01)
	16:22			17:09	23		09:29 (WEA01)	18:00	11		08:04 (B014)	19:54	18		08:14 (B050)	20:44			21:30	15		21:01 (B078)	21:45	23		21:14 (B078)	21:14			20:13			19:04	23		08:47 (B014)	16:58	14		08:14 (B153)	16:18	17		09:02 (WEA01)
2	08:29			08:03			09:06 (WEA01)	07:10			07:50 (B014)	07:00			07:57 (B050)	05:56			05:11			20:46 (B078)	05:09			20:51 (B078)	05:45			06:34			07:22			08:22 (B014)	07:16			08:00 (B153)	08:06			08:47 (WEA01)
	16:23			17:11	22		09:28 (WEA01)	18:02	16		08:06 (B014)	19:55	14		08:11 (B050)	20:46			21:31	15		21:01 (B078)	21:44	22		21:13 (B078)	21:13			20:11			19:02	25		08:47 (B014)	16:57	14		08:14 (B153)	16:17	15		09:02 (WEA01)
3	08:29			08:01			09:08 (WEA01)	07:08			07:49 (B014)	06:57			07:59 (B050)	05:54			05:10			20:46 (B078)	05:09			20:51 (B078)	05:46			06:36			07:24			08:22 (B014)	07:17			08:01 (B153)	08:07			08:48 (WEA01)
	16:24			17:12	20		09:28 (WEA01)	18:04	19		08:08 (B014)	19:57	11		19:33 (B172)	20:47			21:32	16		21:02 (B078)	21:44	22		21:13 (B078)	21:11			20:09			19:00	25		08:47 (B014)	16:55	12		08:13 (B153)	16:16	13		09:01 (WEA01)
4	08:29			08:00			09:09 (WEA01)	07:05			07:47 (B014)	06:55			19:32 (B172)	05:52			05:09			20:46 (B078)	05:10			20:52 (B078)	05:48			06:37			07:26			08:21 (B014)	07:19			08:01 (B153)	08:09			08:50 (WEA01)
	16:25			17:14	18		09:27 (WEA01)	18:05	23		08:10 (B014)	19:59	3		19:35 (B172)	20:49			21:33	18		21:04 (B078)	21:44	21		21:13 (B078)	21:09			20:07			18:57	27		08:48 (B014)	16:53	10		08:11 (B153)	16:16	10		09:00 (WEA01)
5	08:29			07:58			09:11 (WEA01)	07:03			07:46 (B014)	06:53			19:32 (B172)	05:50			05:09			20:46 (B078)	05:11			20:52 (B078)	05:49			06:39			07:27			08:21 (B014)	07:21			08:03 (B153)	08:10			08:52 (WEA01)
	16:26			17:16	13		09:24 (WEA01)	18:07	25		08:11 (B014)	20:00	4		19:36 (B172)	20:51			21:34	18		21:04 (B078)	21:43	21		21:13 (B078)	21:08			20:04			18:55	27		08:48 (B014)	16:51	7		08:10 (B153)	16:15	6		08:58 (WEA01)
6	08:29			07:56			09:14 (WEA01)	07:01			07:45 (B014)	06:51			19:33 (B172)	05:48			05:08			20:46 (B078)	05:12			20:52 (B078)	05:51			06:40			07:29			08:20 (B014)	07:23				08:11			
	16:28			17:18	7		09:21 (WEA01)	18:09	25		08:10 (B014)	20:02	5		19:38 (B172)	20:52			21:35	18		21:04 (B078)	21:43	20		21:12 (B078)	21:06			20:02			18:53	27		08:47 (B014)	16:49				16:15			
7	08:28			07:55			08:34 (B153)	06:59			07:44 (B014)	06:48				05:46			05:07			20:46 (B078)	05:12			20:52 (B078)	05:52			06:42		19:32 (B172)	07:31			08:20 (B014)	07:24			08:42 (WEA01)	08:13			
	16:29			17:20	5		08:39 (B153)	18:11	27		08:11 (B014)	20:04				20:54			21:36	20		21:06 (B078)	21:42	20		21:12 (B078)	21:04			20:00	2	19:34 (B172)	18:51	27		08:47 (B014)	16:48	11		08:53 (WEA01)	16:14			
8	08:28			07:53			08:33 (B153)	06:57			07:44 (B014)	06:46				05:45			05:07			20:46 (B078)	05:13			20:53 (B078)	05:54			06:44		19:28 (B172)	07:32			08:20 (B014)	07:26			08:40 (WEA01)	08:14			
	16:30			17:22	9		08:42 (B153)	18:12	27		08:11 (B014)	20:05				20:55			21:37	20		21:06 (B078)	21:42	18		21:11 (B078)	21:02			19:57	5	19:33 (B172)	18:48	27		08:47 (B014)	16:46	16		08:56 (WEA01)	16:14			
9	08:28		09:06 (WEA01)	07:51			08:32 (B153)	06:54			07:43 (B014)	06:44				05:43			05:06			20:46 (B078)	05:14			20:53 (B078)	05:56			06:45		19:27 (B172)	07:34			08:20 (B014)	07:28			08:38 (WEA01)	08:15			
	16:31	8	09:14 (WEA01)	17:23	11		08:43 (B153)	18:14	27		08:10 (B014)	20:07				20:57			21:38	21		21:07 (B078)	21:41	18		21:11 (B078)	21:00			19:55	4	19:31 (B172)	18:46	25		08:45 (B014)	16:44	19		08:57 (WEA01)	16:14			
10	08:27		09:06 (WEA01)	07:50			08:31 (B153)	06:52			07:43 (B014)	06:42				05:41			05:06			20:47 (B078)	05:15			20:53 (B078)	05:57			06:47		07:54 (B050)	07:36			08:21 (B014)	07:30			08:37 (WEA01)	08:16			
	16:33	11	09:17 (WEA01)	17:25	13		08:44 (B153)	18:16	27		08:10 (B014)	20:09				20:59			21:38	21		21:08 (B078)	21:40	17		21:10 (B078)	20:59			19:53	9	19:28 (B172)	18:44	24		08:45 (B014)	16:43	22		08:59 (WEA01)	16:13			
11	08:27		09:05 (WEA01)	07:48			08:30 (B153)	06:50			07:43 (B014)	06:39				05:39			05:06			20:46 (B078)	05:16			20:54 (B078)	05:59			06:48		07:51 (B050)	07:37			08:21 (B014)	07:32			08:37 (WEA01)	08:17			
	16:34	13	09:18 (WEA01)	17:27	14		08:44 (B153)	18:18	27		08:10 (B014)	20:10				21:00			21:39	22		21:08 (B078)	21:40	16		21:10 (B078)	20:57			19:51	13	19:26 (B172)	18:42	23		08:44 (B014)	16:41	23		09:00 (WEA01)	16:13			
12	08:26		09:04 (WEA01)	07:46			08:30 (B153)	06:48			07:44 (B014)	06:37				05:38			05:05			20:47 (B078)	05:17			20:54 (B078)	06:00			06:50		07:48 (B050)	07:39			08:23 (B014)	07:33			08:36 (WEA01)	08:18			
	16:36	16	09:20 (WEA01)	17:29	14		08:44 (B153)	18:19	25		08:09 (B014)	20:12				21:02			21:40	22		21:09 (B078)	21:39	15		21:09 (B078)	20:55			19:48	16	08:04 (B050)	18:40	20		08:43 (B014)	16:40	25		09:01 (WEA01)	16:13			
13	08:25		09:03 (WEA01)	07:44			08:31 (B153)	06:45			07:44 (B014)	06:35				05:36			05:05			20:47 (B078)	05:18			20:54 (B078)	06:02			06:52		07:47 (B050)	07:41			08:23 (B014)	07:35			08:36 (WEA01)	08:20			
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15	08:24		09:02 (WEA01)	07:40			08:32 (B153)	06:41			07:46 (B014)	06:31				05:33			05:04			20:48 (B078)	05:20			20:55 (B078)	06:05			06:55		07:45 (B050)	07:44				07:39			08:36 (WEA01)	08:21			
	16:40	21	09:23 (WEA01)	17:35	10		08:42 (B153)	18:25	20		08:06 (B014)	20:17				21:06			21:42	24		21:12 (B078)	21:36	12		21:07 (B078)	20:49			19:41	21	08:06 (B050)	18:33				16:35	27		09:03 (WEA01)	16:13			
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	16:42	22	09:24 (WEA01)	17:36	7		08:41 (B153)	18:26	17		08:03 (B014)	20:19				21:08			21:42	24		21:12 (B078)	21:35	10		21:06 (B078)	20:47			19:39	21	08:06 (B050)	18:31				16:34	27		09:03 (WEA01)	16:13			
17	08:22		09:01 (WEA01)	07:36			08:19 (B153)	06:36			07:49 (B014)	06:26			19:55 (B143)	05:30			05:04			20:49 (B078)	05:23			20:56 (B078)	06:08			06:58		07:44 (B050)	07:48				07:42			08:36 (WEA01)	08:23			
	16:43	24	09:25 (WEA01)	17:38	6		08:25 (B152)	18:28	11		08:00 (B014)	20:20	1		19:56 (B143)	21:10			21:43	24		21:13 (B078)	21:34	9		21:05 (B078)	20:45			19:37	21	08:05 (B050)	18:29				16:32	28		09:04 (WEA01)	16:13			
18	08:21		09:01 (WEA01)	07:35			08:17 (B152)	06:34				06:24			19:55 (B143)	05:28			05:04			20:49 (B078)	05:24			20:57 (B078)	06:10			07:00		07:44 (B050)	07:49				07:44			08:35 (WEA01)	08:24			
	16:45	25	09:26 (WEA01)	17:40	10		08:27 (B152)	18:30				20:22	2		19:57 (B143)	21:11			21:43	24		21:13 (B078)	21:33	7		21:04 (B078)	20:43			19:34	21	08:05 (B050)	18:27				16:31	28		09:03 (WEA01)	16:13			
19	08:20		09:01 (WEA01)	07:33			08:16 (B152)	06:32				06:22			19:54 (B143)	05:27			05:04			20:49 (B078)	05:25			20:57 (B078)	06:11			07:01		07:44 (B050)	07:51			08:49 (B152)	07:45			08:36 (WEA01)	08:25			
	16:46	26	09:27 (WEA01)	17:42	12		08:28 (B152)	18:31				20:24	5		19:59 (B143)	21:12			21:44	24		21:13 (B078)	21:32	6		21:03 (B078)	20:41			19:32	20	08:04 (B050)	18:24	7		08:56 (B152)	16:30	28		09:04 (WEA01)	16:14			
20	08:19		09:01 (WEA01)	07:31			08:16 (B152)	06:29				06:20			19:54 (B143)	05:26			05:04			20:49 (B078)	05:27			20:59 (B078)	06:13			07:03		07:45 (B050)	07:53			08:47 (B152)	07:47			08:36 (WEA01)	08:25			
	16:48	27	09:28 (WEA01)	17:44	12		08:28 (B152)	18:33				20:26	7		20:01 (B143)	21:14			21:44	25		21:14 (B078)	21:31	3		21:02 (B078)	20:39			19:30	18	08:03 (B050)	18:22	10		08:57 (B152)	16:29	28		09:04 (WEA01)	16:14			
21	08:18		09:02 (WEA01)	07:29			08:16 (B152)	06:27				06:18			19:55 (B143)	05:24			05:04			20:49 (B078)	05:28			21:00 (B078)	06:15	20:03 (B143)	07:05			07:46 (B050)	07:54			08:47 (B152)	07:49			08:37 (WEA01)	08:26			
	16:50	26	09:28 (WEA01)	17:46	12		08:28 (B152)	18:35				20:27	7		20:02 (B143)	21:15			21:44	25		21:14 (B078)	21:30	1		21:01 (B078)	20:37	7	20:10 (B143)	19:27	16	08:02 (B050)	18:20	11		08:58 (B152)	16:27	27		09:04 (WEA01)	16:14			
22	08:17		09:02 (WEA01)	07:27			08:16 (B152)	06:25		07:04 (B050)		06:16			19:55 (B143)	05:23			05:04			20:49 (B078)	05:29				06:16	20:00 (B143)	07:06			07:46 (B050)	07:56			08:46 (B152)	07:51			08:37 (WEA01)	08:27			
	16:51	27	09:29 (WEA01)	17:47	12		08:28 (B152)	18:37	9	07:13 (B050)		20:29	9		20:04 (B143)	21:17			21:45	25		21:14 (B078)	21:29				20:35	9	20:09 (B143)	19:25	13	07:59 (B050)	18:18	13		08:59 (B152)	16:26	27		09:04 (WEA01)	16:15			
23	08:16		09:01 (WEA01)	07:25			08:17 (B152)	06:23		07:00 (B050)		06:14			19:57 (B143)	05:22			05:05			20:49 (B078)	05:30				06:18	20:00 (B143)	07:08			07:49 (B050)	07:58			08:46 (B152)	07:52			08:38 (WEA01)	08:27			
	16:53	28	09:29 (WEA01)	17:49	10		08:27 (B152)	18:38	14	07:14 (B050)		20:31	8		20:05 (B143)	21:18			21:45	25		21:14 (B078)	21:27				20:33	8	20:08 (B143)	19:23	8	07:57 (B050)	18:16	13		08:59 (B152)	16:25	27		09:05 (WEA01)	16:15			
24	08:15		09:02 (WEA01)	07:22			08:17 (B152)	06:20		06:59 (B050)		06:11			20:00 (B143)	05:20	20:50 (B078)		05:05			20:50 (B078)	05:32				06:20	19:58 (B143)	07:09						08:00			08:46 (B152)	07:54			08:38 (WEA01)	08:28			
	16:55	28	09:30 (WEA01)	17:51	8		08:25 (B152)	18:40	17	07:16 (B050)		20:32	1		20:01 (B143)	21:20	1	20:51 (B078)	21:45	25		21:15 (B078)	21:26				20:31	7	20:05 (B143)	19:21						18:14	11		08:57 (B152)	16:24	26		09:04 (WEA01)	16:16			
25	08:14		09:02 (WEA01)	07:20						06:58 (B050)		06:09				05:19	20:49 (B078)		05:05			20:50 (B078)	05:33				06:21	19:58 (B143)	07:11						08:01			08:46 (B152)	07:55			08:39 (WEA01)	08:28			
	16:56	28	09:30 (WEA01)	17:53						18:42	19	07:17 (B050)				20:34	21:21	3	20:52 (B078)	21:45	24	21:14 (B078)	21:25				20:29	5	20:03 (B143)	19:18						18:12	11		08:57 (B152)	16:23	25		09:04 (WEA01)	16:16			
26	08:13		09:02 (WEA01)	07:18						07:16		07:56 (B050)				06:07	20:48 (B078)		05:05			20:50 (B078)	05:35				06:23	19:57 (B143)	07:13						08:03			08:48 (B152)	07:57			08:40 (WEA01)	08:28			
	16:58	28	09:30 (WEA01)	17:55						19:43	20	08:16 (B050)				20:36	21:22	6	20:54 (B078)	21:45	24	21:14 (B078)	21:23				20:26	4	20:01 (B143)	19:16						18:10	7		08:55 (B152)	16:22	24		09:04 (WEA01)	16:17			
27	08:11		09:03 (WEA01)	07:16						07:13		07:56 (B050)				06:05	20:48 (B078)		05:06			20:51 (B078)	05:36				06:24	19:58 (B143)	07:14						08:05			08:51 (B152)	07:59			08:40 (WEA01)	08:29			
	17:00	28	09:31 (WEA01)	17:56						19:45	21	08:17 (B050)				20:37	21:24	7	20:55 (B078)	21:45	24	21:15 (B078)	21:22				20:24	1	19:59 (B143)	19:14						18:08	6		09:09 (B153)	16:21	23		09:03 (WEA01)	16:18			
28	08:10		09:03 (WEA01)	07:14						07:11		07:56 (B050)				06:03	20:47 (B078)		05:06			20:50 (B078)	05:37				06:26			19:11						08:07			09:02 (B153)	16:20			08:41 (WEA01)	08:29			
	17:02	27	09:30 (WEA01)	17:58						19:47	21	08:17 (B050)				20:39	21:25	9	20:56 (B078)	21:45	24	21:14 (B078)	21:20				20:28			19:14						08:06	9		09:11 (B153)	16:20	22		09:03 (WEA01)	16:18			
29	08:09		09:04 (WEA01)							07:09		07:55 (B050)				06:01	20:47 (B078)		05:07			20:51 (B078)	05:39				06:28			17:16						08:27 (B014)	07:09			08:01 (B153)	08:02			08:43 (WEA01)	08:29			
	17:03	27	09:31 (WEA01)							19:48	21	08:16 (B050)				20:41	21:26	10	20:57 (B078)	21:45	24	21:15 (B078)	21:19				20:20			19:09	17	08:44 (B014)	17:04	12		08:13 (B153)	16:19	20		09:03 (WEA01)	16:19			
30	08:07		09:04 (WEA01)							07:07		07:55 (B050)				05:59	20:46 (B078)		05:07			20:51 (B078)	05:40				06:29			07:19		08:25 (B014)	07:10			08:00 (B153)	08:03			08:43 (WEA01)	08:29			
	17:05	26	09:30 (WEA01)							19:46	20	08:15 (B050)				20:42	21:27	12	20:58 (B078)	21:45	23	21:14 (B078)	21:17				20:18			19:07	21	08:46 (B014)	17:02	13		08:13 (B153)	16:18	19		09:02 (WEA01)	16:20			
31	08:06		09:05 (WEA01)							07:04		07:56 (B050)					20:46 (B078)		05:13				05:42				06:31									07:12			08:00 (B153)				08:29			
	17:07	25	09:30 (WEA01)							19:52	19	08:15 (B050)							21:29	13	20:59 (B078)						20:15									17:00	14	08:14 (B153)				16:21			
Sonnenscheinstunden	259			277			366			414			483			497			502			454			382			333			268			245		
astr.max.mögl.Beschattung	529			293			555			95			61			660			308			41			294			465			631			61		
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.55			0.60			0.67			0.69			0.61			0.61			0.61			0.67			0.70			0.65			0.56			0.55		
Gesamte Reduktion	0.10			0.18			0.18			0.24			0.25			0.20			0.23			0.25			0.21			0.18			0.12			0.09		
Met.wahrsch.Beschattung	53			54			101			23			15			130			70			10			62			83			76			5		

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO003 - Dahler Str. 5, Borchen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:30		09:18 (WEA01)	08:04		08:53 (B153)	07:12		08:19 (B014)	07:02		19:26 (B143)	05:57		19:48 (B078)	05:12		20:57 (B173)	05:08		21:00 (B173)	05:43		06:32			07:21		08:07 (B050)	07:14			08:05		09:05 (WEA01)
	16:22	26	09:44 (WEA01)	17:09	12	09:05 (B153)	18:00	17	08:36 (B014)	19:54	5	19:31 (B143)	20:44	21	20:09 (B078)	21:30	4	21:01 (B077)	21:45	14	21:14 (B077)	21:14		20:13			19:04	21	08:28 (B050)	16:58			16:18	25	09:30 (WEA01)
2	08:29		09:19 (WEA01)	08:03		08:53 (B153)	07:10		08:22 (B014)	07:00		19:26 (B143)	05:56		19:49 (B078)	05:11		20:57 (B173)	05:09		20:59 (B173)	05:45		06:34			07:22		08:06 (B050)	07:16			08:06		09:06 (WEA01)
	16:23	26	09:45 (WEA01)	17:11	11	09:04 (B153)	18:02	12	08:34 (B014)	19:55	6	19:32 (B143)	20:46	18	20:07 (B078)	21:31	4	21:01 (B077)	21:44	14	21:13 (B077)	21:13		20:11			19:02	21	08:27 (B050)	16:57			16:17	25	09:31 (WEA01)
3	08:29		09:19 (WEA01)	08:01		08:55 (B153)	07:08			06:57		19:26 (B143)	05:54		19:51 (B078)	05:10		20:56 (B173)	05:09		21:00 (B173)	05:46		06:36			07:24		08:07 (B050)	07:17			08:07		09:06 (WEA01)
	16:24	27	09:46 (WEA01)	17:12	9	09:04 (B153)	18:04			19:57	7	19:33 (B143)	20:47	14	20:05 (B078)	21:32	6	21:02 (B077)	21:44	13	21:13 (B077)	21:11		20:09			19:00	19	08:26 (B050)	16:55			16:16	25	09:31 (WEA01)
4	08:29		09:20 (WEA01)	08:00		08:56 (B153)	07:05			06:55		19:26 (B143)	05:52		19:53 (B078)	05:09		20:56 (B173)	05:10		21:01 (B173)	05:48		06:37			07:26		08:07 (B050)	07:19			08:09		09:06 (WEA01)
	16:25	26	09:46 (WEA01)	17:14	6	09:02 (B153)	18:05			19:59	7	19:35 (B143)	20:49	10	20:03 (B078)	21:33	8	21:04 (B077)	21:44	12	21:13 (B077)	21:09		20:07			18:57	19	08:26 (B050)	16:53			16:16	26	09:32 (WEA01)
5	08:29		09:20 (WEA01)	07:58			07:03			06:53		19:30 (B143)	05:50			05:09		20:56 (B173)	05:11		21:01 (B173)	05:49		06:39			07:27		08:08 (B050)	07:21			08:10		09:06 (WEA01)
	16:26	26	09:46 (WEA01)	17:16			18:07			20:00	2	19:32 (B143)	20:51			21:34	8	21:04 (B077)	21:43	12	21:13 (B077)	21:08		20:04			18:55	17	08:25 (B050)	16:51			16:15	26	09:32 (WEA01)
6	08:29		09:21 (WEA01)	07:56			07:01			06:51			05:48			05:08		20:55 (B173)	05:11		21:01 (B173)	05:51		06:40			07:29		08:09 (B050)	07:23			08:11		09:06 (WEA01)
	16:28	26	09:47 (WEA01)	17:18			18:09			20:02			20:52			21:35	9	21:04 (B077)	21:43	11	21:12 (B077)	21:06		20:02			18:53	13	08:22 (B050)	16:49			16:15	27	09:33 (WEA01)
7	08:28		09:21 (WEA01)	07:55			06:59			06:48			05:46			05:07		20:55 (B173)	05:12		21:01 (B173)	05:52		06:42			07:31		08:12 (B050)	07:24			08:13		09:07 (WEA01)
	16:29	26	09:47 (WEA01)	17:20			18:11			20:04			20:54			21:36	11	21:06 (B077)	21:42	11	21:12 (B077)	21:04		20:00			18:51	7	08:19 (B050)	16:48			16:14	27	09:34 (WEA01)
8	08:28		09:22 (WEA01)	07:53			06:57		07:36 (B050)	06:46			05:45			05:07		20:55 (B173)	05:13		21:02 (B173)	05:54		06:44			07:32			07:26		08:27 (B153)	08:14		09:07 (WEA01)
	16:30	26	09:48 (WEA01)	17:22			18:12	7	07:43 (B050)	20:05			20:55			21:37	11	21:06 (B077)	21:42	9	21:11 (B077)	21:02		19:57			18:48			16:46	4	08:31 (B153)	16:14	27	09:34 (WEA01)
9	08:28		09:22 (WEA01)	07:51			06:54		07:32 (B050)	06:44			05:43			05:06		20:55 (B173)	05:14		21:03 (B173)	05:56		06:45	19:23 (B143)	07:34				07:28		08:25 (B153)	08:15		09:07 (WEA01)
	16:31	26	09:48 (WEA01)	17:23			18:14	13	07:45 (B050)	20:07			20:57			21:38	12	21:07 (B077)	21:41	8	21:11 (B077)	21:00		19:55	19:29 (B143)	18:46				16:44	8	08:33 (B153)	16:14	27	09:34 (WEA01)
10	08:27		09:23 (WEA01)	07:50			06:52		07:30 (B050)	06:42			05:41			05:06		20:56 (B173)	05:15		21:03 (B173)	05:57			19:20 (B143)	07:36				07:30		08:24 (B153)	08:16		09:08 (WEA01)
	16:33	26	09:49 (WEA01)	17:25			18:16	17	07:47 (B050)	20:09			20:59			21:38	12	21:08 (B077)	21:40	7	21:10 (B077)	20:59	8	20:03 (B078)	06:47					16:43	11	08:35 (B153)	16:13	26	09:34 (WEA01)
11	08:27		09:23 (WEA01)	07:48			06:50		07:29 (B050)	06:39			05:39			05:06		20:55 (B173)	05:16		21:04 (B173)	05:59		20:00 (B078)	06:48		19:19 (B143)	07:37			07:32		08:24 (B153)	08:17		09:09 (WEA01)
	16:34	26	09:49 (WEA01)	17:27			18:18	19	07:48 (B050)	20:10			21:00			21:39	13	21:08 (B077)	21:40	6	21:10 (B077)	20:57	14	20:14 (B078)	19:51	7	19:26 (B143)	18:42			16:41	12	08:36 (B153)	16:13	26	09:35 (WEA01)
12	08:26		09:23 (WEA01)	07:46			06:48		07:29 (B050)	06:37			05:38			05:05		20:55 (B173)	05:17		21:05 (B173)	06:00		19:58 (B078)	06:50		19:18 (B143)	07:39			07:33		08:23 (B153)	08:18		09:09 (WEA01)
	16:36	26	09:49 (WEA01)	17:29			18:19	19	07:48 (B050)	20:12			21:02			21:40	14	21:09 (B077)	21:39	4	21:09 (B077)	20:55	17	20:15 (B078)	19:48	5	19:23 (B143)	18:40			16:40	13	08:36 (B153)	16:13	27	09:36 (WEA01)
13	08:25		09:24 (WEA01)	07:44		08:28 (B014)	06:46		07:27 (B050)	06:35			05:36			05:05		20:56 (B173)	05:18		21:05 (B173)	06:02		19:57 (B078)	06:52		19:18 (B143)	07:41		08:55 (B014)	07:35		08:24 (B153)	08:20		09:10 (WEA01)
	16:37	25	09:49 (WEA01)	17:31	4	08:32 (B014)	18:21	21	07:48 (B050)	20:14			21:03			21:41	14	21:10 (B077)	21:38	3	21:08 (B173)	20:53	20	20:17 (B078)	19:46	3	19:21 (B143)	18:37	12	09:07 (B014)	16:38	13	08:37 (B153)	16:13	26	09:36 (WEA01)
14	08:25		09:24 (WEA01)	07:42		08:23 (B014)	06:43		07:27 (B050)	06:33			05:34			05:05		20:56 (B173)	05:19		21:06 (B173)	06:03		19:55 (B078)	06:53		19:17 (B143)	07:42		08:53 (B014)	07:37		08:24 (B153)	08:21		09:10 (WEA01)
	16:38	24	09:48 (WEA01)	17:33	13	08:36 (B014)	18:23	21	07:48 (B050)	20:15			21:05			21:41	15	21:11 (B077)	21:37	2	21:08 (B173)	20:51	22	20:17 (B078)	19:44	1	19:18 (B143)	18:35	16	09:09 (B014)	16:37	13	08:37 (B153)	16:13	26	09:36 (WEA01)
15	08:24		09:25 (WEA01)	07:40		08:21 (B014)	06:41		07:27 (B050)	06:31			05:33			05:04		20:56 (B173)	05:20			06:05		19:55 (B078)	06:55			07:44		08:51 (B014)	07:39		08:24 (B153)	08:21		09:11 (WEA01)
	16:40	23	09:48 (WEA01)	17:35	17	08:38 (B014)	18:25	21	07:48 (B050)	20:17			21:06			21:42	16	21:12 (B077)	21:36			20:49	23	20:18 (B078)	19:41			18:33	20	09:11 (B014)	16:35	13	08:37 (B153)	16:13	26	09:37 (WEA01)
16	08:23		09:26 (WEA01)	07:38		08:20 (B014)	06:39		07:26 (B050)	06:28			05:31			05:04		20:56 (B173)	05:22			06:07		19:54 (B078)	06:56			07:46		08:50 (B014)	07:40		08:25 (B153)	08:22		09:11 (WEA01)
	16:42	22	09:48 (WEA01)	17:36	20	08:40 (B014)	18:26	21	07:47 (B050)	20:19			21:08			21:42	16	21:12 (B077)	21:35			20:47	24	20:18 (B078)	19:39			18:31	22	09:12 (B014)	16:34	12	08:37 (B153)	16:13	26	09:37 (WEA01)
17	08:22		09:27 (WEA01)	07:36		08:19 (B014)	06:36		07:27 (B050)	06:26		19:52 (B078)	05:30			05:04		20:56 (B173)	05:23			06:08		19:53 (B078)	06:58			07:48		08:49 (B014)	07:42		08:26 (B153)	08:23		09:11 (WEA01)
	16:43	21	09:48 (WEA01)	17:38	22	08:41 (B014)	18:28	19	07:46 (B050)	20:20	4	19:56 (B078)	21:10			21:43	16	21:12 (B077)	21:34			20:45	26	20:19 (B078)	19:37			18:29	24	09:13 (B014)	16:32	10	08:36 (B153)	16:13	26	09:37 (WEA01)
18	08:21		09:28 (WEA01)	07:35		08:18 (B014)	06:34		07:26 (B050)	06:24		19:51 (B078)	05:28			05:04		20:57 (B173)	05:24			06:10		19:52 (B078)	07:00			07:49		08:48 (B014)	07:44		08:26 (B153)	08:24		09:12 (WEA01)
	16:45	20	09:48 (WEA01)	17:40	24	08:42 (B014)	18:30	18	07:46 (B050)	20:22	6	19:57 (B078)	21:11			21:43	16	21:13 (B077)	21:33			20:43	25	20:17 (B078)	19:34			18:27	25	09:13 (B014)	16:31	9	08:35 (B153)	16:13	26	09:38 (WEA01)
19	08:20		09:29 (WEA01)	07:33		08:17 (B014)	06:32		07:26 (B050)	06:22		19:49 (B078)	05:27			05:04		20:57 (B173)	05:25			06:11		19:52 (B078)	07:01			07:51		08:47 (B014)	07:45		08:28 (B153)	08:25		09:13 (WEA01)
	16:46	18	09:47 (WEA01)	17:42	25	08:42 (B014)	18:31	17	08:08 (B172)	20:24	10	19:59 (B078)	21:13			21:44	16	21:13 (B077)	21:32			20:41	24	20:16 (B078)	19:32			18:24	26	09:13 (B014)	16:30	6	08:34 (B153)	16:14	25	09:38 (WEA01)
20	08:19		09:31 (WEA01)	07:31		08:17 (B014)	06:29		07:30 (B050)	06:20		19:48 (B078)	05:26			05:04		20:57 (B173)	05:27			06:13		19:52 (B078)	07:03			07:53		08:47 (B014)	07:47			08:25		09:13 (WEA01)
	16:48	16	09:47 (WEA01)	17:44	26	08:43 (B014)	18:33	14	08:10 (B172)	20:26	13	20:01 (B078)	21:14			21:44	17	21:14 (B077)	21:31			20:39	21	20:13 (B078)	19:30			18:22	26	09:13 (B014)	16:29			16:14	26	09:39 (WEA01)
21	08:18		09:33 (WEA01)	07:29		08:17 (B014)	06:27		07:33 (B050)	06:18		19:48 (B078)	05:24			05:04		20:57 (B173)	05:28			06:15		19:52 (B078)	07:05			07:54		08:47 (B014)	07:49		09:12 (WEA01)	08:26		09:13 (WEA01)
	16:50	13	09:46 (WEA01)	17:46	26	08:43 (B014)	18:35	8	18:12 (B172)	20:27	14	20:02 (B078)	21:15			21:44	17	21:14 (B077)	21:30			20:37	20	20:12 (B078)	19:27			18:20	27	09:14 (B014)	16:27	6	09:18 (WEA01)	16:14	26	09:39 (WEA01)
22	08:17		09:35 (WEA01)	07:27		08:16 (B014)	06:25			06:16		19:47 (B078)	05:23			05:04		20:57 (B173)	05:29			06:16		19:51 (B078)	07:06			07:56		08:47 (B014)	07:51		09:09 (WEA01)	08:27		09:14 (WEA01)
	16:51	9	09:44 (WEA01)	17:47	27	08:43 (B014)	18:37			20:29	17	20:04 (B078)	21:17			21:45	17	21:14 (B077)	21:29			20:35	18	20:09 (B078)	19:25			18:18	27	09:14 (B014)	16:26	12	09:21 (WEA01)	16:15	26	09:40 (WEA01)
23	08:16			07:25		08:17 (B014)	06:23			06:14		19:46 (B078)	05:22			05:05		20:57 (B173)	05:30			06:18		19:52 (B078)	07:08		18:56 (B172)	07:58		08:47 (B014)	07:52		09:08 (WEA01)	08:27		09:14 (WEA01)
	16:53			17:49	26	08:43 (B014)	18:38			20:31	19	20:05 (B078)	21:18			21:45	17	21:14 (B077)	21:27			20:33	16	20:08 (B078)	19:23	2	18:58 (B172)	18:16	26	09:13 (B014)	16:25	15	09:23 (WEA01)	16:15	26	09:40 (WEA01)
24	08:15		08:56 (B153)	07:22		08:16 (B014)	06:20			06:11		19:46 (B078)	05:20			05:05		20:58 (B173)	05:32			06:20		19:52 (B078)	07:09		08:16 (B050)	08:00		08:47 (B014)	07:54		09:07 (WEA01)	08:28		09:15 (WEA01)
	16:55	2	08:58 (B153)	17:51	26	08:42 (B014)	18:40			20:32	21	20:07 (B078)	21:20			21:45	17	21:15 (B077)	21:26			20:31	13	20:05 (B078)	19:21	9	18:55 (B172)	18:14	25	09:12 (B014)	16:24	17	09:24 (WEA01)	16:16	26	09:41 (WEA01)
25	08:14		08:54 (B153)	07:20		08:16 (B014)	06:18			06:09		19:46 (B078)	05:19			05:05		20:58 (B173)	05:33			06:21		19:53 (B078)	07:11		08:13 (B050)	08:01		08:47 (B014)	07:55		09:06 (WEA01)	08:28		09:15 (WEA01)
	16:56	7	09:01 (B153)	17:53	25	08:41 (B014)	18:42			20:34	23	20:09 (B078)	21:21			21:45	16	21:14 (B077)	21:25			20:29	10	20:03 (B078)	19:18	15	18:53 (B172)	18:12	24	09:11 (B014)	16:23	19	09:25 (WEA01)	16:16	26	09:41 (WEA01)
26	08:13		08:53 (B153)	07:18		08:17 (B014)	07:16			06:07		19:46 (B078)	05:18			05:05		20:58 (B173)	05:35			06:23		19:53 (B078)	07:13		08:11 (B050)	08:03		08:48 (B014)	07:57		09:06 (WEA01)	08:28		09:16 (WEA01)
	16:58	9	09:02 (B153)	17:55	24	08:41 (B014)	19:43			20:36	24	20:10 (B078)	21:22			21:45	16	21:14 (B077)	21:23			20:26	8	20:01 (B078)	19:16	17	18:51 (B172)	18:10	23	09:11 (B014)	16:22	20	09:26 (WEA01)	16:17	25	09:41 (WEA01)
27	08:11		08:52 (B153)	07:16		08:18 (B014)	07:13			06:05		19:46 (B078)	05:17			05:06		20:59 (B173)	05:36			06:24		19:54 (B078)	07:14		08:09 (B050)	08:05		08:49 (B014)	07:59		09:05 (WEA01)	08:29		09:16 (WEA01)
	17:00	12	09:04 (B153)	17:56	22	08:40 (B014)	19:45			20:37	26	20:12 (B078)	21:24			21:45	16	21:15 (B077)	21:22			20:24	5	19:59 (B078)	19:14	18	08:27 (B050)	18:08	21	09:10 (B014)	16:21	22	09:27 (WEA01)	16:18	26	09:42 (WEA01)
28	08:10		08:52 (B153)	07:14		08:19 (B014)	07:11			06:03		19:46 (B078)	05:16			05:06		20:58 (B173)	05:37			06:26		19:55 (B078)	07:16		08:08 (B050)	08:07		08:50 (B014)	08:00		09:05 (WEA01)	08:29		09:16 (WEA01)
	17:02	12	09:04 (B153)	17:58	20	08:39 (B014)	19:47			20:39	25	20:11 (B078)	21:25			21:45	16	21:14 (B077)	21:20			20:22	2	19:57 (B078)	19:11	20	08:28 (B050)	18:06	18	09:08 (B014)	16:20	23	09:28 (WEA01)	16:18	26	09:42 (WEA01)
29	08:09		08:52 (B153)				07:09			06:01		19:46 (B078)	05:15			05:07		20:59 (B173)	05:39			06:28			07:17		08:07 (B050)	07:09			07:52 (B014)	08:02		09:05 (WEA01)	08:29		09:17 (WEA01)
	17:03	13	09:05 (B153)				19:48			20:41	24	20:10 (B078)	21:26			21:45	16	21:15 (B077)	21:19			20:20			19:09	21	08:28 (B050)	17:04	15	08:07 (B014)	16:19	24	09:29 (WEA01)	16:19	26	09:43 (WEA01)
30	08:07		08:52 (B153)				07:07			05:59		19:48 (B078)	05:14			05:07		20:59 (B173)	05:40			06:29			07:19		08:07 (B050)	07:10			07:55 (B014)	08:03		09:05 (WEA01)	08:29		09:18 (WEA01)
	17:05	13	09:05 (B153)				19:50			20:42	22	20:10 (B078)	21:27			21:45	15	21:14 (B077)	21:17			20:18			19:07	21	08:28 (B050)	17:02	9	08:04 (B014)	16:18	24	09:29 (WEA01)	16:20	26	09:44 (WEA01)
31	08:06		08:52 (B153)				07:04		19:26 (B143)				05:13		20:57 (B173)				05:42			06:31						07:12						08:29		
	17:07	14	09:06 (B153)				19:52	3	19:29 (B143)				21:29	2	20:59 (B173)				21:16			20:15						17:00						16:21	26	09:44 (WEA01)
Sonnenscheinstunden	259			277			366			414			483			497			502			454			382			333			268			245		
astr.max.mögl.Beschattung	586			385			267			275			65			401			126			316			153			503			306			806		
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.55			0.62			0.67			0.67			0.66			0.60			0.60			0.66			0.68			0.64			0.56			0.54		
Gesamte Reduktion	0.10			0.19			0.18			0.23			0.27			0.19			0.22			0.25			0.21			0.18			0.12			0.09		
Met.wahrsch.Beschattung	58			74			48			64			18			77			28			80			32			88			37			71		

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)	

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO004 - Am Bogen 11, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		08:44 (B082)	07:12		08:00 (B083)	07:02		07:41 (B012)	05:57		06:38 (B124)	05:12		06:29 (WEA02)	05:08		06:38 (WEA02)	05:43		06:25 (B223)	06:32		07:18 (B150)	07:21			07:14		08:05 (B084)	08:04
	16:22		17:09	15	08:59 (B082)	18:00		08:36 (B253)	19:54	46	08:34 (WEA03)	20:44	27	07:18 (B013)	21:30	37	07:06 (WEA02)	21:45	30	07:08 (WEA02)	21:14	45	07:15 (WEA02)	20:13	39	08:23 (WEA03)	19:04			16:58	18	08:23 (B084)	16:18
2	08:29		08:03		08:44 (B082)	07:10		07:59 (B083)	07:00		07:39 (B012)	05:56		06:39 (B124)	05:11		06:29 (WEA02)	05:09		06:38 (WEA02)	05:45		06:39 (WEA02)	06:34		07:18 (B150)	07:22		08:41 (B083)	07:16		08:06 (B084)	08:06
	16:23		17:11	14	08:58 (B082)	18:02	36	08:35 (B253)	19:55	50	08:34 (WEA03)	20:46	17	06:56 (B124)	21:31	37	07:06 (WEA02)	21:44	30	07:08 (WEA02)	21:13	36	07:15 (WEA02)	20:11	42	08:24 (WEA03)	19:02	10	08:51 (B083)	16:57	16	08:22 (B084)	16:17
3	08:29		08:01		08:44 (B082)	07:08		07:58 (B083)	06:57		07:38 (B012)	05:54		06:39 (B124)	05:10		06:29 (WEA02)	05:09		06:38 (WEA02)	05:46		06:39 (WEA02)	06:36		07:18 (B150)	07:24		08:39 (B083)	07:17		08:06 (B084)	08:07
	16:24		17:13	14	08:58 (B082)	18:04	36	08:34 (B253)	19:57	52	08:34 (WEA03)	20:47	16	06:55 (B124)	21:32	36	07:05 (WEA02)	21:44	31	07:09 (WEA02)	21:11	35	07:14 (WEA02)	20:09	44	08:25 (WEA03)	19:00	15	08:54 (B083)	16:55	14	08:20 (B084)	16:16
4	08:29		08:00		08:46 (B082)	07:05		07:58 (B083)	06:55		07:37 (B012)	05:52		06:39 (WEA02)	05:10		06:31 (WEA02)	05:10		06:38 (WEA02)	05:48		06:39 (WEA02)	06:37		07:20 (B150)	07:26		08:37 (B083)	07:19		08:08 (B084)	08:09
	16:25		17:14	12	08:58 (B082)	18:05	35	08:33 (B253)	19:59	53	08:34 (WEA03)	20:49	15	06:54 (WEA02)	21:33	35	07:06 (WEA02)	21:44	32	07:10 (WEA02)	21:09	34	07:13 (WEA02)	20:06	49	08:26 (WEA03)	18:57	18	08:55 (B083)	16:53	11	08:19 (B084)	16:16
5	08:29		07:58		08:47 (B082)	07:03		07:58 (B083)	06:53		07:36 (B012)	05:50		06:37 (WEA02)	05:09		06:31 (WEA02)	05:11		06:38 (WEA02)	05:49		06:41 (WEA02)	06:39		07:22 (B150)	07:27		08:35 (B083)	07:21		08:10 (B084)	08:10
	16:26		17:16	10	08:57 (B082)	18:07	33	08:31 (B253)	20:00	52	08:32 (WEA03)	20:50	20	06:57 (WEA02)	21:34	34	07:05 (WEA02)	21:43	33	07:11 (WEA02)	21:08	31	07:12 (WEA02)	20:04	50	08:27 (WEA03)	18:55	21	08:56 (B083)	16:51	6	08:16 (B084)	16:15
6	08:29		07:56		08:49 (B082)	07:01		07:57 (B083)	06:51		07:36 (B012)	05:48		06:35 (WEA02)	05:08		06:31 (WEA02)	05:12		06:37 (WEA02)	05:51		06:41 (WEA02)	06:40		07:33 (B012)	07:29		08:34 (B083)	07:23			08:11
	16:28		17:18	5	08:54 (B082)	18:09	25	08:22 (B083)	20:02	52	08:32 (WEA03)	20:52	24	06:59 (WEA02)	21:35	34	07:05 (WEA02)	21:43	33	07:10 (WEA02)	21:06	30	07:11 (WEA02)	20:02	48	08:27 (WEA03)	18:53	23	08:57 (B083)	16:49			16:15
7	08:28		07:55			06:59		07:57 (B083)	06:48		07:36 (B012)	05:46		06:33 (WEA02)	05:08		06:32 (WEA02)	05:12		06:37 (WEA02)	05:53		06:43 (WEA02)	06:42		07:32 (B012)	07:31		08:33 (B083)	07:24		08:18 (B082)	08:13
	16:29		17:20			18:11	25	08:22 (B083)	20:04	50	08:31 (WEA03)	20:54	27	07:00 (WEA02)	21:36	33	07:05 (WEA02)	21:42	34	07:11 (WEA02)	21:04	27	07:10 (WEA02)	20:00	51	08:28 (WEA03)	18:51	24	08:57 (B083)	16:48	8	08:26 (B082)	16:14
8	08:28		07:53		08:40 (B084)	06:57		07:57 (B083)	06:46		07:37 (B012)	05:45		06:32 (WEA02)	05:07		06:32 (WEA02)	05:13		06:38 (WEA02)	05:54		06:44 (WEA02)	06:44		07:31 (B012)	07:32		08:33 (B083)	07:26		08:16 (B082)	08:14
	16:30	9	17:22	9	08:49 (B084)	18:12	24	08:21 (B083)	20:05	47	08:30 (WEA03)	20:55	29	07:01 (WEA02)	21:37	33	07:05 (WEA02)	21:42	34	07:12 (WEA02)	21:02	24	07:08 (WEA02)	19:57	53	08:27 (WEA03)	18:48	25	08:58 (B083)	16:46	11	08:27 (B082)	16:14
9	08:28		07:51		08:38 (B084)	06:54		07:57 (B083)	06:44		07:24 (B150)	05:43		06:31 (WEA02)	05:06		06:32 (WEA02)	05:14		06:38 (WEA02)	05:56		06:46 (WEA02)	06:45		07:31 (B012)	07:34		08:32 (B083)	07:28		08:16 (B082)	08:15
	16:31		17:24	13	08:51 (B084)	18:14	23	08:20 (B083)	20:07	50	08:30 (WEA03)	20:57	31	07:02 (WEA02)	21:38	33	07:05 (WEA02)	21:41	34	07:12 (WEA02)	21:00	21	07:07 (WEA02)	19:55	54	08:28 (WEA03)	18:46	25	08:57 (B083)	16:44	12	08:28 (B082)	16:14
10	08:27		07:49		08:36 (B084)	06:52		07:58 (B083)	06:42		07:21 (B150)	05:41		06:30 (WEA02)	05:06		06:33 (WEA02)	05:15		06:38 (WEA02)	05:57		06:47 (WEA02)	06:47		07:30 (B012)	07:36		08:32 (B083)	07:30		08:15 (B082)	08:16
	16:33		17:25	16	08:52 (B084)	18:16	21	08:19 (B083)	20:09	45	08:27 (WEA03)	20:59	33	07:03 (WEA02)	21:38	32	07:05 (WEA02)	21:40	35	07:13 (WEA02)	20:59	17	07:04 (WEA02)	19:53	53	08:27 (WEA03)	18:44	33	09:05 (B253)	16:43	14	08:29 (B082)	16:13
11	08:26		07:48		08:36 (B084)	06:50		07:59 (B083)	06:39		07:20 (B150)	05:39		06:29 (WEA02)	05:06		06:33 (WEA02)	05:16		06:37 (WEA02)	05:59		06:49 (B124)	06:48		07:31 (B012)	07:37		08:32 (B083)	07:32		08:15 (B082)	08:17
	16:34		17:27	17	08:53 (B084)	18:18	18	08:17 (B083)	20:10	42	08:26 (WEA03)	21:00	35	07:04 (WEA02)	21:39	31	07:04 (WEA02)	21:39	36	07:13 (WEA02)	20:57	15	07:04 (B124)	19:51	52	08:27 (WEA03)	18:42	35	09:07 (B253)	16:41	14	08:29 (B082)	16:13
12	08:26		07:46		08:35 (B084)	06:48		08:01 (B083)	06:37		07:19 (B150)	05:38		06:28 (WEA02)	05:05		06:34 (WEA02)	05:17		06:37 (WEA02)	06:00		06:47 (B124)	06:50		07:32 (B012)	07:39		08:32 (B083)	07:33		08:15 (B082)	08:18
	16:36		17:29	18	08:53 (B084)	18:19	15	08:16 (B083)	20:12	40	08:24 (WEA03)	21:02	36	07:04 (WEA02)	21:40	30	07:04 (WEA02)	21:39	37	07:14 (WEA02)	20:55	17	07:04 (B124)	19:48	48	08:26 (WEA03)	18:40	36	09:08 (B253)	16:40	15	08:30 (B082)	16:13
13	08:25		07:44		08:35 (B084)	06:45		08:03 (B083)	06:35		07:19 (B150)	05:36		06:15 (B223)	05:05		06:34 (WEA02)	05:18		06:37 (WEA02)	06:02		06:47 (B124)	06:52		07:35 (B012)	07:41		08:32 (B083)	07:35		08:16 (B082)	08:19
	16:37		17:31	19	08:54 (B084)	18:21	9	08:12 (B083)	20:14	38	08:23 (WEA03)	21:03	44	07:05 (WEA02)	21:41	30	07:04 (WEA02)	21:38	37	07:14 (WEA02)	20:53	24	07:25 (B013)	19:46	43	08:26 (WEA03)	18:37	36	09:08 (B253)	16:38	14	08:30 (B082)	16:13
14	08:25		07:42		08:34 (B084)	06:43			06:33		07:18 (B150)	05:35		06:14 (B223)	05:05		06:35 (WEA02)	05:19		06:25 (B223)	06:04		06:46 (B124)	06:53		07:47 (WEA03)	07:42		08:33 (B083)	07:37		08:16 (B082)	08:20
	16:39		17:33	20	08:54 (B084)	18:23			20:15	34	08:20 (WEA03)	21:05	48	07:06 (WEA02)	21:41	30	07:05 (WEA02)	21:37	44	07:14 (WEA02)	20:51	30	07:27 (B013)	19:44	38	08:25 (WEA03)	18:35	36	09:09 (B253)	16:37	14	08:30 (B082)	16:13
15	08:24		07:40		08:34 (B084)	06:41		07:17 (B178)	06:31		07:19 (B150)	05:33		06:12 (B223)	05:04		06:35 (WEA02)	05:20		06:24 (B223)	06:05		06:46 (B124)	06:55		07:47 (WEA03)	07:44		08:34 (B083)	07:39		08:17 (B082)	08:21
	16:40		17:35	20	08:54 (B084)	18:25	9	07:26 (B178)	20:17	25	08:16 (WEA03)	21:06	51	07:05 (WEA02)	21:42	30	07:05 (WEA02)	21:36	47	07:15 (WEA02)	20:49	33	07:29 (B013)	19:41	38	08:25 (WEA03)	18:33	35	09:09 (B253)	16:35	13	08:30 (B082)	16:13
16	08:23		07:38		08:35 (B084)	06:39		07:14 (B178)	06:28		07:18 (B150)	05:31		06:12 (B223)	05:04		06:36 (WEA02)	05:22		06:23 (B223)	06:07		06:45 (B124)	06:56		07:48 (WEA03)	07:46		08:35 (B083)	07:40		08:18 (B082)	08:22
	16:42		17:36	18	08:53 (B084)	18:26	13	07:27 (B178)	20:19	13	07:31 (B150)	21:08	53	07:06 (WEA02)	21:42	29	07:05 (WEA02)	21:35	49	07:15 (WEA02)	20:47	35	07:29 (B013)	19:39	36	08:24 (WEA03)	18:31	34	09:09 (B253)	16:34	11	08:29 (B082)	16:13
17	08:22		07:36		08:35 (B084)	06:36		07:13 (B178)	06:26		07:19 (B150)	05:30		06:11 (B223)	05:04		06:36 (WEA02)	05:23		06:22 (B223)	06:08		06:46 (B124)	06:58		07:48 (WEA03)	07:48		08:38 (B083)	07:42		08:18 (B082)	08:23
	16:43		17:38	18	08:53 (B084)	18:28	15	07:28 (B178)	20:20	11	07:30 (B150)	21:09	55	07:06 (WEA02)	21:43	29	07:05 (WEA02)	21:34	51	07:15 (WEA02)	20:45	35	07:30 (B013)	19:37	35	08:23 (WEA03)	18:29	30	09:09 (B253)	16:32	10	08:28 (B082)	16:13
18	08:21		07:34		08:36 (B084)	06:34		07:12 (B178)	06:24		07:21 (B150)	05:28		06:11 (B223)	05:04		06:37 (WEA02)	05:24		06:22 (B223)	06:10		06:45 (B124)	07:00		07:49 (WEA03)	07:49		08:49 (B253)	07:44		08:20 (B082)	08:24
	16:45		17:40	16	08:52 (B084)	18:30	17	07:29 (B178)	20:22	6	07:27 (B150)	21:11	55	07:06 (WEA02)	21:43	28	07:05 (WEA02)	21:33	52	07:15 (WEA02)	20:43	35	07:29 (B013)	19:34	33	08:22 (WEA03)	18:27	18	09:07 (B253)	16:31	6	08:26 (B082)	16:13
19	08:20		07:33		08:37 (B084)	06:32		07:11 (B178)	06:22		07:15 (B013)	05:27		06:11 (B223)	05:04		06:37 (WEA02)	05:25		06:21 (B223)	06:12		06:46 (B124)	07:01		07:49 (WEA03)	07:51		08:50 (B253)	07:45			08:25
	16:46		17:42	14	08:51 (B084)	18:31	17	07:28 (B178)	20:24	2	07:17 (B013)	21:12	56	07:07 (WEA02)	21:44	28	07:05 (WEA02)	21:32	55	07:16 (WEA02)	20:41	35	07:30 (B013)	19:32	31	08:20 (WEA03)	18:24	17	09:07 (B253)	16:30			16:14
20	08:19		07:31		08:39 (B084)	06:29		07:11 (B178)	06:20		07:11 (B013)	05:26		06:11 (B223)	05:04		06:37 (WEA02)	05:27		06:22 (B223)	06:13		06:46 (B124)	07:03		07:50 (WEA03)	07:53		08:51 (B253)	07:47			08:25
	16:48		17:44	10	08:49 (B084)	18:33	17	07:28 (B178)	20:26	10	07:21 (B013)	21:14	56	07:07 (WEA02)	21:44	28	07:05 (WEA02)	21:31	55	07:17 (WEA02)	20:39	33	07:29 (B013)	19:30	28	08:18 (WEA03)	18:22	14	09:05 (B253)	16:29			16:14
21	08:18		07:29		08:43 (B084)	06:27		07:11 (B178)	06:18		07:09 (B013)	05:24		06:10 (B223)	05:04		06:37 (WEA02)	05:28		06:21 (B223)	06:15		06:47 (B124)	07:04		07:52 (WEA03)	07:54		08:53 (B253)	07:49			08:26
	16:50		17:46	2	08:45 (B084)	18:35	17	07:28 (B178)	20:27	13	07:22 (B013)	21:15	56	07:06 (WEA02)	21:44	28	07:05 (WEA02)	21:30	56	07:17 (WEA02)	20:37	30	07:29 (B013)	19:27	24	08:16 (WEA03)	18:20	11	09:04 (B253)	16:27			16:14
22	08:17		07:27		08:23 (B253)	06:25		07:10 (B178)	06:16		06:44 (B124)	05:23		06:11 (B223)	05:04		06:37 (WEA02)	05:29		06:21 (B223)	06:16		06:48 (B124)	07:06		07:54 (WEA03)	07:56		08:57 (B253)	07:50			08:27
	16:51		17:47	10	08:33 (B253)	18:37	16	07:26 (B178)	20:29	24	07:23 (B013)	21:17	55	07:06 (WEA02)	21:45	28	07:05 (WEA02)	21:28	56	07:17 (WEA02)	20:35	27	07:28 (B013)	19:25	19	08:13 (WEA03)	18:18	2	08:59 (B253)	16:26			16:15
23	08:16		07:24		08:21 (B253)	06:23		07:07 (WEA03)	06:14		06:42 (B124)	05:22		06:11 (B223)	05:05		06:37 (WEA02)	05:31		06:21 (B223)	06:18		06:52 (B124)	07:08		07:56 (B178)	07:58		09:10 (B084)	07:52			08:27
	16:53		17:49	14	08:35 (B253)	18:38	21	07:28 (WEA03)	20:31	29	07:23 (B013)	21:18	55	07:06 (WEA02)	21:45	28	07:05 (WEA02)	21:27	55	07:16 (WEA02)	20:33	18	07:27 (B013)	19:23	16	08:12 (B178)	18:16	9	09:19 (B084)	16:25			16:15
24	08:15		07:22		08:19 (B253)	06:20		07:05 (WEA03)	06:11		06:41 (B124)	05:20		06:11 (B223)	05:05		06:38 (WEA02)	05:32		06:21 (B223)	06:20		07:14 (B013)	07:09		07:55 (B178)	08:00		09:07 (B084)	07:54			08:28
	16:55		17:51	16	08:35 (B253)	18:40	25	07:30 (WEA03)	20:32	31	07:23 (B013)	21:20	56	07:07 (WEA02)	21:45	28	07:06 (WEA02)	21:26	56	07:17 (WEA02)	20:31	11	07:25 (B013)	19:20	17	08:12 (B178)	18:14	13	09:20 (B084)	16:24			16:16
25	08:14		07:20		08:18 (B253)	06:18		07:04 (WEA03)	06:09		06:40 (B124)	05:19		06:12 (B223)	05:05		06:38 (WEA02)	05:33		06:21 (B223)	06:21		07:17 (B013)	07:11		07:54 (B178)	08:01		09:06 (B084)	07:55			08:28
	16:56	3	08:51 (B082)	17:53	18	08:36 (B253)	18:42	28	07:32 (WEA03)	20:34	34	07:23 (B013)	21:21	55	07:07 (WEA02)	21:45	28	07:06 (WEA02)	21:25	56	07:17 (WEA02)	20:28	6	07:23 (B013)	19:18	18	08:12 (B178)	18:12	15	09:21 (B084)	16:23			16:16
26	08:13		08:46 (B082)	07:18		08:06 (B083)	07:16		08:01 (WEA03)	06:07		06:39 (B124)	05:18		06:12 (B223)	05:06		06:38 (WEA02)	05:35		06:21 (B223)	06:23		07:26 (B150)	07:13		07:55 (B178)	08:03		09:05 (B084)	07:57			08:28
	16:58	8	08:54 (B082)	17:55	28	08:36 (B253)	19:43	31	08:32 (WEA03)	20:36	35	07:23 (B013)	21:22	55	07:07 (WEA02)	21:45	28	07:06 (WEA02)	21:23	56	07:17 (WEA02)	20:26	1	07:27 (B150)	19:16	17	08:12 (B178)	18:10	17	09:22 (B084)	16:22			16:17
27	08:11		08:45 (B082)	07:16		08:03 (B083)	07:13		08:00 (WEA03)	06:05		06:38 (B124)	05:17		06:13 (B223)	05:06		06:38 (WEA02)	05:36		06:21 (B223)	06:24		07:23 (B150)	07:14		07:54 (B178)	08:05		09:04 (B084)	07:58			08:29
	17:00	11	08:56 (B082)	17:56	34	08:37 (B253)	19:45	33	08:33 (WEA03)	20:37	35	07:22 (B013)	21:24	52	07:06 (WEA02)	21:45	29	07:07 (WEA02)	21:22	55	07:16 (WEA02)	20:24	9	07:32 (B150)	19:14	16	08:10 (B178)	18:08	19	09:23 (B084)	16:21			16:18
28	08:10		08:44 (B082)	07:14		08:02 (B083)	07:11		07:59 (WEA03)	06:03		06:38 (B124)	05:16		06:13 (B223)	05:06		06:38 (WEA02)	05:37		06:22 (B223)	06:26		07:21 (B150)	07:16		07:55 (B178)	08:07		09:04 (B084)	08:00			08:29
	17:02	13	08:57 (B082)	17:58	35	08:37 (B253)	19:47	35	08:34 (WEA03)	20:39	35	07:22 (B013)	21:25	51	07:06 (WEA02)	21:45	29	07:07 (WEA02)	21:20	55	07:17 (WEA02)	20:22	11	07:32 (B150)	19:11	15	08:10 (B178)	18:06	19	09:23 (B084)	16:20			16:18
29	08:09		08:44 (B082)			07:09		07:57 (WEA03)	06:01		06:37 (B124)	05:15		06:14 (B223)	05:07		06:38 (WEA02)	05:39		06:22 (B223)	06:28		07:20 (B150)	07:17		07:55 (B178)	08:08		09:04 (B084)	08:02			08:29
	17:03	14	08:58 (B082)			19:48	37	08:34 (WEA03)	20:41	33	07:20 (B013)	21:26	49	07:06 (WEA02)	21:45	30	07:08 (WEA02)	21:19	53	07:16 (WEA02)	20:20	19	08:14 (WEA03)	19:09	12	08:07 (B178)	17:04	19	08:23 (B084)	16:19			16:19
30	08:07		08:44 (B082)			07:07		07:57 (WEA03)	05:59		06:38 (B124)	05:14		06:15 (B223)	05:07		06:38 (WEA02)	05:40		06:22 (B223)	06:29		07:19 (B150)	07:19		07:57 (B178)	07:10		08:04 (B084)	08:03			08:29
	17:05	14	08:58 (B082)			19:50	37	08:34 (WEA03)	20:42	30	07:20 (B013)	21:27	47	07:06 (WEA02)	21:45	30	07:08 (WEA02)	21:17	51	07:15 (WEA02)	20:18	29	08:18 (WEA03)	19:07	8	08:05 (B178)	17:02	19	08:23 (B084)	16:18			16:20
31	08:06		08:43 (B082)			07:04		07:56 (WEA03)				05:13		06:16 (B223)				05:42		06:24 (B223)	06:31		07:18 (B150)				07:12		08:04 (B084)				08:29
	17:07	15	08:58 (B082)			19:52	39	08:35 (WEA03)				21:28	44	07:05 (WEA02)				21:16	49	07:16 (WEA02)	20:15	36	08:21 (WEA03)				17:00	19	08:23 (B084)				16:21
Sonnenscheinstunden	259		277			366		414		483		497		501		454		382		333		268		245
astr.max.mögl.Beschattung	78		435			743		1017		1303		923		1387		789		1027		647		207		
Red.Sonnenscheinwahrsch.	0.19		0.32			0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		0.23		
Reduktion Betriebsdauer	0.95		0.95			0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		
Reduktion Windrichtung	0.59		0.62			0.67		0.72		0.74		0.74		0.74		0.73		0.70		0.64		0.60		
Gesamte Reduktion	0.11		0.19			0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.17		0.13		
Met.wahrsch.Beschattung	8		83			135		252		392		218		378		220		219		113		27		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO005 - Am Bogen 18, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:37 (B082)	07:12		07:59 (B083)	07:02		07:49 (WEA03)	05:58		06:33 (B124)	05:12		06:11 (B223)	05:08		06:29 (WEA02)	05:43		06:34 (WEA02)	06:32		07:14 (B150)	07:21		08:30 (B083)	07:14		08:02 (B084)	08:04	
	16:22			17:09	11		08:48 (B082)	18:00	25	08:25 (B253)	19:54	35	08:24 (WEA03)	20:44	35	07:15 (B013)	21:30	49	07:00 (WEA02)	21:45	35	07:04 (WEA02)	21:14	31	07:05 (WEA02)	20:13	56	08:19 (WEA03)	19:04	20	08:50 (B083)	16:58	10	08:12 (B084)	16:18			
2	08:29			08:03			08:36 (B082)	07:10		07:56 (B083)	07:00		07:48 (WEA03)	05:56		06:33 (B124)	05:11		06:11 (B223)	05:09		06:29 (WEA02)	05:45		06:35 (WEA02)	06:34		07:16 (B150)	07:22		08:28 (B083)	07:16		08:10 (B082)	08:06	
	16:23			17:11	12		08:48 (B082)	18:02	30	08:26 (B253)	19:55	36	08:24 (WEA03)	20:46	34	07:14 (B013)	21:31	48	07:00 (WEA02)	21:44	34	07:03 (WEA02)	21:13	30	07:05 (WEA02)	20:11	56	08:20 (WEA03)	19:02	22	08:50 (B083)	16:57	6	08:16 (B082)	16:17			
3	08:29			08:01			08:35 (B082)	07:08		07:54 (B083)	06:57		07:47 (WEA03)	05:54		06:33 (B124)	05:10		06:12 (B223)	05:09		06:29 (WEA02)	05:46		06:36 (WEA02)	06:36		07:23 (B012)	07:24		08:28 (B083)	07:17		08:07 (B082)	08:07	
	16:24			17:13	14		08:49 (B082)	18:04	32	08:26 (B253)	19:57	38	08:25 (WEA03)	20:47	30	07:12 (B013)	21:32	45	06:59 (WEA02)	21:44	35	07:04 (WEA02)	21:11	27	07:03 (WEA02)	20:09	51	08:20 (WEA03)	19:00	23	08:51 (B083)	16:55	10	08:17 (B082)	16:16			
4	08:29			08:00			08:36 (B082)	07:05		07:53 (B083)	06:55		07:47 (WEA03)	05:52		06:33 (B124)	05:10		06:14 (B223)	05:10		06:29 (WEA02)	05:48		06:37 (WEA02)	06:37		07:23 (B012)	07:26		08:27 (B083)	07:19		08:06 (B082)	08:09	
	16:25			17:14	14		08:50 (B082)	18:05	34	08:27 (B253)	19:59	38	08:25 (WEA03)	20:49	28	07:11 (B013)	21:33	43	07:00 (WEA02)	21:44	36	07:05 (WEA02)	21:09	24	07:01 (WEA02)	20:06	51	08:20 (WEA03)	18:57	24	08:51 (B083)	16:53	12	08:18 (B082)	16:16			
5	08:29			07:58			08:36 (B082)	07:03		07:52 (B083)	06:53		07:46 (WEA03)	05:50		06:34 (B124)	05:09		06:22 (WEA02)	05:11		06:30 (WEA02)	05:49		06:39 (WEA02)	06:39		07:23 (B012)	07:27		08:26 (B083)	07:21		08:06 (B082)	08:10	
	16:26			17:16	14		08:50 (B082)	18:07	34	08:26 (B253)	20:00	38	08:24 (WEA03)	20:50	21	07:09 (B013)	21:34	37	06:59 (WEA02)	21:43	35	07:05 (WEA02)	21:08	21	07:00 (WEA02)	20:04	52	08:21 (WEA03)	18:55	27	08:53 (B253)	16:51	13	08:19 (B082)	16:15			
6	08:29			07:56			08:36 (B082)	07:01		07:50 (B083)	06:51		07:29 (B012)	05:48		06:35 (B124)	05:08		06:22 (WEA02)	05:12		06:29 (WEA02)	05:51		06:40 (WEA02)	06:40		07:23 (B012)	07:29		08:26 (B083)	07:23		08:05 (B082)	08:11	
	16:28			17:18	14		08:50 (B082)	18:09	35	08:25 (B253)	20:02	48	08:24 (WEA03)	20:52	14	06:49 (B124)	21:35	37	06:59 (WEA02)	21:43	36	07:05 (WEA02)	21:06	18	06:58 (WEA02)	20:02	52	08:20 (WEA03)	18:53	31	08:57 (B253)	16:49	15	08:20 (B082)	16:15			
7	08:28			07:55			08:36 (B082)	06:59		07:50 (B083)	06:48		07:27 (B012)	05:46		06:33 (WEA02)	05:08		06:23 (WEA02)	05:12		06:29 (WEA02)	05:53		06:43 (WEA02)	06:42		07:24 (B012)	07:31		08:26 (B083)	07:24		08:05 (B082)	08:13	
	16:29			17:20	14		08:50 (B082)	18:11	34	08:24 (B253)	20:04	51	08:24 (WEA03)	20:54	14	06:47 (B124)	21:36	37	07:00 (WEA02)	21:42	36	07:05 (WEA02)	21:04	14	06:57 (B124)	20:00	49	08:20 (WEA03)	18:51	33	08:59 (B253)	16:48	15	08:20 (B082)	16:14			
8	08:28			07:53			08:37 (B082)	06:57		07:50 (B083)	06:46		07:26 (B012)	05:45		06:31 (WEA02)	05:07		06:24 (WEA02)	05:13		06:29 (WEA02)	05:54		06:44 (B124)	06:44		07:25 (B012)	07:32		08:26 (B083)	07:26		08:06 (B082)	08:14	
	16:30			17:22	13		08:50 (B082)	18:12	33	08:23 (B253)	20:05	53	08:24 (WEA03)	20:55	17	06:48 (WEA02)	21:37	36	07:00 (WEA02)	21:42	37	07:06 (WEA02)	21:02	14	06:58 (B124)	19:57	45	08:19 (WEA03)	18:48	34	09:00 (B253)	16:46	14	08:20 (B082)	16:14			
9	08:28			07:51			08:38 (B082)	06:54		07:49 (B083)	06:44		07:26 (B012)	05:43		06:29 (WEA02)	05:06		06:24 (WEA02)	05:14		06:29 (WEA02)	05:56		06:44 (B124)	06:45		07:41 (WEA03)	07:34		08:25 (B083)	07:28		08:06 (B082)	08:15	
	16:31			17:24	11		08:49 (B082)	18:14	31	08:20 (B253)	20:07	52	08:23 (WEA03)	20:57	21	06:50 (WEA02)	21:38	35	06:59 (WEA02)	21:41	37	07:06 (WEA02)	21:00	18	07:17 (B013)	19:55	38	08:19 (WEA03)	18:46	35	09:00 (B253)	16:44	14	08:20 (B082)	16:14			
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	16:33			17:25	7		08:47 (B082)	18:16	27	08:16 (B253)	20:09	51	08:22 (WEA03)	20:59	24	06:52 (WEA02)	21:38	36	07:00 (WEA02)	21:40	43	07:07 (WEA02)	20:59	26	07:20 (B013)	19:53	38	08:18 (WEA03)	18:44	35	09:01 (B253)	16:43	13	08:20 (B082)	16:13			
11	08:26			07:48			08:34 (B084)	06:50		07:49 (B083)	06:39		07:19 (B150)	05:39		06:26 (WEA02)	05:06		06:24 (WEA02)	05:16		06:20 (B223)	05:59		06:43 (B124)	06:48		07:41 (WEA03)	07:37		08:27 (B083)	07:32		08:08 (B082)	08:17	
	16:34			17:27	7		08:41 (B084)	18:18	24	08:13 (B083)	20:10	53	08:21 (WEA03)	21:00	27	06:53 (WEA02)	21:39	35	06:59 (WEA02)	21:39	46	07:07 (WEA02)	20:57	30	07:22 (B013)	19:51	37	08:18 (WEA03)	18:42	34	09:01 (B253)	16:41	11	08:19 (B082)	16:13			
12	08:26			07:46			08:31 (B084)	06:48		07:50 (B083)	06:37		07:16 (B150)	05:38		06:24 (WEA02)	05:05		06:25 (WEA02)	05:17		06:19 (B223)	06:00		06:42 (B124)	06:50		07:40 (WEA03)	07:39		08:28 (B083)	07:33		08:09 (B082)	08:18	
	16:36			17:29	13		08:44 (B084)	18:19	23	08:13 (B083)	20:12	56	08:20 (WEA03)	21:02	29	06:53 (WEA02)	21:40	34	06:59 (WEA02)	21:39	48	07:08 (WEA02)	20:55	32	07:22 (B013)	19:48	36	08:16 (WEA03)	18:40	33	09:01 (B253)	16:40	9	08:18 (B082)	16:13			
13	08:25			07:44			08:30 (B084)	06:45		07:50 (B083)	06:35		07:14 (B150)	05:36		06:24 (WEA02)	05:05		06:25 (WEA02)	05:18		06:19 (B223)	06:02		06:42 (B124)	06:52		07:41 (WEA03)	07:41		08:29 (B083)	07:35		08:11 (B082)	08:19	
	16:37			17:31	15		08:45 (B084)	18:21	21	08:11 (B083)	20:14	56	08:19 (WEA03)	21:03	31	06:55 (WEA02)	21:41	35	07:00 (WEA02)	21:38	49	07:08 (WEA02)	20:53	34	07:23 (B013)	19:46	35	08:16 (WEA03)	18:37	30	08:59 (B253)	16:38	5	08:16 (B082)	16:13			
14	08:25			07:42			08:29 (B084)	06:43		07:51 (B083)	06:33		07:14 (B150)	05:35		06:23 (WEA02)	05:05		06:26 (WEA02)	05:19		06:18 (B223)	06:04		06:41 (B124)	06:53		07:41 (WEA03)	07:42		08:32 (B083)	07:37				08:20	
	16:39			17:33	17		08:46 (B084)	18:23	19	08:10 (B083)	20:15	51	08:18 (WEA03)	21:05	33	06:56 (WEA02)	21:41	34	07:00 (WEA02)	21:37	50	07:08 (WEA02)	20:51	35	07:23 (B013)	19:44	33	08:14 (WEA03)	18:35	27	08:59 (B253)	16:37				16:13	
15	08:24			07:40			08:28 (B084)	06:41		07:52 (B083)	06:31		07:13 (B150)	05:33		06:12 (B223)	05:04		06:26 (WEA02)	05:20		06:18 (B223)	06:05		06:42 (B124)	06:55		07:42 (WEA03)	07:44		08:42 (B253)	07:39				08:21	
	16:40			17:35	19		08:47 (B084)	18:25	16	08:08 (B083)	20:17	43	08:17 (WEA03)	21:06	39	06:56 (WEA02)	21:42	34	07:00 (WEA02)	21:36	50	07:08 (WEA02)	20:49	34	07:23 (B013)	19:41	31	08:13 (WEA03)	18:33	16	08:58 (B253)	16:35				16:13	
16	08:23			07:38			08:28 (B084)	06:39		07:54 (B083)	06:28		07:12 (B150)	05:31		06:10 (B223)	05:04		06:27 (WEA02)	05:22		06:17 (B223)	06:07		06:41 (B124)	06:56		07:44 (WEA03)	07:46		08:44 (B253)	07:40				08:22	
	16:42			17:36	19		08:47 (B084)	18:26	10	08:04 (B083)	20:19	40	08:14 (WEA03)	21:08	45	06:57 (WEA02)	21:42	33	07:00 (WEA02)	21:35	51	07:08 (WEA02)	20:47	35	07:23 (B013)	19:39	28	08:12 (WEA03)	18:31	12	08:56 (B253)	16:34				16:13	
17	08:22			07:36			08:28 (B084)	06:36		07:13 (B178)	06:26		07:12 (B150)	05:30		06:09 (B223)	05:04		06:27 (WEA02)	05:23		06:17 (B223)	06:08		06:42 (B124)	06:58		07:45 (WEA03)	07:48		08:46 (B253)	07:42				08:23	
	16:43			17:38	19		08:47 (B084)	18:28	3	07:16 (B178)	20:20	36	08:12 (WEA03)	21:09	47	06:57 (WEA02)	21:43	33	07:00 (WEA02)	21:34	52	07:09 (WEA02)	20:45	34	07:23 (B013)	19:37	24	08:09 (WEA03)	18:29	8	08:54 (B253)	16:32				16:13	
18	08:21			07:34			08:28 (B084)	06:34		07:09 (B178)	06:24		07:12 (B150)	05:28		06:08 (B223)	05:04		06:27 (WEA02)	05:24		06:17 (B223)	06:10		06:42 (B124)	07:00		07:47 (WEA03)	07:49							08:24	
	16:45			17:40	19		08:47 (B084)	18:30	11	07:20 (B178)	20:22	31	08:10 (WEA03)	21:11	50	06:58 (WEA02)	21:43	33	07:00 (WEA02)	21:33	52	07:09 (WEA02)	20:43	32	07:22 (B013)	19:34	20	08:07 (WEA03)	18:27							16:31	
19	08:20			07:33			08:28 (B084)	06:32		07:07 (B178)	06:22		07:13 (B150)	05:27		06:08 (B223)	05:04		06:27 (WEA02)	05:25		06:16 (B223)	06:12		06:44 (B124)	07:01		07:49 (WEA03)	07:51							08:25	
	16:46			17:42	19		08:47 (B084)	18:31	14	07:21 (B178)	20:24	22	08:06 (WEA03)	21:12	50	06:58 (WEA02)	21:44	34	07:01 (WEA02)	21:32	52	07:08 (WEA02)	20:41	28	07:22 (B013)	19:32	17	08:06 (B178)	18:24							16:30	
20	08:19			07:31			08:28 (B084)	06:29		07:06 (B178)	06:20		07:14 (B150)	05:26		06:08 (B223)	05:04		06:28 (WEA02)	05:27		06:17 (B223)	06:13		06:45 (B124)	07:03		07:51 (B178)	07:53		09:03 (B084)	07:47				08:25	
	16:48			17:44	18		08:46 (B084)	18:33	16	07:22 (B178)	20:26	9	07:23 (B150)	21:14	51	06:59 (WEA02)	21:44	33	07:01 (WEA02)	21:31	52	07:09 (WEA02)	20:39	22	07:20 (B013)	19:30	16	08:07 (B178)	18:22	10	09:13 (B084)	16:29				16:14	
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	16:50			17:46	17		08:46 (B084)	18:35	17	07:22 (B178)	20:27	2	07:19 (B150)	21:15	51	06:58 (WEA02)	21:44	33	07:01 (WEA02)	21:30	52	07:09 (WEA02)	20:37	10	07:19 (B013)	19:27	17	08:08 (B178)	18:20	14	09:15 (B084)	16:27				16:14	
22	08:17			07:27			08:30 (B084)	06:25		07:04 (B178)	06:16			05:23		06:07 (B223)	05:04		06:28 (WEA02)	05:29		06:17 (B223)	06:16		07:12 (B013)	07:06		07:50 (B178)	07:56		09:00 (B084)	07:50				08:27	
	16:51			17:47	14		08:44 (B084)	18:37	17	07:21 (B178)	20:29			21:17	52	06:59 (WEA02)	21:45	33	07:01 (WEA02)	21:28	52	07:09 (WEA02)	20:35	2	07:14 (B013)	19:25	17	08:07 (B178)	18:18	16	09:16 (B084)	16:26				16:15	
23	08:16			07:24			08:32 (B084)	06:23		07:04 (B178)	06:14		07:04 (B013)	05:22		06:07 (B223)	05:05		06:28 (WEA02)	05:31		06:17 (B223)	06:18			07:08		07:50 (B178)	07:58		08:59 (B084)	07:52				08:27	
	16:53			17:49	11		08:43 (B084)	18:38	17	07:21 (B178)	20:31	8	07:12 (B013)	21:18	52	06:59 (WEA02)	21:45	33	07:01 (WEA02)	21:27	52	07:09 (WEA02)	20:33			19:23	17	08:07 (B178)	18:16	18	09:17 (B084)	16:25				16:15	
24	08:15			07:22			08:35 (B084)	06:20		07:04 (B178)	06:11		06:40 (B124)	05:20		06:07 (B223)	05:05		06:29 (WEA02)	05:32		06:18 (B223)	06:20		07:18 (B150)	07:09		07:49 (B178)	08:00		08:58 (B084)	07:54				08:28	
	16:55			17:51	3		08:38 (B084)	18:40	17	07:21 (B178)	20:32	19	07:14 (B013)	21:20	52	06:59 (WEA02)	21:45	33	07:02 (WEA02)	21:26	51	07:09 (WEA02)	20:31	8	07:26 (B150)	19:20	17	08:06 (B178)	18:14	18	09:16 (B084)	16:24				16:16	
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	16:56			17:53				18:42	15	07:20 (B178)	20:34	25	07:15 (B013)	21:21	52	06:59 (WEA02)	21:45	34	07:02 (WEA02)	21:25	51	07:09 (WEA02)	20:28	16	08:07 (WEA03)	19:18	15	08:05 (B178)	18:12	20	09:17 (B084)	16:23				16:16	
26	08:13			07:18			08:14 (B253)	07:16		08:01 (WEA03)	06:07		06:36 (B124)	05:18		06:07 (B223)	05:06		06:28 (WEA02)	05:35		06:18 (B223)	06:23		07:15 (B150)	07:13		07:51 (B178)	08:03		08:57 (B084)	07:57				08:28	
	16:58			17:55	7		08:21 (B253)	19:43	17	08:18 (B178)	20:36	30	07:15 (B013)	21:22	52	06:59 (WEA02)	21:45	33	07:01 (WEA02)	21:23	50	07:08 (WEA02)	20:26	28	08:11 (WEA03)	19:16	13	08:04 (B178)	18:10	20	09:17 (B084)	16:22				16:17	
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	17:00			17:56	12		08:24 (B253)	19:45	21	08:19 (WEA03)	20:37	32	07:15 (B013)	21:24	52	07:00 (WEA02)	21:45	33	07:02 (WEA02)	21:22	50	07:08 (WEA02)	20:24	34	08:14 (WEA03)	19:14	9	08:01 (B178)	18:08	20	09:17 (B084)	16:21				16:18	
28	08:10			07:14			08:10 (B253)	07:11		07:56 (WEA03)	06:03		06:34 (B124)	05:16		06:08 (B223)	05:06		06:29 (WEA02)	05:37		06:20 (B223)	06:26		07:14 (B150)	07:16		07:56 (B178)	08:07		08:58 (B084)	08:00				08:29	
	17:02			17:58	15		08:25 (B253)	19:47	25	08:21 (WEA03)	20:39	34	07:15 (B013)	21:25	52	07:00 (WEA02)	21:45	33	07:02 (WEA02)	21:20	47	07:08 (WEA02)	20:22	38	08:15 (WEA03)	19:11	1	07:57 (B178)	18:06	18	09:16 (B084)	16:20				16:18	
29	08:09							07:09		07:53 (WEA03)	06:01		06:33 (B124)	05:15		06:08 (B223)	05:07		06:29 (WEA02)	05:39		06:20 (B223)	06:28		07:14 (B150)	07:17		08:34 (B083)	07:08		08:58 (B084)	08:02				08:29	
	17:03							19:48	29	08:22 (WEA03)	20:41	36	07:15 (B013)	21:26	51	06:59 (WEA02)	21:45	34	07:03 (WEA02)	21:19	45	07:07 (WEA02)	20:20	42	08:17 (WEA03)	19:09	11	08:45 (B083)	17:04	18	08:16 (B084)	16:19				16:19	
30	08:07							07:07		07:52 (WEA03)	05:59		06:34 (B124)	05:14		06:09 (B223)	05:07		06:29 (WEA02)	05:40		06:22 (B223)	06:29		07:13 (B150)	07:19		08:32 (B083)	07:10		07:59 (B084)	08:03				08:29	
	17:05							19:50	31	08:23 (WEA03)	20:42	36	07:16 (B013)	21:27	50	06:59 (WEA02)	21:45	34	07:03 (WEA02)	21:17	40	07:06 (WEA02)	20:18	49	08:18 (WEA03)	19:07	16	08:48 (B083)	17:02	16	08:15 (B084)	16:18				16:20	
31	08:06		08:38 (B082)					07:04		07:51 (WEA03)				05:13		06:09 (B223)				05:42		06:34 (WEA02)	06:31		07:14 (B150)				07:12		08:01 (B084)					08:29	
	17:07	7	08:45 (B082)					19:52	33	08:24 (WEA03)				21:28	50	06:59 (WEA02)				21:16	32	07:06 (WEA02)	20:15	54	08:19 (WEA03)				17:00	13	08:14 (B084)					16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	7			368			711			1059			1206			1074			1388			820			898			645			147					
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23					
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung	0.60			0.62			0.67			0.72			0.74			0.74			0.74			0.73			0.71			0.64			0.60					
Gesamte Reduktion	0.11			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.22			0.18			0.13					
Met.wahrsch.Beschattung	1			70			129			263			363			255			379			228			193			113			19					

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)

Projekt:

Dörenhagen

Beschreibung:

2024-07-Anhang Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:

anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:

08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO006 - Am Bogen 9, 9a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember	
1	08:29			08:04			08:45 (B082)	07:12			08:00 (B083)	07:02		07:42 (B012)	05:58		06:44 (WEA02)	05:12		06:38 (WEA02)	05:08		06:00 (B153)	05:43		06:26 (B223)	06:32		07:21 (B150)	07:21		07:59 (B178)	07:14		08:05 (B084)	08:04
	16:22			17:09	14		08:59 (B082)	18:00		36	08:36 (B253)	19:54	52	08:37 (WEA03)	20:44	18	07:02 (WEA02)	21:30	30	07:08 (WEA02)	21:45	23	07:06 (WEA02)	21:14	53	07:21 (WEA02)	20:13	20	08:16 (WEA03)	19:04	9	08:08 (B178)	16:58	18	08:23 (B084)	16:18
2	08:29			08:03			08:45 (B082)	07:10			08:00 (B083)	07:00		07:42 (B012)	05:56		06:41 (WEA02)	05:11		06:39 (WEA02)	05:09		06:00 (B153)	05:45		06:27 (B223)	06:34		07:21 (B150)	07:22			07:16		08:06 (B084)	08:06
	16:23			17:11	13		08:58 (B082)	18:02		35	08:35 (B253)	19:55	51	08:36 (WEA03)	20:46	23	07:04 (WEA02)	21:31	28	07:07 (WEA02)	21:44	23	07:06 (WEA02)	21:13	52	07:22 (WEA02)	20:11	31	08:21 (WEA03)	19:02			16:57	17	08:23 (B084)	16:17
3	08:29			08:01			08:46 (B082)	07:08			07:59 (B083)	06:57		07:42 (B012)	05:54		06:39 (WEA02)	05:10		06:39 (WEA02)	05:09		06:02 (B153)	05:46		06:28 (B223)	06:36		07:20 (B150)	07:24		08:45 (B083)	07:17		08:06 (B084)	08:07
	16:24			17:13	11		08:57 (B082)	18:04		34	08:33 (B253)	19:57	51	08:36 (WEA03)	20:47	26	07:05 (WEA02)	21:32	27	07:06 (WEA02)	21:44	22	07:07 (WEA02)	21:11	48	07:21 (WEA02)	20:09	36	08:23 (WEA03)	19:00	5	08:50 (B083)	16:55	15	08:21 (B084)	16:16
4	08:29			08:00			08:47 (B082)	07:05			07:59 (B083)	06:55		07:42 (B012)	05:52		06:38 (WEA02)	05:10		06:40 (WEA02)	05:10		06:04 (B153)	05:48		06:29 (B223)	06:37		07:21 (B150)	07:26		08:41 (B083)	07:19		08:07 (B084)	08:09
	16:25			17:14	10		08:57 (B082)	18:05		31	08:30 (B253)	19:59	50	08:35 (WEA03)	20:49	28	07:06 (WEA02)	21:33	27	07:07 (WEA02)	21:44	21	07:09 (WEA02)	21:09	43	07:20 (WEA02)	20:06	39	08:25 (WEA03)	18:57	13	08:54 (B083)	16:53	13	08:20 (B084)	16:16
5	08:29			07:58			08:49 (B082)	07:03			07:59 (B083)	06:53		07:42 (B012)	05:50		06:37 (WEA02)	05:09		06:41 (WEA02)	05:11		06:50 (WEA02)	05:49		06:44 (WEA02)	06:39		07:22 (B150)	07:27		08:38 (B083)	07:21		08:09 (B084)	08:10
	16:26			17:16	6		08:55 (B082)	18:07		25	08:24 (B083)	20:00	47	08:34 (WEA03)	20:50	31	07:08 (WEA02)	21:34	25	07:06 (WEA02)	21:43	20	07:10 (WEA02)	21:08	36	07:20 (WEA02)	20:04	40	08:27 (WEA03)	18:55	17	08:55 (B083)	16:51	10	08:19 (B084)	16:15
6	08:29			07:56				07:01			07:59 (B083)	06:51		07:44 (B012)	05:48		06:36 (WEA02)	05:08		06:41 (WEA02)	05:12		06:48 (WEA02)	05:51		06:44 (WEA02)	06:40		07:22 (B150)	07:29		08:37 (B083)	07:23			08:11
	16:28			17:18				18:09	24		08:23 (B083)	20:02	42	08:33 (WEA03)	20:52	32	07:08 (WEA02)	21:35	24	07:05 (WEA02)	21:43	22	07:10 (WEA02)	21:06	35	07:19 (WEA02)	20:02	40	08:27 (WEA03)	18:53	19	08:56 (B083)	16:49			16:15
7	08:28			07:55			08:40 (B084)	06:59			07:59 (B083)	06:48		07:27 (B150)	05:46		06:35 (WEA02)	05:08		06:42 (WEA02)	05:12		06:48 (WEA02)	05:53		06:45 (WEA02)	06:42		07:25 (B150)	07:31		08:36 (B082)	07:24		08:20 (B082)	08:13
	16:29			17:20	8		08:48 (B084)	18:11		23	08:22 (B083)	20:04	39	08:32 (WEA03)	20:54	34	07:09 (WEA02)	21:36	23	07:05 (WEA02)	21:42	23	07:11 (WEA02)	21:04	34	07:19 (WEA02)	20:00	40	08:28 (WEA03)	18:51	22	08:58 (B083)	16:48	4	08:24 (B082)	16:14
8	08:28			07:53			08:39 (B084)	06:57			08:00 (B083)	06:46		07:25 (B150)	05:45		06:35 (WEA02)	05:07		06:43 (WEA02)	05:13		06:48 (WEA02)	05:54		06:45 (WEA02)	06:44		07:38 (B012)	07:32		08:35 (B083)	07:26		08:18 (B082)	08:14
	16:30			17:22	12		08:51 (B084)	18:12		21	08:21 (B083)	20:05	41	08:31 (WEA03)	20:55	35	07:10 (WEA02)	21:37	22	07:05 (WEA02)	21:42	24	07:12 (WEA02)	21:02	33	07:18 (WEA02)	19:57	44	08:28 (WEA03)	18:48	23	08:58 (B083)	16:46	8	08:26 (B082)	16:14
9	08:28			07:51			08:38 (B084)	06:54			08:00 (B083)	06:44		07:24 (B150)	05:43		06:34 (WEA02)	05:06		06:44 (WEA02)	05:14		06:48 (WEA02)	05:56		06:46 (WEA02)	06:45		07:37 (B012)	07:34		08:34 (B083)	07:28		08:17 (B082)	08:15
	16:31			17:24	14		08:52 (B084)	18:14	19		08:19 (B083)	20:07	40	08:29 (WEA03)	20:57	36	07:10 (WEA02)	21:38	20	07:04 (WEA02)	21:41	25	07:13 (WEA02)	21:00	31	07:17 (WEA02)	19:55	47	08:29 (WEA03)	18:46	24	08:58 (B083)	16:44	11	08:28 (B082)	16:14
10	08:27			07:49			08:37 (B084)	06:52			08:01 (B083)	06:42		07:23 (B150)	05:41		06:21 (B223)	05:06		05:59 (B153)	05:15		06:47 (WEA02)	05:57		06:47 (WEA02)	06:47		07:36 (B012)	07:36		08:33 (B083)	07:30		08:16 (B082)	08:16
	16:33			17:25	16		08:53 (B084)	18:16	17		08:18 (B083)	20:09	37	08:26 (WEA03)	20:59	42	07:11 (WEA02)	21:38	21	07:04 (WEA02)	21:40	26	07:13 (WEA02)	20:59	29	07:16 (WEA02)	19:53	50	08:29 (WEA03)	18:44	25	08:58 (B083)	16:43	13	08:29 (B082)	16:13
11	08:26			07:48			08:36 (B084)	06:50			08:03 (B083)	06:39		07:22 (B150)	05:39		06:18 (B223)	05:06		05:57 (B153)	05:16		06:47 (WEA02)	05:59		06:48 (WEA02)	06:48		07:35 (B012)	07:37		08:33 (B083)	07:32		08:16 (B082)	08:17
	16:34			17:27	18		08:54 (B084)	18:18	13		08:16 (B083)	20:10	34	08:24 (WEA03)	21:00	47	07:11 (WEA02)	21:39	22	07:02 (WEA02)	21:39	27	07:14 (WEA02)	20:57	27	07:15 (WEA02)	19:51	51	08:29 (WEA03)	18:42	30	09:04 (B253)	16:41	13	08:29 (B082)	16:13
12	08:26			07:46			08:35 (B084)	06:48			08:08 (B083)	06:37		07:22 (B150)	05:38		06:16 (B223)	05:05		05:56 (B153)	05:17		06:47 (WEA02)	06:00		06:49 (WEA02)	06:50		07:34 (B012)	07:39		08:34 (B083)	07:33		08:16 (B082)	08:18
	16:36			17:29	19		08:54 (B084)	18:19	4		08:12 (B083)	20:12	27	08:22 (WEA03)	21:02	50	07:10 (WEA02)	21:40	23	07:02 (WEA02)	21:39	28	07:15 (WEA02)	20:55	24	07:13 (WEA02)	19:48	53	08:29 (WEA03)	18:40	33	09:07 (B253)	16:40	14	08:30 (B082)	16:13
13	08:25			07:44			08:35 (B084)	06:45				06:35		07:22 (B150)	05:36		06:16 (B223)	05:05		05:56 (B153)	05:18		06:46 (WEA02)	06:02		06:51 (WEA02)	06:52		07:35 (B012)	07:41		08:33 (B083)	07:35		08:16 (B082)	08:19
	16:37			17:31	19		08:54 (B084)	18:21				20:14	14	07:36 (B150)	21:03	52	07:11 (WEA02)	21:41	24	07:02 (WEA02)	21:38	30	07:16 (WEA02)	20:53	20	07:11 (WEA02)	19:46	51	08:29 (WEA03)	18:37	35	09:08 (B253)	16:38	14	08:30 (B082)	16:13
14	08:25			07:42			08:35 (B084)	06:43			07:19 (B178)	06:33		07:23 (B150)	05:35		06:16 (B223)	05:05		05:56 (B153)	05:19		06:46 (WEA02)	06:04		06:51 (B124)	06:53		07:35 (B012)	07:42		08:33 (B083)	07:37		08:17 (B082)	08:20
	16:39			17:33	19		08:54 (B084)	18:23	9		07:28 (B178)	20:15	12	07:35 (B150)	21:05	54	07:12 (WEA02)	21:41	23	07:02 (WEA02)	21:37	30	07:16 (WEA02)	20:51	17	07:08 (WEA02)	19:44	50	08:28 (WEA03)	18:35	36	09:09 (B253)	16:37	13	08:30 (B082)	16:13
15	08:24			07:40			08:35 (B084)	06:41			07:17 (B178)	06:31		07:24 (B150)	05:33		06:15 (B223)	05:04		05:56 (B153)	05:20		06:45 (WEA02)	06:05		06:50 (B124)	06:55		07:36 (B012)	07:44		08:34 (B083)	07:39		08:17 (B082)	08:21
	16:40			17:35	19		08:54 (B084)	18:25	13		07:30 (B178)	20:17	10	07:34 (B150)	21:06	54	07:11 (WEA02)	21:42	22	07:01 (WEA02)	21:36	32	07:17 (WEA02)	20:49	18	07:08 (B124)	19:41	47	08:28 (WEA03)	18:33	36	09:10 (B253)	16:35	13	08:30 (B082)	16:13
16	08:23			07:38			08:36 (B084)	06:39			07:15 (B178)	06:28		07:25 (B150)	05:31		06:15 (B223)	05:04		05:56 (B153)	05:22		06:45 (WEA02)	06:07		06:49 (B124)	06:56		07:40 (B012)	07:46		08:35 (B083)	07:40		08:18 (B082)	08:22
	16:42			17:36	17		08:53 (B084)	18:26	15		07:30 (B178)	20:19	5	07:30 (B150)	21:08	56	07:12 (WEA02)	21:42	22	07:01 (WEA02)	21:35	32	07:17 (WEA02)	20:47	21	07:27 (B013)	19:39	39	08:28 (WEA03)	18:31	35	09:10 (B253)	16:34	12	08:30 (B082)	16:13
17	08:22			07:36			08:36 (B084)	06:36			07:14 (B178)	06:26		07:17 (B013)	05:30		06:14 (B223)	05:04		05:56 (B153)	05:23		06:45 (WEA02)	06:08		06:49 (B124)	06:58		07:50 (WEA03)	07:48		08:37 (B083)	07:42		08:18 (B082)	08:23
	16:43			17:38	17		08:53 (B084)	18:28	17		07:31 (B178)	20:20	8	07:25 (B013)	21:09	56	07:11 (WEA02)	21:43	21	07:01 (WEA02)	21:34	33	07:18 (WEA02)	20:45	29	07:31 (B013)	19:37	37	08:27 (WEA03)	18:29	33	09:10 (B253)	16:32	11	08:29 (B082)	16:13
18	08:21			07:34			08:37 (B084)	06:34			07:14 (B178)	06:24		07:15 (B013)	05:28		06:14 (B223)	05:04		05:56 (B153)	05:24		06:30 (B223)	06:10		06:48 (B124)	07:00		07:51 (WEA03)	07:49		08:38 (B083)	07:44		08:20 (B082)	08:24
	16:45			17:40	15		08:52 (B084)	18:30	17		07:31 (B178)	20:22	11	07:26 (B013)	21:11	56	07:11 (WEA02)	21:43	21	07:01 (WEA02)	21:33	38	07:18 (WEA02)	20:43	32	07:31 (B013)	19:34	35	08:26 (WEA03)	18:27	31	09:09 (B253)	16:31	8	08:28 (B082)	16:13
19	08:20			07:33			08:39 (B084)	06:32			07:13 (B178)	06:22		07:13 (B013)	05:27		06:15 (B223)	05:04		05:56 (B153)	05:25		06:28 (B223)	06:12		06:49 (B124)	07:01		07:50 (WEA03)	07:51		08:43 (B083)	07:45		08:22 (B082)	08:25
	16:46			17:42	11		08:50 (B084)	18:31	17		07:30 (B178)	20:24	14	07:27 (B013)	21:12	55	07:11 (WEA02)	21:44	20	07:00 (WEA02)	21:32	43	07:19 (WEA02)	20:41	34	07:33 (B013)	19:32	34	08:24 (WEA03)	18:24	20	09:09 (B253)	16:30	4	08:26 (B082)	16:14
20	08:19			07:31			08:28 (B253)	06:29			07:13 (B178)	06:20		06:49 (B124)	05:26		06:15 (B223)	05:04		05:56 (B153)	05:27		06:28 (B223)	06:13		06:48 (B124)	07:03		07:51 (WEA03)	07:53		08:51 (B253)	07:47			08:25
	16:48			17:44	7		08:47 (B084)	18:33	17		07:30 (B178)	20:26	24	07:28 (B013)	21:14	54	07:11 (WEA02)	21:44	19	07:00 (WEA02)	21:31	46	07:20 (WEA02)	20:39	35	07:33 (B013)	19:30	33	08:24 (WEA03)	18:22	17	09:08 (B253)	16:29			16:14
21	08:18			07:29			08:24 (B253)	06:27			07:12 (WEA03)	06:18		06:46 (B124)	05:24		06:15 (B223)	05:04		05:56 (B153)	05:28		06:27 (B223)	06:15		06:49 (B124)	07:04		07:52 (WEA03)	07:54		08:52 (B253)	07:49			08:26
	16:50			17:46	10		08:34 (B253)	18:35	20		07:32 (WEA03)	20:27	29	07:28 (B013)	21:15	53	07:10 (WEA02)	21:44	19	07:00 (WEA02)	21:30	48	07:20 (WEA02)	20:37	34	07:33 (B013)	19:27	31	08:23 (WEA03)	18:20	15	09:07 (B253)	16:27			16:14
22	08:17			07:27			08:22 (B253)	06:25			07:09 (WEA03)	06:16		06:45 (B124)	05:23		06:15 (B223)	05:04		05:56 (B153)	05:29		06:26 (B223)	06:16		06:49 (B124)	07:06		07:53 (WEA03)	07:56		08:54 (B253)	07:50			08:27
	16:51			17:47	14		08:36 (B253)	18:37	24		07:33 (WEA03)	20:29	32	07:28 (B013)	21:17	52	07:10 (WEA02)	21:45	19	07:00 (WEA02)	21:28	51	07:20 (WEA02)	20:35	33	07:33 (B013)	19:25	27	08:20 (WEA03)	18:18	11	09:05 (B253)	16:26			16:15
23	08:16			07:24			08:21 (B253)	06:23			07:07 (WEA03)	06:14		06:44 (B124)	05:22		06:16 (B223)	05:05		05:56 (B153)	05:31		06:25 (B223)	06:18		06:50 (B124)	07:08		07:55 (WEA03)	07:58		08:57 (B253)	07:52			08:27
	16:53			17:49	16		08:37 (B253)	18:38	28		07:35 (WEA03)	20:31	34	07:28 (B013)	21:18	51	07:10 (WEA02)	21:45	19	07:00 (WEA02)	21:27	52	07:20 (WEA02)	20:33	31	07:33 (B013)	19:23	24	08:19 (WEA03)	18:16	6	09:03 (B253)	16:25			16:15
24	08:15			07:22			08:19 (B253)	06:20			07:06 (WEA03)	06:11		06:43 (B124)	05:20		06:17 (B223)	05:05		05:57 (B153)	05:32		06:26 (B223)	06:20		06:51 (B124)	07:09		07:56 (WEA03)	08:00		09:09 (B084)	07:54			08:28
	16:55			17:51	18		08:37 (B253)	18:40	30		07:36 (WEA03)	20:32	34	07:27 (B013)	21:20	48	07:10 (WEA02)	21:45	19	07:01 (WEA02)	21:26	53	07:21 (WEA02)	20:31	27	07:32 (B013)	19:20	19	08:15 (WEA03)	18:14	10	09:19 (B084)	16:24			16:16
25	08:14		08:47 (B082)	07:20			08:37 (B253)	18:42			07:05 (WEA03)	06:09		06:42 (B124)	05:19		06:18 (B223)	05:05		05:57 (B153)	05:33		06:25 (B223)	06:21		06:55 (B124)	07:11		07:57 (B178)	08:01		09:07 (B084)	07:55			08:28
	16:56	6	08:53 (B082)	17:53	29		08:37 (B253)	18:42	32		07:37 (WEA03)	20:34	33	07:26 (B013)	21:21	46	07:10 (WEA02)	21:45	20	07:01 (WEA02)	21:25	54	07:21 (WEA02)	20:28	18	07:31 (B013)	19:18	16	08:13 (B178)	18:12	14	09:21 (B084)	16:23			16:16
26	08:13		08:46 (B082)	07:18			08:05 (B083)	07:16			08:03 (WEA03)	06:07		06:42 (B124)	05:18		06:19 (B223)	05:06		05:57 (B153)	05:35		06:25 (B223)	06:23		07:17 (B013)	07:13		07:57 (B178)	08:03		09:06 (B084)	07:57			08:28
	16:58	9	08:55 (B082)	17:55	33		08:38 (B253)	19:43	34		08:37 (WEA03)	20:36	32	07:25 (B013)	21:22	43	07:10 (WEA02)	21:45	21	07:02 (WEA02)	21:23	54	07:21 (WEA02)	20:26	13	07:30 (B013)	19:16	17	08:14 (B178)	18:10	16	09:22 (B084)	16:22			16:17
27	08:11		08:45 (B082)	07:16			08:03 (B083)	07:13			08:02 (WEA03)	06:05		06:42 (B124)	05:17		06:21 (B223)	05:06		05:58 (B153)	05:36		06:24 (B223)	06:24		07:18 (B013)	07:14		07:56 (B178)	08:05		09:05 (B084)	07:58			08:29
	17:00	12	08:57 (B082)	17:56	35		08:38 (B253)	19:45	36		08:38 (WEA03)	20:37	30	07:24 (B013)	21:24	38	07:09 (WEA02)	21:45	21	07:03 (WEA02)	21:22	56	07:21 (WEA02)	20:24	11	07:29 (B013)	19:14	17	08:13 (B178)	18:08	18	09:23 (B084)	16:21			16:18
28	08:10		08:45 (B082)	07:14			08:02 (B083)	07:11			08:01 (WEA03)	06:03		06:42 (B124)	05:16		06:36 (WEA02)	05:06		05:58 (B153)	05:37		06:25 (B223)	06:26		07:21 (B013)	07:16		07:56 (B178)	08:07		09:05 (B084)	08:00			08:29
	17:02	12	08:57 (B082)	17:58	35		08:37 (B253)	19:47	37		08:38 (WEA03)	20:39	24	07:21 (B013)	21:25	33	07:09 (WEA02)	21:45	22	07:03 (WEA02)	21:20	56	07:22 (WEA02)	20:22	4	07:25 (B013)	19:11	17	08:13 (B178)	18:06	18	09:23 (B084)	16:20			16:18
29	08:09		08:45 (B082)					07:09			07:48 (B012)	06:01		06:42 (B124)	05:15		06:36 (WEA02)	05:07		05:59 (B153)	05:39		06:25 (B223)	06:28		07:26 (B150)	07:17		07:56 (B178)	07:08		09:05 (B084)	08:02			08:29
	17:03	13	08:58 (B082)					19:48	43		08:38 (WEA03)	20:41	18	07:00 (B124)	21:26	32	07:08 (WEA02)	21:45	23	07:05 (WEA02)	21:19	56	07:22 (WEA02)	20:20	8	07:34 (B150)	19:09	15	08:11 (B178)	17:04	19	08:24 (B084)	16:19			16:19
30	08:07		08:44 (B082)					07:07			07:45 (B012)	05:59		06:43 (B124)	05:14		06:36 (WEA02)	05:07		05:59 (B153)	05:40		06:25 (B223)	06:29		07:23 (B150)	07:19		07:57 (B178)	07:10		09:05 (B084)	08:03			08:29
	17:05	14	08:58 (B082)					19:50	48		08:38 (WEA03)	20:42	17	07:00 (WEA02)	21:27	32	07:08 (WEA02)	21:45	23	07:05 (WEA02)	21:17	55	07:21 (WEA02)	20:18	12	07:35 (B150)	19:07	13	08:10 (B178)	17:02	19	08:24 (B084)	16:18			16:20
31	08:06		08:44 (B082)					07:04			07:44 (B012)				05:13		06:37 (WEA02)				05:42		06:26 (B223)	06:31		07:23 (B150)						07:12				08:29
	17:07	14	08:58 (B082)					19:52	50		08:38 (WEA03)				21:28	30	07:07 (WEA02)				21:16	54	07:22 (WEA02)	20:15	13	07:36 (B150)					19	08:24 (B084)				16:21
Sonnenscheinstunden	259			277				366			414			483			497			501			454			382			333			268			245	
astr.max.m0g1.Beschattung		80			455				769			892			1297			670			1157			855			1013			628			211		
Red.Sonnenscheinwahrsch.		0.19			0.32				0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23		
Reduktion Betriebsdauer		0.95			0.95				0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung		0.59			0.62				0.68			0.72			0.73			0.74			0.73			0.73			0.70			0.64			0.60		
Gesamte Reduktion		0.11			0.19				0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.13		
Met.wahrsch.Beschattung		8			87				140			221			388			158			314			239			216			110			27		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO007 - Am Dorfteich 1, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:54 (WEA03)	07:12		08:05 (WEA02)	07:02		05:57		06:51 (B014)	05:12		06:21 (B050)	05:08			05:43			06:32 (B050)	06:32		07:37 (B152)	07:21		08:15 (WEA01)	07:14		08:29 (WEA03)	08:05	
	16:22			17:09	24	09:18 (WEA03)	18:00	29	08:34 (WEA02)	19:54			20:44	27	07:18 (B014)	21:30	18	06:39 (B050)	21:45			21:14	40	07:27 (B014)	20:13	12	07:49 (B152)	19:04	37	08:52 (WEA01)	16:58	15	08:44 (WEA03)	16:18	
2	08:29			08:03		08:53 (WEA03)	07:10		08:05 (WEA02)	07:00			05:56		06:50 (B014)	05:11		06:21 (B050)	05:09			05:45			06:35 (B050)	06:34		07:36 (B152)	07:22		08:15 (WEA01)	07:16		08:28 (WEA03)	08:06	
	16:23			17:11	26	09:19 (WEA03)	18:02	29	08:34 (WEA02)	19:55			20:46	29	07:19 (B014)	21:31	17	06:38 (B050)	21:44			21:13	36	07:28 (B014)	20:11	14	07:50 (B152)	19:02	35	08:50 (WEA01)	16:57	18	08:46 (WEA03)	16:17	
3	08:29			08:01		08:53 (WEA03)	07:08		08:06 (WEA02)	06:57			05:54		06:49 (B014)	05:10		06:21 (B050)	05:09			05:46			06:59 (B014)	06:36		07:35 (B152)	07:24		08:15 (WEA01)	07:17		08:27 (WEA03)	08:07	
	16:24			17:13	25	09:18 (WEA03)	18:04	28	08:34 (WEA02)	19:57			20:47	30	07:19 (B014)	21:32	16	06:37 (B050)	21:44			21:11	29	07:28 (B014)	20:09	14	07:49 (B152)	19:00	35	08:50 (WEA01)	16:55	20	08:47 (WEA03)	16:16	
4	08:29			08:00		08:54 (WEA03)	07:05		08:06 (WEA02)	06:55			05:52		06:48 (B014)	05:10		06:23 (B050)	05:10	06:34 (B050)	05:48		06:58 (B014)	06:37		07:35 (B152)	07:26		08:16 (WEA01)	07:19		08:25 (WEA03)	08:09	
	16:25			17:14	25	09:19 (WEA03)	18:05	27	08:33 (WEA02)	19:59			20:49	31	07:19 (B014)	21:33	15	06:38 (B050)	21:44	4 06:38 (B050)	21:09	30	07:28 (B014)	20:07	15	07:50 (B152)	18:57	33	08:49 (WEA01)	16:53	22	08:47 (WEA03)	16:16	
5	08:29			07:58		08:54 (WEA03)	07:03		07:52 (WEA01)	06:53		07:43 (B152)	05:50		06:49 (B014)	05:09		06:23 (B050)	05:11	06:33 (B050)	05:49		06:58 (B014)	06:39		07:35 (B152)	07:27		08:17 (WEA01)	07:21		08:24 (WEA03)	08:10	
	16:26			17:16	25	09:19 (WEA03)	18:07	35	08:33 (WEA02)	20:00	5	07:48 (B152)	20:51	30	07:19 (B014)	21:34	14	06:37 (B050)	21:43	7 06:40 (B050)	21:08	31	07:29 (B014)	20:04	15	07:50 (B152)	18:55	31	08:48 (WEA01)	16:51	24	08:48 (WEA03)	16:15	
6	08:29			07:56		08:54 (WEA03)	07:01		07:47 (WEA01)	06:51		07:40 (B152)	05:48		06:48 (B014)	05:08		06:24 (B050)	05:12	06:31 (B050)	05:51		06:57 (B014)	06:40		07:35 (B152)	07:29		08:17 (WEA01)	07:23		08:24 (WEA03)	08:11	
	16:28			17:18	25	09:19 (WEA03)	18:09	41	08:31 (WEA02)	20:02	10	07:50 (B152)	20:52	31	07:19 (B014)	21:35	12	06:36 (B050)	21:43	10 06:41 (B050)	21:06	31	07:28 (B014)	20:02	13	07:48 (B152)	18:53	42	09:01 (WEA02)	16:49	24	08:48 (WEA03)	16:15	
7	08:28			07:55		08:54 (WEA03)	06:59		07:44 (WEA01)	06:48		07:39 (B152)	05:46		06:48 (B014)	05:08		06:25 (B050)	05:12	06:31 (B050)	05:52		06:58 (B014)	06:42		07:36 (B152)	07:31		08:19 (WEA01)	07:24		08:24 (WEA03)	08:13	
	16:29			17:20	24	09:18 (WEA03)	18:11	44	08:29 (WEA02)	20:04	13	07:52 (B152)	20:54	31	07:19 (B014)	21:36	11	06:36 (B050)	21:42	11 06:42 (B050)	21:04	31	07:29 (B014)	20:00	11	07:47 (B152)	18:51	44	09:04 (WEA02)	16:48	25	08:49 (WEA03)	16:14	
8	08:28			07:53		08:56 (WEA03)	06:57		07:43 (WEA01)	06:46		07:38 (B152)	05:45		06:48 (B014)	05:07		06:25 (B050)	05:13	06:30 (B050)	05:54		06:57 (B014)	06:44		07:36 (B152)	07:32		08:20 (WEA01)	07:26		08:24 (WEA03)	08:14	
	16:30			17:22	22	09:18 (WEA03)	18:12	44	08:28 (WEA02)	20:05	14	07:52 (B152)	20:55	31	07:19 (B014)	21:37	9	06:34 (B050)	21:42	13 06:43 (B050)	21:02	31	07:28 (B014)	19:57	9	07:45 (B152)	18:48	44	09:05 (WEA02)	16:46	25	08:49 (WEA03)	16:14	
9	08:28			07:51		08:56 (WEA03)	06:54		07:40 (WEA01)	06:44		07:38 (B152)	05:43		06:48 (B014)	05:06		06:27 (B050)	05:14	06:30 (B050)	05:56		06:58 (B014)	06:45			07:34		08:22 (WEA01)	07:28		08:24 (WEA03)	08:15	
	16:31			17:24	22	09:18 (WEA03)	18:14	42	08:24 (WEA02)	20:07	14	07:52 (B152)	20:57	30	07:18 (B014)	21:38	7	06:34 (B050)	21:41	14 06:44 (B050)	21:00	31	07:29 (B014)	19:55			18:46	41	09:06 (WEA02)	16:44	25	08:49 (WEA03)	16:14	
10	08:27			07:49		08:57 (WEA03)	06:52		07:39 (WEA01)	06:42		07:37 (B152)	05:41		06:49 (B014)	05:06		06:29 (B050)	05:15	06:30 (B050)	05:57		06:57 (B014)	06:47			07:36		08:26 (WEA01)	07:30		08:24 (WEA03)	08:16	
	16:33			17:25	19	09:16 (WEA03)	18:16	31	08:10 (WEA01)	20:09	14	07:51 (B152)	20:59	30	07:19 (B014)	21:38	4	06:33 (B050)	21:40	15 06:45 (B050)	20:59	31	07:28 (B014)	19:53			18:44	36	09:07 (WEA02)	16:43	25	08:49 (WEA03)	16:13	
11	08:27			07:48		08:59 (WEA03)	06:50		07:38 (WEA01)	06:39		07:37 (B152)	05:39		06:48 (B014)	05:06			05:16	06:29 (B050)	05:59		06:58 (B014)	06:48			07:37		08:40 (WEA02)	07:32		08:24 (WEA03)	08:17	
	16:34			17:27	16	09:15 (WEA03)	18:18	33	08:11 (WEA01)	20:10	14	07:51 (B152)	21:00	30	07:18 (B014)	21:39			21:40	16 06:45 (B050)	20:57	30	07:28 (B014)	19:51			18:42	27	09:07 (WEA02)	16:41	25	08:49 (WEA03)	16:13	
12	08:26			07:46		09:01 (WEA03)	06:48		07:37 (WEA01)	06:37		07:37 (B152)	05:38		06:24 (B050)	05:05			05:17	06:29 (B050)	06:00		06:58 (B014)	06:50			07:39		08:40 (WEA02)	07:33		08:25 (WEA03)	08:18	
	16:36			17:29	12	09:13 (WEA03)	18:19	35	08:12 (WEA01)	20:12	13	07:50 (B152)	21:02	36	07:17 (B014)	21:40			21:39	17 06:46 (B050)	20:55	29	07:27 (B014)	19:48			18:40	28	09:08 (WEA02)	16:40	24	08:49 (WEA03)	16:13	
13	08:25			07:44		09:04 (WEA03)	06:45		07:36 (WEA01)	06:35		07:38 (B152)	05:36		06:22 (B050)	05:05			05:18	06:29 (B050)	06:02		06:59 (B014)	06:52			07:41		08:39 (WEA02)	07:35		08:26 (WEA03)	08:19	
	16:37			17:31	5	09:09 (WEA03)	18:21	35	08:11 (WEA01)	20:14	11	07:49 (B152)	21:03	40	07:17 (B014)	21:41			21:38	18 06:47 (B050)	20:53	28	07:27 (B014)	19:46			18:37	28	09:07 (WEA02)	16:38	23	08:49 (WEA03)	16:13	
14	08:25			07:42			06:43		07:35 (WEA01)	06:33		07:40 (B152)	05:35		06:21 (B050)	05:05			05:19	06:28 (B050)	06:04		06:59 (B014)	06:53			07:42		08:38 (WEA02)	07:37		08:26 (WEA03)	08:20	
	16:38			17:33			18:23	37	08:12 (WEA01)	20:15	7	07:47 (B152)	21:05	42	07:17 (B014)	21:41			21:37	22 21:07 (B172)	20:51	27	07:26 (B014)	19:44			18:35	29	09:07 (WEA02)	16:37	23	08:49 (WEA03)	16:13	
15	08:24			07:40			06:41		07:35 (WEA01)	06:31			05:33		06:20 (B050)	05:04			05:20	06:28 (B050)	06:05		07:00 (B014)	06:55		08:03 (B153)	07:44		08:39 (WEA02)	07:39		08:27 (WEA03)	08:21	
	16:40			17:35			18:25	37	08:12 (WEA01)	20:17			21:06	41	07:15 (B014)	21:42			21:36	25 21:07 (B172)	20:49	25	07:25 (B014)	19:41	6	08:09 (B153)	18:33	28	09:07 (WEA02)	16:35	22	08:49 (WEA03)	16:13	
16	08:23			07:38		08:27 (B013)	06:39		07:34 (WEA01)	06:28		07:00 (B087)	05:31		06:19 (B050)	05:04			05:22	06:28 (B050)	06:07		07:00 (B014)	06:56		08:01 (B153)	07:46		08:39 (WEA02)	07:40		08:28 (WEA03)	08:22	
	16:42			17:36	5	08:32 (B013)	18:26	37	08:11 (WEA01)	20:19	8	07:08 (B087)	21:08	42	07:15 (B014)	21:42			21:35	24 21:08 (B172)	20:47	23	07:23 (B014)	19:39	10	08:11 (B153)	18:31	28	09:07 (WEA02)	16:34	20	08:48 (WEA03)	16:13	
17	08:22			07:36		08:25 (B013)	06:36		07:34 (WEA01)	06:26		06:59 (B087)	05:30		06:18 (B050)	05:04			05:23	06:28 (B050)	06:08		07:02 (B014)	06:58		07:58 (B153)	07:48		08:39 (WEA02)	07:42		08:29 (WEA03)	08:23	
	16:43			17:38	9	08:34 (B013)	18:28	37	08:11 (WEA01)	20:20	11	07:10 (B087)	21:09	40	07:13 (B014)	21:43			21:34	24 21:05 (B172)	20:45	20	07:22 (B014)	19:37	25	08:43 (WEA01)	18:29	28	09:07 (WEA02)	16:32	17	08:46 (WEA03)	16:13	
18	08:21			07:35		08:24 (B013)	06:34		07:14 (B223)	06:24		06:58 (B087)	05:28		06:18 (B050)	05:04			05:24	06:27 (B050)	06:10		07:03 (B014)	07:00		07:57 (B223)	07:49		08:38 (WEA02)	07:44		08:30 (WEA03)	08:24	
	16:45			17:40	11	08:35 (B013)	18:30	39	08:11 (WEA01)	20:22	12	07:10 (B087)	21:11	40	07:13 (B014)	21:43			21:33	26 21:04 (B172)	20:43	17	07:20 (B014)	19:34	33	08:46 (WEA01)	18:27	27	09:05 (WEA02)	16:31	16	08:46 (WEA03)	16:13	
19	08:20			07:33		08:21 (WEA02)	06:32		07:09 (B223)	06:22		06:57 (B087)	05:27		06:18 (B050)	05:04			05:25	06:27 (B050)	06:12		07:06 (B014)	07:01		07:54 (B223)	07:51		08:39 (WEA02)	07:45		08:32 (WEA03)	08:25	
	16:46			17:42	13	08:35 (B013)	18:31	47	08:10 (WEA01)	20:24	13	07:10 (B087)	21:12	38	07:12 (B014)	21:44			21:32	25 21:03 (B172)	20:41	11	07:17 (B014)	19:32	40	08:48 (WEA01)	18:24	26	09:05 (WEA02)	16:30	12	08:44 (WEA03)	16:14	
20	08:19			07:31		08:15 (WEA02)	06:29		07:08 (B223)	06:20		06:57 (B087)	05:26		06:18 (B050)	05:04			05:27	06:28 (B050)	06:13		07:06 (B087)	07:03		07:53 (B223)	07:53		08:40 (WEA02)	07:47		08:35 (WEA03)	08:25	
	16:48			17:44	21	08:36 (B013)	18:33	49	08:09 (WEA01)	20:26	13	07:10 (B087)	21:14	36	07:10 (B014)	21:44			21:31	23 21:02 (B172)	20:39	4	07:10 (B087)	19:30	45	08:50 (WEA01)	18:22	24	09:04 (WEA02)	16:29	7	08:42 (WEA03)	16:14	
21	08:18			07:29		08:13 (WEA02)	06:27		07:07 (B223)	06:18		06:57 (B087)	05:24		06:17 (B050)	05:04			05:28	06:28 (B050)	06:15		07:04 (B087)	07:05		07:53 (B223)	07:54		08:41 (WEA02)	07:49			08:26	
	16:50			17:46	22	08:35 (B013)	18:35	52	08:09 (WEA01)	20:27	13	07:10 (B087)	21:15	32	07:08 (B014)	21:44			21:30	22 06:50 (B050)	20:37	9	07:13 (B087)	19:27	47	08:51 (WEA01)	18:20	24	09:05 (B013)	16:27			16:14	
22	08:17			07:27		08:11 (WEA02)	06:25		07:07 (B223)	06:16		06:57 (B087)	05:23		06:17 (B050)	05:04			05:29	06:27 (B050)	06:16		07:02 (B087)	07:06		07:51 (B223)	07:56		08:43 (WEA02)	07:50			08:27	
	16:51			17:47	24	08:35 (B013)	18:37	52	08:08 (WEA01)	20:29	12	07:09 (B087)	21:17	22	06:39 (B050)	21:45			21:29	23 06:50 (B050)	20:35	11	07:13 (B087)	19:25	51	08:52 (WEA01)	18:18	23	09:06 (B013)	16:26			16:15	
23	08:16		09:03 (WEA03)	07:24		08:10 (WEA02)	06:23		07:06 (B223)	06:14		06:58 (B087)	05:22		06:17 (B050)	05:05			05:30	06:27 (B050)	06:18		07:02 (B087)	07:08		07:51 (B223)	07:58		08:45 (WEA02)	07:52			08:27	
	16:53	2	09:05 (WEA03)	17:49	23	08:33 (WEA02)	18:38	50	08:06 (WEA01)	20:31	10	07:08 (B087)	21:18	23	06:40 (B050)	21:45			21:27	22 06:49 (B050)	20:33	12	07:14 (B087)	19:23	52	08:53 (WEA01)	18:16	21	09:06 (B013)	16:25			16:15	
24	08:15		08:59 (WEA03)	07:22		08:08 (WEA02)	06:20		07:06 (B223)	06:11		07:00 (B087)	05:20		06:18 (B050)	05:05			05:32	06:27 (B050)	06:20		07:01 (B087)	07:09		07:51 (B223)	08:00		08:48 (WEA02)	07:54			08:28	
	16:55	10	09:09 (WEA03)	17:51	25	08:33 (WEA02)	18:40	49	08:05 (WEA01)	20:32	6	07:06 (B087)	21:20	22	06:40 (B050)	21:45			21:26	31 07:17 (B014)	20:31	13	07:14 (B087)	19:21	51	08:52 (WEA01)	18:14	17	09:05 (B013)	16:24			16:16	
25	08:14		08:58 (WEA03)	07:20		08:07 (WEA02)	06:18		07:07 (B223)	06:09		07:01 (B014)	05:19		06:18 (B050)	05:05			05:33	06:28 (B050)	06:21		07:01 (B087)	07:11		07:52 (B223)	08:01		08:53 (B013)	07:55			08:28	
	16:56	14	09:12 (WEA03)	17:53	27	08:34 (WEA02)	18:42	44	08:03 (WEA01)	20:34	9	07:10 (B014)	21:21	23	20:52 (B172)	21:45			21:25	35 07:20 (B014)	20:29	13	07:14 (B087)	19:18	48	08:53 (WEA01)	18:12	12	09:05 (B013)	16:23			16:16	
26	08:13		08:56 (WEA03)	07:18		08:07 (WEA02)	07:16		08:07 (B223)	06:07		06:57 (B014)	05:18		06:18 (B050)	05:05			05:35	06:28 (B050)	06:23		07:00 (B087)	07:13		07:53 (B223)	08:03		08:54 (B013)	07:57			08:28	
	16:58	17	09:13 (WEA03)	17:55	28	08:35 (WEA02)	19:43	39	09:00 (WEA01)	20:36	15	07:12 (B014)	21:22	25	20:54 (B172)	21:45			21:23	38 07:22 (B014)	20:26	13	07:13 (B087)	19:16	46	08:54 (WEA01)	18:10	10	09:04 (B013)	16:22			16:17	
27	08:11		08:56 (WEA03)	07:16		08:06 (WEA02)	07:13		08:09 (B153)	06:05		06:55 (B014)	05:17		06:18 (B050)	05:06			05:36	06:28 (B050)	06:24		07:01 (B087)	07:14		08:16 (WEA01)	08:05		08:55 (B013)	07:59			08:29	
	17:00	19	09:15 (WEA03)	17:56	29	08:35 (WEA02)	19:45	31	08:57 (WEA01)	20:37	19	07:14 (B014)	21:24	26	20:55 (B172)	21:45			21:22	40 07:23 (B014)	20:24	12	07:13 (B087)	19:14	37	08:53 (WEA01)	18:08	7	09:02 (B013)	16:21			16:18	
28	08:10		08:55 (WEA03)	07:14		08:06 (WEA02)	07:11		08:10 (B153)	06:03		06:53 (B014)	05:16		06:19 (B050)	05:06			05:37	06:29 (B050)	06:26		07:01 (B087)	07:16		08:16 (WEA01)	08:07			08:00			08:29	
	17:02	20	09:15 (WEA03)	17:58	29	08:35 (WEA02)	19:47	19	08:52 (WEA01)	20:39	22	07:15 (B014)	21:25	24	20:56 (B172)	21:45			21:20	41 07:24 (B014)	20:22	10	07:11 (B087)	19:11	37	08:53 (WEA01)	18:06			16:20			16:18	
29	08:09		08:55 (WEA03)				07:09		08:11 (B153)	06:01		06:52 (B014)	05:15		06:19 (B050)	05:07			05:39	06:29 (B050)	06:28		07:03 (B087)	07:17		08:15 (WEA01)	07:08			08:02			08:29	
	17:03	22	09:17 (WEA03)				19:48	9	08:20 (B153)	20:41	24	07:16 (B014)	21:26	24	20:57 (B172)	21:45			21:19	42 07:25 (B014)	20:20	6	07:09 (B087)	19:09	37	08:52 (WEA01)	17:04			16:19			16:19	
30	08:07		08:54 (WEA03)				07:07		08:15 (B153)	05:59		06:52 (B014)	05:14		06:19 (B050)	05:07			05:40	06:30 (B050)	06:29		07:42 (B152)	07:19		08:15 (WEA01)	07:10			08:03			08:29	
	17:05	23	09:17 (WEA03)				19:50	1	08:16 (B153)	20:42	26	07:18 (B014)	21:27	25	20:58 (B172)	21:45			21:17	43 07:26 (B014)	20:18	2	07:44 (B152)	19:07	37	08:52 (WEA01)	17:02			16:18			16:20	
31	08:06		08:53 (WEA03)				07:04						05:13		06:19 (B050)				05:42	06:31 (B050)	06:31		07:39 (B152)				07:12		08:31 (WEA03)				08:29	
	17:07	24	09:17 (WEA03)				19:52						21:29	22	20:58 (B172)				21:16	42 07:27 (B014)	20:15	9	07:48 (B152)				17:00	11	08:42 (WEA03)				16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		151			536			1082			328			953			123			673			645			705			776			412				
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung		0.58			0.61			0.66			0.73			0.73			0.74			0.73			0.73			0.68			0.65			0.58			
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			0.12			
Met.wahrsch.Beschattung		16			100			194			83			284			29			182			179			146			137			51			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO008 - Am Dorfteich 2, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember	
1	08:29			08:04			09:00 (WEA03)	07:12			08:00 (WEA01)	07:02				05:57			06:58 (B014)	05:12		06:31 (B050)	05:08			05:43			06:36 (B050)	06:32			07:21			08:26 (WEA01)	07:14			08:05	
	16:22			17:09	26	09:26 (WEA03)	18:00	39	08:41 (WEA02)	19:54			20:44	31	07:29 (B014)	21:30	11	06:42 (B050)	21:45			21:14	39	07:32 (B014)	20:13			19:04	37	09:03 (WEA01)	16:58				16:18	
2	08:29			08:03		09:00 (WEA03)	07:10		07:57 (WEA01)	07:00		07:51 (B152)	05:56		06:57 (B014)	05:11		06:32 (B050)	05:09			05:45		06:37 (B050)	06:34			07:22		08:25 (WEA01)	07:16				08:06	
	16:23			17:11	25	09:25 (WEA03)	18:02	43	08:40 (WEA02)	19:55	9	08:00 (B152)	20:46	32	07:29 (B014)	21:31	9	06:41 (B050)	21:44			21:13	40	07:34 (B014)	20:11			19:02	37	09:02 (WEA01)	16:57				16:17	
3	08:29			08:01		09:01 (WEA03)	07:08		07:55 (WEA01)	06:57		07:49 (B152)	05:54		06:57 (B014)	05:10		06:33 (B050)	05:09			05:46		06:37 (B050)	06:36		07:48 (B152)	07:24		08:25 (WEA01)	07:17		08:38 (WEA03)	08:07	
	16:24			17:12	24	09:25 (WEA03)	18:04	44	08:39 (WEA02)	19:57	12	08:01 (B152)	20:47	31	07:28 (B014)	21:32	6	06:39 (B050)	21:44			21:11	41	07:35 (B014)	20:09	6	07:54 (B152)	19:00	37	09:02 (WEA01)	16:55	11	08:49 (WEA03)	16:16	
4	08:29			08:00		09:02 (WEA03)	07:05		07:54 (WEA01)	06:55		07:48 (B152)	05:52		06:56 (B014)	05:10			05:10			05:48		06:38 (B050)	06:37		07:46 (B152)	07:26		08:25 (WEA01)	07:19		08:35 (WEA03)	08:09	
	16:25			17:14	23	09:25 (WEA03)	18:05	44	08:38 (WEA02)	19:59	14	08:02 (B152)	20:49	32	07:28 (B014)	21:33			21:44			21:09	39	07:35 (B014)	20:07	10	07:56 (B152)	18:57	37	09:02 (WEA01)	16:53	15	08:50 (WEA03)	16:16	
5	08:29			07:58		09:02 (WEA03)	07:03		07:52 (WEA01)	06:53		07:47 (B152)	05:50		06:57 (B014)	05:09			05:11			05:49		06:41 (B050)	06:39		07:45 (B152)	07:27		08:25 (WEA01)	07:21		08:34 (WEA03)	08:10	
	16:26			17:16	23	09:25 (WEA03)	18:07	44	08:36 (WEA02)	20:00	14	08:01 (B152)	20:51	31	07:28 (B014)	21:34			21:43			21:08	37	07:36 (B014)	20:04	12	07:57 (B152)	18:55	37	09:02 (WEA01)	16:51	18	08:52 (WEA03)	16:15	
6	08:29			07:56		09:03 (WEA03)	07:01		07:50 (WEA01)	06:51		07:47 (B152)	05:48		06:57 (B014)	05:08			05:12			05:51		07:07 (B014)	06:40		07:43 (B152)	07:29		08:24 (WEA01)	07:23		08:33 (WEA03)	08:11	
	16:28			17:18	21	09:24 (WEA03)	18:09	42	08:32 (WEA02)	20:02	15	08:02 (B152)	20:52	31	07:28 (B014)	21:35			21:43			21:06	29	07:36 (B014)	20:02	14	07:57 (B152)	18:53	36	09:00 (WEA01)	16:49	20	08:53 (WEA03)	16:15	
7	08:28			07:55		09:04 (WEA03)	06:59		07:49 (WEA01)	06:48		07:47 (B152)	05:46		06:57 (B014)	05:08			05:12			05:52		07:07 (B014)	06:42		07:43 (B152)	07:31		08:25 (WEA01)	07:24		08:32 (WEA03)	08:13	
	16:29			17:20	19	09:23 (WEA03)	18:11	34	08:23 (WEA01)	20:04	14	08:01 (B152)	20:54	30	07:27 (B014)	21:36			21:42			21:04	30	07:37 (B014)	20:00	15	07:58 (B152)	18:51	35	09:00 (WEA01)	16:48	22	08:54 (WEA03)	16:14	
8	08:28			07:53		09:06 (WEA03)	06:57		07:49 (WEA01)	06:46		07:47 (B152)	05:45		06:58 (B014)	05:07			05:13			05:54		07:06 (B014)	06:44		07:42 (B152)	07:32		08:25 (WEA01)	07:26		08:32 (WEA03)	08:14	
	16:30			17:22	16	09:22 (WEA03)	18:12	35	08:24 (WEA01)	20:05	14	08:01 (B152)	20:55	29	07:27 (B014)	21:37			21:42			21:02	31	07:37 (B014)	19:57	15	07:57 (B152)	18:48	34	08:59 (WEA01)	16:46	23	08:55 (WEA03)	16:14	
9	08:28			07:51		09:08 (WEA03)	06:54		07:47 (WEA01)	06:44		07:48 (B152)	05:43		06:31 (B050)	05:06			05:14			05:56		07:07 (B014)	06:45		07:42 (B152)	07:34		08:25 (WEA01)	07:28		08:32 (WEA03)	08:15	
	16:31			17:24	12	09:20 (WEA03)	18:14	36	08:23 (WEA01)	20:07	12	08:00 (B152)	20:57	36	07:26 (B014)	21:38			21:41			21:00	31	07:38 (B014)	19:55	15	07:57 (B152)	18:46	42	09:07 (WEA02)	16:44	24	08:56 (WEA03)	16:14	
10	08:27			07:49		09:11 (WEA03)	06:52		07:47 (WEA01)	06:42		07:48 (B152)	05:41		06:29 (B050)	05:06			05:15			05:57		07:06 (B014)	06:47		07:42 (B152)	07:36		08:26 (WEA01)	07:30		08:31 (WEA03)	08:16	
	16:33			17:25	6	09:17 (WEA03)	18:16	37	08:24 (WEA01)	20:09	9	07:57 (B152)	20:59	40	07:26 (B014)	21:38			21:40			20:59	31	07:37 (B014)	19:53	13	07:55 (B152)	18:44	44	09:10 (WEA02)	16:43	25	08:56 (WEA03)	16:13	
11	08:27			07:48			06:50		07:47 (WEA01)	06:39			05:39		06:27 (B050)	05:06			05:16		06:41 (B050)	05:59		07:06 (B014)	06:48		07:43 (B152)	07:37		08:28 (WEA01)	07:32		08:31 (WEA03)	08:17	
	16:34			17:27			18:18	37	08:24 (WEA01)	20:10			21:00	41	07:24 (B014)	21:39			21:40	6	06:47 (B050)	20:57	32	07:38 (B014)	19:51	11	07:54 (B152)	18:42	44	09:12 (WEA02)	16:41	25	08:56 (WEA03)	16:13	
12	08:26			07:46			06:48		07:47 (WEA01)	06:37			05:38		06:26 (B050)	05:05			05:17		06:40 (B050)	06:00		07:06 (B014)	06:50		07:44 (B152)	07:39		08:29 (WEA01)	07:33		08:32 (WEA03)	08:18	
	16:36			17:29			18:19	37	08:24 (WEA01)	20:12			21:02	40	07:23 (B014)	21:40			21:39	9	06:49 (B050)	20:55	31	07:37 (B014)	19:48	7	07:51 (B152)	18:40	45	09:14 (WEA02)	16:40	25	08:57 (WEA03)	16:13	
13	08:25			07:44		08:34 (B013)	06:45		07:46 (WEA01)	06:35		07:09 (B087)	05:36		06:25 (B050)	05:05			05:18		06:39 (B050)	06:02		07:06 (B014)	06:52			07:41		08:30 (WEA01)	07:35		08:32 (WEA03)	08:19	
	16:37			17:31	6	08:40 (B013)	18:21	37	08:23 (WEA01)	20:14	4	07:13 (B087)	21:03	40	07:22 (B014)	21:41			21:38	11	06:50 (B050)	20:53	31	07:37 (B014)	19:46			18:37	44	09:14 (WEA02)	16:38	25	08:57 (WEA03)	16:13	
14	08:25			07:42		08:32 (B013)	06:43		07:46 (WEA01)	06:33		07:06 (B087)	05:35		06:25 (B050)	05:05			05:19		06:38 (B050)	06:04		07:06 (B014)	06:53			07:42		08:33 (WEA01)	07:37		08:32 (WEA03)	08:20	
	16:38			17:33	10	08:42 (B013)	18:23	37	08:23 (WEA01)	20:15	9	07:15 (B087)	21:05	38	07:21 (B014)	21:41			21:37	13	06:51 (B050)	20:51	31	07:37 (B014)	19:44			18:35	40	09:14 (WEA02)	16:37	25	08:57 (WEA03)	16:13	
15	08:24			07:40		08:31 (B013)	06:41		07:46 (WEA01)	06:31		07:05 (B087)	05:33		06:24 (B050)	05:04			05:20		06:37 (B050)	06:05		07:06 (B014)	06:55			07:44		08:47 (WEA02)	07:39		08:33 (WEA03)	08:21	
	16:40			17:35	11	08:42 (B013)	18:25	36	08:22 (WEA01)	20:17	11	07:16 (B087)	21:06	36	07:19 (B014)	21:42			21:36	15	06:52 (B050)	20:49	31	07:37 (B014)	19:41			18:33	28	09:15 (WEA02)	16:35	24	08:57 (WEA03)	16:13	
16	08:23			07:38		08:25 (WEA02)	06:39		07:18 (B223)	06:28		07:03 (B087)	05:31		06:24 (B050)	05:04			05:22		06:36 (B050)	06:07		07:06 (B014)	06:56			07:46		08:47 (WEA02)	07:40		08:33 (WEA03)	08:22	
	16:42			17:36	18	08:43 (B013)	18:26	42	08:21 (WEA01)	20:19	13	07:16 (B087)	21:08	32	07:17 (B014)	21:42			21:35	17	06:53 (B050)	20:47	30	07:36 (B014)	19:39			18:31	28	09:15 (WEA02)	16:34	24	08:57 (WEA03)	16:13	
17	08:22			07:36		08:22 (WEA02)	06:36		07:16 (B223)	06:26		07:03 (B087)	05:30		06:23 (B050)	05:04			05:23		06:36 (B050)	06:08		07:07 (B014)	06:58			07:48		08:47 (WEA02)	07:42		08:33 (WEA03)	08:23	
	16:43			17:38	21	08:43 (B013)	18:28	50	08:20 (WEA01)	20:20	13	07:16 (B087)	21:09	23	06:46 (B050)	21:43			21:34	17	06:53 (B050)	20:45	28	07:35 (B014)	19:37			18:29	29	09:16 (WEA02)	16:32	23	08:56 (WEA03)	16:13	
18	08:21			07:35		08:20 (WEA02)	06:34		07:15 (B223)	06:24		07:02 (B087)	05:28		06:24 (B050)	05:04			05:24		06:35 (B050)	06:10		07:07 (B014)	07:00		08:12 (B153)	07:49		08:46 (WEA02)	07:44		08:34 (WEA03)	08:24	
	16:45			17:40	23	08:43 (B013)	18:30	51	08:19 (WEA01)	20:22	14	07:16 (B087)	21:11	23	20:43 (B172)	21:43			21:33	19	06:54 (B050)	20:43	27	07:34 (B014)	19:34	2	08:14 (B153)	18:27	29	09:15 (WEA02)	16:31	22	08:56 (WEA03)	16:13	
19	08:20		09:09 (WEA03)	07:33		08:19 (WEA02)	06:32		07:13 (B223)	06:22		07:03 (B087)	05:27		06:24 (B050)	05:04			05:25		06:35 (B050)	06:12		07:08 (B014)	07:01		08:07 (B153)	07:51		08:46 (WEA02)	07:45		08:35 (WEA03)	08:25	
	16:46	1	09:10 (WEA03)	17:42	23	08:42 (B013)	18:31	51	08:17 (WEA01)	20:24	12	07:15 (B087)	21:12	24	20:45 (B172)	21:44			21:32	19	06:54 (B050)	20:41	25	07:33 (B014)	19:32	10	08:17 (B153)	18:24	29	09:15 (WEA02)	16:30	20	08:55 (WEA03)	16:14	
20	08:19		09:05 (WEA03)	07:31		08:18 (WEA02)	06:29		07:13 (B223)	06:20		07:03 (B087)	05:26		06:23 (B050)	05:04			05:27		06:35 (B050)	06:13		07:08 (B014)	07:03		08:06 (B153)	07:53		08:46 (WEA02)	07:47		08:36 (WEA03)	08:25	
	16:48	10	09:15 (WEA03)	17:44	24	08:42 (WEA02)	18:33	50	08:16 (WEA01)	20:26	12	07:15 (B087)	21:14	26	20:45 (B172)	21:44			21:31	22	20:59 (B172)	20:39	23	07:31 (B014)	19:30	13	08:19 (B153)	18:22	28	09:14 (WEA02)	16:29	19	08:55 (WEA03)	16:14	
21	08:18		09:04 (WEA03)	07:29		08:17 (WEA02)	06:27		07:13 (B223)	06:18		07:04 (B087)	05:24		06:23 (B050)	05:04			05:28		06:35 (B050)	06:15		07:10 (B014)	07:05		08:02 (B223)	07:54		08:47 (WEA02)	07:49		08:37 (WEA03)	08:26	
	16:50	13	09:17 (WEA03)	17:46	26	08:43 (WEA02)	18:35	46	08:14 (WEA01)	20:27	14	07:18 (B014)	21:15	27	20:47 (B172)	21:44			21:30	27	21:01 (B172)	20:37	20	07:30 (B014)	19:27	23	08:50 (WEA01)	18:20	27	09:14 (WEA02)	16:27	17	08:54 (WEA03)	16:14	
22	08:17		09:03 (WEA03)	07:27		08:16 (WEA02)	06:25		07:14 (B223)	06:16		07:06 (B087)	05:23		06:24 (B050)	05:04			05:29		06:34 (B050)	06:16		07:11 (B014)	07:06		07:59 (B223)	07:56		08:47 (WEA02)	07:50		08:39 (WEA03)	08:27	
	16:51	16	09:19 (WEA03)	17:47	27	08:43 (WEA02)	18:37	41	08:12 (WEA01)	20:29	16	07:22 (B014)	21:17	27	20:48 (B172)	21:45			21:29	28	21:00 (B172)	20:35	16	07:27 (B014)	19:25	35	08:54 (WEA01)	18:18	26	09:13 (WEA02)	16:26	15	08:54 (WEA03)	16:15	
23	08:16		09:02 (WEA03)	07:24		08:16 (WEA02)	06:23		07:14 (B223)	06:14		07:05 (B014)	05:22		06:24 (B050)	05:05			05:30		06:34 (B050)	06:18		07:09 (B087)	07:08		07:58 (B223)	07:58		08:48 (WEA02)	07:52		08:41 (WEA03)	08:27	
	16:53	18	09:20 (WEA03)	17:49	28	08:44 (WEA02)	18:38	34	08:08 (WEA01)	20:31	19	07:24 (B014)	21:18	28	20:50 (B172)	21:45			21:27	27	20:58 (B172)	20:33	16	07:25 (B014)	19:23	43	08:57 (WEA01)	18:16	25	09:13 (WEA02)	16:25	12	08:53 (WEA03)	16:15	
24	08:15		09:01 (WEA03)	07:22		08:15 (WEA02)	06:20		07:15 (B223)	06:11		07:03 (B014)	05:20		06:25 (B050)	05:05			05:32		06:34 (B050)	06:20		07:07 (B087)	07:09		07:57 (B223)	08:00		08:48 (WEA02)	07:54		08:43 (WEA03)	08:28	
	16:55	20	09:21 (WEA03)	17:51	28	08:43 (WEA02)	18:40	18	07:33 (B153)	20:32	22	07:25 (B014)	21:20	27	20:51 (B172)	21:45			21:26	26	20:57 (B172)	20:31	11	07:18 (B087)	19:21	47	08:58 (WEA01)	18:14	23	09:11 (WEA02)	16:24	7	08:50 (WEA03)	16:16	
25	08:14		09:01 (WEA03)	07:20		08:14 (WEA02)	06:18		07:20 (B153)	06:09		07:02 (B014)	05:19		06:25 (B050)	05:05			05:33		06:34 (B050)	06:21		07:06 (B087)	07:11		07:57 (B223)	08:01		08:49 (WEA02)	07:55			08:28	
	16:56	22	09:23 (WEA03)	17:53	29	08:43 (WEA02)	18:42	12	07:32 (B153)	20:34	24	07:26 (B014)	21:21	23	20:50 (B172)	21:45			21:25	26	20:56 (B172)	20:29	13	07:19 (B087)	19:18	49	09:00 (WEA01)	18:12	23	09:12 (B013)	16:23				16:16	
26	08:13		09:00 (WEA03)	07:18		08:14 (WEA02)	07:16		08:20 (B153)	06:07		07:01 (B014)	05:18		06:26 (B050)	05:05			05:35		06:34 (B050)	06:23		07:05 (B087)	07:13		07:57 (B223)	08:03		08:51 (WEA02)	07:57			08:28	
	16:58	23	09:23 (WEA03)	17:55	29	08:43 (WEA02)	19:43	9	08:29 (B153)	20:36	26	07:27 (B014)	21:22	19	06:45 (B050)	21:45			21:23	25	20:55 (B172)	20:26	14	07:19 (B087)	19:16	51	09:01 (WEA01)	18:10	21	09:12 (B013)	16:22				16:17	
27	08:11		09:01 (WEA03)	07:16		08:15 (WEA02)	07:13			06:05		07:00 (B014)	05:17		06:26 (B050)	05:06			05:36		06:34 (B050)	06:24		07:05 (B087)	07:14		07:56 (B223)	08:05		08:54 (WEA02)	07:59			08:29	
	17:00	23	09:24 (WEA03)	17:56	28	08:43 (WEA02)	19:45			20:37	28	07:28 (B014)	21:24	19	06:45 (B050)	21:45			21:22	22	06:56 (B050)	20:24	14	07:19 (B087)	19:14	51	09:01 (WEA01)	18:08	18	09:12 (B013)	16:21				16:18	
28	08:10		09:00 (WEA03)	07:14		08:15 (WEA02)	07:11			06:03		06:59 (B014)	05:16		06:27 (B050)	05:06			05:37		06:35 (B050)	06:26		07:05 (B087)	07:16		07:58 (B223)	08:07		09:01 (B013)	08:00			08:29	
	17:02	24	09:24 (WEA03)	17:58	28	08:43 (WEA02)	19:47			20:39	29	07:28 (B014)	21:25	17	06:44 (B050)	21:45			21:20	23	20:53 (B142)	20:22	13	07:18 (B087)	19:11	49	09:02 (WEA01)	18:06	11	09:12 (B013)	16:20				16:18	
29	08:09		09:00 (WEA03)				07:09			06:01		06:58 (B014)	05:15		06:27 (B050)	05:07			05:39		06:34 (B050)	06:28		07:05 (B087)	07:17		07:59 (B223)	08:02		09:01 (B013)	08:02			08:29	
	17:03	25	09:25 (WEA03)				19:48			20:41	30	07:28 (B014)	21:26	17	06:44 (B050)	21:45			21:19	32	07:27 (B014)	20:20	13	07:18 (B087)	19:09	43	09:02 (WEA01)	17:04	11	08:12 (B013)	16:19				16:19	
30	08:07		09:00 (WEA03)				07:07			05:59		06:58 (B014)	05:14		06:28 (B050)	05:07			05:40		06:34 (B050)	06:29		07:05 (B087)	07:19		08:26 (WEA01)	07:10		08:03 (B013)	08:03			08:29	
	17:05	25	09:25 (WEA03)				19:50			20:42	31	07:29 (B014)	21:27	15	06:43 (B050)	21:45			21:17	36	07:29 (B014)	20:18	11	07:16 (B087)	19:07	36	09:02 (WEA01)	17:02	7	08:10 (B013)	16:18				16:20	
31	08:06		09:00 (WEA03)				07:04						05:13		06:29 (B050)				05:42		06:35 (B050)	06:31		07:07 (B087)				07:12		08:06 (B013)					08:29	
	17:07	25	09:25 (WEA03)				19:52						21:29	13	06:42 (B050)				21:16	39	07:31 (B014)	20:15	7	07:14 (B087)				17:00	1	08:07 (B013)					16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245	
astr.max.mögl.Beschattung		245			554			986			440			878			26			459			785			570			913			441			
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23		
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung		0.56			0.61			0.66			0.73			0.73			0.74			0.73			0.73			0.68			0.64			0.56		
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			0.12		
Met.wahrsch.Beschattung		25			103			175			111			262			6			124			219			118			161			53		

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO009 - Am Dorfteich 4, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			09:07 (WEA03)	07:12		08:00 (WEA01)	07:02		07:57 (B152)	05:57		07:07 (B014)	05:12			05:08	2	21:12 (B143)	05:43		06:41 (B050)	06:32		07:09 (B087)	07:21		08:02 (B223)	07:14		08:07 (B013)	08:05	
	16:22			17:09	23	09:30 (WEA03)	18:00	44	08:44 (WEA02)	19:54	15	08:12 (B152)	20:44	30	07:37 (B014)	21:30				21:45	2	21:14 (B143)	21:14	23	07:04 (B050)	20:13	12	07:21 (B087)	19:04	49	09:08 (WEA01)	16:58	11	08:18 (B013)	16:18			
2	08:29			08:03		09:07 (WEA03)	07:10		08:00 (WEA01)	07:00		07:56 (B152)	05:56		07:07 (B014)	05:11				05:09		21:11 (B143)	05:45		06:41 (B050)	06:34		07:10 (B087)	07:22		08:03 (B223)	07:16		08:08 (B013)	08:06	
	16:23			17:11	22	09:29 (WEA03)	18:02	41	08:41 (WEA02)	19:55	15	08:11 (B152)	20:46	29	07:36 (B014)	21:31				21:44	2	21:13 (B143)	21:13	23	07:04 (B050)	20:11	10	07:20 (B087)	19:02	45	09:08 (WEA01)	16:57	9	08:17 (B013)	16:17			
3	08:29			08:01		09:08 (WEA03)	07:08		07:59 (WEA01)	06:57		07:56 (B152)	05:54		07:07 (B014)	05:10				05:09		21:12 (B143)	05:46		06:41 (B050)	06:36		07:11 (B087)	07:24		08:35 (WEA01)	07:17		08:10 (B013)	08:07	
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31	08:06		09:06 (WEA03)				07:04		07:58 (B152)				05:13							05:42		06:41 (B050)	06:31		07:09 (B087)				07:12		08:01 (WEA02)				08:29	
	17:07	23	09:29 (WEA03)				19:52	14	08:12 (B152)				21:29							21:16	25	20:48 (B172)	20:15	14	07:23 (B087)				17:00	18	08:19 (B013)				16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.m0gl.Beschattung		339			638			829			548			650			65			264			858			399			1048			488				
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung		0.55			0.61			0.66			0.73			0.73			0.60			0.72			0.73			0.68			0.64			0.56			
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.19			0.27			0.28			0.21			0.17			0.12			
Met.wahrsch.Beschattung		34			121			147			138			193			12			71			239			83			183			58			

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO010 - Am Rüenmarkt 4, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:54 (B082)	07:12			08:05 (B083)	07:02			07:51 (B012)	05:57			06:44 (WEA02)	05:12			06:49 (WEA02)	05:08			06:01 (B153)	05:43			06:28 (B223)	06:32			07:28 (B150)	07:21			08:00 (B178)	07:14			08:10 (B084)	08:04		
	16:22			17:09	8	09:02 (B082)	18:00	24		08:29 (B083)	19:54	48	08:42 (WEA03)	20:44	30	07:14 (WEA02)	21:30	20	07:09 (WEA02)	21:45	15	06:16 (B153)	21:14	57	07:28 (WEA02)	20:13	10	07:38 (B150)	19:04	16	08:16 (B178)	16:58	19	08:29 (B084)	16:18				
2	08:29			08:03		08:57 (B082)	07:10			08:05 (B083)	07:00		07:53 (B012)	05:56		06:43 (WEA02)	05:11		06:50 (WEA02)	05:09			06:01 (B153)	05:45			06:29 (B223)	06:34			07:27 (B150)	07:22			08:00 (B178)	07:16			08:10 (B084)	08:06		
	16:23			17:11	2	08:59 (B082)	18:02	24		08:29 (B083)	19:55	42	08:41 (WEA03)	20:46	32	07:15 (WEA02)	21:31	18	07:08 (WEA02)	21:44	15	06:16 (B153)	21:13	55	07:28 (WEA02)	20:11	12	07:39 (B150)	19:02	14	08:14 (B178)	16:57	19	08:29 (B084)	16:17				
3	08:29			08:01			07:08			08:05 (B083)	06:57		08:07 (WEA03)	05:54		06:42 (WEA02)	05:10		06:51 (WEA02)	05:09			06:02 (B153)	05:46			06:29 (B223)	06:36			07:25 (B150)	07:24			08:01 (B178)	07:17			08:09 (B084)	08:07		
	16:24			17:13			18:04	24		08:29 (B083)	19:57	33	08:40 (WEA03)	20:47	33	07:15 (WEA02)	21:32	16	07:07 (WEA02)	21:44	14	06:16 (B153)	21:11	55	07:28 (WEA02)	20:09	14	07:39 (B150)	19:00	11	08:12 (B178)	16:55	19	08:28 (B084)	16:16				
4	08:29			08:00		08:47 (B084)	07:05			08:05 (B083)	06:55		08:08 (WEA03)	05:52		06:41 (WEA02)	05:10		06:02 (B153)	05:10			06:03 (B153)	05:48			06:30 (B223)	06:37			07:25 (B150)	07:26			08:05 (B178)	07:19			08:10 (B084)	08:09		
	16:25			17:14	5	08:52 (B084)	18:05	24		08:29 (B083)	19:59	31	08:39 (WEA03)	20:49	35	07:16 (WEA02)	21:33	16	07:06 (WEA02)	21:44	13	06:16 (B153)	21:09	52	07:27 (WEA02)	20:06	15	07:40 (B150)	18:57	4	08:09 (B178)	16:53	17	08:27 (B084)	16:16				
5	08:29			07:58		08:44 (B084)	07:03			08:06 (B083)	06:53		07:31 (B150)	05:50		06:41 (WEA02)	05:09		06:00 (B153)	05:11			06:03 (B153)	05:49			06:31 (B223)	06:39			07:25 (B150)	07:27				07:21			08:10 (B084)	08:10		
	16:26			17:16	10	08:54 (B084)	18:07	22		08:28 (B083)	20:00	38	08:37 (WEA03)	20:50	36	07:17 (WEA02)	21:34	17	07:04 (WEA02)	21:43	13	06:16 (B153)	21:08	50	07:28 (WEA02)	20:04	28	08:26 (WEA03)	18:55						16:51	17	08:27 (B084)	16:15		
6	08:29			07:56		08:42 (B084)	07:01			08:06 (B083)	06:51		07:30 (B150)	05:48		06:40 (WEA02)	05:08		05:58 (B153)	05:12			06:03 (B153)	05:51			06:32 (B223)	06:40			07:24 (B150)	07:29							08:11 (B084)	08:11		
	16:28			17:18	14	08:56 (B084)	18:09	20		08:26 (B083)	20:02	36	08:35 (WEA03)	20:52	37	07:17 (WEA02)	21:35	13	07:01 (WEA02)	21:43	12	06:15 (B153)	21:06	47	07:27 (WEA02)	20:02	34	08:28 (WEA03)	18:53	8	08:56 (B083)	16:49	15	08:26 (B084)	16:15				
7	08:28			07:55		08:41 (B084)	06:59			08:07 (B083)	06:48		07:29 (B150)	05:46		06:39 (WEA02)	05:08		05:58 (B153)	05:12			06:04 (B153)	05:53			06:49 (WEA02)	06:42			07:25 (B150)	07:31			08:45 (B083)	07:24			08:13 (B084)	08:13		
	16:29			17:20	16	08:57 (B084)	18:11	18		08:25 (B083)	20:04	35	08:33 (WEA03)	20:54	38	07:17 (WEA02)	21:36	11	06:09 (B153)	21:42	11	06:15 (B153)	21:04	38	07:27 (WEA02)	20:00	36	08:30 (WEA03)	18:51	14	08:59 (B083)	16:48	12	08:25 (B084)	16:14				
8	08:28			07:53		08:41 (B084)	06:57			08:09 (B083)	06:46		07:28 (B150)	05:45		06:23 (B223)	05:07		05:58 (B153)	05:13			06:05 (B153)	05:54			06:49 (WEA02)	06:44			07:25 (B150)	07:32			08:43 (B083)	07:26			08:15 (B084)	08:14		
	16:30			17:22	17	08:58 (B084)	18:12	14		08:23 (B083)	20:05	31	08:30 (WEA03)	20:55	46	07:18 (WEA02)	21:37	12	06:10 (B153)	21:42	14	07:08 (WEA02)	21:02	37	07:26 (WEA02)	19:57	38	08:31 (WEA03)	18:48	18	09:01 (B083)	16:46	8	08:23 (B084)	16:14				
9	08:28			07:51		08:41 (B084)	06:54			08:11 (B083)	06:44		07:28 (B150)	05:43		06:21 (B223)	05:06		05:57 (B153)	05:14			06:07 (B153)	05:56			06:50 (WEA02)	06:45			07:28 (B150)	07:34			08:41 (B083)	07:28				08:15		
	16:31			17:24	18	08:59 (B084)	18:14	8		08:19 (B083)	20:07	23	08:26 (WEA03)	20:57	50	07:17 (WEA02)	21:38	13	06:10 (B153)	21:41	17	07:11 (WEA02)	21:00	36	07:26 (WEA02)	19:55	36	08:33 (WEA03)	18:46	20	09:01 (B083)	16:44						16:14		
10	08:27			07:49		08:40 (B084)	06:52				06:42		07:27 (B150)	05:41		06:20 (B223)	05:06		05:58 (B153)	05:15			06:09 (B153)	05:57			06:50 (WEA02)	06:47			08:01 (WEA03)	07:36			08:40 (B083)	07:30				08:16		
	16:33			17:25	19	08:59 (B084)	18:16				20:09	14	07:41 (B150)	20:59	52	07:18 (WEA02)	21:38	13	06:11 (B153)	21:40	16	07:13 (WEA02)	20:59	35	07:25 (WEA02)	19:53	32	08:33 (WEA03)	18:44	22	09:02 (B083)	16:43						16:13		
11	08:26			07:48		08:40 (B084)	06:50			07:27 (B178)	06:39		07:27 (B150)	05:39		06:19 (B223)	05:06		05:57 (B153)	05:16			06:59 (WEA02)	05:59			06:51 (WEA02)	06:48			07:48 (B012)	07:37			08:39 (B083)	07:32			08:26 (B082)	08:17
	16:34			17:27	19	08:59 (B084)	18:18	4		07:31 (B178)	20:10	14	07:41 (B150)	21:00	55	07:18 (WEA02)	21:39	14	06:11 (B153)	21:39	16	07:15 (WEA02)	20:57	34	07:25 (WEA02)	19:51	38	08:34 (WEA03)	18:42	24	09:03 (B083)	16:41	6	08:32 (B082)	16:13				
12	08:26			07:46		08:40 (B084)	06:48			07:23 (B178)	06:37		07:28 (B150)	05:38		06:18 (B223)	05:05		05:57 (B153)	05:17			06:58 (WEA02)	06:00			06:51 (WEA02)	06:50			07:45 (B012)	07:39			08:39 (B083)	07:33			08:24 (B082)	08:18
	16:36			17:29	19	08:59 (B084)	18:19	11		07:34 (B178)	20:12	12	07:40 (B150)	21:02	55	07:17 (WEA02)	21:40	15	06:12 (B153)	21:39	18	07:16 (WEA02)	20:55	32	07:23 (WEA02)	19:48	44	08:34 (WEA03)	18:40	24	09:03 (B083)	16:40	10	08:34 (B082)	16:13				
13	08:25			07:44		08:40 (B084)	06:45			07:21 (B178)	06:35		07:30 (B150)	05:36		06:18 (B223)	05:05		05:57 (B153)	05:18			06:57 (WEA02)	06:02			06:52 (WEA02)	06:52			07:43 (B012)	07:41			08:38 (B083)	07:35			08:24 (B082)	08:19
	16:37			17:31	18	08:58 (B084)	18:21	14		07:35 (B178)	20:14	8	07:38 (B150)	21:03	56	07:18 (WEA02)	21:41	15	06:12 (B153)	21:38	20	07:17 (WEA02)	20:53	31	07:23 (WEA02)	19:46	48	08:34 (WEA03)	18:37	24	09:02 (B083)	16:38	11	08:35 (B082)	16:13				
14	08:25			07:42		08:41 (B084)	06:43			07:20 (B178)	06:33		07:24 (B013)	05:35		06:18 (B223)	05:05		05:57 (B153)	05:19			06:58 (WEA02)	06:04			06:53 (WEA02)	06:53			07:42 (B012)	07:42			08:38 (B083)	07:37			08:23 (B082)	08:20
	16:39			17:33	17	08:58 (B084)	18:23	16		07:36 (B178)	20:15	8	07:32 (B013)	21:05	56	07:18 (WEA02)	21:41	16	06:13 (B153)	21:37	22	07:18 (WEA02)	20:51	28	07:21 (WEA02)	19:44	50	08:34 (WEA03)	18:35	24	09:02 (B083)	16:37	13	08:36 (B082)	16:13				
15	08:24			07:40		08:42 (B084)	06:41			07:20 (B178)	06:31		07:22 (B013)	05:33		06:18 (B223)	05:04		05:58 (B153)	05:20			06:55 (WEA02)	06:05			06:55 (WEA02)	06:55			07:41 (B012)	07:44			08:38 (B083)	07:39			08:23 (B082)	08:21
	16:40			17:35	15	08:57 (B084)	18:25	16		07:36 (B178)	20:17	12	07:34 (B013)	21:06	56	07:17 (WEA02)	21:42	15	06:13 (B153)	21:36	24	07:19 (WEA02)	20:49	25	07:20 (WEA02)	19:41	52	08:34 (WEA03)	18:33	34	09:12 (B253)	16:35	14	08:37 (B082)	16:13				
16	08:23			07:38		08:43 (B084)	06:39			07:18 (B178)	06:28		07:19 (B013)	05:31		06:18 (B223)	05:04		05:58 (B153)	05:22			06:54 (WEA02)	06:07			06:55 (B124)	06:56			07:42 (B012)	07:46			08:38 (B083)	07:40			08:23 (B082)	08:22
	16:42			17:36	13	08:56 (B084)	18:26	17		07:35 (B178)	20:19	15	07:34 (B013)	21:08	55	07:17 (WEA02)	21:42	16	06:14 (B153)	21:35	26	07:20 (WEA02)	20:47	22	07:17 (WEA02)	19:39	52	08:35 (WEA03)	18:31	36	09:14 (B253)	16:34	14	08:37 (B082)	16:13				
17	08:22			07:36		08:32 (B253)	06:36			07:18 (B178)	06:26		07:19 (B013)	05:30		06:18 (B223)	05:04		05:58 (B153)	05:23			06:54 (WEA02)	06:08			06:54 (B124)	06:58			07:41 (B012)	07:48			08:39 (B083)	07:42			08:23 (B082)	08:23
	16:43			17:38	17	08:54 (B084)	18:28	19		07:37 (WEA03)	20:20	15	07:34 (B013)	21:09	55	07:17 (WEA02)	21:43	16	06:14 (B153)	21:34	27	07:21 (WEA02)	20:45	21	07:15 (WEA02)	19:37	51	08:34 (WEA03)	18:29	36	09:15 (B253)	16:32	14	08:37 (B082)	16:13				
18	08:21			07:34		08:30 (B253)	06:34			07:19 (WEA03)	06:24		07:35 (B013)	05:28		06:18 (B223)	05:04		05:58 (B153)	05:24			06:53 (WEA02)	06:10			06:53 (B124)	07:00			07:42 (B012)	07:49			08:39 (B083)	07:44			08:23 (B082)	08:24
	16:45			17:40	12	08:42 (B253)	18:30	21		07:40 (WEA03)	20:22	27	07:35 (B013)	21:11	54	07:17 (WEA02)	21:43	16	06:14 (B153)	21:33	29	07:22 (WEA02)	20:43	18	07:11 (WEA02)	19:34	50	08:34 (WEA03)	18:27	36	09:15 (B253)	16:31	14	08:37 (B082)	16:13				
19	08:20			07:33		08:28 (B253)	06:32			07:16 (WEA03)	06:22		07:35 (B124)	05:27		06:19 (B223)	05:04		05:58 (B153)	05:25			06:52 (WEA02)	06:12			06:53 (B124)	07:01			07:42 (B012)	07:51			08:40 (B083)	07:45			08:24 (B082)	08:25
	16:46			17:42	15	08:43 (B253)	18:31	25		07:41 (WEA03)	20:24	31	07:35 (B013)	21:12	53	07:17 (WEA02)	21:44	17	06:15 (B153)	21:32	30	07:22 (WEA02)	20:41	19	07:12 (B124)	19:32	47	08:33 (WEA03)	18:24	35	09:15 (B253)	16:30	13	08:37 (B082)	16:14				
20	08:19		08:54 (B082)	07:31		08:28 (B253)	06:29			07:14 (WEA03)	06:20		06:49 (B124)	05:26		06:20 (B223)	05:04		05:58 (B153)	05:27			06:53 (WEA02)	06:13			06:52 (B124)	07:03			07:45 (B012)	07:53			08:41 (B083)	07:47			08:25 (B082)	08:25
	16:48	2	08:56 (B082)	17:44	16	08:44 (B253)	18:33	29		07:43 (WEA03)	20:26	32	07:34 (B013)	21:14	50	07:16 (WEA02)	21:44	17	06:15 (B153)	21:31	31	07:24 (WEA02)	20:39	27	07:35 (B013)	19:30	39	08:32 (WEA03)	18:22	35	09:16 (B253)	16:29	12	08:37 (B082)	16:14				
21	08:18		08:52 (B082)	07:29		08:27 (B253)	06:27			07:13 (WEA03)	06:18		06:48 (B124)	05:24		06:20 (B223)	05:04		05:58 (B153)	05:28			06:35 (B223)	06:15			06:52 (B124)	07:04			07:56 (WEA03)	07:54			08:44 (B083)	07:49			08:26 (B082)	08:26
	16:50	7	08:59 (B082)	17:46	18	08:45 (B253)	18:35	31		07:44 (WEA03)	20:27	33	07:34 (B013)	21:15	47	07:15 (WEA02)	21:44	17	06:15 (B153)	21:30	35	07:24 (WEA02)	20:37	31	07:37 (B013)	19:27	36	08:32 (WEA03)	18:20	29	09:16 (B253)	16:27	10	08:36 (B082)	16:14				
22	08:17		08:51 (B082)	07:27		08:14 (B083)	06:25			07:11 (WEA03)	06:16		06:47 (B124)	05:23		06:21 (B223)	05:04		05:58 (B153)	05:29			06:33 (B223)	06:16			06:52 (B124)	07:06			07:56 (WEA03)	07:56			08:57 (B253)	07:50			08:27 (B082)	08:27
	16:51	10	09:01 (B082)	17:47	27	08:45 (B253)	18:37	33		07:44 (WEA03)	20:29	34	07:33 (B013)	21:17	46	07:15 (WEA02)	21:45	17	06:15 (B153)	21:28	41	07:25 (WEA02)	20:35	32	07:37 (B013)	19:25	34	08:30 (WEA03)	18:18	18	09:15 (B253)	16:26	9	08:36 (B082)	16:15				
23	08:16		08:50 (B082)	07:24		08:11 (B083)	06:23			07:10 (WEA03)	06:14		06:47 (B124)	05:22		06:23 (B223)	05:05		05:58 (B153)	05:31			06:31 (B223)	06:18			06:52 (B124)	07:08			07:57 (WEA03)	07:58			08:58 (B253)	07:52			08:28 (B082)	08:27
	16:53	11	09:01 (B082)	17:49	33	08:45 (B253)	18:38	35		07:45 (WEA03)	20:31	32	07:32 (B013)	21:18	41	07:15 (WEA02)	21:45	17	06:15 (B153)	21:27	45	07:25 (WEA02)	20:33	33	07:38 (B013)	19:23	33	08:30 (WEA03)	18:16	17	09:15 (B253)	16:25	6	08:34 (B082)	16:15				
24	08:15		08:50 (B082)	07:22		08:09 (B083)	06:20			07:09 (WEA03)	06:11		06:46 (B124)	05:20		06:25 (B223)	05:05		05:59 (B153)	05:32			06:31 (B223)	06:20			06:52 (B124)	07:09			07:57 (WEA03)	08:00			08:58 (B253)	07:54				08:28		
	16:55	13	09:03 (B082)	17:51	35	08:44 (B253)	18:40	37		07:46 (WEA03)	20:32	30	07:30 (B013)	21:20	35	07:14 (WEA02)	21:45	17	06:16 (B153)	21:26	47	07:26 (WEA02)	20:31	34	07:38 (B013)	19:20	31	08:28 (WEA03)	18:14	15	09:13 (B253)	16:24				16:16		
25	08:14		08:49 (B082)	07:20		08:08 (B083)	06:18			06:58 (B012)	06:09		06:46 (B124)	05:19		06:43 (WEA02)	05:05		05:59 (B153)	05:33			06:30 (B223)	06:21			06:54 (B124)	07:11			07:58 (WEA03)	08:01			08:59 (B253)	07:55				08:28		
	16:56	14	09:03 (B082)	17:53	36	08:44 (B253)	18:42	42		07:46 (WEA03)	20:34	22	07:26 (B013)	21:21	31	07:14 (WEA02)	21:45	17	06:16 (B153)	21:25	50	07:26 (WEA02)	20:28	31	07:38 (B013)	19:18	28	08:26 (WEA03)	18:12	13	09:12 (B253)	16:23				16:16		
26	08:13		08:50 (B082)	07:18		08:07 (B083)	07:16			07:54 (B012)	06:07		06:46 (B124)	05:18		06:43 (WEA02)	05:06		05:59 (B153)	05:35			06:29 (B223)	06:23			06:54 (B124)	07:13			08:00 (WEA03)	08:03			09:01 (B253)	07:57				08:28		
	16:58	14	09:04 (B082)	17:55	36	08:43 (B253)	19:43	47		08:45 (WEA03)	20:36	19	07:05 (B124)	21:22	30	07:13 (WEA02)	21:45	16	06:15 (B153)	21:23	52	07:27 (WEA02)	20:26	28	07:37 (B013)	19:16	25	08:25 (WEA03)	18:10	16	09:22 (B084)	16:22				16:17		
27	08:11		08:50 (B082)	07:16		08:06 (B083)	07:13			07:53 (B012)	06:05		06:46 (B124)	05:17		06:44 (WEA02)	05:06		06:00 (B153)	05:36			06:29 (B223)	06:24			06:57 (B124)	07:14			08:01 (WEA03)	08:05			09:13 (B084)	07:58				08:29		
	17:00	14	09:04 (B082)	17:56	36	08:42 (B253)	19:45	51		08:45 (WEA03)	20:37	21	07:07 (WEA02)	21:24	29	07:13 (WEA02)	21:45	16	06:16 (B153)	21:22	53	07:27 (WEA02)	20:24	22	07:37 (B013)	19:14	21	08:22 (WEA03)	18:08	12	09:25 (B084)	16:21				16:18		
28	08:10		08:50 (B082)	07:14		08:06 (B083)	07:11			07:52 (B012)	06:03		06:47 (B124)	05:16		06:45 (WEA02)	05:06		06:00 (B153)	05:37			06:29 (B223)	06:26			07:21 (B013)	07:16			08:00 (B178)	08:07			09:12 (B084)	08:00				08:29		
	17:02	14	09:04 (B082)	17:58	34	08:40 (B253)	19:47	52		08:45 (WEA03)	20:39	22	07:09 (WEA02)	21:25	27	07:12 (WEA02)	21:45	16	06:16 (B153)	21:20	55	07:28 (WEA02)	20:22	15	07:36 (B013)	19:11	19	08:19 (WEA03)	18:06	14	09:26 (B084)	16:20				16:18		
29	08:09		08:51 (B082)				07:09			07:51 (B012)	06:01		06:46 (WEA02)	05:15		06:45 (WEA02)	05:07		06:01 (B153)	05:39			06:28 (B223)	06:28			07:22 (B013)	07:17			07:59 (B178)	07:08			08:11 (B084)	08:02				08:29		
	17:03	13	09:04 (B082)				19:48	52		08:44 (WEA03)	20:41	25	07:11 (WEA02)	21:26	26	07:11 (WEA02)	21:45	15	06:16 (B153)	21:19	56	07:28 (WEA02)	20:20	13	07:35 (B013)	19:09	17	08:16 (B178)	17:04	16	08:27 (B084)	16:19				16:19		
30	08:07		08:51 (B082)				07:07			07:51 (B012)	05:59		06:46 (WEA02)	05:14		06:46 (WEA02)	05:07		06:00 (B153)	05:40			06:28 (B223)	06:29			07:23 (B013)	07:19			07:59 (B178)	07:10			08:10 (B084)	08:03				08:29		
	17:05	13	09:04 (B082)				19:50	52		08:44 (WEA03)	20:42	27	07:13 (WEA02)	21:27	24	07:10 (WEA02)	21:45	16	06:16 (B153)	21:17	56	07:27 (WEA02)	20:18	10	07:33 (B013)	19:07	17	08:16 (B178)	17:02	18	08:28 (B084)	16:18				16:20		
31	08:06		08:52 (B082)				07:04			07:52 (B012)				05:13		06:47 (WEA02)			05:42				06:29 (B223)	06:31			07:25 (B013)				07:12				08:10 (B084)					08:29		
	17:07	11	09:03 (B082)				19:52	50		08:44 (WEA03)				21:28	22	07:09 (WEA02)			21:16	55		07:28 (WEA02)	20:15	12	07:37 (B150)					17:00	18	08:28 (B084)				16:21		
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	136			525			832			770			1292			470			928			980			987			621			272					
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23					
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung	0.58			0.62			0.68			0.72			0.73			0.74			0.73			0.73			0.70			0.63			0.59					
Gesamte Reduktion	0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.13					
Met.wahrsch.Beschattung	14			100			153			191			385			112			251			273			208			108			34					

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO011 - Am Rüenmarkt 9, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember	
1	08:29			08:04			07:12			08:08 (B083)	07:02		08:13 (WEA03)	05:57		06:47 (WEA02)	05:12		06:02 (B153)	05:08		06:04 (B153)	05:43		06:32 (B223)	06:32		07:26 (B013)	07:21		08:02 (B178)	07:14		08:12 (B084)	08:04	
	16:22			17:09			18:00	24	08:32 (B083)	19:54	31	08:44 (WEA03)	20:44	35	07:22 (WEA02)	21:30	11	06:13 (B153)	21:45	18	06:22 (B153)	21:14	54	07:32 (WEA02)	20:13	12	07:38 (B013)	19:04	17	08:19 (WEA03)	16:58	18	08:30 (B084)	16:18	
2	08:29			08:03			07:10			08:08 (B083)	07:00		08:14 (WEA03)	05:56		06:46 (WEA02)	05:11		06:01 (B153)	05:09		06:04 (B153)	05:45		06:32 (B223)	06:34		07:27 (B013)	07:22		08:02 (B178)	07:16		08:12 (B084)	08:06	
	16:23			17:11			18:02	23	08:31 (B083)	19:55	28	08:42 (WEA03)	20:46	36	07:22 (WEA02)	21:31	13	06:14 (B153)	21:44	18	06:22 (B153)	21:13	55	07:33 (WEA02)	20:11	12	07:39 (B150)	19:02	16	08:18 (B178)	16:57	19	08:31 (B084)	16:17	
3	08:29			08:01		08:46 (B084)	07:08		08:09 (B083)	06:57		07:36 (B150)	05:54		06:45 (WEA02)	05:10		06:01 (B153)	05:09		06:05 (B153)	05:46		06:32 (B223)	06:36		07:31 (B150)	07:24		08:02 (B178)	07:17		08:11 (B084)	08:07	
	16:24			17:13	9	08:55 (B084)	18:04	22	08:31 (B083)	19:57	34	08:41 (WEA03)	20:47	38	07:23 (WEA02)	21:32	13	06:14 (B153)	21:44	17	06:22 (B153)	21:11	55	07:33 (WEA02)	20:09	10	07:41 (B150)	19:00	15	08:17 (B178)	16:55	19	08:30 (B084)	16:16	
4	08:29			08:00		08:45 (B084)	07:05		08:09 (B083)	06:55		07:34 (B150)	05:52		06:44 (WEA02)	05:10		06:01 (B153)	05:10		06:05 (B153)	05:48		06:32 (B223)	06:37		07:30 (B150)	07:26		08:03 (B178)	07:19		08:11 (B084)	08:09	
	16:25			17:14	12	08:57 (B084)	18:05	21	08:30 (B083)	19:59	34	08:39 (WEA03)	20:49	38	07:22 (WEA02)	21:33	14	06:15 (B153)	21:44	18	06:23 (B153)	21:09	55	07:32 (WEA02)	20:06	12	07:42 (B150)	18:57	13	08:16 (B178)	16:53	19	08:30 (B084)	16:16	
5	08:29			07:58		08:44 (B084)	07:03		08:11 (B083)	06:53		07:33 (B150)	05:50		06:45 (WEA02)	05:09		06:00 (B153)	05:11		06:06 (B153)	05:49		06:33 (B223)	06:39		07:29 (B150)	07:27		08:04 (B178)	07:21		08:12 (B084)	08:10	
	16:26			17:16	14	08:58 (B084)	18:07	18	08:29 (B083)	20:00	30	08:35 (WEA03)	20:50	38	07:23 (WEA02)	21:34	15	06:15 (B153)	21:43	17	06:23 (B153)	21:08	54	07:33 (WEA02)	20:04	14	07:43 (B150)	18:55	9	08:13 (B178)	16:51	18	08:30 (B084)	16:15	
6	08:29			07:56		08:43 (B084)	07:01		08:11 (B083)	06:51		07:32 (B150)	05:48		06:26 (B223)	05:08		06:00 (B153)	05:12		06:05 (B153)	05:51		06:33 (B223)	06:40		07:28 (B150)	07:29			07:23		08:13 (B084)	08:11	
	16:28			17:18	16	08:59 (B084)	18:09	15	08:26 (B083)	20:02	24	08:32 (WEA03)	20:52	47	07:23 (WEA02)	21:35	16	06:16 (B153)	21:43	17	06:22 (B153)	21:06	53	07:33 (WEA02)	20:02	14	07:42 (B150)	18:53			16:49	16	08:29 (B084)	16:15	
7	08:28			07:55		08:42 (B084)	06:59		08:14 (B083)	06:48		07:32 (B150)	05:46		06:24 (B223)	05:08		06:00 (B153)	05:12		06:06 (B153)	05:53		06:34 (B223)	06:42		07:28 (B150)	07:31			07:24		08:13 (B084)	08:13	
	16:29			17:20	18	09:00 (B084)	18:11	10	08:24 (B083)	20:04	14	07:46 (B150)	20:54	50	07:23 (WEA02)	21:36	16	06:16 (B153)	21:42	16	06:22 (B153)	21:04	51	07:33 (WEA02)	20:00	15	07:43 (B150)	18:51			16:48	16	08:29 (B084)	16:14	
8	08:28			07:53		08:43 (B084)	06:57			06:46		07:32 (B150)	05:45		06:24 (B223)	05:07		06:00 (B153)	05:13		06:07 (B153)	05:54		06:35 (B223)	06:44		07:27 (B150)	07:32		08:50 (B083)	07:26		08:15 (B084)	08:14	
	16:30			17:22	18	09:01 (B084)	18:12			20:05	14	07:46 (B150)	20:55	52	07:23 (WEA02)	21:37	17	06:17 (B153)	21:42	15	06:22 (B153)	21:02	48	07:32 (WEA02)	19:57	28	08:29 (WEA03)	18:48	10	09:00 (B083)	16:46	13	08:28 (B084)	16:14	
9	08:28			07:51		08:43 (B084)	06:54			06:44		07:32 (B150)	05:43		06:22 (B223)	05:06		06:00 (B153)	05:14		06:07 (B153)	05:56		06:39 (B223)	06:45		07:28 (B150)	07:34		08:46 (B083)	07:28		08:16 (B084)	08:15	
	16:31			17:24	18	09:01 (B084)	18:14			20:07	13	07:45 (B150)	20:57	54	07:23 (WEA02)	21:38	17	06:17 (B153)	21:41	15	06:22 (B153)	21:00	41	07:33 (WEA02)	19:55	33	08:32 (WEA03)	18:46	15	09:01 (B083)	16:44	10	08:26 (B084)	16:14	
10	08:27			07:49		08:42 (B084)	06:52		07:27 (B178)	06:42		07:32 (B150)	05:41		06:23 (B223)	05:06		06:00 (B153)	05:15		06:08 (B153)	05:57		06:54 (WEA02)	06:47		07:28 (B150)	07:36		08:45 (B083)	07:30		08:19 (B084)	08:16	
	16:33			17:25	19	09:01 (B084)	18:16	9	07:36 (B178)	20:09	11	07:43 (B150)	20:59	54	07:23 (WEA02)	21:38	18	06:18 (B153)	21:40	14	06:22 (B153)	20:59	38	07:32 (WEA02)	19:53	35	08:33 (WEA03)	18:44	18	09:03 (B083)	16:43	5	08:24 (B084)	16:13	
11	08:26			07:48		08:43 (B084)	06:50		07:25 (B178)	06:39		07:30 (B013)	05:39		06:22 (B223)	05:06		06:00 (B153)	05:16		06:09 (B153)	05:59		06:54 (WEA02)	06:48		07:30 (B150)	07:37		08:44 (B083)	07:32			08:17	
	16:34			17:27	18	09:01 (B084)	18:18	13	07:38 (B178)	20:10	12	07:42 (B150)	21:00	55	07:23 (WEA02)	21:39	17	06:17 (B153)	21:40	13	06:22 (B153)	20:57	38	07:32 (WEA02)	19:51	34	08:35 (WEA03)	18:42	20	09:04 (B083)	16:41			16:13	
12	08:26			07:46		08:43 (B084)	06:48		07:24 (B178)	06:37		07:27 (B013)	05:38		06:21 (B223)	05:05		06:00 (B153)	05:17		06:09 (B153)	06:00		06:54 (WEA02)	06:50		08:06 (WEA03)	07:39		08:43 (B083)	07:33			08:18	
	16:36			17:29	17	09:00 (B084)	18:19	15	07:39 (B178)	20:12	11	07:38 (B013)	21:02	55	07:22 (WEA02)	21:40	18	06:18 (B153)	21:39	13	06:22 (B153)	20:55	37	07:31 (WEA02)	19:48	29	08:35 (WEA03)	18:40	22	09:05 (B083)	16:40			16:13	
13	08:25			07:44		08:43 (B084)	06:45		07:23 (B178)	06:35		07:26 (B013)	05:36		06:22 (B223)	05:05		06:00 (B153)	05:18		06:10 (B153)	06:02		06:55 (WEA02)	06:52		08:05 (WEA03)	07:41		08:41 (B083)	07:35		08:29 (B082)	08:19	
	16:37			17:31	17	09:00 (B084)	18:21	16	07:39 (B178)	20:14	14	07:40 (B013)	21:03	54	07:22 (WEA02)	21:41	19	06:19 (B153)	21:38	11	06:21 (B153)	20:53	36	07:31 (WEA02)	19:46	31	08:36 (WEA03)	18:37	24	09:05 (B083)	16:38	6	08:35 (B082)	16:13	
14	08:25			07:42		08:44 (B084)	06:43		07:22 (B178)	06:33		07:25 (B013)	05:35		06:22 (B223)	05:05		06:01 (B153)	05:19		06:11 (B153)	06:04		06:55 (WEA02)	06:53		08:03 (WEA03)	07:42		08:41 (B083)	07:37		08:28 (B082)	08:20	
	16:39			17:33	15	08:59 (B084)	18:23	18	07:40 (WEA03)	20:15	15	07:40 (B013)	21:05	53	07:22 (WEA02)	21:41	18	06:19 (B153)	21:37	9	06:20 (B153)	20:51	34	07:29 (WEA02)	19:44	33	08:36 (WEA03)	18:35	24	09:05 (B083)	16:37	9	08:37 (B082)	16:13	
15	08:24			07:40		08:35 (B253)	06:41		07:22 (B178)	06:31		07:24 (B013)	05:33		06:22 (B223)	05:04		06:01 (B153)	05:20		06:13 (B153)	06:05		06:56 (WEA02)	06:55		07:50 (B012)	07:44		08:41 (B083)	07:39		08:27 (B082)	08:21	
	16:40			17:35	19	08:57 (B084)	18:25	22	07:44 (WEA03)	20:17	17	07:41 (B013)	21:06	52	07:21 (WEA02)	21:42	18	06:19 (B153)	21:36	5	06:18 (B153)	20:49	33	07:29 (WEA02)	19:41	43	08:37 (WEA03)	18:33	24	09:05 (B083)	16:35	11	08:38 (B082)	16:13	
16	08:23			07:38		08:33 (B253)	06:39		07:22 (WEA03)	06:28		06:57 (B124)	05:31		06:23 (B223)	05:04		06:01 (B153)	05:22		07:10 (WEA02)	06:07		06:56 (WEA02)	06:56		07:49 (B012)	07:46		08:41 (B083)	07:40		08:27 (B082)	08:22	
	16:42			17:36	17	08:54 (B084)	18:26	23	07:45 (WEA03)	20:19	25	07:40 (B013)	21:08	50	07:21 (WEA02)	21:42	19	06:20 (B153)	21:35	5	07:15 (WEA02)	20:47	31	07:27 (WEA02)	19:39	47	08:38 (WEA03)	18:31	24	09:05 (B083)	16:34	12	08:39 (B082)	16:13	
17	08:22			07:36		08:32 (B253)	06:36		07:20 (WEA03)	06:26		06:54 (B124)	05:30		06:22 (B223)	05:04		06:01 (B153)	05:23		07:07 (WEA02)	06:08		06:58 (WEA02)	06:58		07:47 (B012)	07:48		08:41 (B083)	07:42		08:26 (B082)	08:23	
	16:43			17:38	15	08:47 (B253)	18:28	27	07:47 (WEA03)	20:20	29	07:39 (B013)	21:09	49	07:20 (WEA02)	21:43	19	06:20 (B153)	21:34	11	07:18 (WEA02)	20:45	29	07:27 (WEA02)	19:37	49	08:37 (WEA03)	18:29	33	09:15 (B253)	16:32	13	08:39 (B082)	16:13	
18	08:21		08:55 (B082)	07:34		08:31 (B253)	06:34		07:19 (WEA03)	06:24		06:53 (B124)	05:28		06:24 (B223)	05:04		06:01 (B153)	05:24		07:05 (WEA02)	06:10		06:58 (WEA02)	07:00		07:46 (B012)	07:49		08:41 (B083)	07:44		08:26 (B082)	08:24	
	16:45	4	08:59 (B082)	17:40	16	08:47 (B253)	18:30	29	07:48 (WEA03)	20:22	31	07:39 (B013)	21:11	46	07:20 (WEA02)	21:43	19	06:20 (B153)	21:33	15	07:20 (WEA02)	20:43	27	07:25 (WEA02)	19:34	52	08:38 (WEA03)	18:27	35	09:16 (B253)	16:31	13	08:39 (B082)	16:13	
19	08:20		08:54 (B082)	07:33		08:30 (B253)	06:32		07:17 (WEA03)	06:22		06:52 (B124)	05:27		06:25 (B223)	05:04		06:02 (B153)	05:25		07:03 (WEA02)	06:12		06:57 (B124)	07:01		07:45 (B012)	07:51		08:41 (B083)	07:45		08:26 (B082)	08:25	
	16:46	7	09:01 (B082)	17:42	18	08:48 (B253)	18:31	32	07:49 (WEA03)	20:24	32	07:38 (B013)	21:12	42	07:19 (WEA02)	21:44	18	06:20 (B153)	21:32	19	07:22 (WEA02)	20:41	26	07:23 (WEA02)	19:32	52	08:37 (WEA03)	18:24	36	09:17 (B253)	16:30	14	08:40 (B082)	16:14	
20	08:19		08:53 (B082)	07:31		08:18 (B083)	06:29		07:16 (WEA03)	06:20		06:51 (B124)	05:26		06:27 (B223)	05:04		06:02 (B153)	05:27		07:03 (WEA02)	06:13		06:56 (B124)	07:03		07:46 (B012)	07:53		08:42 (B083)	07:47		08:27 (B082)	08:25	
	16:48	10	09:03 (B082)	17:44	24	08:48 (B253)	18:33	33	07:49 (WEA03)	20:26	32	07:37 (B013)	21:14	38	07:19 (WEA02)	21:44	18	06:20 (B153)	21:31	21	07:24 (WEA02)	20:39	24	07:20 (WEA02)	19:30	51	08:37 (WEA03)	18:22	36	09:18 (B253)	16:29	13	08:40 (B082)	16:14	
21	08:18		08:53 (B082)	07:29		08:15 (B083)	06:27		07:15 (WEA03)	06:18		06:51 (B124)	05:24		06:29 (B223)	05:04		06:02 (B153)	05:28		07:02 (WEA02)	06:15		06:56 (B124)	07:04		07:47 (B012)	07:54		08:43 (B083)	07:49		08:27 (B082)	08:26	
	16:50	11	09:04 (B082)	17:46	31	08:48 (B253)	18:35	35	07:50 (WEA03)	20:27	29	07:35 (B013)	21:15	31	07:17 (WEA02)	21:44	19	06:21 (B153)	21:30	23	07:25 (WEA02)	20:37	21	07:17 (WEA02)	19:27	49	08:37 (WEA03)	18:20	36	09:19 (B253)	16:27	13	08:40 (B082)	16:14	
22	08:17		08:53 (B082)	07:27		08:13 (B083)	06:25		07:03 (B012)	06:16		06:50 (B124)	05:23		06:49 (WEA02)	05:04		06:02 (B153)	05:29		07:00 (WEA02)	06:16		06:55 (B124)	07:06		07:47 (B012)	07:56		08:45 (B083)	07:50		08:28 (B082)	08:27	
	16:51	12	09:05 (B082)	17:47	35	08:48 (B253)	18:37	42	07:50 (WEA03)	20:29	24	07:32 (B013)	21:17	28	07:17 (WEA02)	21:45	19	06:21 (B153)	21:28	26	07:26 (WEA02)	20:35	19	07:14 (B124)	19:25	46	08:36 (WEA03)	18:18	32	09:19 (B253)	16:26	12	08:40 (B082)	16:15	
23	08:16		08:52 (B082)	07:24		08:12 (B083)	06:23		07:01 (B012)	06:14		06:50 (B124)	05:22		06:50 (WEA02)	05:05		06:02 (B153)	05:31		06:59 (WEA02)	06:18		06:55 (B124)	07:08		07:50 (B012)	07:58		08:48 (B083)	07:52		08:28 (B082)	08:27	
	16:53	13	09:05 (B082)	17:49	36	08:48 (B253)	18:38	47	07:50 (WEA03)	20:31	20	07:10 (WEA02)	21:18	26	07:16 (WEA02)	21:45	19	06:21 (B153)	21:27	28	07:27 (WEA02)	20:33	27	07:39 (B013)	19:23	40	08:35 (WEA03)	18:16	26	09:19 (B253)	16:25	11	08:39 (B082)	16:15	
24	08:15		08:52 (B082)	07:22		08:10 (B083)	06:20		07:00 (B012)	06:11		06:50 (B124)	05:20		06:52 (WEA02)	05:05		06:03 (B153)	05:32		06:40 (B223)	06:20		06:55 (B124)	07:09		07:59 (WEA03)	08:00		09:00 (B253)	07:54		08:30 (B082)	08:28	
	16:55	14	09:06 (B082)	17:51	36	08:46 (B253)	18:40	49	07:50 (WEA03)	20:32	24	07:14 (WEA02)	21:20	23	07:15 (WEA02)	21:45	18	06:21 (B153)	21:26	30	07:28 (WEA02)	20:31	30	07:40 (B013)	19:20	35	08:34 (WEA03)	18:14	18	09:18 (B253)	16:24	9	08:39 (B082)	16:16	
25	08:14		08:52 (B082)	07:20		08:09 (B083)	06:18		06:59 (B012)	06:09		06:51 (B124)	05:19		06:53 (WEA02)	05:05		06:03 (B153)	05:33		06:37 (B223)	06:21		06:55 (B124)	07:11		08:00 (WEA03)	08:01		09:00 (B253)	07:55		08:31 (B082)	08:28	
	16:56	14	09:06 (B082)	17:53	36	08:45 (B253)	18:42	51	07:50 (WEA03)	20:34	25	07:16 (WEA02)	21:21	21	07:14 (WEA02)	21:45	18	06:21 (B153)	21:25	38	07:29 (WEA02)	20:28	32	07:41 (B013)	19:18	33	08:33 (WEA03)	18:12	17	09:17 (B253)	16:23	7	08:38 (B082)	16:16	
26	08:13		08:53 (B082)	07:18		08:09 (B083)	07:16		07:58 (B012)	06:07		06:51 (B124)	05:18		06:54 (WEA02)	05:06		06:02 (B153)	05:35		06:35 (B223)	06:23		06:55 (B124)	07:13		08:01 (WEA03)	08:03		09:01 (B253)	07:57		08:35 (B082)	08:28	
	16:58	13	09:06 (B082)	17:55	32	08:43 (B253)	19:43	51	08:49 (WEA03)	20:36	27	07:18 (WEA02)	21:22	19	07:13 (WEA02)	21:45	19	06:21 (B153)	21:23	42	07:29 (WEA02)	20:26	32	07:41 (B013)	19:16	31	08:32 (WEA03)	18:10	15	09:16 (B253)	16:22	1	08:36 (B082)	16:17	
27	08:11		08:54 (B082)	07:16		08:09 (B083)	07:13		07:58 (B012)	06:05		06:51 (WEA02)	05:17		06:56 (WEA02)	05:06		06:03 (B153)	05:36		06:34 (B223)	06:24		06:57 (B124)	07:14		08:01 (WEA03)	08:05		09:02 (B253)	07:58			08:18	
	17:00	13	09:07 (B082)	17:56	24	08:33 (B083)	19:45	51	08:49 (WEA03)	20:37	28	07:19 (WEA02)	21:24	15	07:11 (WEA02)	21:45	19	06:22 (B153)	21:22	46	07:30 (WEA02)	20:24	30	07:42 (B013)	19:14	29	08:30 (WEA03)	18:08	15	09:22 (B253)	16:21			16:18	
28	08:10		08:54 (B082)	07:14		08:09 (B083)	07:11		07:59 (B012)	06:03		06:49 (WEA02)	05:16		06:58 (WEA02)	05:06		06:03 (B153)	05:37		06:34 (B223)	06:26		06:57 (B124)	07:16		08:02 (WEA03)	08:07		09:04 (B253)	08:00			08:29	
	17:02	12	09:06 (B082)	17:58	24	08:33 (B083)	19:47	49	08:49 (WEA03)	20:39	31	07:20 (WEA02)	21:25	11	07:09 (WEA02)	21:45	19	06:22 (B153)	21:20	47	07:31 (WEA02)	20:22	27	07:41 (B013)	19:11	27	08:29 (WEA03)	18:06	20	09:26 (B084)	16:20			16:18	
29	08:09		08:55 (B082)				07:09		07:59 (B012)	06:01		06:48 (WEA02)	05:15		07:01 (WEA02)	05:07		06:04 (B153)	05:39		06:33 (B223)	06:28		07:01 (B124)	07:17		08:02 (B178)	07:08		08:14 (B084)	08:02			08:29	
	17:03	11	09:06 (B082)				19:48	45	08:47 (WEA03)	20:41	32	07:20 (WEA02)	21:26	5	07:06 (WEA02)	21:45	18	06:22 (B153)	21:19	50	07:31 (WEA02)	20:20	21	07:42 (B013)	19:09	24	08:26 (WEA03)	17:04	14	08:28 (B084)	16:19			16:19	
30	08:07		08:56 (B082)				07:07		08:00 (B012)	05:59		06:48 (WEA02)	05:14		06:04 (B153)	05:07		06:04 (B153)	05:40		06:32 (B223)	06:29		07:25 (B013)	07:19		08:02 (B178)	07:10		08:13 (B084)	08:03			08:29	
	17:05	8	09:04 (B082)				19:50	42	08:47 (WEA03)	20:42	34	07:22 (WEA02)	21:27	5	06:09 (B153)	21:45	18	06:22 (B153)	21:17	52	07:31 (WEA02)	20:18	15	07:40 (B013)	19:07	21	08:23 (WEA03)	17:02	16	08:29 (B084)	16:18			16:20	
31	08:06		08:59 (B082)				07:04		08:13 (WEA03)				05:13		06:02 (B153)				05:42		06:32 (B223)	06:31		07:25 (B013)				07:12		08:13 (B084)				08:29	
	17:07	3	09:02 (B082)				19:52	33	08:46 (WEA03)				21:28	9	06:11 (B153)				21:16	54	07:32 (WEA02)	20:15	15	07:40 (B013)				17:00	17	08:30 (B084)				16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245	
astr.max.mögl.Beschattung		145			554			865			725			1129			519			723			1088			941			617			297			
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung		0.57			0.62			0.68			0.72			0.73			0.74			0.73			0.73			0.69			0.63			0.59			
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.13			
Met.wahrsch.Beschattung		15			105			158			181			336			124			196			303			197			107			37			

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)	

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO012 - Am Wallgraben 2, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			09:19 (B082)	08:04		09:08 (B253)	07:12		07:55 (B178)	07:02		07:30 (B124)	05:57		06:59 (B223)	05:12		05:55 (B087)	05:08		06:05 (B152)	05:43		06:39 (WEA01)	06:32		07:35 (WEA02)	07:21		08:48 (WEA03)	07:14		08:12 (B083)	08:04		
	16:22	9	09:28 (B082)	17:09	16	09:24 (B253)	18:00	41	08:36 (WEA03)	19:54	39	08:12 (WEA02)	20:44	4	07:03 (B223)	21:30	65	07:18 (WEA01)	21:45	59	07:22 (WEA01)	21:14	45	07:24 (WEA01)	20:13	39	08:14 (WEA02)	19:04	15	09:03 (WEA03)	16:58	22	08:34 (B083)	16:18		
2	08:29		09:20 (B082)	08:03		09:08 (B253)	07:10		07:55 (B178)	07:00		07:29 (B124)	05:56			05:11		05:55 (B087)	05:09		06:05 (B087)	05:45		06:40 (WEA01)	06:34		07:28 (B124)	07:22		08:45 (WEA03)	07:16		08:12 (B083)	08:06		
	16:23	8	09:28 (B082)	17:11	15	09:23 (B253)	18:02	42	08:37 (WEA03)	19:55	43	08:13 (WEA02)	20:46			21:31	64	07:18 (WEA01)	21:44	58	07:22 (WEA01)	21:13	44	07:24 (WEA01)	20:11	47	08:15 (WEA02)	19:02	20	09:05 (WEA03)	16:57	22	08:34 (B083)	16:17		
3	08:29		09:22 (B082)	08:01		08:48 (B083)	07:08		07:56 (B178)	06:57		07:28 (B124)	05:54			06:42 (B153)	05:10		05:55 (B087)	05:09		06:05 (B087)	05:46		06:41 (WEA01)	06:36		07:25 (B124)	07:24		08:43 (WEA03)	07:17		08:11 (B083)	08:07		
	16:24	6	09:28 (B082)	17:13	23	09:23 (B253)	18:04	41	08:37 (WEA03)	19:57	47	08:15 (WEA02)	20:47	18	07:00 (WEA01)	21:32	63	07:17 (WEA01)	21:44	59	07:23 (WEA01)	21:11	41	07:22 (WEA01)	20:09	49	08:14 (WEA02)	19:00	24	09:07 (WEA03)	16:55	22	08:33 (B083)	16:16		
4	08:29		09:23 (B082)	08:00		08:46 (B083)	07:05		07:57 (B178)	06:55		07:27 (B124)	05:52			06:40 (WEA01)	05:10		05:56 (B087)	05:10		06:05 (B087)	05:48		06:40 (WEA01)	06:37		07:24 (B124)	07:26		08:41 (WEA03)	07:19		08:11 (B083)	08:09		
	16:25	5	09:28 (B082)	17:14	26	09:23 (B253)	18:05	40	08:37 (WEA03)	19:59	49	08:16 (WEA02)	20:49	22	07:02 (WEA01)	21:33	62	07:18 (WEA01)	21:44	59	07:23 (WEA01)	21:09	40	07:21 (WEA01)	20:06	50	08:14 (WEA02)	18:57	28	09:09 (WEA03)	16:53	22	08:33 (B083)	16:16		
5	08:29			07:58		08:45 (B083)	07:03		08:00 (B178)	06:53		07:26 (B124)	05:50			06:39 (WEA01)	05:09		05:56 (B087)	05:11		06:04 (B087)	05:49		06:42 (WEA01)	06:39		07:23 (B124)	07:27		08:39 (WEA03)	07:21		08:12 (B083)	08:10		
	16:26			17:16	26	09:21 (B253)	18:07	37	08:37 (WEA03)	20:00	49	08:15 (WEA02)	20:50	26	07:05 (WEA01)	21:34	62	07:18 (WEA01)	21:43	59	07:24 (WEA01)	21:08	39	07:21 (WEA01)	20:04	51	08:14 (WEA02)	18:55	30	09:09 (WEA03)	16:51	20	08:32 (B083)	16:15		
6	08:29			07:56		08:43 (B083)	07:01		08:01 (WEA03)	06:51		07:25 (B124)	05:48			06:36 (WEA01)	05:08		05:56 (B087)	05:12		06:03 (B087)	05:51		06:43 (WEA01)	06:40		07:22 (B124)	07:29		08:38 (WEA03)	07:23		08:13 (B083)	08:11		
	16:28			17:18	25	09:19 (B253)	18:09	34	08:35 (WEA03)	20:02	51	08:16 (WEA02)	20:52	31	07:07 (WEA01)	21:35	60	07:17 (WEA01)	21:43	58	07:23 (WEA01)	21:06	36	07:19 (WEA01)	20:02	51	08:13 (WEA02)	18:53	32	09:10 (WEA03)	16:49	21	08:47 (B253)	16:15		
7	08:28			07:55		08:43 (B083)	06:59		08:01 (WEA03)	06:48		07:26 (B124)	05:46			06:35 (WEA01)	05:08		05:57 (B087)	05:12		06:03 (B087)	05:52		06:45 (WEA01)	06:42		07:22 (B124)	07:31		08:38 (WEA03)	07:24		08:14 (B083)	08:13		
	16:29			17:20	19	09:02 (B083)	18:11	34	08:35 (WEA03)	20:04	50	08:16 (WEA02)	20:54	33	07:08 (WEA01)	21:36	60	07:18 (WEA01)	21:42	60	07:24 (WEA01)	21:04	33	07:18 (WEA01)	20:00	50	08:12 (WEA02)	18:51	33	09:11 (WEA03)	16:48	26	08:50 (B253)	16:14		
8	08:28			07:53		08:43 (B083)	06:57		08:02 (WEA03)	06:46		07:26 (B124)	05:45			06:34 (WEA01)	05:07		05:58 (B087)	05:13		06:03 (B087)	05:54		06:45 (WEA01)	06:44		07:21 (B124)	07:32		08:37 (WEA03)	07:26		08:15 (B083)	08:14		
	16:30			17:22	21	09:04 (B083)	18:12	32	08:34 (WEA03)	20:05	51	08:17 (WEA02)	20:55	36	07:10 (WEA01)	21:37	58	07:18 (WEA01)	21:42	60	07:24 (WEA01)	21:02	31	07:16 (WEA01)	19:57	50	08:11 (WEA02)	18:48	34	09:11 (WEA03)	16:46	27	08:52 (B253)	16:14		
9	08:28			07:51		08:42 (B083)	06:54		08:01 (WEA03)	06:44		07:27 (B124)	05:43			06:32 (WEA01)	05:06		05:59 (B087)	05:14		06:03 (B087)	05:56		06:48 (WEA01)	06:45		07:21 (B124)	07:34		08:36 (WEA03)	07:28		08:17 (B083)	08:15		09:12 (B082)
	16:31			17:24	22	09:04 (B083)	18:14	32	08:33 (WEA03)	20:07	50	08:17 (WEA02)	20:57	38	07:10 (WEA01)	21:38	58	07:18 (WEA01)	21:41	62	07:25 (WEA01)	21:00	27	07:15 (WEA01)	19:55	49	08:10 (WEA02)	18:46	35	09:11 (WEA03)	16:44	25	08:53 (B253)	16:14	2	09:14 (B082)
10	08:27			07:49		08:42 (B083)	06:52		08:02 (WEA03)	06:42		07:27 (B124)	05:41			06:32 (WEA01)	05:06		06:00 (B087)	05:15		06:03 (B087)	05:57		06:49 (WEA01)	06:47		07:20 (B124)	07:36		08:35 (B178)	07:30		08:21 (B083)	08:16		09:11 (B082)
	16:33			17:25	22	09:04 (B083)	18:16	30	08:32 (WEA03)	20:09	49	08:16 (WEA02)	20:59	40	07:12 (WEA01)	21:38	58	07:18 (WEA01)	21:40	62	07:25 (WEA01)	20:59	23	07:12 (WEA01)	19:53	48	08:08 (WEA02)	18:44	36	09:11 (WEA03)	16:43	19	08:54 (B253)	16:13	5	09:16 (B082)
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	16:34			17:27	22	09:04 (B083)	18:18	28	08:31 (WEA03)	20:10	48	08:16 (WEA02)	21:00	42	07:12 (WEA01)	21:39	59	07:18 (WEA01)	21:40	63	07:25 (WEA01)	20:57	19	07:10 (WEA01)	19:51	46	08:07 (WEA02)	18:42	39	09:11 (WEA03)	16:41	16	08:55 (B253)	16:13	7	09:18 (B082)
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	16:36			17:29	22	09:04 (B083)	18:19	24	08:29 (WEA03)	20:12	45	08:16 (WEA02)	21:02	43	07:12 (WEA01)	21:40	58	07:18 (WEA01)	21:39	64	07:26 (WEA01)	20:55	7	07:04 (WEA01)	19:48	42	08:05 (WEA02)	18:40	41	09:11 (WEA03)	16:40	16	08:55 (B253)	16:13	8	09:19 (B082)
13	08:25			07:44		08:42 (B083)	06:46		08:06 (WEA03)	06:35		07:30 (B124)	05:36			06:29 (WEA01)	05:05		06:01 (B152)	05:18		06:03 (B087)	06:02			06:52		07:23 (B124)	07:41		08:28 (B178)	07:35		08:39 (B253)	08:19		09:11 (B082)
	16:37			17:31	22	09:04 (B083)	18:21	20	08:26 (WEA03)	20:14	39	08:15 (WEA02)	21:03	44	07:13 (WEA01)	21:41	59	07:18 (WEA01)	21:38	65	07:26 (WEA01)	20:53				19:46	35	08:03 (WEA02)	18:37	42	09:10 (WEA03)	16:38	16	08:55 (B253)	16:13	9	09:20 (B082)
14	08:25			07:42		08:42 (B083)	06:43		08:09 (WEA03)	06:33		07:37 (WEA02)	05:35			06:29 (WEA01)	05:05		06:02 (B152)	05:19		06:03 (B087)	06:04		07:05 (B223)	06:53		07:25 (B124)	07:42		08:28 (B178)	07:37		08:39 (B253)	08:20		09:11 (B082)
	16:39			17:33	22	09:04 (B083)	18:23	14	08:23 (WEA03)	20:15	38	08:15 (WEA02)	21:05	45	07:14 (WEA01)	21:41	59	07:19 (WEA01)	21:37	65	07:26 (WEA01)	20:51	8	07:13 (B223)	19:44	24	08:00 (WEA02)	18:35	42	09:10 (WEA03)	16:37	16	08:55 (B253)	16:13	9	09:20 (B082)
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	16:40			17:35	20	09:03 (B083)	18:25	2	08:17 (WEA03)	20:17	37	08:14 (WEA02)	21:06	46	07:14 (WEA01)	21:42	59	07:19 (WEA01)	21:36	65	07:26 (WEA01)	20:49	12	07:15 (B223)	19:41	20	08:13 (B013)	18:33	41	09:09 (WEA02)	16:35	15	08:55 (B253)	16:13	9	09:21 (B082)
16	08:23			07:38		08:44 (B083)	06:39			06:28		07:36 (WEA02)	05:31			06:28 (WEA01)	05:04		06:02 (B152)	05:22		06:03 (B087)	06:07		07:02 (B223)	06:56		08:04 (B013)	07:46		08:28 (B178)	07:40		08:41 (B253)	08:22		09:11 (B082)
	16:42			17:36	18	09:02 (B083)	18:26			20:19	36	08:12 (WEA02)	21:08	47	07:15 (WEA01)	21:42	60	07:19 (WEA01)	21:35	65	07:26 (WEA01)	20:47	14	07:16 (B223)	19:39	12	08:16 (B013)	18:31	40	09:08 (WEA03)	16:34	14	08:55 (B253)	16:13	10	09:21 (B082)
17	08:22			07:36		08:45 (B083)	06:36		07:16 (B150)	06:26		07:37 (WEA02)	05:30			06:27 (WEA01)	05:04		06:02 (B152)	05:23		06:03 (B087)	06:08		07:01 (B223)	06:58		08:02 (B013)	07:48		08:28 (B178)	07:42		08:40 (B253)	08:23		09:11 (B082)
	16:43			17:38	16	09:01 (B083)	18:28	6	07:22 (B150)	20:20	35	08:12 (WEA02)	21:09	48	07:15 (WEA01)	21:43	59	07:19 (WEA01)	21:34	65	07:26 (WEA01)	20:45	16	07:17 (B223)	19:37	14	08:16 (B013)	18:29	40	09:08 (WEA03)	16:32	14	08:54 (B253)	16:13	11	09:22 (B082)
18	08:21			07:34		08:47 (B083)	06:34		07:13 (B150)	06:24		07:37 (WEA02)	05:28			06:27 (WEA01)	05:04		06:02 (B152)	05:24		06:03 (B087)	06:10		07:00 (B223)	07:00		08:01 (B013)	07:49		08:28 (B178)	07:44		08:42 (B253)	08:24		09:12 (B082)
	16:45			17:40	12	08:59 (B083)	18:30	11	07:24 (B150)	20:22	33	08:10 (WEA02)	21:11	49	07:16 (WEA01)	21:43	59	07:19 (WEA01)	21:33	65	07:26 (WEA01)	20:43	17	07:17 (B223)	19:34	16	08:17 (B013)	18:27	38	09:06 (WEA03)	16:31	12	08:54 (B253)	16:13	10	09:22 (B082)
19	08:20			07:33		08:51 (B083)	06:32		07:11 (B150)	06:22		07:00 (B223)	05:27			06:27 (WEA01)	05:04		06:02 (B152)	05:25		06:03 (B087)	06:12		07:00 (B223)	07:01		08:00 (B013)	07:51		08:29 (B178)	07:45		08:43 (B253)	08:25		09:13 (B082)
	16:46			17:42	4	08:55 (B083)	18:31	13	07:24 (B150)	20:24	38	08:09 (WEA02)	21:12	49	07:16 (WEA01)	21:44	60	07:19 (WEA01)	21:32	65	07:26 (WEA01)	20:41	17	07:17 (B223)	19:32	16	08:16 (B013)	18:24	36	09:05 (WEA03)	16:30	10	08:53 (B253)	16:14	10	09:23 (B082)
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	16:48			17:44			18:33	14	07:25 (B150)	20:26	41	08:08 (WEA02)	21:14	53	07:17 (WEA01)	21:44	60	07:19 (WEA01)	21:31	64	07:27 (WEA01)	20:39	25	08:02 (WEA02)	19:30	17	08:16 (B013)	18:22	32	09:03 (WEA03)	16:29	6	08:51 (B253)	16:14	11	09:23 (B082)
21	08:18			07:29		08:14 (WEA03)	06:27		07:11 (B150)	06:18		06:56 (B223)	05:24			05:56 (B087)	05:04		06:02 (B152)	05:28		06:04 (B087)	06:15		07:00 (B223)	07:04		07:57 (B150)	07:54		08:41 (WEA03)	07:49			08:26		09:13 (B082)
	16:50			17:46	14	08:28 (WEA03)	18:35	16	07:27 (B013)	20:27	40	08:06 (WEA02)	21:15	57	07:16 (WEA01)	21:44	61	07:20 (WEA01)	21:30	64	07:27 (WEA01)	20:37	32	08:06 (WEA02)	19:27	19	08:16 (B013)	18:20	20	09:01 (WEA03)	16:27			16:14	11	09:24 (B082)
22	08:17			07:27		08:11 (WEA03)	06:25		07:10 (B150)	06:16		06:55 (B223)	05:23			05:55 (B087)	05:04		06:02 (B152)	05:29		06:05 (B087)	06:16		06:59 (B223)	07:06		07:56 (B150)	07:56		08:44 (WEA03)	07:50			08:27		09:14 (B082)
	16:51			17:47	19	08:30 (WEA03)	18:37	18	07:28 (B013)	20:29	37	08:04 (WEA02)	21:17	60	07:16 (WEA01)	21:45	61	07:20 (WEA01)	21:28	62	07:27 (WEA01)	20:35	37	08:08 (WEA02)	19:25	18	08:14 (B013)	18:18	15	08:59 (WEA03)	16:26			16:15	11	09:25 (B082)
23	08:16			07:24		08:01 (B178)	06:23		07:10 (B150)	06:14		06:54 (B223)	05:22			05:55 (B087)	05:05		06:02 (B152)	05:31		06:05 (B087)	06:18		07:00 (B223)	07:08		07:55 (B150)	07:58		08:48 (WEA03)	07:52			08:27		09:14 (B082)
	16:53			17:49	30	08:32 (WEA03)	18:38	19	07:29 (B013)	20:31	35	08:02 (WEA02)	21:18	62	07:17 (WEA01)	21:45	61	07:20 (WEA01)	21:27	61	07:27 (WEA01)	20:33	39	08:10 (WEA02)	19:23	18	08:13 (B013)	18:16	6	08:54 (WEA03)	16:25			16:15	11	09:25 (B082)
24	08:15		09:10 (B253)	07:22		07:58 (B178)	06:20		07:11 (B150)	06:11		06:54 (B223)	05:20			05:54 (B087)	05:05		06:03 (B152)	05:32		06:06 (B087)	06:20		07:01 (B223)	07:09		07:54 (B150)	08:00			07:54			08:28		09:14 (B082)
	16:55	8	09:18 (B253)	17:51	35	08:33 (WEA03)	18:40	18	07:29 (B013)	20:32	28	07:58 (WEA02)	21:20	64	07:17 (WEA01)	21:45	60	07:20 (WEA01)	21:26	58	07:26 (WEA01)	20:31	40	08:11 (WEA02)	19:20	17	08:11 (B013)	18:14				16:24			16:16	11	09:25 (B082)
25	08:14		09:08 (B253)	07:20		07:57 (B178)	06:18		07:13 (B150)	06:09		06:53 (B223)	05:19			05:54 (B087)	05:05		06:03 (B152)	05:33		06:09 (B087)	06:21		07:03 (B223)	07:11		07:55 (B150)	08:01		09:17 (B083)	07:55			08:28		09:15 (B082)
	16:56	11	09:19 (B253)	17:53	37	08:34 (WEA03)	18:42	17	07:30 (B013)	20:34	18	07:11 (B223)	21:21	64	07:17 (WEA01)	21:45	60	07:20 (WEA01)	21:25	53	07:27 (WEA01)	20:28	39	08:13 (WEA02)	19:18	13	08:08 (B150)	18:12	11	09:28 (B083)	16:23			16:16	11	09:26 (B082)
26	08:13		09:08 (B253)	07:18		07:56 (B178)	07:16		08:12 (B013)	06:07		06:53 (B223)	05:18			05:54 (B087)	05:05		06:03 (B152)	05:35		06:37 (WEA01)	06:23		07:40 (WEA02)	07:13		07:55 (B150)	08:03		09:15 (B083)	07:57			08:28		09:16 (B082)
	16:58	13	09:21 (B253)	17:55	39	08:35 (WEA03)	19:43	16	08:28 (B013)	20:36	17	07:10 (B223)	21:22	65	07:17 (WEA01)	21:45	59	07:20 (WEA01)	21:23	49	07:26 (WEA01)	20:26	33	08:13 (WEA02)	19:16	13	08:08 (B150)	18:10	15	09:30 (B083)	16:22			16:17	10	09:26 (B082)
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28	08:10		09:07 (B253)	07:14		07:55 (B178)	07:11		08:13 (B013)	06:03		06:54 (B223)	05:16			05:54 (B087)	05:06		06:04 (B152)	05:37		06:38 (WEA01)	06:26		07:38 (WEA02)	07:16		07:58 (B150)	08:07		09:13 (B083)	08:00			08:29		09:16 (B082)
	17:02	15	09:22 (B253)	17:58	42	08:37 (WEA03)	19:47	14	08:27 (B013)	20:39	14	07:08 (B223)	21:25	65	07:17 (WEA01)	21:45	60	07:21 (WEA01)	21:20	48	07:26 (WEA01)	20:22	36	08:14 (WEA02)	19:11	5	08:03 (B150)	18:06	19	09:32 (B083)	16:20			16:18	11	09:27 (B082)
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	17:03	16	09:23 (B253)				19:48	11	08:25 (B013)	20:41	12	07:07 (B223)	21:26	65	07:17 (WEA01)	21:45	59	07:22 (WEA01)	21:19	47	07:25 (WEA01)	20:20	37	08:15 (WEA02)	19:09					17:04	21	08:33 (B083)	16:19			16:19	10	09:27 (B082)
30	08:07		09:07 (B253)				07:07		07:53 (WEA02)	05:59		06:57 (B223)	05:14			05:54 (B087)	05:07		06:05 (B152)	05:40		06:38 (WEA01)	06:29		07:37 (WEA02)	07:19		08:53 (WEA03)	07:10		08:12 (B083)	08:03			08:29		09:18 (B082)
	17:05	16	09:23 (B253)				19:50	21	08:22 (B013)	20:42	9	07:06 (B223)	21:27	65	07:17 (WEA01)	21:45	58	07:22 (WEA01)	21:17	47	07:25 (WEA01)	20:18	37	08:14 (WEA02)	19:07	5	08:58 (WEA03)	17:02	22	08:34 (B083)	16:18			16:20	9	09:27 (B082)
31	08:06		09:07 (B253)				07:04		07:34 (B124)				05:13			05:54 (B087)				05:42		06:39 (WEA01)	06:31		07:37 (WEA02)				07:12		08:12 (B083)				08:29		09:18 (B082)
	17:07	16	09:23 (B253)				19:52	28	08:11 (WEA02)				21:28	65	07:17 (WEA01)				21:16	46	07:25 (WEA01)	20:15	38	08:15 (WEA02)					17:00	22	08:34 (B083)				16:21	9	09:27 (B082)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	137			630			688			1093			1411			1800			1826			896			845			846			361			215		
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.56			0.61			0.66			0.72			0.74			0.74			0.74			0.73			0.71			0.64			0.58			0.54		
Gesamte Reduktion	0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.22			0.17			0.12			0.09		
Met.wahrsch.Beschattung	14			119			123			273			424			426			497			249			183			148			45			19		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO013 - An d. Trift 23, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			09:00 (B083)	07:12		08:32 (WEA03)	07:02		07:49 (B124)	05:57		07:02 (B153)	05:12		06:21 (B152)	05:08		06:31 (B152)	05:43		06:19 (B087)	06:32		07:15 (B223)	07:21		08:13 (B150)	07:14		08:00 (B012)	08:04		09:06 (B253)
	16:22			17:09	21		09:21 (B083)	18:00	21	08:53 (WEA03)	19:54	50	08:46 (WEA02)	20:44	54	07:56 (WEA01)	21:30	17	06:38 (B152)	21:45	9	06:40 (B152)	21:14	56	08:01 (WEA01)	20:13	16	07:31 (B223)	19:04	24	08:37 (B013)	16:58	27	08:27 (WEA03)	16:18	13	09:19 (B253)
2	08:29			08:03			08:59 (B083)	07:10		08:35 (WEA03)	07:00		07:51 (B124)	05:56		07:03 (WEA01)	05:11		06:21 (B152)	05:09		06:31 (B152)	05:45		06:21 (B087)	06:34		07:16 (B223)	07:22		08:12 (B150)	07:16		08:00 (B012)	08:06		09:06 (B253)
	16:23			17:11	22		09:21 (B083)	18:02	15	08:50 (WEA03)	19:55	44	08:45 (WEA02)	20:46	53	07:56 (WEA01)	21:31	17	06:38 (B152)	21:44	9	06:40 (B152)	21:13	55	08:02 (WEA01)	20:11	14	07:30 (B223)	19:02	25	08:37 (B013)	16:57	25	08:25 (WEA03)	16:17	13	09:19 (B253)
3	08:29			08:01			08:59 (B083)	07:08		08:39 (WEA03)	06:57		08:11 (WEA02)	05:54		07:03 (WEA01)	05:10		06:21 (B152)	05:09		06:31 (B152)	05:46		06:22 (B087)	06:36		07:17 (B223)	07:24		08:11 (B150)	07:17		08:00 (B012)	08:07		09:07 (B253)
	16:24			17:12	22		09:21 (B083)	18:04	7	08:46 (WEA03)	19:57	33	08:44 (WEA02)	20:47	52	07:55 (WEA01)	21:32	17	06:38 (B152)	21:44	10	06:41 (B152)	21:11	52	08:02 (WEA01)	20:09	11	07:28 (B223)	19:00	26	08:37 (B013)	16:55	30	08:44 (B083)	16:16	12	09:19 (B253)
4	08:29			08:00			09:01 (B083)	07:05			06:55		08:12 (WEA02)	05:52		07:02 (WEA01)	05:10		06:23 (B152)	05:10		06:31 (B152)	05:48		07:14 (WEA01)	06:37		07:19 (B223)	07:26		08:11 (B150)	07:19		08:02 (B012)	08:09		09:08 (B253)
	16:25			17:14	20		09:21 (B083)	18:05			19:59	31	08:43 (WEA02)	20:49	53	07:55 (WEA01)	21:33	15	06:38 (B152)	21:44	11	06:41 (B152)	21:09	48	08:02 (WEA01)	20:06	7	07:26 (B223)	19:57	25	08:36 (B013)	16:53	30	08:46 (B083)	16:16	11	09:19 (B253)
5	08:29			07:58			09:01 (B083)	07:03			06:53		08:12 (WEA02)	05:50		07:03 (WEA01)	05:09		06:23 (B152)	05:11		06:31 (B152)	05:49		07:14 (WEA01)	06:39		08:17 (WEA02)	07:27		08:11 (B150)	07:21		08:33 (B083)	08:10		09:09 (B253)
	16:26			17:16	20		09:21 (B083)	18:07			20:00	28	08:40 (WEA02)	20:51	52	07:55 (WEA01)	21:34	15	06:38 (B152)	21:43	12	06:43 (B152)	21:08	49	08:03 (WEA01)	20:04	11	08:28 (WEA02)	18:55	23	08:34 (B013)	16:51	15	08:48 (B083)	16:15	10	09:19 (B253)
6	08:29		09:27 (B253)	07:56			09:01 (B083)	07:01			06:51		08:13 (WEA02)	05:48		07:03 (WEA01)	05:08		06:23 (B152)	05:12		06:30 (B152)	05:51		07:13 (WEA01)	06:40		08:13 (WEA02)	07:29		08:11 (B150)	07:23		08:32 (B083)	08:11		09:10 (B253)
	16:28	3	09:30 (B253)	17:18	19		09:20 (B083)	18:09			20:02	26	08:39 (WEA02)	20:52	52	07:55 (WEA01)	21:35	14	06:37 (B152)	21:43	12	06:42 (B152)	21:06	50	08:03 (WEA01)	20:02	18	08:31 (WEA02)	18:53	22	08:33 (B013)	16:49	17	08:49 (B083)	16:15	8	09:18 (B253)
7	08:28		09:25 (B253)	07:55			09:02 (B083)	06:59		07:40 (B150)	06:48		08:15 (WEA02)	05:46		07:03 (WEA01)	05:08		06:24 (B152)	05:12		06:30 (B152)	05:52		07:13 (WEA01)	06:42		08:11 (WEA02)	07:31		08:13 (B150)	07:24		08:31 (B083)	08:13		09:12 (B253)
	16:29	7	09:32 (B253)	17:20	17		09:19 (B083)	18:11	2	07:42 (B150)	20:04	21	08:36 (WEA02)	20:54	51	07:54 (WEA01)	21:36	13	06:37 (B152)	21:42	13	06:43 (B152)	21:04	51	08:04 (WEA01)	20:00	23	08:34 (WEA02)	18:51	14	08:30 (B013)	16:48	19	08:50 (B083)	16:14	6	09:18 (B253)
8	08:28		09:25 (B253)	07:53			08:34 (B012)	06:57		07:37 (B150)	06:46		08:18 (WEA02)	05:45		07:04 (WEA01)	05:07		06:24 (B152)	05:13		06:30 (B152)	05:54		07:12 (WEA01)	06:44		08:08 (WEA02)	07:32		08:16 (B150)	07:26		08:31 (B083)	08:14		09:15 (B253)
	16:30	9	09:34 (B253)	17:22	27		09:18 (B083)	18:12	14	07:54 (B013)	20:05	15	08:33 (WEA02)	20:55	50	07:54 (WEA01)	21:37	12	06:36 (B152)	21:42	14	06:44 (B152)	21:02	52	08:04 (WEA01)	19:57	27	08:35 (WEA02)	18:48	3	08:19 (B150)	16:46	20	08:51 (B083)	16:14	1	09:16 (B253)
9	08:28		09:24 (B253)	07:51			08:32 (B012)	06:54		07:34 (B150)	06:44		08:23 (WEA02)	05:43		07:04 (WEA01)	05:06		06:25 (B152)	05:14		06:30 (B152)	05:56		07:13 (WEA01)	06:45		08:07 (WEA02)	07:34					08:30 (B083)	08:15		
	16:31	10	09:34 (B253)	17:24	31		09:16 (B083)	18:14	22	07:56 (B013)	20:07	5	08:28 (WEA02)	20:57	49	07:53 (WEA01)	21:38	12	06:37 (B152)	21:41	15	06:46 (B152)	21:00	52	08:05 (WEA01)	19:55	29	08:36 (WEA02)	18:46					08:51 (B083)	16:14		
10	08:27		09:24 (B253)	07:49			08:31 (B012)	06:52		07:34 (B150)	06:42		07:20 (B223)	05:41		07:04 (WEA01)	05:06		06:26 (B152)	05:15		06:29 (B152)	05:57		07:12 (WEA01)	06:47		08:05 (WEA02)	07:36					08:30 (B083)	08:16		
	16:33	11	09:35 (B253)	17:25	24	08:55 (WEA03)	18:16	23	07:57 (B013)	20:09	9	07:29 (B223)	20:59	49	07:53 (WEA01)	21:38	11	06:37 (B152)	21:40	16	06:45 (B152)	20:59	52	08:04 (WEA01)	19:53	31	08:36 (WEA02)	18:44					08:52 (B083)	16:13		
11	08:27		09:24 (B253)	07:48			08:30 (B012)	06:50		07:33 (B150)	06:39		07:18 (B223)	05:39		06:12 (B087)	05:06		06:26 (B152)	05:16		06:29 (B152)	05:59		07:12 (WEA01)	06:48		07:47 (B124)	07:37					08:30 (B083)	08:17		
	16:34	13	09:37 (B253)	17:27	26	08:56 (WEA03)	18:18	25	07:58 (B013)	20:10	12	07:30 (B223)	21:00	53	07:52 (WEA01)	21:39	10	06:36 (B152)	21:40	17	06:46 (B152)	20:57	53	08:05 (WEA01)	19:51	37	08:38 (WEA02)	18:42					08:52 (B083)	16:13		
12	08:26		09:24 (B253)	07:46			08:30 (B012)	06:48		07:33 (B150)	06:37		07:17 (B223)	05:38		06:09 (B087)	05:05		06:27 (B152)	05:17		06:29 (B152)	06:00		07:11 (WEA01)	06:50		07:42 (B124)	07:39		09:15 (WEA03)	07:33		08:31 (B083)	08:18		
	16:36	13	09:37 (B253)	17:29	28	08:58 (WEA03)	18:19	26	07:59 (B013)	20:12	14	07:31 (B223)	21:02	55	07:51 (WEA01)	21:40	9	06:36 (B152)	21:39	17	06:46 (B152)	20:55	53	08:04 (WEA01)	19:48	47	08:38 (WEA02)	18:40	4	09:19 (WEA03)	16:40	21	08:52 (B083)	16:13		
13	08:25		09:24 (B253)	07:44			08:30 (B012)	06:46		07:31 (B150)	06:35		07:16 (B223)	05:36		06:09 (B087)	05:05		06:28 (B152)	05:18		06:29 (B152)	06:02		07:11 (B153)	06:52		07:41 (B124)	07:41		09:08 (WEA03)	07:35		08:31 (B083)	08:19		
	16:37	14	09:38 (B253)	17:31	29	08:59 (WEA03)	18:21	25	07:58 (B013)	20:14	22	07:38 (WEA01)	21:03	57	07:51 (WEA01)	21:41	8	06:36 (B152)	21:38	17	06:46 (B152)	20:53	54	08:05 (WEA01)	19:46	50	08:38 (WEA02)	18:37	15	09:23 (WEA03)	16:38	21	08:52 (B083)	16:13		
14	08:25		09:24 (B253)	07:42			08:19 (B178)	06:43		07:34 (B150)	06:33		07:15 (B223)	05:35		06:09 (B087)	05:05		06:28 (B152)	05:19		06:29 (B152)	06:04		07:09 (B153)	06:53		07:38 (B124)	07:42		09:06 (WEA03)	07:37		08:32 (B083)	08:20		
	16:39	15	09:39 (B253)	17:33	35	09:00 (WEA03)	18:23	23	07:57 (B013)	20:15	28	07:43 (WEA01)	21:05	57	07:51 (WEA01)	21:41	7	06:35 (B152)	21:37	18	06:47 (B152)	20:51	55	08:04 (WEA01)	19:44	55	08:38 (WEA02)	18:35	20	09:26 (WEA03)	16:37	20	08:52 (B083)	16:13		
15	08:24		09:24 (B253)	07:40			08:17 (B178)	06:41		07:35 (B150)	06:31		07:15 (B223)	05:33		06:07 (B087)	05:04		06:29 (B152)	05:20		06:29 (B152)	06:05		07:09 (B153)	06:55		07:38 (B124)	07:44		09:04 (WEA03)	07:39		08:32 (B083)	08:21		
	16:40	15	09:39 (B253)	17:35	41	09:00 (WEA03)	18:25	22	07:57 (B013)	20:17	31	07:49 (WEA01)	21:06	57	07:49 (WEA01)	21:42	6	06:35 (B152)	21:36	18	06:47 (B152)	20:49	55	08:04 (WEA01)	19:41	56	08:38 (WEA02)	18:33	24	09:28 (WEA03)	16:35	20	08:52 (B083)	16:13		
16	08:23		09:24 (B253)	07:38			08:15 (B178)	06:39		07:26 (WEA02)	06:28		07:14 (B223)	05:31		06:08 (B087)	05:04		06:30 (B152)	05:22		06:29 (B152)	06:07		07:08 (B153)	06:56		07:37 (B124)	07:46		09:03 (WEA03)	07:40		08:33 (B083)	08:22		
	16:42	16	09:40 (B253)	17:36	45	09:01 (WEA03)	18:26	27	07:55 (B013)	20:19	34	07:48 (WEA01)	21:08	56	07:49 (WEA01)	21:42	5	06:35 (B152)	21:35	18	06:47 (B152)	20:47	55	08:03 (WEA01)	19:39	58	08:39 (WEA02)	18:31	26	09:29 (WEA03)	16:34	19	08:52 (B083)	16:13		
17	08:22		09:24 (B253)	07:36			08:14 (B178)	06:36		07:23 (WEA02)	06:26		07:14 (B223)	05:30		06:07 (B087)	05:04		06:31 (B152)	05:23		06:29 (B152)	06:08		07:08 (B153)	06:58		07:36 (B124)	07:48		09:02 (WEA03)	07:42		08:33 (B083)	08:23		
	16:43	16	09:40 (B253)	17:38	47	09:01 (WEA03)	18:28	29	07:53 (B013)	20:20	35	07:49 (WEA01)	21:09	53	07:47 (WEA01)	21:43	3	06:34 (B152)	21:34	22	07:39 (WEA01)	20:45	55	08:03 (WEA01)	19:37	59	08:38 (WEA02)	18:29	28	09:30 (WEA03)	16:32	17	08:50 (B083)	16:13		
18	08:21		09:25 (B253)	07:35			08:14 (B178)	06:34		07:20 (WEA02)	06:24		07:14 (WEA01)	05:28		06:07 (B087)	05:04					05:24			06:29 (B153)	06:10		07:08 (B153)	07:00		07:36 (B124)	07:49		09:00 (WEA03)	07:44		08:34 (B083)	08:24		
	16:45	15	09:40 (B253)	17:40	47	09:01 (WEA03)	18:30	26	07:46 (WEA02)	20:22	37	07:51 (WEA01)	21:11	60	07:47 (WEA01)	21:43						21:33	30	07:43 (WEA01)	20:43	54	08:02 (WEA01)	19:34	59	08:38 (WEA02)	18:27	30	09:30 (WEA03)	16:31	16	08:50 (B083)	16:13		
19	08:20		09:25 (B253)	07:33			08:14 (B178)	06:32		07:18 (WEA02)	06:22		07:12 (WEA01)	05:27		06:07 (B087)	05:04					05:25			06:22 (B087)	06:12		07:08 (B153)	07:01		07:36 (B124)	07:51		08:48 (B178)	07:45		08:36 (B083)	08:25		
	16:46	16	09:41 (B253)	17:42	48	09:02 (WEA03)	18:31	28	07:46 (WEA02)	20:24	40	07:52 (WEA01)	21:12	62	07:46 (WEA01)	21:44						21:32	41	07:46 (WEA01)	20:41	54	08:02 (WEA01)	19:32	57	08:37 (WEA02)	18:24	40	09:31 (WEA03)	16:30	20	09:12 (B253)	16:14		
20	08:19		09:26 (B253)	07:31			08:14 (B178)	06:29		07:16 (WEA02)	06:20		07:09 (B153)	05:26		06:07 (B087)	05:04					05:27			06:21 (B087)	06:13		07:08 (B153)	07:03		07:36 (B124)	07:53		08:46 (B178)	07:47		08:38 (B083)	08:25		
	16:48	15	09:41 (B253)	17:44	48	09:02 (WEA03)	18:33	32	07:48 (WEA02)	20:26	44	07:53 (WEA01)	21:14	61	07:44 (WEA01)	21:44						21:31	48	07:49 (WEA01)	20:39	53	08:01 (WEA01)	19:30	57	08:37 (WEA02)	18:22	44	09:31 (WEA03)	16:29	20	09:14 (B253)	16:14		
21	08:18		09:27 (B253)	07:29			08:14 (B178)	06:27		07:15 (WEA02)	06:18		07:06 (B153)	05:24		06:07 (B087)	05:04					05:28			06:20 (B087)	06:15		07:09 (B153)	07:04		07:37 (B124)	07:54		08:45 (B178)	07:49		08:41 (B083)	08:26		
	16:50	14	09:41 (B253)	17:46	48	09:02 (WEA03)	18:35	34	07:49 (WEA02)	20:27	48	07:54 (WEA01)	21:15	61	07:44 (WEA01)	21:44						21:30	51	07:50 (WEA01)	20:37	52	08:01 (WEA01)	19:27	53	08:36 (WEA02)	18:20	47	09:32 (WEA03)	16:27	18	09:16 (B253)	16:14		
22	08:17		09:28 (B253)	07:27			08:15 (B178)	06:25		06:54 (B124)	06:16		07:05 (B153)	05:23		06:08 (B087)	05:04					05:29			06:19 (B087)	06:16		07:09 (B153)	07:06		07:38 (B124)	07:56		08:45 (B178)	07:50		09:03 (B253)	08:27		
	16:51	13	09:41 (B253)	17:47	46	09:01 (WEA03)	18:37	45	07:49 (WEA02)	20:29	49	07:54 (WEA01)	21:17	58	07:43 (WEA01)	21:45						21:28	56	07:52 (WEA01)	20:35	50	07:59 (WEA01)	19:25	49	08:35 (WEA02)	18:18	47	09:32 (WEA03)	16:26	14	09:17 (B253)	16:15		
23	08:16		09:04 (B083)	07:24			08:16 (B178)	06:23		06:52 (B124)	06:14		07:03 (B153)	05:22		06:09 (B087)	05:05					05:30			06:18 (B087)	06:18		07:10 (B153)	07:08		07:40 (B124)	07:58		08:44 (B178)	07:52		09:02 (B253)	08:27		
	16:53	20	09:40 (B253)	17:49	45	09:01 (WEA03)	18:38	49	07:49 (WEA02)	20:31	52	07:55 (WEA01)	21:18	56	07:42 (WEA01)	21:45						21:27	58	07:53 (WEA01)	20:33	49	07:59 (WEA01)	19:23	43	08:34 (WEA02)	18:16	48	09:32 (WEA03)	16:25	15	09:17 (B253)	16:15		
24	08:15		09:03 (B083)	07:22			08:16 (B178)	06:20		06:51 (B124)	06:11		07:03 (B153)	05:20		06:10 (B087)	05:05					05:32			06:18 (B087)	06:20		07:12 (B153)	07:09		07:59 (WEA02)	08:00		08:43 (B178)	07:54		09:02 (B253)	08:28		
	16:55	21	09:39 (B253)	17:51	41	09:00 (WEA03)	18:40	54	07:50 (WEA02)	20:32	52	07:55 (WEA01)	21:20	51	07:40 (WEA01)	21:45						21:26	59	07:54 (WEA01)	20:31	45	07:57 (WEA01)	19:20	33	08:32 (WEA02)	18:14	48	09:31 (WEA03)	16:24	15	09:17 (B253)	16:16		
25	08:14		09:02 (B083)	07:20			08:28 (WEA03)	06:18		06:50 (B124)	06:09		07:02 (B153)	05:19		06:11 (B087)	05:05					05:33			06:18 (B087)	06:21		07:15 (WEA01)	07:11		08:00 (WEA02)	08:01		08:43 (B178)	07:55		09:03 (B253)	08:28		
	16:56	20	09:38 (B253)	17:53	31	08:59 (WEA03)	18:42	56	07:50 (WEA02)	20:34	54	07:56 (WEA01)	21:21	48	07:39 (WEA01)	21:45						21:25	61	07:55 (WEA01)	20:28	41	07:56 (WEA01)	19:18	31	08:31 (WEA02)	18:12	48	09:31 (WEA03)	16:23	15	09:18 (B253)	16:16		
26	08:13		09:01 (B083)	07:18			08:29 (WEA03)	07:16		07:48 (B124)	06:07		07:01 (B153)	05:18		06:13 (B087)	05:05					05:35			06:17 (B087)	06:23		07:16 (WEA01)	07:13		08:02 (WEA02)	08:03		08:44 (B178)	07:57		09:03 (B253)	08:28		
	16:58	16	09:17 (B083)	17:55	29	08:58 (WEA03)	19:43	57	08:49 (WEA02)	20:36	55	07:56 (WEA01)	21:22	41	07:37 (WEA01)	21:45						21:23	62	07:56 (WEA01)	20:26	38	07:54 (WEA01)	19:16	28	08:30 (WEA02)	18:10	47	09:31 (WEA03)	16:22	16	09:19 (B253)	16:17		
27	08:11		09:01 (B083)	07:16			08:30 (WEA03)	07:13		07:48 (B124)	06:05		07:01 (B153)	05:17		06:20 (B152)	05:06		06:33 (B152)	05:17		05:36			06:17 (B087)	06:24		07:17 (WEA01)	07:14		08:02 (WEA02)	08:05		08:45 (B178)	07:58		09:03 (B253)	08:29		
	17:00	18	09:19 (B083)	17:56	27	08:57 (WEA03)	19:45	58	08:49 (WEA02)	20:37	55	07:56 (WEA01)	21:24	30	07:34 (WEA01)	21:45	3	06:36 (B152)	21:22	60	07:57 (WEA01)	20:24	36	07:53 (WEA01)	19:14	27	08:31 (B013)	18:08	46	09:31 (WEA03)	16:21	15	09:18 (B253)	16:18		
28	08:10		09:00 (B083)	07:14			08:32 (WEA03)	07:11		07:48 (B124)	06:03		07:01 (B153)	05:16		06:20 (B152)	05:06		06:32 (B152)	05:37		06:18 (B087)	06:26		07:18 (B223)	07:16		08:05 (WEA02)	08:07		08:46 (B178)	08:00		09:04 (B253)	08:29		
	17:02	19	09:19 (B083)	17:58	24	08:56 (WEA03)	19:47	58	08:49 (WEA02)	20:39	55	07:56 (WEA01)	21:25	22	07:30 (WEA01)	21:45	5	06:37 (B152)	21:20	55	07:59 (WEA01)	20:22	34	07:50 (WEA01)	19:11	29	08:35 (B013)	18:06	42	09:30 (WEA03)	16:20	15	09:19 (B253)	16:18		
29	08:09		09:00 (B083)						07:09	07:47 (B124)	06:01		07:01 (B153)	05:15		06:20 (B152)	05:07		06:32 (B152)	05:39		06:18 (B087)	06:28		07:16 (B223)	07:17		08:07 (WEA02)	08:08		07:48 (B178)	08:02		09:05 (B253)	08:29		
	17:03	20	09:20 (B083)						19:48	58	08:48 (WEA02)	20:41	55	07:56 (WEA01)	21:26	18	06:38 (B152)	21:45	6	06:38 (B152)	21:19	55	07:59 (WEA01)	20:20	32	07:48 (WEA01)	19:09	27	08:36 (B013)	17:04	37	08:29 (WEA03)	16:19	14	09:19 (B253)	16:19		
30	08:07		08:59 (B083)						07:07	07:48 (B124)	05:59		07:02 (B153)	05:14		06:20 (B152)	05:07		06:31 (B152)	05:40		06:18 (B087)	06:29		07:15 (B223)	07:19		08:15 (B150)	07:10		08:00 (B012)	08:03		09:05 (B253)	08:29		
	17:05	21	09:20 (B083)						19:50	55	08:48 (WEA02)	20:42	54	07:56 (WEA01)	21:27	18	06:38 (B152)	21:45	7	06:38 (B152)	21:17	55	07:59 (WEA01)	20:18	30	07:45 (WEA01)	19:07	22	08:37 (B013)	17:02	29	08:29 (WEA03)	16:18	14	09:19 (B253)	16:20		
	31	08:06		08:59 (B083)					07:04	07:48 (B124)					05:13		06:20 (B152)				05:42			06:19 (B087)	06:31		07:15 (B223)			07:12			08:00 (B012)			08:29		
		17:07	21	09:20 (B083)					19:52	53	08:47 (WEA02)				21:28	18	06:38 (B152)				21:16	56	08:01 (WEA01)	20:15	26	07:41 (WEA01)			17:00	28	08:28 (WEA03)				16:21		
Sonnenscheinstunden		259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		391			908			944			1088			1507			212			995			1491			1064			860			573			74		
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung		0.55			0.61			0.68			0.72			0.73			0.74			0.74			0.73			0.69			0.63			0.57			0.54		
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.12			0.09		
Met.wahrsch.Beschattung		39			170			174			271			451			50			271			415			223			148			70			6		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO014 - An d. Trift 25, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:57 (B083)	07:12		08:27 (WEA03)	07:02		07:44 (B124)	05:57		06:58 (B153)	05:12		06:17 (B152)	05:08		06:25 (B152)	05:43		06:18 (B087)	06:32		07:14 (B223)	07:21		08:10 (B150)	07:14		07:57 (B012)	08:04		09:04 (B253)
	16:22			17:09	22		09:19 (B083)	18:00	26	08:53 (WEA03)	19:54	55	08:43 (WEA02)	20:44	53	07:51 (WEA01)	21:30	35	07:32 (WEA01)	21:45	14	06:39 (B152)	21:14	58	07:58 (WEA01)	20:13	13	07:27 (B223)	19:04	24	08:34 (B013)	16:58	24	08:21 (WEA03)	18:12	12	09:16 (B253)
2	08:29			08:03			08:57 (B083)	07:10		08:28 (WEA03)	07:00		07:46 (B124)	05:56		06:58 (WEA01)	05:11		06:17 (B152)	05:09		06:24 (B152)	05:45		06:22 (B087)	06:34		07:15 (B223)	07:22		08:09 (B150)	07:16		07:59 (B012)	08:06		09:05 (B253)
	16:23			17:11	22		09:19 (B083)	18:02	23	08:51 (WEA03)	19:55	52	08:43 (WEA02)	20:46	52	07:50 (WEA01)	21:31	31	07:30 (WEA01)	21:44	15	06:39 (B152)	21:13	53	07:59 (WEA01)	20:11	10	07:25 (B223)	19:02	24	08:33 (B013)	16:57	29	08:43 (B083)	16:17	10	09:15 (B253)
3	08:29			08:01			08:57 (B083)	07:08		08:31 (WEA03)	06:57		07:47 (B124)	05:54		06:58 (WEA01)	05:10		06:17 (B152)	05:09		06:25 (B152)	05:46		07:08 (WEA01)	06:36		07:18 (B223)	07:24		08:09 (B150)	07:17		08:08 (WEA03)	08:07		09:06 (B253)
	16:24			17:12	22		09:19 (B083)	18:04	18	08:49 (WEA03)	19:57	48	08:42 (WEA02)	20:47	52	07:50 (WEA01)	21:32	25	07:27 (WEA01)	21:44	14	06:39 (B152)	21:11	51	07:59 (WEA01)	20:09	15	08:25 (WEA02)	19:00	23	08:32 (B013)	16:55	18	08:44 (B083)	16:16	9	09:15 (B253)
4	08:29			08:00			08:58 (B083)	07:05		08:34 (WEA03)	06:55		07:52 (B124)	05:52		06:57 (WEA01)	05:10		06:18 (B152)	05:10		06:25 (B152)	05:48		07:07 (WEA01)	06:37		08:09 (WEA02)	07:26		08:09 (B150)	07:19		08:38 (B083)	08:09		09:07 (B253)
	16:25			17:14	21		09:19 (B083)	18:05	12	08:46 (WEA03)	19:59	36	08:41 (WEA02)	20:49	53	07:50 (WEA01)	21:33	17	06:35 (B152)	21:44	15	06:40 (B152)	21:09	52	07:59 (WEA01)	20:06	19	08:28 (WEA02)	18:57	22	08:31 (B013)	16:53	16	08:46 (B083)	16:16	7	09:14 (B253)
5	08:28			07:58			08:58 (B083)	07:03			06:53		08:06 (WEA02)	05:50		06:58 (WEA01)	05:09		06:18 (B152)	05:11		06:25 (B152)	05:49		07:08 (WEA01)	06:39		08:07 (WEA02)	07:27		08:09 (B150)	07:21		08:29 (B083)	08:10		09:10 (B253)
	16:26			17:16	21		09:19 (B083)	18:07			20:00	33	08:39 (WEA02)	20:51	52	07:50 (WEA01)	21:34	17	06:35 (B152)	21:43	16	06:41 (B152)	21:08	51	07:59 (WEA01)	20:04	24	08:31 (WEA02)	18:55	19	08:28 (B013)	16:51	18	08:47 (B083)	16:15	3	09:13 (B253)
6	08:29			07:56			08:58 (B083)	07:01			06:51		08:07 (WEA02)	05:48		06:57 (WEA01)	05:08		06:18 (B152)	05:12		06:24 (B152)	05:51		07:07 (WEA01)	06:40		08:05 (WEA02)	07:29		08:11 (B150)	07:23		08:28 (B083)	08:11		
	16:28			17:18	20		09:18 (B083)	18:09			20:02	31	08:38 (WEA02)	20:52	53	07:50 (WEA01)	21:35	17	06:35 (B152)	21:43	16	06:40 (B152)	21:06	52	07:59 (WEA01)	20:02	27	08:32 (WEA02)	18:53	8	08:19 (B150)	16:49	20	08:48 (B083)	16:15		
7	08:28			07:55			08:59 (B083)	06:59			06:48		08:08 (WEA02)	05:46		06:57 (WEA01)	05:08		06:18 (B152)	05:12		06:24 (B152)	05:52		07:07 (WEA01)	06:42		08:03 (WEA02)	07:31			07:24		08:28 (B083)	08:13		
	16:29			17:20	19		09:18 (B083)	18:11			20:04	28	08:36 (WEA02)	20:54	52	07:49 (WEA01)	21:36	17	06:35 (B152)	21:42	17	06:41 (B152)	21:04	53	08:00 (WEA01)	20:00	30	08:33 (WEA02)	18:51			16:48	21	08:49 (B083)	16:14		
8	08:28			07:53			09:01 (B083)	06:57			06:46		08:09 (WEA02)	05:45		06:58 (WEA01)	05:07		06:18 (B152)	05:13		06:25 (B152)	05:54		07:07 (WEA01)	06:44		08:01 (WEA02)	07:32			07:26		08:28 (B083)	08:14		
	16:30			17:22	17		09:18 (B083)	18:12			20:05	26	08:35 (WEA02)	20:55	52	07:50 (WEA01)	21:37	16	06:34 (B152)	21:42	17	06:42 (B152)	21:02	52	07:59 (WEA01)	19:57	33	08:34 (WEA02)	18:48			16:46	21	08:49 (B083)	16:14		
9	08:28	09:25 (B253)	07:51	09:02 (B083)	06:54		07:34 (B150)	06:44			08:11 (WEA02)	05:43		06:57 (WEA01)	05:06		06:19 (B152)	05:14		06:25 (B152)	05:56		07:07 (WEA01)	06:45		08:01 (WEA02)	07:34			07:28		08:28 (B083)	08:15		
	16:31	4 09:29 (B253)	17:24	14 09:16 (B083)	18:14	8	07:42 (B150)	20:07	22	08:33 (WEA02)	20:57	52	07:49 (WEA01)	21:38	16	06:35 (B152)	21:41	17	06:42 (B152)	21:00	53	08:00 (WEA01)	19:55	34	08:35 (WEA02)	18:46			16:44	22	08:50 (B083)	16:14		
10	08:27	09:23 (B253)	07:49	08:30 (B012)	06:52		07:32 (B150)	06:42		08:13 (WEA02)	05:41		06:58 (WEA01)	05:06		06:20 (B152)	05:15		06:25 (B152)	05:57		07:06 (WEA01)	06:47		07:42 (B124)	07:36			07:30		08:28 (B083)	08:16		
	16:33	8 09:31 (B253)	17:25	28 09:14 (B083)	18:16	19	07:51 (B013)	20:09	16	08:29 (WEA02)	20:59	51	07:49 (WEA01)	21:38	15	06:35 (B152)	21:40	17	06:42 (B152)	20:59	53	07:59 (WEA01)	19:53	43	08:35 (WEA02)	18:44			16:43	22	08:50 (B083)	16:13		
11	08:27	09:24 (B253)	07:48	08:28 (B012)	06:50		07:31 (B150)	06:39		07:18 (B223)	05:39		06:58 (WEA01)	05:06		06:20 (B152)	05:16		06:25 (B152)	05:59		07:07 (WEA01)	06:48		07:40 (B124)	07:37		09:08 (WEA03)	07:32		08:28 (B083)	08:17		
	16:34	9 09:33 (B253)	17:27	25 09:10 (B083)	18:18	22	07:53 (B013)	20:10	14	08:24 (WEA02)	21:00	51	07:49 (WEA01)	21:39	14	06:34 (B152)	21:40	25	07:35 (WEA01)	20:57	53	08:00 (WEA01)	19:51	48	08:35 (WEA02)	18:42	11	09:19 (WEA03)	16:41	22	08:50 (B083)	16:13		
12	08:26	09:23 (B253)	07:46	08:27 (B012)	06:48		07:31 (B150)	06:37		07:15 (B223)	05:38		06:11 (B087)	05:05		06:18 (B152)	05:17		06:25 (B152)	06:00		07:06 (WEA01)	06:50		07:37 (B124)	07:39		09:05 (WEA03)	07:33		08:29 (B083)	08:18		
	16:36	11 09:34 (B253)	17:29	26 08:53 (WEA03)	18:19	23	07:54 (B013)	20:12	12	07:27 (B223)	21:02	52	07:48 (WEA01)	21:40	15	06:35 (B152)	21:39	31	07:38 (WEA01)	20:55	53	07:59 (WEA01)	19:48	54	08:35 (WEA02)	18:40	18	09:23 (WEA03)	16:40	21	08:50 (B083)	16:13		
13	08:25	09:22 (B253)	07:44	08:27 (B012)	06:46		07:30 (B150)	06:35		07:14 (B223)	05:36		06:08 (B087)	05:05		06:21 (B152)	05:18		06:25 (B152)	06:02		07:06 (B153)	06:52		07:37 (B124)	07:41		09:02 (WEA03)	07:35		08:29 (B083)	08:19		
	16:37	13 09:35 (B253)	17:31	27 08:54 (WEA03)	18:21	24	07:54 (B013)	20:14	14	07:28 (B223)	21:03	58	07:48 (WEA01)	21:41	14	06:35 (B152)	21:38	35	07:40 (WEA01)	20:53	53	07:59 (WEA01)	19:46	55	08:35 (WEA02)	18:37	22	09:24 (WEA03)	16:38	21	08:50 (B083)	16:13		
14	08:25	09:22 (B253)	07:42	08:26 (B012)	06:43		07:30 (B150)	06:33		07:13 (B223)	05:35		06:08 (B087)	05:05		06:21 (B152)	05:19		06:25 (B152)	06:04		07:05 (B153)	06:53		07:35 (B124)	07:42		09:00 (WEA03)	07:37		08:30 (B083)	08:20		
	16:39	14 09:36 (B253)	17:33	29 08:55 (WEA03)	18:23	24	07:54 (B013)	20:15	16	07:29 (B223)	21:05	59	07:48 (WEA01)	21:41	14	06:35 (B152)	21:37	38	07:42 (WEA01)	20:51	53	07:58 (WEA01)	19:44	57	08:35 (WEA02)	18:35	26	09:26 (WEA03)	16:37	20	08:50 (B083)	16:13		
15	08:24	09:22 (B253)	07:40	08:18 (B178)	06:41		07:31 (B150)	06:31		07:13 (B223)	05:33		06:06 (B087)	05:04		06:22 (B152)	05:20		06:25 (B152)	06:05		07:05 (B153)	06:55		07:35 (B124)	07:44		08:59 (WEA03)	07:39		08:31 (B083)	08:21		
	16:40	14 09:36 (B253)	17:35	33 08:56 (WEA03)	18:25	23	07:54 (B013)	20:17	16	07:29 (B223)	21:06	60	07:47 (WEA01)	21:42	13	06:35 (B152)	21:36	40	07:43 (WEA01)	20:49	53	07:58 (WEA01)	19:41	58	08:35 (WEA02)	18:33	28	09:27 (WEA03)	16:35	18	08:49 (B083)	16:13		
16	08:23	09:22 (B253)	07:38	08:15 (B178)	06:39		07:31 (B150)	06:28		07:11 (B223)	05:31		06:06 (B087)	05:04		06:23 (B152)	05:22		06:25 (B152)	06:07		07:05 (B153)	06:56		07:35 (B124)	07:46		08:58 (WEA03)	07:40		08:32 (B083)	08:22		
	16:42	15 09:37 (B253)	17:36	40 08:57 (WEA03)	18:26	22	07:53 (B013)	20:19	22	07:33 (WEA01)	21:08	59	07:46 (WEA01)	21:42	12	06:35 (B152)	21:35	44	07:45 (WEA01)	20:47	52	07:57 (WEA01)	19:39	58	08:35 (WEA02)	18:31	30	09:28 (WEA03)	16:34	17	08:49 (B083)	16:13		
17	08:22	09:22 (B253)	07:36	08:13 (B178)	06:36		07:33 (B150)	06:26		07:11 (B223)	05:30		06:05 (B087)	05:04		06:23 (B152)	05:23		06:20 (B087)	06:08		07:05 (B153)	06:58		07:34 (B124)	07:48		08:57 (WEA03)	07:42		08:32 (B083)	08:23		
	16:43	15 09:37 (B253)	17:38	45 08:58 (WEA03)	18:28	19	07:52 (B013)	20:20	27	07:38 (WEA01)	21:09	59	07:45 (WEA01)	21:43	12	06:35 (B152)	21:34	49	07:46 (WEA01)	20:45	52	07:57 (WEA01)	19:37	58	08:34 (WEA02)	18:29	32	09:29 (WEA03)	16:32	20	09:08 (B253)	16:13		
18	08:21	09:22 (B253)	07:35	08:12 (B178)	06:34		07:21 (WEA02)	06:24		07:11 (B223)	05:28		06:05 (B087)	05:04		06:23 (B152)	05:24		06:18 (B087)	06:10		07:05 (B153)	07:00		07:34 (B124)	07:49		08:46 (B178)	07:44		08:34 (B083)	08:24		
	16:45	16 09:38 (B253)	17:40	46 08:58 (WEA03)	18:30	28	07:51 (B013)	20:22	29	07:40 (WEA01)	21:11	59	07:45 (WEA01)	21:43	12	06:35 (B152)	21:33	55	07:47 (WEA01)	20:43	51	07:56 (WEA01)	19:34	58	08:34 (WEA02)	18:27	40	09:28 (WEA03)	16:31	22	09:11 (B253)	16:13		
19	08:20	09:23 (B253)	07:33	08:12 (B178)	06:32		07:18 (WEA02)	06:22		07:11 (WEA01)	05:27		06:05 (B087)	05:04		06:24 (B152)	05:25		06:17 (B087)	06:12		07:06 (B153)	07:01		07:34 (B124)	07:51		08:44 (B178)	07:45		08:36 (B083)	08:25		
	16:46	16 09:39 (B253)	17:42	47 08:59 (WEA03)	18:31	28	07:48 (B013)	20:24	31	07:42 (WEA01)	21:12	59	07:45 (WEA01)	21:44	11	06:35 (B152)	21:32	57	07:46 (WEA01)	20:41	49	07:55 (WEA01)	19:32	55	08:33 (WEA02)	18:24	45	09:29 (WEA03)	16:30	21	09:12 (B253)	16:14		
20	08:19	09:23 (B253)	07:31	08:11 (B178)	06:29		07:15 (WEA02)	06:20		07:09 (WEA01)	05:26		06:04 (B087)	05:04		06:24 (B152)	05:27		06:17 (B087)	06:13		07:06 (B153)	07:03		07:35 (B124)	07:53		08:43 (B178)	07:47		09:00 (B253)	08:25		
	16:48	16 09:39 (B253)	17:44	48 08:59 (WEA03)	18:33	26	07:41 (WEA02)	20:26	35	07:44 (WEA01)	21:14	61	07:43 (WEA01)	21:44	11	06:35 (B152)	21:31	60	07:50 (WEA01)	20:39	48	07:54 (WEA01)	19:30	51	08:32 (WEA02)	18:22	46	09:29 (WEA03)	16:29	13	09:13 (B253)	16:14		
21	08:18	09:24 (B253)	07:29	08:11 (B178)	06:27		07:14 (WEA02)	06:18		07:07 (WEA01)	05:24		06:05 (B087)	05:04		06:24 (B152)	05:28		06:17 (B087)	06:15		07:07 (B153)	07:04		07:37 (B124)	07:54		08:42 (B178)	07:49		09:00 (B253)	08:26		
	16:50	15 09:39 (B253)	17:46	48 08:59 (WEA03)	18:35	29	07:43 (WEA02)	20:27	38	07:45 (WEA01)	21:15	64	07:43 (WEA01)	21:44	11	06:35 (B152)	21:30	61	07:51 (WEA01)	20:37	46	07:53 (WEA01)	19:27	46	08:31 (WEA02)	18:20	47	09:29 (WEA03)	16:27	14	09:14 (B253)	16:14		
22	08:17	09:25 (B253)	07:27	08:12 (B178)	06:25		07:11 (WEA02)	06:16		07:05 (B153)	05:23		06:05 (B087)	05:04		06:24 (B152)	05:29		06:16 (B087)	06:16		07:08 (B153)	07:06		07:39 (B124)	07:56		08:42 (B178)	07:50		09:00 (B253)	08:27		
	16:51	15 09:40 (B253)	17:47	47 08:59 (WEA03)	18:37	32	07:43 (WEA02)	20:29	41	07:46 (WEA01)	21:17	64	07:42 (WEA01)	21:45	11	06:35 (B152)	21:28	62	07:51 (WEA01)	20:35	43	07:51 (WEA01)	19:25	39	08:30 (WEA02)	18:18	47	09:29 (WEA03)	16:26	15	09:15 (B253)	16:15		
23	08:16	09:25 (B253)	07:24	08:12 (B178)	06:23		06:52 (B124)	06:14		07:02 (B153)	05:22		06:06 (B087)	05:05		06:24 (B152)	05:30		06:15 (B087)	06:18		07:12 (WEA01)	07:08		07:57 (WEA02)	07:58		08:42 (B178)	07:52		08:59 (B253)	08:27		
	16:53	14 09:39 (B253)	17:49	47 08:59 (WEA03)	18:38	42	07:44 (WEA02)	20:31	45	07:47 (WEA01)	21:18	62	07:41 (WEA01)	21:45	11	06:35 (B152)	21:27	64	07:52 (WEA01)	20:33	38	07:50 (WEA01)	19:23	31	08:28 (WEA02)	18:16	47	09:29 (WEA03)	16:25	16	09:15 (B253)	16:15		
24	08:15	09:04 (B083)	07:22	08:12 (B178)	06:20		06:50 (B124)	06:11		07:01 (B153)	05:20		06:07 (B087)	05:05		06:25 (B152)	05:32		06:15 (B087)	06:20		07:12 (WEA01)	07:09		07:58 (WEA02)	08:00		08:41 (B178)	07:54		09:00 (B253)	08:28		
	16:55	18 09:39 (B253)	17:51	45 08:57 (WEA03)	18:40	47	07:45 (WEA02)	20:32	47	07:48 (WEA01)	21:20	61	07:41 (WEA01)	21:45	11	06:36 (B152)	21:26	64	07:53 (WEA01)	20:31	36	07:48 (WEA01)	19:20	28	08:26 (WEA02)	18:14	47	09:28 (WEA03)	16:24	15	09:15 (B253)	16:16		
25	08:14	09:02 (B083)	07:20	08:14 (B178)	06:18		06:48 (B124)	06:09		06:59 (B153)	05:19		06:07 (B087)	05:05		06:25 (B152)	05:33		06:16 (B087)	06:21		07:14 (WEA01)	07:11		07:59 (WEA02)	08:01		08:42 (B178)	07:55		09:00 (B253)	08:28		
	16:56	20 09:38 (B253)	17:53	42 08:57 (WEA03)	18:42	53	07:46 (WEA02)	20:34	49	07:48 (WEA01)	21:21	60	07:40 (WEA01)	21:45	11	06:36 (B152)	21:25	60	07:54 (WEA01)	20:28	33	07:47 (WEA01)	19:18	26	08:25 (WEA02)	18:12	46	09:28 (WEA03)	16:23	16	09:16 (B253)	16:16		
26	08:13	09:00 (B083)	07:18	08:25 (WEA03)	07:16		07:46 (B124)	06:07		06:58 (B153)	05:18		06:08 (B087)	05:05		06:24 (B152)	05:35		06:15 (B087)	06:23		07:14 (B223)	07:13		08:02 (WEA02)	08:03		08:42 (B178)	07:57		09:01 (B253)	08:28		
	16:58	22 09:37 (B253)	17:55	31 08:56 (WEA03)	19:43	56	08:45 (WEA02)	20:36	51	07:49 (WEA01)	21:22	57	07:39 (WEA01)	21:45	12	06:36 (B152)	21:23	58	07:55 (WEA01)	20:26	30	07:44 (WEA01)	19:16	28	08:32 (B013)	18:10	45	09:27 (WEA03)	16:22	15	09:16 (B253)	16:17		
27	08:11	09:00 (B083)	07:16	08:26 (WEA03)	07:13		07:46 (B124)	06:05		06:58 (B153)	05:17		06:09 (B087)	05:06		06:25 (B152)	05:36		06:15 (B087)	06:24		07:14 (B223)	07:14		08:04 (WEA02)	08:05		08:44 (B178)	07:58		09:01 (B253)	08:29		
	17:00	17 09:34 (B253)	17:56	30 08:56 (WEA03)	19:45	56	08:45 (WEA02)	20:37	51	07:49 (WEA01)	21:24	55	07:38 (WEA01)	21:45	12	06:37 (B152)	21:22	59	07:55 (WEA01)	20:24	28	07:42 (WEA01)	19:14	26	08:33 (B013)	18:08	41	09:27 (WEA03)	16:21	15	09:16 (B253)	16:18		
28	08:10	08:58 (B083)	07:14	08:27 (WEA03)	07:11		07:45 (B124)	06:03		06:57 (B153)	05:16		06:11 (B087)	05:06		06:26 (B152)	05:37		06:16 (B087)	06:26		07:13 (B223)	07:16		08:15 (B150)	08:07		08:46 (B178)	08:00		09:02 (B253)	08:29		
	17:02	18 09:16 (B083)	17:58	28 08:55 (WEA03)	19:47	59	08:46 (WEA02)	20:39	52	07:49 (WEA01)	21:25	49	07:37 (WEA01)	21:45	13	06:37 (B152)	21:20	59	07:56 (WEA01)	20:22	24	07:37 (WEA01)	19:11	19	08:34 (B013)	18:06	36	09:26 (WEA03)	16:20	14	09:16 (B253)	16:18		
29	08:09	08:58 (B083)					07:09	07:44 (B124)	06:01		06:57 (B153)	05:15		06:16 (B152)	05:07		06:25 (B152)	05:39		06:16 (B087)	06:28		07:13 (B223)	07:17		08:12 (B150)	07:08		07:56 (B012)	08:02		09:03 (B253)	08:29		
	17:03	19 09:17 (B083)					19:48	60 08:45 (WEA02)	20:41	53	07:50 (WEA01)	21:26	44	07:36 (WEA01)	21:45	13	06:38 (B152)	21:19	60	07:57 (WEA01)	20:20	17	07:30 (B223)	19:09	22	08:34 (B013)	17:04	29	08:25 (WEA03)	16:19	14	09:17 (B253)	16:19		
30	08:07	08:58 (B083)					07:07	07:44 (B124)	05:59		06:58 (B153)	05:14		06:16 (B152)	05:07		06:24 (B152)	05:40		06:16 (B087)	06:29		07:13 (B223)	07:19		08:10 (B150)	07:10		07:56 (B012)	08:03		09:03 (B253)	08:29		
	17:05	20 09:18 (B083)					19:50	59 08:45 (WEA02)	20:42	53	07:51 (WEA01)	21:27	40	07:34 (WEA01)	21:45	14	06:38 (B152)	21:17	60	07:57 (WEA01)	20:18	16	07:29 (B223)	19:07	24	08:34 (B013)	17:02	28	08:24 (WEA03)	16:18	13	09:16 (B253)	16:20		
31	08:06	08:57 (B083)					07:04	07:45 (B124)					05:13	06:16 (B152)					05:42	06:18 (B087)	06:31		07:14 (B223)					07:12	07:57 (B012)				08:29		
	17:07	21 09:18 (B083)					19:52	57 08:44 (WEA02)					21:28	38 07:33 (WEA01)					21:16	59 07:58 (WEA01)	20:15	15	07:29 (B223)					17:00	26 08:23 (WEA03)				16:21		
Sonnenscheinstunden	259		277			366		414			483		497			501		1258			454		1371		382		1089			333		268			245		
astr.max.mögl.Beschattung		350			890			895			1043			1693			453			1258			1371			1089			857			553			41	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.94			0.39			0.40			0.32			0.29			0.23			0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95	
Reduktion Windrichtung		0.55			0.61			0.68			0.72			0.73			0.74			0.74			0.73			0.69			0.63			0.57			0.54	
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.12			0.09	
Met.wahrsch.Beschattung		35			168			165			259			506			108			342			382			229			148			67			4	

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO015 - An d. Trift 27, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:56 (B083)	07:12		08:22 (WEA03)	07:02		07:41 (B124)	05:57		06:53 (B153)	05:12		06:13 (B152)	05:08		06:19 (B152)	05:43		07:02 (WEA01)	06:32		07:14 (B223)	07:21		08:07 (B150)	07:14		08:04 (WEA03)	08:04		09:04 (B253)
	16:22			17:09	21		17:13 (B083)	18:00	30	08:52 (WEA03)	19:54	58	08:40 (WEA02)	20:44	51	07:44 (WEA01)	21:30	51	07:35 (WEA01)	21:45	27	07:29 (WEA01)	21:14	52	07:54 (WEA01)	20:13	23	08:23 (WEA02)	19:04	23	08:30 (B013)	16:58	19	08:41 (B083)	16:18	8	09:12 (B253)
2	08:29			08:03			08:55 (B083)	07:10		08:23 (WEA03)	07:00		07:41 (B124)	05:56		06:53 (WEA01)	05:11		06:13 (B152)	05:09		06:19 (B152)	05:45		07:02 (WEA01)	06:34		08:06 (WEA02)	07:22		08:06 (B150)	07:16		08:06 (B083)	08:06		09:05 (B253)
	16:23			17:11	22		09:17 (B083)	18:02	27	08:50 (WEA03)	19:55	57	08:39 (WEA02)	20:46	51	07:44 (WEA01)	21:31	49	07:34 (WEA01)	21:44	30	07:30 (WEA01)	21:13	52	07:54 (WEA01)	20:11	20	08:26 (WEA02)	19:02	22	08:28 (B013)	16:57	14	08:44 (B083)	16:17	6	09:11 (B253)
3	08:29			08:01			08:55 (B083)	07:08		08:25 (WEA03)	06:57		07:42 (B124)	05:54		06:53 (WEA01)	05:10		06:13 (B152)	05:09		06:19 (B152)	05:46		07:02 (WEA01)	06:36		08:03 (WEA02)	07:24		08:07 (B150)	07:17		08:27 (B083)	08:07		
	16:24			17:13	22		09:17 (B083)	18:04	24	08:49 (WEA03)	19:57	55	08:39 (WEA02)	20:47	51	07:44 (WEA01)	21:32	48	07:33 (WEA01)	21:44	32	07:31 (WEA01)	21:11	52	07:54 (WEA01)	20:09	24	08:27 (WEA02)	19:00	20	08:27 (B013)	16:55	17	08:44 (B083)	16:16			
4	08:29			08:00			08:56 (B083)	07:05		08:26 (WEA03)	06:55		07:44 (B124)	05:52		06:52 (WEA01)	05:10		06:14 (B152)	05:10		06:20 (B152)	05:48		07:01 (WEA01)	06:37		08:01 (WEA02)	07:26		08:07 (B150)	07:19		08:27 (B083)	08:09		
	16:25			17:14	22		09:18 (B083)	18:05	21	08:47 (WEA03)	19:59	50	08:39 (WEA02)	20:49	52	07:44 (WEA01)	21:33	46	07:33 (WEA01)	21:44	34	07:33 (WEA01)	21:09	53	07:54 (WEA01)	20:06	28	08:29 (WEA02)	18:57	10	08:18 (B150)	16:53	18	08:45 (B083)	16:16			
5	08:29			07:58			08:56 (B083)	07:03		08:29 (WEA03)	06:53		07:45 (B124)	05:50		06:52 (WEA01)	05:09		06:13 (B152)	05:11		06:20 (B152)	05:49		07:01 (WEA01)	06:39		08:00 (WEA02)	07:27		08:09 (B150)	07:21		08:26 (B083)	08:10		
	16:26			17:16	21		09:17 (B083)	18:07	16	08:45 (WEA03)	20:00	44	08:37 (WEA02)	20:51	53	07:45 (WEA01)	21:34	43	07:31 (WEA01)	21:43	36	07:34 (WEA01)	21:08	53	07:54 (WEA01)	20:04	30	08:30 (WEA02)	18:55	6	08:15 (B150)	16:51	20	08:46 (B083)	16:15			
6	08:29			07:56			08:56 (B083)	07:01		08:32 (WEA03)	06:51		08:01 (WEA02)	05:48		06:52 (WEA01)	05:08		06:13 (B152)	05:12		06:19 (B152)	05:51		07:01 (WEA01)	06:40		07:58 (WEA02)	07:29			07:23		08:26 (B083)	08:11		
	16:28			17:18	21		09:17 (B083)	18:09	8	08:40 (WEA03)	20:02	35	08:36 (WEA02)	20:52	52	07:44 (WEA01)	21:35	42	07:30 (WEA01)	21:43	39	07:35 (WEA01)	21:06	53	07:54 (WEA01)	20:02	33	08:31 (WEA02)	18:53			16:49	21	08:47 (B083)	16:15			
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Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	314			872			845			1022			1777			800			1617			1235			1119			859			528			14		
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.55			0.61			0.68			0.72			0.73			0.74			0.73			0.73			0.70			0.63			0.56			0.54		
Gesamte Reduktion	0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.12			0.09		
Met.wahrsch.Beschattung	31			165			155			253			531			189			439			344			237			148			64			1		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO016 - An d. Trift 30/32, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:55 (B083)	07:12		08:19 (WEA03)	07:02		07:38 (B124)	05:57		06:51 (WEA01)	05:12		06:07 (B087)	05:08		06:16 (B152)	05:43		06:57 (WEA01)	06:32		08:01 (WEA02)	07:21		08:05 (B150)	07:14		08:28 (B083)	08:04		09:04 (B253)		
	16:22			17:09	20		09:15 (B083)	18:00	32	08:51 (WEA03)	19:54	59	08:37 (WEA02)	20:44	47	07:38 (WEA01)	21:30	60	07:34 (WEA01)	21:45	46	07:34 (WEA01)	21:14	53	07:50 (WEA01)	20:13	24	08:25 (WEA02)	19:04	21	08:26 (B013)	18:58	14	08:42 (B083)	16:18	5	09:09 (B253)		
2	08:29			08:03			08:54 (B083)	07:10		08:20 (WEA03)	07:00		07:39 (B124)	05:56		06:50 (WEA01)	05:11		06:11 (B152)	05:09		06:15 (B152)	05:45		06:57 (WEA01)	06:34		07:59 (WEA02)	07:22		08:05 (B150)	07:16		08:27 (B083)	08:06			
	16:23			17:11	21		09:15 (B083)	18:02	30	08:50 (WEA03)	19:55	58	08:37 (WEA02)	20:46	48	07:38 (WEA01)	21:31	56	07:34 (WEA01)	21:44	47	07:34 (WEA01)	21:13	54	07:51 (WEA01)	20:11	27	08:26 (WEA02)	19:02	18	08:23 (B013)	16:57	17	08:44 (B083)	16:17				
3	08:29			08:01			08:53 (B083)	07:08		08:21 (WEA03)	06:57		07:39 (B124)	05:54		06:49 (WEA01)	05:10		06:10 (B152)	05:09		06:16 (B152)	05:46		06:57 (WEA01)	06:36		07:57 (WEA02)	07:24		08:06 (B150)	07:17		08:25 (B083)	08:07			
	16:24			17:13	22		09:15 (B083)	18:04	28	08:49 (WEA03)	19:57	58	08:37 (WEA02)	20:47	50	07:39 (WEA01)	21:32	55	07:33 (WEA01)	21:44	48	07:35 (WEA01)	21:11	53	07:50 (WEA01)	20:09	30	08:27 (WEA02)	19:00	10	08:16 (B150)	16:55	19	08:44 (B083)	16:16				
4	08:29			08:00			08:54 (B083)	07:05		08:22 (WEA03)	06:55		07:40 (B124)	05:52		06:48 (WEA01)	05:10		06:11 (B152)	05:10		06:16 (B152)	05:48		06:56 (WEA01)	06:37		07:56 (WEA02)	07:26		08:08 (B150)	07:19		08:25 (B083)	08:09			
	16:25			17:14	22		09:16 (B083)	18:05	25	08:47 (WEA03)	19:59	55	08:36 (WEA02)	20:49	51	07:39 (WEA01)	21:33	54	07:33 (WEA01)	21:44	49	07:36 (WEA01)	21:09	54	07:50 (WEA01)	20:06	32	08:28 (WEA02)	18:57	6	08:14 (B150)	16:53	20	08:45 (B083)	16:16				
5	08:29			07:58			08:54 (B083)	07:03		08:24 (WEA03)	06:53		07:40 (B124)	05:50		06:49 (WEA01)	05:09		06:10 (B152)	05:11		06:17 (B152)	05:49		06:57 (WEA01)	06:39		07:55 (WEA02)	07:27			07:21		08:24 (B083)	08:10			
	16:26			17:16	22		09:16 (B083)	18:07	22	08:46 (WEA03)	20:00	52	08:35 (WEA02)	20:51	51	07:40 (WEA01)	21:34	54	07:32 (WEA01)	21:43	50	07:37 (WEA01)	21:08	53	07:50 (WEA01)	20:04	35	08:30 (WEA02)	18:55			16:51	21	08:45 (B083)	16:15				
6	08:29			07:56			08:54 (B083)	07:01		08:25 (WEA03)	06:51		07:43 (B124)	05:48		06:48 (WEA01)	05:08		06:10 (B152)	05:12		06:16 (B152)	05:51		06:57 (WEA01)	06:40		07:54 (WEA02)	07:29			07:23		08:24 (B083)	08:11			
	16:28			17:18	22		09:16 (B083)	18:09	17	08:42 (WEA03)	20:02	44	08:34 (WEA02)	20:52	52	07:40 (WEA01)	21:35	53	07:31 (WEA01)	21:43	51	07:37 (WEA01)	21:06	52	07:49 (WEA01)	20:02	35	08:29 (WEA02)	18:53			16:49	22	08:46 (B083)	16:15				
7	08:28			07:55			08:54 (B083)	06:59		08:29 (WEA03)	06:48		07:57 (WEA02)	05:46		06:47 (WEA01)	05:08		06:11 (B152)	05:12		06:16 (B152)	05:52		06:57 (WEA01)	06:42		07:53 (WEA02)	07:31			07:24		08:24 (B083)	08:13			
	16:29			17:20	22		09:16 (B083)	18:11	10	08:39 (WEA03)	20:04	37	08:34 (WEA02)	20:54	52	07:39 (WEA01)	21:36	51	07:32 (WEA01)	21:42	52	07:38 (WEA01)	21:04	53	07:50 (WEA01)	20:00	37	08:30 (WEA02)	18:51			16:48	22	08:46 (B083)	16:14				
8	08:28			07:53			08:56 (B083)	06:57			06:46		07:58 (WEA02)	05:45		06:47 (WEA01)	05:07		06:10 (B152)	05:13		06:17 (B152)	05:54		06:57 (WEA01)	06:44		07:37 (B124)	07:32		09:05 (WEA03)	07:26		08:24 (B083)	08:14			
	16:30			17:22	20		09:16 (B083)	18:12			20:05	35	08:33 (WEA02)	20:55	53	07:40 (WEA01)	21:37	51	07:31 (WEA01)	21:42	52	07:38 (WEA01)	21:02	52	07:49 (WEA01)	19:57	48	08:30 (WEA02)	18:48	10	09:15 (WEA03)	16:46	22	08:46 (B083)	16:14				
9	08:28			07:51			08:56 (B083)	06:54			06:44		07:58 (WEA02)	05:43		06:47 (WEA01)	05:06		06:11 (B152)	05:14		06:17 (B152)	05:56		06:58 (WEA01)	06:45		07:35 (B124)	07:34		09:00 (WEA03)	07:28		08:24 (B083)	08:15			
	16:31			17:24	19		09:15 (B083)	18:14			20:07	34	08:32 (WEA02)	20:57	53	07:40 (WEA01)	21:38	50	07:31 (WEA01)	21:41	54	07:39 (WEA01)	21:00	51	07:49 (WEA01)	19:55	53	08:30 (WEA02)	18:46	17	09:17 (WEA03)	16:44	22	08:46 (B083)	16:14				
10	08:27			07:49			08:57 (B083)	06:52			06:42		07:58 (WEA02)	05:41		06:47 (WEA01)	05:06		06:11 (B152)	05:15		06:18 (B152)	05:57		06:58 (WEA01)	06:47		07:33 (B124)	07:36		08:58 (WEA03)	07:30		08:25 (B083)	08:16			
	16:33			17:25	17		09:14 (B083)	18:16			20:09	32	08:30 (WEA02)	20:59	53	07:40 (WEA01)	21:38	49	07:31 (WEA01)	21:40	54	07:40 (WEA01)	20:59	50	07:48 (WEA01)	19:53	56	08:30 (WEA02)	18:44	22	09:20 (WEA03)	16:43	21	08:46 (B083)	16:13				
11	08:27			07:48			08:58 (B083)	06:50		07:30 (B150)	06:39		07:59 (WEA02)	05:39		06:47 (WEA01)	05:06		06:11 (B152)	05:16		06:18 (B152)	05:59		06:59 (WEA01)	06:48		07:32 (B124)	07:37		08:56 (WEA03)	07:32		08:25 (B083)	08:17			
	16:34			17:27	15		09:13 (B083)	18:18	6	07:36 (B150)	20:10	29	08:28 (WEA02)	21:00	53	07:40 (WEA01)	21:39	48	07:30 (WEA01)	21:40	55	07:41 (WEA01)	20:57	49	07:48 (WEA01)	19:51	58	08:30 (WEA02)	18:42	26	09:22 (WEA03)	16:41	21	08:46 (B083)	16:13				
12	08:26			07:46			08:35 (WEA03)	06:48		07:28 (B150)	06:37		08:01 (WEA02)	05:38		06:46 (WEA01)	05:05		06:11 (B152)	05:17		06:19 (B152)	06:00		06:58 (WEA01)	06:50		07:31 (B124)	07:39		08:55 (WEA03)	07:33		08:26 (B083)	08:18			
	16:36			17:29	15		09:11 (B083)	18:19	10	07:38 (B150)	20:12	26	08:27 (WEA02)	21:02	53	07:39 (WEA01)	21:40	47	07:30 (WEA01)	21:39	56	07:42 (WEA01)	20:55	49	07:47 (WEA01)	19:48	58	08:29 (WEA02)	18:40	28	09:23 (WEA03)	16:40	20	08:46 (B083)	16:13				
13	08:25		09:22 (B253)	07:44		08:25 (B012)	06:45		07:26 (B150)	06:35		07:16 (B223)	05:36		06:47 (WEA01)	05:05		06:12 (B152)	05:18		06:15 (B087)	06:02		06:59 (WEA01)	06:52		07:31 (B124)	07:41		08:53 (WEA03)	07:35		08:27 (B083)	08:19			
	16:37	6	09:28 (B253)	17:31	19	09:06 (B083)	18:21	19	07:45 (B013)	20:14	23	08:24 (WEA02)	21:03	53	07:40 (WEA01)	21:41	45	07:30 (WEA01)	21:38	60	07:42 (WEA01)	20:53	48	07:47 (WEA01)	19:46	58	08:29 (WEA02)	18:37	30	09:23 (WEA03)	16:38	18	08:45 (B083)	16:13				
14	08:25		09:21 (B253)	07:42		08:22 (B012)	06:43		07:25 (B150)	06:33		07:11 (B223)	05:35		06:47 (WEA01)	05:05		06:12 (B152)	05:19		06:14 (B087)	06:04		06:59 (WEA01)	06:53		07:30 (B124)	07:42		08:52 (WEA03)	07:37		08:28 (B083)	08:20			
	16:39	9	09:30 (B253)	17:33	24	08:46 (WEA03)	18:23	22	07:47 (B013)	20:15	27	08:22 (WEA02)	21:05	53	07:40 (WEA01)	21:41	46	07:30 (WEA01)	21:37	61	07:43 (WEA01)	20:51	46	07:45 (WEA01)	19:44	58	08:28 (WEA02)	18:35	32	09:24 (WEA03)	16:37	19	09:03 (B253)	16:13				
15	08:24		09:20 (B253)	07:40		08:21 (B012)	06:41		07:25 (B150)	06:31		07:09 (B223)	05:33		06:06 (B087)	05:04		06:12 (B152)	05:20		06:13 (B087)	06:05		07:00 (B153)	06:55		07:30 (B124)	07:44		08:52 (WEA03)	07:39		08:29 (B083)	08:21			
	16:40	11	09:31 (B253)	17:35	27	08:48 (WEA03)	18:25	23	07:48 (B013)	20:17	22	08:17 (WEA02)	21:06	56	07:39 (WEA01)	21:42	45	07:30 (WEA01)	21:36	64	07:44 (WEA01)	20:49	45	07:45 (WEA01)	19:41	58	08:28 (WEA02)	18:33	33	09:25 (WEA03)	16:35	23	09:06 (B253)	16:13				
16	08:23		09:20 (B253)	07:38		08:20 (B012)	06:39		07:24 (B150)	06:28		07:07 (B223)	05:31		06:04 (B087)	05:04		06:13 (B152)	05:22		06:12 (B087)	06:07		07:00 (B153)	06:56		07:30 (B124)	07:46		08:43 (B178)	07:40		08:31 (B083)	08:22			
	16:42	12	09:32 (B253)	17:36	30	08:50 (WEA03)	18:26	23	07:47 (B013)	20:19	15	07:22 (B223)	05:30	62	07:40 (WEA01)	21:42	43	07:30 (WEA01)	21:35	64	07:44 (WEA01)	20:47	43	07:43 (WEA01)	19:39	56	08:27 (WEA02)	18:31	42	09:25 (WEA03)	16:34	23	09:08 (B253)	16:13				
17	08:22		09:19 (B253)	07:36		08:13 (B178)	06:36		07:25 (B150)	06:26		07:06 (B223)	05:30		06:02 (B087)	05:04		06:13 (B152)	05:23		06:12 (B087)	06:08		07:01 (B153)	06:58		07:30 (B124)	07:48		08:41 (B178)	07:42		08:33 (B083)	08:23			
	16:43	14	09:33 (B253)	17:38	36	08:51 (WEA03)	18:28	23	07:48 (B013)	20:20	17	07:23 (B223)	21:09	63	07:39 (WEA01)	21:43	44	07:30 (WEA01)	21:34	65	07:45 (WEA01)	20:45	41	07:42 (WEA01)	19:37	53	08:26 (WEA02)	18:29	44	09:25 (WEA03)	16:32	20	09:08 (B253)	16:13				
18	08:21		09:19 (B253)	07:34		08:11 (B178)	06:34		07:26 (B150)	06:24		07:06 (B223)	05:28		06:02 (B087)	05:04		06:13 (B152)	05:24		06:11 (B087)	06:10		07:02 (B153)	07:00		07:32 (B124)	07:49		08:39 (B178)	07:44		08:55 (B253)	08:24			
	16:45	15	09:34 (B253)	17:40	41	08:52 (WEA03)	18:30	22	07:48 (B013)	20:22	17	07:23 (B223)	21:11	64	07:39 (WEA01)	21:43	42	07:29 (WEA01)	21:33	65	07:45 (WEA01)	20:43	38	07:40 (WEA01)	19:34	49	08:25 (WEA02)	18:27	46	09:25 (WEA03)	16:31	14	09:09 (B253)	16:13				
19	08:20		09:19 (B253)	07:33		08:09 (B178)	06:32		07:26 (B150)	06:22		07:06 (B223)	05:27		06:02 (B087)	05:04		06:13 (B152)	05:25		06:11 (B087)	06:12		07:05 (WEA01)	07:01		07:33 (B124)	07:51		08:38 (B178)	07:45		08:55 (B253)	08:25			
	16:46	16	09:35 (B253)	17:42	44	08:53 (WEA03)	18:31	20	07:46 (B013)	20:24	17	07:23 (B223)	21:12	64	07:39 (WEA01)	21:44	42	07:29 (WEA01)	21:32	64	07:45 (WEA01)	20:41	34	07:39 (WEA01)	19:32	42	08:23 (WEA02)	18:24	47	09:25 (WEA03)	16:30	15	09:10 (B253)	16:14				
20	08:19		09:20 (B253)	07:31		08:08 (B178)	06:29		07:31 (B013)	06:20		07:06 (B223)	05:26		06:02 (B087)	05:04		06:14 (B152)	05:27		06:11 (B087)	06:13		07:06 (WEA01)	07:03		07:52 (WEA02)	07:53		08:38 (B178)	07:47		08:55 (B253)	08:25			
	16:48	15	09:35 (B253)	17:44	45	08:53 (WEA03)	18:33	15	07:46 (B013)	20:26	17	07:23 (B223)	21:14	65	07:39 (WEA01)	21:44	41	07:29 (WEA01)	21:31	62	07:47 (WEA01)	20:39	31	07:37 (WEA01)	19:30	30	08:22 (WEA02)	18:22	47	09:25 (WEA03)	16:29	16	09:11 (B253)	16:14				
21	08:18		09:20 (B253)	07:29		08:08 (B178)	06:27		07:16 (WEA02)	06:18		07:06 (B223)	05:24		06:01 (B087)	05:04		06:14 (B152)	05:28		06:11 (B087)	06:15		07:08 (WEA01)	07:04		07:53 (WEA02)	07:54		08:38 (B178)	07:49		08:55 (B253)	08:26			
	16:50	16	09:36 (B253)	17:46	46	08:54 (WEA03)	18:35	24	07:45 (B013)	20:27	16	07:22 (B223)	21:15	64	07:38 (WEA01)	21:44	41	07:29 (WEA01)	21:30	63	07:47 (WEA01)	20:37	27	07:35 (WEA01)	19:27	27	08:20 (WEA02)	18:20	47	09:25 (WEA03)	16:27	16	09:11 (B253)	16:14				
22	08:17		09:21 (B253)	07:27		08:08 (B178)	06:25		07:11 (WEA02)	06:16		07:06 (WEA01)	05:23		06:01 (B087)	05:04		06:14 (B152)	05:29		06:11 (B087)	06:16		07:10 (WEA01)	07:06		07:54 (WEA02)	07:56		08:38 (B178)	07:50		08:56 (B253)	08:27			
	16:51	16	09:37 (B253)	17:47	46	08:54 (WEA03)	18:37	27	07:41 (B013)	20:29	20	07:26 (WEA01)	21:17	64	07:38 (WEA01)	21:45	41	07:29 (WEA01)	21:28	63	07:47 (WEA01)	20:35	21	07:31 (WEA01)	19:25	24	08:18 (WEA02)	18:18	46	09:24 (WEA03)	16:26	16	09:12 (B253)	16:15				
23	08:16		09:20 (B253)	07:24		08:08 (B178)	06:23		07:08 (WEA02)	06:14		07:03 (WEA01)	05:22		06:01 (B087)	05:05		06:14 (B152)	05:30		06:11 (B087)	06:18		07:11 (B223)	07:08		07:57 (WEA02)	07:58		08:39 (B178)	07:52		08:55 (B253)	08:27			
	16:53	16	09:36 (B253)	17:49	46	08:54 (WEA03)	18:38	24	07:32 (WEA02)	20:31	25	07:28 (WEA01)	21:18	63	07:37 (WEA01)	21:45	41	07:29 (WEA01)	21:27	65	07:48 (WEA01)	20:33	17	07:28 (WEA01)	19:23	27	08:28 (B013)	18:16	45	09:24 (WEA03)	16:25	16	09:11 (B253)	16:15				
24	08:15		09:21 (B253)	07:22		08:07 (B178)	06:20		07:06 (WEA02)	06:11		07:01 (WEA01)	05:20		06:01 (B087)	05:05		06:14 (B152)	05:32		06:11 (B087)	06:20		07:09 (B223)	07:09		08:00 (WEA02)	08:00		08:38 (B178)	07:54		08:56 (B253)	08:28			
	16:55	15	09:36 (B253)	17:51	46	08:53 (WEA03)	18:40	28	07:34 (WEA02)	20:32	29	07:30 (WEA01)	21:20	63	07:37 (WEA01)	21:45	42	07:30 (WEA01)	21:26	64	07:48 (WEA01)	20:31	17	07:26 (B223)	19:20	22	08:28 (B013)	18:14	44	09:22 (WEA03)	16:24	16	09:12 (B253)	16:16				
25	08:14		09:21 (B253)	07:20		08:08 (B178)	06:18		06:49 (B124)	06:09		06:59 (WEA01)	05:19		06:01 (B087)	05:05		06:14 (B152)	05:33		06:12 (B087)	06:21		07:09 (B223)	07:11		08:15 (B013)	08:01		08:40 (B178)	07:55		08:57 (B253)	08:28			
	16:56	15	09:36 (B253)	17:53	45	08:53 (WEA03)	18:42	35	07:36 (WEA02)	20:34	33	07:32 (WEA01)	21:21	62	07:37 (WEA01)	21:45	42	07:30 (WEA01)	21:25	65	07:49 (WEA01)	20:28	18	07:27 (B223)	19:18	15	08:30 (B013)	18:12	42	09:22 (WEA03)	16:23	15	09:12 (B253)	16:16				
26	08:13		09:03 (B083)	07:18		08:09 (B178)	07:16		07:45 (B124)	06:07		06:56 (B153)	05:18		06:02 (B087)	05:05		06:14 (B152)	05:35		06:12 (B087)	06:23		07:09 (B223)	07:13		08:10 (B150)	08:03		08:42 (B178)	07:57		08:58 (B253)	08:28			
	16:58	15	09:36 (B253)	17:55	44	08:53 (WEA03)	19:43	44	08:36 (WEA02)	20:36	37	07:33 (WEA01)	21:22	64	07:36 (WEA01)	21:45	43	07:31 (WEA01)	21:23	64	07:49 (WEA01)	20:26	17	07:26 (B223)	19:16	20	08:30 (B013)	18:10	39	09:21 (WEA03)	16:22	14	09:12 (B253)	16:17				
27	08:11		08:59 (B083)	07:16		08:10 (B178)	07:13		07:43 (B124)	06:05		06:54 (B153)	05:17		06:02 (B087)	05:06		06:15 (B152)	05:36		06:12 (B087)	06:24		07:09 (B223)	07:14		08:07 (B150)	08:05		08:50 (B012)	07:58		08:58 (B253)	08:29			
	17:00	22	09:36 (B253)	17:56	43	08:53 (WEA03)	19:45	50	08:37 (WEA02)	20:37	40	07:34 (WEA01)	21:24	65	07:36 (WEA01)	21:45	44	07:32 (WEA01)	21:22	64	07:49 (WEA01)	20:24	17	07:26 (B223)	19:14	22	08:29 (B013)	18:08	30	09:20 (WEA03)	16:21	13	09:11 (B253)	16:18				
28	08:10		08:57 (B083)	07:14		08:19 (WEA03)	07:11		07:42 (B124)	06:03		06:52 (B153)	05:16		06:03 (B087)	05:06		06:15 (B152)	05:37		06:13 (B087)	06:26		07:09 (B223)	07:16		08:06 (B150)	08:07		08:50 (B012)	07:59		08:59 (B253)	08:29			
	17:02	23	09:34 (B253)	17:58	33	08:52 (WEA03)	19:47	54	08:38 (WEA02)	20:39	43	07:35 (WEA01)	21:25	65	07:36 (WEA01)	21:45	43	07:32 (WEA01)	21:20	63	07:50 (WEA01)	20:22	16	07:25 (B223)	19:11	24	08:30 (B013)	18:06	28	09:18 (WEA03)	16:20	12	09:11 (B253)	16:18				
29	08:09		08:57 (B083)						07:09	07:40 (B124)	06:01		06:51 (B153)	05:15		06:03 (B087)	05:07		06:15 (B152)	05:39		06:14 (B087)	06:28		07:10 (B223)	07:17		08:05 (B150)	08:08		07:51 (B012)	08:02		09:01 (B253)	08:29			
	17:03	21	09:33 (B253)						19:48	56	08:37 (WEA02)	20:41	45	07:36 (WEA01)	21:26	64	07:35 (WEA01)	21:45	45	07:33 (WEA01)	21:19	62	07:50 (WEA01)	20:20	14	07:24 (B223)	19:09	23	08:28 (B013)	17:04	26	08:17 (WEA03)	16:19	10	09:11 (B253)	16:19				
30	08:07		08:55 (B083)						07:07	07:39 (B124)	05:59		06:51 (B153)	05:14		06:04 (B087)	05:07		06:15 (B152)	05:40		06:15 (B087)	06:29		07:10 (B223)	07:19		08:05 (B150)	07:10		07:53 (B012)	08:03		09:02 (B253)	08:29			
	17:05	18	09:13 (B083)						19:50	58	08:37 (WEA02)	20:42	47	07:38 (WEA01)	21:27	64	07:35 (WEA01)	21:45	46	07:33 (WEA01)	21:17	59	07:50 (WEA01)	20:18	26	08:26 (WEA02)	19:07	23	08:28 (B013)	17:02	22	08:15 (WEA03)	16:18	8	09:10 (B253)	16:20				
31	08:06		08:54 (B083)						07:04	07:39 (B124)						06:05 (B087)						05:42		06:57 (WEA01)	06:31		07:13 (B223)			07:12	08:02 (WEA03)			08:29			
	17:07	20	09:14 (B083)						19:52	59	08:38 (WEA02)											21:16	53	07:50 (WEA01)	20:15	26	08:23 (WEA02)			17:00	18	08:40 (B083)				16:21			
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245			
astr.max.mögl.Beschattung		295			852			806			1009			1795			1404			1804			1165			1124			866			525			5	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95	
Reduktion Windrichtung		0.55			0.61			0.68			0.71			0.73			0.73			0.73			0.73			0.70			0.63			0.56			0.54	
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.12			0.09	
Met.wahrsch.Beschattung		29			161			148			250			535			331			489			324			238			150			64			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 (WEA mit erstem Schatten)
	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenende (WEA mit letztem Schatten)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO017 - Beerengrund 1, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		07:12		07:02		07:53 (B178)	05:57	07:33 (WEA03)	05:12	05:55 (B223)	05:08	05:59 (B223)	05:43	06:29 (B124)	06:32	07:27 (WEA03)	07:21	08:19 (B083)	07:14	08:01 (B082)	08:04
	16:22		17:09		18:00		19:53	14	18:07 (B178)	20:44	21:30	39	06:34 (WEA02)	21:45	06:44 (WEA02)	21:14	07:07 (B013)	20:13	08:08 (WEA03)	19:04	08:56 (B253)	16:58	08:16 (B082)	16:18
2	08:29		08:03		07:10		07:00		07:55 (B178)	05:56	06:25 (B124)	05:11	05:54 (B223)	05:09	05:59 (B223)	05:45	06:29 (B124)	06:34	07:28 (WEA03)	07:22	08:18 (B083)	07:16	08:00 (B082)	08:06
	16:23		17:11		18:02		19:55	10	18:05 (B178)	20:46	21:31	41	06:35 (WEA02)	21:44	06:43 (WEA02)	21:13	07:08 (B013)	20:11	08:07 (WEA03)	19:02	08:55 (B253)	16:57	08:17 (B082)	16:17
3	08:29		08:01		07:08		06:57		07:59 (B178)	05:54	06:23 (B124)	05:10	05:54 (B223)	05:09	05:59 (B223)	05:46	06:28 (B124)	06:36	07:28 (WEA03)	07:24	08:18 (B083)	07:17	07:59 (B082)	08:07
	16:24		17:13	1	08:38 (B082)	18:04	19:57	2	18:01 (B178)	20:47	21:32	41	06:35 (WEA02)	21:44	06:44 (WEA02)	21:11	07:07 (B013)	20:09	08:06 (WEA03)	19:00	08:56 (B253)	16:55	08:16 (B082)	16:16
4	08:29		08:00		08:34 (B082)	07:05	06:55		07:43 (WEA03)	05:52	06:21 (B124)	05:10	05:54 (B223)	05:10	06:00 (B223)	05:48	06:28 (B124)	06:37	07:29 (WEA03)	07:26	08:19 (B083)	07:19	07:59 (B082)	08:09
	16:25		17:14	9	08:43 (B082)	18:05	19:59	16	07:59 (WEA03)	20:49	21:33	42	06:36 (WEA02)	21:44	06:44 (WEA02)	21:09	07:06 (B013)	20:06	08:05 (WEA03)	18:57	08:56 (B253)	16:53	08:16 (B082)	16:16
5	08:29		07:58		08:32 (B082)	07:03	08:03 (B253)		07:39 (WEA03)	05:50	06:21 (B124)	05:09	05:54 (B223)	05:11	06:00 (B223)	05:49	06:28 (B124)	06:39	07:30 (WEA03)	07:27	08:19 (B083)	07:21	08:00 (B082)	08:10
	16:26		17:16	12	08:44 (B082)	18:07	08:14 (B253)	11	20:00	22	08:01 (WEA03)	20:50	24	06:53 (B013)	21:34	42	06:36 (WEA02)	21:43	44	06:44 (WEA02)	21:08	37	07:07 (B013)	20:04	34
6	08:29		07:56		08:31 (B082)	07:01	07:52 (B083)	06:51	07:37 (WEA03)	05:48	06:19 (B124)	05:08	05:53 (B223)	05:12	06:00 (B223)	05:51	06:28 (B124)	06:40	07:30 (WEA03)	07:29	08:20 (B083)	07:23	08:01 (B082)	08:11
	16:28		17:18	14	08:45 (B082)	18:09	08:15 (B253)	21	20:02	26	08:03 (WEA03)	20:52	30	06:54 (B013)	21:35	44	06:37 (WEA02)	21:43	43	06:43 (WEA02)	21:06	36	07:06 (B013)	20:02	32
7	08:28		07:55		08:30 (B082)	06:59	07:48 (B083)	06:48	07:35 (WEA03)	05:46	06:18 (B124)	05:08	05:54 (B223)	05:12	06:00 (B223)	05:53	06:29 (B124)	06:42	07:32 (WEA03)	07:31	08:21 (B083)	07:24	08:02 (B082)	08:13
	16:29		17:20	15	08:45 (B082)	18:11	08:17 (B253)	29	20:04	30	08:05 (WEA03)	20:54	33	06:55 (B013)	21:36	43	06:37 (WEA02)	21:42	43	06:43 (WEA02)	21:04	33	07:05 (B013)	20:00	29
8	08:28		07:53		08:31 (B082)	06:57	07:45 (B083)	06:46	07:34 (WEA03)	05:45	06:19 (B124)	05:07	05:55 (B223)	05:13	06:00 (B223)	05:54	06:29 (B124)	06:44	07:33 (WEA03)	07:32	08:24 (B083)	07:26	08:03 (B082)	08:14
	16:30		17:22	16	08:47 (B082)	18:12	08:18 (B253)	33	20:05	32	08:06 (WEA03)	20:55	34	06:56 (B013)	21:37	43	06:38 (WEA02)	21:42	43	06:43 (WEA02)	21:02	31	07:04 (B013)	19:57	25
9	08:28		07:51		08:31 (B082)	06:54	07:43 (B083)	06:44	07:32 (WEA03)	05:43	06:18 (B124)	05:06	05:54 (B223)	05:14	06:01 (B223)	05:56	06:30 (B124)	06:45	07:36 (WEA03)	07:34	08:26 (B083)	07:28	08:05 (B082)	08:15
	16:31		17:24	16	08:47 (B082)	18:14	08:17 (B253)	34	20:07	35	08:07 (WEA03)	20:57	36	06:56 (B013)	21:38	44	06:38 (WEA02)	21:41	42	06:43 (WEA02)	21:00	26	07:03 (B013)	19:55	19
10	08:27		07:49		08:30 (B082)	06:52	07:42 (B083)	06:42	07:30 (WEA03)	05:41	06:19 (B124)	05:06	05:55 (B223)	05:15	06:01 (B223)	05:57	06:30 (B124)	06:47	07:38 (WEA03)	07:36	08:37 (B253)	07:30		08:16
	16:33		17:25	17	08:47 (B082)	18:16	08:18 (B253)	36	20:09	37	08:07 (WEA03)	20:59	37	06:57 (B013)	21:38	44	06:39 (WEA02)	21:40	42	06:43 (WEA02)	20:59	16	06:58 (B013)	19:53	13
11	08:26		07:48		08:31 (B082)	06:50	07:41 (B083)	06:39	07:29 (WEA03)	05:39	06:18 (B124)	05:06	05:54 (B223)	05:16	06:02 (B223)	05:59	06:32 (B124)	06:48	07:50 (B178)	07:37	08:42 (B253)	07:32		08:17
	16:34		17:27	16	08:47 (B082)	18:18	08:18 (B253)	37	20:10	39	08:08 (WEA03)	21:00	38	06:57 (B013)	21:39	45	06:39 (WEA02)	21:39	41	06:43 (WEA02)	20:57	13	07:53 (WEA03)	19:51	7
12	08:26		07:46		08:31 (B082)	06:48	07:40 (B083)	06:37	07:29 (WEA03)	05:38	06:18 (B124)	05:05	05:55 (B223)	05:17	06:02 (B223)	06:00	06:33 (B124)	06:50	07:46 (B178)	07:39		07:33		08:18
	16:36		17:29	15	08:46 (B082)	18:19	08:18 (B253)	38	20:12	39	08:08 (WEA03)	21:02	37	06:56 (B013)	21:40	44	06:39 (WEA02)	21:39	41	06:43 (WEA02)	20:55	22	07:59 (WEA03)	19:48	12
13	08:25		07:44		08:32 (B082)	06:45	07:39 (B083)	06:35	07:28 (WEA03)	05:36	06:19 (B124)	05:05	05:55 (B223)	05:18	06:03 (B223)	06:02	07:42 (WEA03)	06:52	07:45 (B178)	07:41		07:35		08:19
	16:37		17:31	13	08:45 (B082)	18:21	08:16 (B253)	37	20:14	41	08:09 (WEA03)	21:03	37	06:57 (B013)	21:41	45	06:40 (WEA02)	21:38	39	06:42 (WEA02)	20:53	20	08:02 (WEA03)	19:46	15
14	08:25		07:42		08:31 (B084)	06:43	07:39 (B083)	06:33	07:27 (WEA03)	05:35	06:19 (B124)	05:05	05:56 (B223)	05:19	06:03 (B223)	06:04	07:40 (WEA03)	06:53	07:43 (B178)	07:42		07:37		08:20
	16:39		17:33	13	08:44 (B082)	18:23	08:16 (B253)	37	20:15	42	08:09 (WEA03)	21:05	37	06:57 (B013)	21:41	44	06:40 (WEA02)	21:37	39	06:42 (WEA02)	20:51	24	08:04 (WEA03)	19:44	17
15	08:24		07:40		08:28 (B084)	06:41	07:39 (B083)	06:31	07:27 (WEA03)	05:33	06:19 (B124)	05:04	05:56 (B223)	05:20	06:04 (B223)	06:05	07:07 (B150)	06:55	07:43 (B178)	07:44	09:02 (B084)	07:39		08:21
	16:40		17:35	14	08:42 (B082)	18:25	08:15 (B253)	36	20:17	42	08:09 (WEA03)	21:06	34	06:56 (B013)	21:42	45	06:41 (WEA02)	21:36	37	06:41 (WEA02)	20:49	37	08:06 (WEA03)	19:41	18
16	08:23		07:38		08:26 (B084)	06:39	07:38 (B083)	06:28	07:26 (WEA03)	05:31	06:20 (B124)	05:04	05:56 (B223)	05:22	06:05 (B223)	06:07	07:05 (B150)	06:56	07:42 (B178)	07:46	08:59 (B084)	07:40		08:22
	16:42		17:36	15	08:41 (B084)	18:26	08:12 (B253)	34	20:19	42	08:08 (WEA03)	21:08	32	06:56 (B013)	21:42	45	06:41 (WEA02)	21:35	35	06:40 (WEA02)	20:47	43	08:06 (WEA03)	19:39	19
17	08:22		07:36		08:25 (B084)	06:36	07:38 (B083)	06:26	07:25 (WEA03)	05:30	06:21 (B124)	05:04	05:56 (B223)	05:23	06:06 (B223)	06:08	07:04 (B150)	06:58	07:42 (B178)	07:48	08:57 (B084)	07:42		08:23
	16:43		17:38	17	08:42 (B084)	18:28	08:10 (B253)	32	20:20	43	08:08 (WEA03)	21:09	28	06:55 (B013)	21:43	45	06:41 (WEA02)	21:34	34	06:40 (WEA02)	20:45	48	08:08 (WEA03)	19:37	18
18	08:21		07:34		08:24 (B084)	06:34	07:39 (B083)	06:24	07:07 (B012)	05:28	06:22 (B124)	05:04	05:57 (B223)	05:24	06:07 (B223)	06:10	07:03 (B150)	07:00	07:42 (B178)	07:49	08:55 (B084)	07:44		08:24
	16:45		17:40	19	08:43 (B084)	18:30	08:04 (B083)	20:22	44	08:08 (WEA03)	21:11	26	06:55 (B013)	21:43	45	06:42 (WEA02)	21:33	28	06:38 (WEA02)	20:43	51	08:08 (WEA03)	19:34	18
19	08:20		07:33		08:23 (B084)	06:32	07:39 (B083)	06:22	07:03 (B150)	05:27	06:24 (B124)	05:04	05:57 (B223)	05:25	06:17 (WEA02)	06:12	07:03 (B150)	07:01	07:41 (B178)	07:51	08:54 (B084)	07:45		08:25
	16:46		17:42	21	08:44 (B084)	18:31	08:03 (B083)	20:24	52	08:08 (WEA03)	21:12	20	06:54 (B013)	21:44	45	06:42 (WEA02)	21:32	20	06:37 (WEA02)	20:41	53	08:09 (WEA03)	19:32	17
20	08:19		07:31		08:23 (B084)	06:29	07:40 (B083)	06:20	07:00 (B150)	05:26	06:44 (B013)	05:04	05:57 (B223)	05:27	06:20 (WEA02)	06:13	07:02 (B150)	07:03	07:42 (B178)	07:53	08:54 (B084)	07:47		08:25
	16:48		17:44	21	08:44 (B084)	18:33	08:01 (B083)	20:25	55	08:07 (WEA03)	21:14	9	06:53 (B013)	21:44	45	06:42 (WEA02)	21:31	16	06:36 (WEA02)	20:39	56	08:10 (WEA03)	19:30	16
21	08:18		07:29		08:23 (B084)	06:27	07:41 (B083)	06:18	06:59 (B150)	05:24	06:45 (B013)	05:04	05:57 (B223)	05:28	06:22 (WEA02)	06:15	07:02 (B150)	07:04	07:44 (B178)	07:54	08:53 (B084)	07:49		08:26
	16:50		17:46	21	08:44 (B084)	18:35	08:00 (B083)	20:27	57	08:07 (WEA03)	21:15	5	06:50 (B013)	21:44	45	06:42 (WEA02)	21:30	12	06:34 (WEA02)	20:37	58	08:11 (WEA03)	19:27	12
22	08:17		07:26		08:23 (B084)	06:25	07:42 (B083)	06:16	06:58 (B150)	05:23		05:04	05:57 (B223)	05:29	06:26 (WEA02)	06:16	07:02 (B150)	07:06	07:45 (B178)	07:56	08:53 (B084)	07:50		08:27
	16:51		17:47	21	08:44 (B084)	18:37	07:57 (B083)	20:29	57	08:06 (WEA03)	21:17		21:45	45	06:42 (WEA02)	21:28	4	06:30 (WEA02)	20:35	57	08:10 (WEA03)	19:25	17	08:40 (B083)	18:18	22	09:15 (B084)	16:26		08:15
23	08:16		07:24		08:22 (B084)	06:23	06:59 (B178)	06:14	06:57 (B150)	05:22	06:16 (WEA02)	05:05	05:57 (B223)	05:31		06:18	07:03 (B150)	07:08	08:28 (B083)	07:58	08:53 (B084)	07:52		08:27
	16:53		17:49	21	08:43 (B084)	18:38	07:53 (B083)	20:31	57	08:05 (WEA03)	21:18	3	06:19 (WEA02)	21:45	45	06:42 (WEA02)	21:27			20:33	57	08:11 (WEA03)	19:23	15	08:43 (B083)	18:16	22	09:15 (B084)	16:25		08:15
24	08:15		07:22		08:23 (B084)	06:20	06:57 (B178)	06:11	06:57 (B150)	05:20	06:12 (WEA02)	05:05	05:58 (B223)	05:32	06:57 (B013)	06:20	07:03 (B150)	07:09	08:25 (B083)	08:00	08:53 (B084)	07:54		08:28
	16:55		17:51	19	08:42 (B084)	18:40	07:10 (B178)	20:32	55	08:04 (WEA03)	21:20	12	06:24 (WEA02)	21:45	45	06:43 (WEA02)	21:26	4	07:01 (B013)	20:31	57	08:11 (WEA03)	19:20	19	08:44 (B083)	18:14	20	09:13 (B084)	16:24		08:16
25	08:14		07:20		08:23 (B084)	06:18	06:55 (B178)	06:09	06:56 (B150)	05:19	06:10 (WEA02)	05:05	05:58 (B223)	05:33	06:54 (B013)	06:21	07:05 (B150)	07:11	08:23 (B083)	08:01	08:53 (B084)	07:55		08:28
	16:56		17:53	19	08:42 (B084)	18:42	07:11 (B178)	20:34	55	08:03 (WEA03)	21:21	16	06:26 (WEA02)	21:45	45	06:43 (WEA02)	21:25	9	07:03 (B013)	20:28	53	08:11 (WEA03)	19:18	22	08:45 (B083)	18:12	20	09:13 (B084)	16:23		08:16
26	08:12		07:18		08:25 (B084)	07:16	07:54 (B178)	06:07	06:56 (B150)	05:18	06:08 (WEA02)	05:06	05:58 (B223)	05:35	06:35 (B124)	06:23	07:07 (B012)	07:13	08:22 (B083)	08:03	08:54 (B084)	07:57		08:28
	16:58		17:55	15	08:40 (B084)	19:43	08:11 (B178)	20:36	52	08:02 (WEA03)	21:22	20	06:28 (WEA02)	21:45	45	06:43 (WEA02)	21:23	19	07:04 (B013)	20:26	49	08:11 (WEA03)	19:16	24	08:46 (B083)	18:10	18	09:12 (B084)	16:22		08:17
27	08:11		07:16		08:26 (B084)	07:13	07:53 (B178)	06:05	06:57 (B150)	05:17	06:09 (WEA02)	05:06	05:58 (B223)	05:36	06:32 (B124)	06:24	07:28 (WEA03)	07:14	08:21 (B083)	08:05	08:56 (B084)	07:58		08:29
	17:00		17:56	13	08:39 (B084)	19:45	08:11 (B178)	20:37	48	08:01 (WEA03)	21:24	28	06:29 (WEA02)	21:45	45	06:43 (WEA02)	21:22	26	07:05 (B013)	20:24	43	08:11 (WEA03)	19:14	27	08:48 (B253)	18:08	16	09:11 (B084)	16:21		08:18
28	08:10		07:14		08:29 (B084)	07:11	07:53 (B178)	06:03	06:57 (B150)	05:16	05:57 (B223)	05:06	05:58 (B223)	05:37	06:32 (B124)	06:26	07:27 (WEA03)	07:16	08:20 (B083)	08:07	08:57 (B084)	08:00		08:29
	17:02		17:58	7	08:36 (B084)	19:47	08:12 (B178)	20:39	45	07:59 (WEA03)	21:25	33	06:31 (WEA02)	21:45	45	06:43 (WEA02)	21:20	28	07:06 (B013)	20:22	43	08:10 (WEA03)	19:11	32	08:52 (B253)	18:06	13	09:10 (B082)	16:20		08:18
29	08:09						07:09		07:52 (B178)	06:01	06:58 (B150)	05:15	05:56 (B223)	05:07	05:59 (B223)	05:39	06:31 (B124)	06:28	07:28 (WEA03)	07:17	08:19 (B083)	07:08	07:59 (B084)	08:02		08:29
	17:03						19:48	18	08:10 (B178)	20:41	07:58 (WEA03)	21:26	06:31 (WEA02)	21:45	06:44 (WEA02)	21:19	07:06 (B013)	20:20	08:10 (WEA03)	19:09	08:53 (B253)	17:04	08:13 (B082)	16:19		08:19
30	08:07						07:07		07:52 (B178)	05:59	07:02 (B150)	05:14	05:55 (B223)	05:07	05:58 (B223)	05:40	06:30 (B124)	06:29	07:27 (WEA03)	07:19	08:19 (B083)	07:10	08:02 (B082)	08:03		08:29
	17:05						19:50	18	08:10 (B178)	20:42	07:57 (WEA03)	21:27	06:32 (WEA02)	21:45	06:43 (WEA02)	21:17	07:06 (B013)	20:18	08:09 (WEA03)	19:07	08:55 (B253)	17:02	08:14 (B082)	16:18		08:20
31	08:06						07:04		07:53 (B178)			05:13	05:54 (B223)			05:42	06:30 (B124)	06:31	07:28 (WEA03)			07:12	08:01 (B082)			08:29
	17:07						19:52	16	08:09 (B178)			21:28	06:33 (WEA02)			21:16	07:07 (B013)	20:15	08:09 (WEA03)			17:00	14	08:15 (B082)			16:21	
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333		268		245	
astr.max.mögl.Beschattung			400		670		1157		794		1321		966		1238		701		599		123			
Red.Sonnenscheinwahrsch.			0.32		0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		0.23			
Reduktion Betriebsdauer			0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95			
Reduktion Windrichtung			0.62		0.67		0.72		0.74		0.74		0.74		0.73		0.70		0.64		0.61			
Gesamte Reduktion			0.19		0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.18		0.13			
Met.wahrsch.Beschattung			76		121		290		239		315		265		344		149		105		16			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO018 - Beerengrund 3, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			07:12			08:21 (B084)			07:02			07:49 (B178)			05:58			06:58 (B012)			05:12			05:54 (B223)			05:08			05:58 (B223)			05:43			06:27 (B124)			06:32			07:24 (WEA03)			07:21			08:15 (B083)			07:14			07:54 (B082)			08:04		
	16:22			17:09			18:00		12	08:33 (B084)			19:54		16	08:05 (B178)		20:44			33	07:53 (WEA03)		21:30			37	06:31 (WEA02)		21:45			43	06:41 (WEA02)		21:14			37	07:04 (B013)		20:13			38	08:02 (WEA03)		19:04			35	08:50 (B253)		16:58			16	08:10 (B082)		16:18		
2	08:29			08:03			07:10			08:25 (B084)			07:00			07:50 (B178)			05:56			07:28 (WEA03)			05:11			05:54 (B223)			05:09			05:58 (B223)			05:45			06:27 (B124)			06:34			07:25 (WEA03)			07:22			08:15 (B083)			07:16			07:55 (B082)			08:06		
	16:23			17:11			18:02		4	08:29 (B084)			19:55		14	08:04 (B178)		20:46			23	07:51 (WEA03)		21:31			37	06:31 (WEA02)		21:44			42	06:40 (WEA02)		21:13			38	07:05 (B013)		20:11			36	08:01 (WEA03)		19:02			34	08:49 (B253)		16:57			15	08:10 (B082)		16:17		
3	08:29			08:01			07:08						06:57			07:51 (B178)		05:54				06:23 (B124)		05:10				05:53 (B223)		05:09				05:58 (B223)		05:46				06:27 (B124)		06:36				07:26 (WEA03)		07:24				08:16 (B083)		07:17				07:54 (B082)		08:07		
	16:24			17:13			18:04						19:57		12	08:03 (B178)		20:47			27	07:48 (WEA03)		21:32			39	06:32 (WEA02)		21:44			43	06:41 (WEA02)		21:11			37	07:04 (B013)		20:09			33	07:59 (WEA03)		19:00			33	08:49 (B253)		16:55			14	08:08 (B082)		16:16		
4	08:29			08:00			07:05						06:55			07:54 (B178)		05:52				06:21 (B124)		05:10				05:54 (B223)		05:10				05:59 (B223)		05:48				06:26 (B124)		06:37				07:27 (WEA03)		07:26				08:17 (B083)		07:19				07:55 (B082)		08:09		
	16:25			17:14			18:05						19:59		6	08:00 (B178)		20:49			25	07:45 (WEA03)		21:33			39	06:33 (WEA02)		21:44			42	06:41 (WEA02)		21:09			36	07:03 (B013)		20:06			31	07:58 (WEA03)		18:57			32	08:49 (B253)		16:53			12	08:07 (B082)		16:16		
5	08:29			07:58			07:03						06:53			07:44 (WEA03)		05:50				06:20 (B124)		05:09				05:53 (B223)		05:11				05:59 (B223)		05:49				06:27 (B124)		06:39				07:28 (WEA03)		07:27				08:17 (B083)		07:21				07:57 (B082)		08:10		
	16:26			17:16			18:07						20:00		4	07:48 (WEA03)		20:50			14	06:34 (B124)		21:34			40	06:33 (WEA02)		21:43			42	06:41 (WEA02)		21:08			34	07:03 (B013)		20:04			29	07:57 (WEA03)		18:55			30	08:47 (B253)		16:51			9	08:06 (B082)		16:15		
6	08:29			07:56			07:01						06:51			07:38 (WEA03)		05:48				06:19 (B124)		05:08				05:53 (B223)		05:12				05:59 (B223)		05:51				06:27 (B124)		06:40				07:29 (WEA03)		07:29				08:19 (B083)		07:23				08:01 (B082)		08:11		
	16:28			17:18			18:09						20:02		16	07:54 (WEA03)		20:52			23	06:49 (B013)		21:35			40	06:33 (WEA02)		21:43			41	06:40 (WEA02)		21:06			33	07:02 (B013)		20:02			25	07:54 (WEA03)		18:53			27	08:46 (B253)		16:49			1	08:02 (B082)		16:15		
7	08:28			07:55		08:28 (B082)	06:59			07:59 (B253)		06:48				07:35 (WEA03)		05:46				06:17 (B124)		05:08				05:53 (B223)		05:12				05:59 (B223)		05:53				06:28 (B124)		06:42				07:32 (WEA03)		07:31				08:23 (B083)		07:24						08:13		
	16:29		7	17:20		08:35 (B082)	18:11		6	08:05 (B253)		20:04			22	07:57 (WEA03)		20:54			29	06:51 (B013)		21:36			41	06:34 (WEA02)		21:42			41	06:40 (WEA02)		21:04			29	07:01 (B013)		20:00			20	07:52 (WEA03)		18:51			20	08:44 (B253)		16:48						16:14		
8	08:28			07:53		08:27 (B082)	06:57			07:47 (B083)		06:46				07:32 (WEA03)		05:45				06:18 (B124)		05:07				05:54 (B223)		05:13				06:00 (B223)		05:54				06:28 (B124)		06:44				07:35 (WEA03)		07:32				08:34 (B253)		07:26						08:14		
	16:30			17:22		08:38 (B082)	18:12		19	08:08 (B253)		20:05			27	07:59 (WEA03)		20:55			31	06:52 (B013)		21:37			41	06:35 (WEA02)		21:42			40	06:40 (WEA02)		21:02			24	06:59 (B013)		19:57			12	07:47 (WEA03)		18:48			7	08:41 (B253)		16:46						16:14		
9	08:28			07:51		08:26 (B082)	06:54			07:42 (B083)		06:44				07:31 (WEA03)		05:43				06:17 (B124)		05:06				05:53 (B223)		05:14				06:00 (B223)		05:56				06:29 (B124)		06:45						07:34						07:28						08:15		
	16:31			17:24		08:39 (B082)	18:14		27	08:09 (B253)		20:07			29	08:00 (WEA03)		20:57			34	06:53 (B013)		21:38			42	06:35 (WEA02)		21:41			40	06:40 (WEA02)		21:00			15	06:44 (B124)		19:55						18:46						16:44						16:14		
10	08:27			07:49		08:25 (B082)	06:52			07:40 (B083)		06:42				07:28 (WEA03)		05:41				06:17 (B124)		05:06				05:54 (B223)		05:15				06:01 (B223)		05:57				06:30 (B124)		06:47				07:46 (B178)		07:36						07:30						08:16		
	16:33		15	17:25		08:40 (B082)	18:16		30	08:10 (B253)		20:09			33	08:01 (WEA03)		20:59			36	06:54 (B013)		21:38			42	06:36 (WEA02)		21:40			39	06:40 (WEA02)		20:59			23	07:53 (WEA03)		19:53			8	07:54 (B178)		18:44						16:43						16:13		
11	08:26			07:48		08:25 (B082)	06:50			07:39 (B083)		06:39				07:27 (WEA03)		05:39				06:17 (B124)		05:06				05:53 (B223)		05:16				06:01 (B223)		05:59				06:32 (B124)		06:48				07:44 (B178)		07:37						07:32						08:17		
	16:34		15	17:27		08:40 (B082)	18:18		32	08:11 (B253)		20:10			35	08:02 (WEA03)		21:00			36	06:54 (B013)		21:39			43	06:36 (WEA02)		21:39			39	06:40 (WEA02)		20:57			27	07:57 (WEA03)		19:51			13	07:57 (B178)		18:42						16:41						16:13		
12	08:26			07:46		08:24 (B082)	06:48			07:38 (B083)		06:37				07:26 (WEA03)		05:38				06:16 (B124)		05:05				05:54 (B223)		05:17				06:02 (B223)		06:00				07:37 (WEA03)		06:50				07:42 (B178)		07:39						07:33						08:18		
	16:36			17:29		08:40 (B082)	18:19		33	08:11 (B253)		20:12			37	08:03 (WEA03)		21:02			37	06:53 (B013)		21:40			42	06:36 (WEA02)		21:39			37	06:39 (WEA02)		20:55			22	07:59 (WEA03)		19:48			15	07:57 (B178)		18:40						16:40						16:13		
13	08:25			07:44		08:24 (B082)	06:45			07:36 (B083)		06:35				07:25 (WEA03)		05:36				06:17 (B124)		05:05				05:54 (B223)		05:18				06:02 (B223)		06:02				07:07 (B012)		06:52				07:41 (B178)		07:41				08:59 (B084)		07:35						08:19		
	16:37		16	17:31		08:40 (B082)	18:21		34	08:10 (B253)		20:14			38	08:03 (WEA03)		21:03			37	06:54 (B013)		21:41			43	06:37 (WEA02)		21:38			37	06:39 (WEA02)		20:53			31	08:01 (WEA03)		19:46			17	07:58 (B178)		18:37			2	09:01 (B084)		16:38						16:13		
14	08:25			07:42		08:24 (B082)	06:43			07:35 (B083)		06:33				07:24 (WEA03)		05:35				06:18 (B124)		05:05				05:55 (B223)		05:19				06:03 (B223)		06:04				07:04 (B012)		06:53				07:40 (B178)		07:42				08:55 (B084)		07:37						08:20		
	16:39			17:33		08:40 (B082)	18:23		36	08:11 (B253)		20:15			40	08:04 (WEA03)		21:05			35	06:54 (B013)		21:41			42	06:37 (WEA02)		21:37			35	06:38 (WEA02)		20:51			39	08:02 (WEA03)		19:44			18	07:58 (B178)		18:35			11	09:06 (B084)		16:37						16:13		
15	08:24			07:40		08:25 (B082)	06:41			07:35 (B083)		06:31				07:24 (WEA03)		05:33				06:17 (B124)		05:04				05:55 (B223)		05:20				06:03 (B223)		06:05				07:03 (B012)		06:55				07:40 (B178)		07:44				08:53 (B084)		07:39						08:21		
	16:40			17:35		08:40 (B082)	18:25		35	08:10 (B253)		20:17			40	08:04 (WEA03)		21:06			36	06:54 (B013)		21:42			43	06:38 (WEA02)		21:36			35	06:38 (WEA02)		20:49			43	08:03 (WEA03)		19:41			18	07:58 (B178)		18:33			15	09:08 (B084)		16:35						16:13		
16	08:23			07:38		08:26 (B082)	06:39			07:34 (B083)		06:28				07:22 (WEA03)		05:31				06:18 (B124)		05:04				05:55 (B223)		05:22				06:04 (B223)		06:07				07:02 (B150)		06:56				07:40 (B178)		07:46				08:52 (B084)		07:40						08:22		
	16:42		13	17:36		08:39 (B082)	18:26		35	08:09 (B253)		20:19			41	08:03 (WEA03)		21:08			34	06:54 (B013)		21:42			43	06:38 (WEA02)		21:35			33	06:37 (WEA02)		20:47			47	08:04 (WEA03)		19:39			18	07:58 (B178)		18:31			17	09:09 (B084)		16:34						16:13		
17	08:22			07:36		08:24 (B084)	06:36			07:34 (B083)		06:26				07:22 (WEA03)		05:30				06:19 (B124)		05:04				05:55 (B223)		05:23				06:05 (B223)		06:08				07:01 (B012)		06:58				07:39 (B178)		07:48				08:51 (B084)		07:42						08:23		
	16:43		13	17:38		08:37 (B082)	18:28		34	08:08 (B253)		20:20			41	08:03 (WEA03)		21:09			30	06:53 (B013)		21:43			43	06:38 (WEA02)		21:34			28	06:36 (WEA02)		20:45			50	08:05 (WEA03)		19:37			18	07:57 (B178)		18:29			19	09:10 (B084)		16:32						16:13		
18	08:21			07:34		08:22 (B084)	06:34			07:34 (B083)		06:24				07:21 (WEA03)		05:28				06:20 (B124)		05:04				05:56 (B223)		05:24				06:16 (WEA02)		06:10				07:00 (B150)		07:00				07:40 (B178)		07:49				08:49 (B084)		07:44						08:24		
	16:45		14	17:40		08:36 (B084)	18:30		33	08:07 (B253)		20:22			42	08:03 (WEA03)		21:11			28	06:53 (B013)		21:43			43	06:39 (WEA02)		21:33			18	06:34 (WEA02)		20:43			52	08:05 (WEA03)		19:34			16	07:56 (B178)		18:27			21	09:10 (B084)		16:31						16:13		
19	08:20			07:33		08:21 (B084)	06:32			07:33 (B083)		06:22				07:21 (WEA03)		05:27				06:21 (B124)		05:04				05:56 (B223)		05:25				06:17 (WEA02)		06:12				07:01 (B150)		07:01				07:40 (B178)		07:51				08:49 (B084)		07:45						08:25		
	16:46		17	17:42		08:38 (B084)	18:31		31	08:04 (B253)		20:24			42	08:03 (WEA03)		21:12			24	06:52 (B013)		21:44			43	06:39 (WEA02)		21:32			16	06:33 (WEA02)		20:41			53	08:06 (WEA03)		19:32			14	07:54 (B178)		18:24			21	09:10 (B084)		16:30						16:14		
20	08:19			07:31		08:20 (B084)	06:29			07:34 (B083)		06:20				07:00 (B150)		05:26				06:24 (B124)		05:04				05:56 (B223)		05:27				06:20 (WEA02)		06:13				07:00 (B150)		07:03				07:41 (B178)		07:53				08:49 (B084)		07:47						08:25		
	16:48		18	17:44		08:38 (B084)	18:33		27	08:01 (B253)		20:25			47	08:03 (WEA03)		21:14			18	06:52 (B013)		21:44			43	06:39 (WEA02)		21:31			11	06:31 (WEA02)		20:39			54	08:06 (WEA03)		19:30			19	08:35 (B083)		18:22			21	09:10 (B084)		16:29						16:14		
21	08:18			07:29		08:19 (B084)	06:27			07:35 (B083)		06:18				06:58 (B150)		05:24				06:40 (B013)		05:04				05:56 (B223)		05:28						06:15				07:01 (B150)		07:04				07:45 (B178)		07:54				08:49 (B084)		07:49						08:26		
	16:50			17:46		08:39 (B084)	18:35		23	07:58 (B083)		20:27			51	08:02 (WEA03)		21:15			10	06:50 (B013)		21:44			43	06:39 (WEA02)		21:30						20:37			54	08:07 (WEA03)		19:27			18	08:39 (B083)		18:20			21	09:10 (B084)		16:27						16:14		
22	08:17			07:26		08:19 (B084)	06:25			07:35 (B083)		06:16				06:56 (B150)		05:23				06:42 (B013)		05:04				05:56 (B223)		05:29						06:16				07:01 (B150)		07:06				08:22 (B083)		07:56				08:49 (B084)		07:50						08:27		
	16:51			17:47		08:39 (B084)	18:37		21	07:56 (B083)		20:29			54	08:02 (WEA03)		21:17			6	06:48 (B013)		21:45			43	06:39 (WEA02)		21:28						20:35			53	08:06 (WEA03)		19:25			18	08:40 (B083)		18:18			21	09:10 (B084)		16:26						16:15		
23	08:16			07:24		08:18 (B084)	06:23			07:36 (B083)		06:14				06:55 (B150)		05:22						05:05				05:56 (B223)		05:31				06:52 (B013)		06:18				07:02 (B150)		07:08				08:20 (B083)		07:58				08:50 (B084)		07:52						08:27		
	16:53		21	17:49		08:39 (B084)	18:38		18	07:54 (B083)		20:31			54	08:01 (WEA03)		21:18						21:45			43	06:39 (WEA02)		21:27			6	06:58 (B013)		20:33			52	08:07 (WEA03)		19:23			21	08:41 (B083)		18:16			19	09:09 (B084)		16:25						16:15		
24	08:15			07:22		08:18 (B084)	06:20			06:57 (B178)		06:11				06:55 (B150)		05:20						05:05				05:57 (B223)		05:32				06:51 (B013)		06:20				07:03 (B150)		07:09				08:18 (B083)		08:00				08:50 (B084)		07:54						08:28		
	16:55			17:51		08:39 (B084)	18:40		19	07:51 (B083)		20:32			55	08:01 (WEA03)		21:20						21:45			43	06:40 (WEA02)		21:26			10	07:01 (B013)		20:31			48	08:06 (WEA03)		19:20			24	08:42 (B083)		18:14			17	09:07 (B084)		16:24						16:16		
25	08:14			07:20		08:18 (B084)	06:18			06:54 (B178)		06:09				06:54 (B150)		05:19				06:10 (WEA02)		05:05				05:57 (B223)		05:33				06:34 (B124)		06:21				07:25 (WEA03)		07:11				08:18 (B083)		08:01				08:51 (B084)		07:55						08:28		
	16:56			17:53		08:38 (B084)	18:42		13	07:46 (B083)		20:34			55	08:00 (WEA03)		21:21			11	06:21 (WEA02)		21:45			43	06:40 (WEA02)		21:25			18	07:02 (B013)		20:28			42	08:07 (WEA03)		19:18			27	08:45 (B253)		18:12			15	09:06 (B084)		16:23						16:16		
26	08:12			07:18		08:18 (B084)	07:16			07:52 (B178)		06:07				06:54 (B150)		05:18				06:08 (WEA02)		05:06				05:57 (B223)		05:35				06:32 (B124)		06:23				07:24 (WEA03)		07:13				08:17 (B083)		08:03				08:53 (B084)		07:57						08:28		
	16:58		20	17:55		08:38 (B084)	19:43		15	08:07 (B178)		20:36			52	07:59 (WEA03)		21:22			16	06:24 (WEA02)		21:45			43	06:40 (WEA02)		21:23			23	07:02 (B013)		20:26			42	08:06 (WEA03)		19:16			31	08:48 (B253)		18:10			13	09:06 (B082)		16:22						16:17		
27	08:11			07:16		08:19 (B084)	07:13			07:51 (B178)		06:05				06:54 (B150)		05:17				06:07 (WEA02)		05:06				05:57 (B223)		05:36				06:30 (B124)		06:24				07:24 (WEA03)		07:14				08:16 (B083)		08:05				08:56 (B082)		07:58						08:29		
	17:00			17:56		08:37 (B084)	19:45		17	08:08 (B178)		20:37			51	07:58 (WEA03)		21:24			18	06:25 (WEA02)		21:45			43	06:40 (WEA02)		21:22			28	07:03 (B013)		20:24			42	08:06 (WEA03)		19:14			33	08:49 (B253)		18:08			12	09:08 (B082)		16:21						16:18		
28	08:10			07:14		08:21 (B084)	07:11			07:50 (B178)		06:03				06:54 (B150)		05:16				05:57 (B223)		05:06				05:57 (B223)		05:37				06:30 (B124)		06:26				07:24 (WEA03)		07:16				08:16 (B083)		08:07				08:55 (B082)		08:00						08:29		
	17:02			17:58		08:36 (B084)	19:47		18	08:08 (B178)		20:39			47	07:56 (WEA03)		21:25			28	06:27 (WEA02)		21:45			43	06:40 (WEA02)		21:20			31	07:04 (B013)		20:22			41	08:05 (WEA03)		19:11			34	08:50 (B253)		18:06			14	09:09 (B082)		16:20						16:18		
29	08:09						07:09			07:49 (B178)		06:01				06:54 (B012)		05:15				05:55 (B223)		05:07				05:58 (B223)		05:39				06:29 (B124)		06:28				07:24 (WEA03)		07:17				08:15 (B083)		07:08				07:54 (B082)		08:02						08:29		
	17:03						19:48		18	08:07 (B178)		20:41			44	07:55 (WEA03)		21:26			33	06:28 (WEA02)		21:45			43	06:41 (WEA02)		21:19			33	07:04 (B013)		20:20			41	08:05 (WEA03)		19:09			35	08:50 (B253)		17:04			16	08:10 (B082)		16:19						16:19		
30	08:07						07:07			07:49 (B178)		05:59				06:56 (B012)		05:14				05:54 (B223)		05:07				05:58 (B223)		05:40				06:28 (B124)		06:29				07:24 (WEA03)		07:19				08:15 (B083)		07:10				07:54 (B082)		08:03						08:29		
	17:05						19:50		18	08:07 (B178)		20:42			41	07:55 (WEA03)		21:27			35	06:29 (WEA02)		21:45			42	06:40 (WEA02)		21:17			35	07:04 (B013)		20:18			40	08:04 (WEA03)		19:07			35	08:50 (B253)		17:02			16	08:10 (B082)		16:18						16:20		
31	08:06						07:04			07:49 (B178)								05:13				05:54 (B223)								05:42				06:28 (B124)		06:31				07:25 (WEA03)								07:12				07:54 (B082)								08:29		
	17:07						19:52		18	08:07 (B178)								21:28			35	06:29 (WEA02)								21:16			36	07:05 (B013)		20:15			38	08:03 (WEA03)								17:00			16	08:10 (B082)								16:21		
Sonnenscheinstunden		259			277			366			414			483			497			501			454			382			333			268			245		
astr. max.mögl.Beschattung					354			626			1086			782			1255			922			1217			674			525			67					
Red.Sonnenscheinwahrsch.					0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23					
Reduktion Betriebsdauer					0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung					0.63			0.67			0.73			0.74			0.74			0.74			0.73			0.70			0.64			0.62					
Gesamte Reduktion					0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			0.13					
Met.wahrsch.Beschattung					68			113			273			235			299			253			339			142			92			9					

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO019 - Beerengrund 5, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember	
1	08:29	16:22		08:04	17:09		07:12	18:00	16	08:16 (B084)	08:32 (B084)	19:54	07:02	08:04 (B178)	18	07:46 (B178)	08:04 (B178)	20:44	05:58	07:52 (WEA03)	21:30	44	06:51 (B012)	21:30	34	05:12	06:27 (WEA02)	21:45	40	05:53 (B223)	06:37 (WEA02)	21:14	36	05:08	05:43	36	06:25 (B124)	07:01 (B013)	20:13	34	06:32	07:23 (WEA03)	07:57 (WEA03)	19:04	33	07:21	08:13 (B083)	08:46 (B253)	16:58	14	07:14	07:51 (B082)	08:05 (B082)	16:18	14	08:04
2	08:29	16:23		08:03	17:11		07:10	18:02	13	08:18 (B084)	08:31 (B084)	19:55	07:00	07:47 (B178)	16	08:03 (B178)	08:03 (B178)	20:46	05:56	06:52 (B012)	21:31	38	05:11	07:50 (WEA03)	21:31	34	05:53 (B223)	06:27 (WEA02)	21:44	41	05:09	06:37 (WEA02)	21:13	36	05:08	05:45	36	06:26 (B124)	07:02 (B013)	20:11	32	06:34	07:24 (WEA03)	07:56 (WEA03)	19:02	31	07:22	08:13 (B083)	08:44 (B253)	16:57	11	07:16	07:53 (B082)	08:04 (B082)	16:17		
3	08:29	16:24		08:01	17:13		07:08	18:04	8	08:20 (B084)	08:28 (B084)	19:57	06:57	07:47 (B178)	15	07:54 (B178)	08:02 (B178)	20:47	05:54	06:53 (B012)	21:32	32	05:10	07:48 (WEA03)	21:32	36	05:52 (B223)	06:28 (WEA02)	21:44	40	05:09	06:37 (WEA02)	21:11	36	05:08	05:46	36	06:25 (B124)	07:01 (B013)	20:09	30	06:36	07:24 (WEA03)	07:54 (WEA03)	19:00	30	07:24	08:14 (B083)	08:44 (B253)	16:55	8	07:17	07:53 (B082)	08:01 (B082)	16:16		
4	08:29	16:25		08:00	17:14		07:05	18:05		08:18 (B084)	08:26 (B084)	19:57	06:55	07:49 (B178)	15	07:52 (B178)	08:02 (B178)	20:47	05:52	06:21 (B124)	21:33	36	05:10	07:46 (WEA03)	21:33	36	05:53 (B223)	06:29 (WEA02)	21:44	39	05:10	06:37 (WEA02)	21:09	34	05:08	05:48	36	06:25 (B124)	07:00 (B013)	20:06	26	06:37	07:26 (WEA03)	07:52 (WEA03)	18:57	26	07:26	08:16 (B083)	08:42 (B253)	16:53			07:19	07:53 (B082)	08:09			
5	08:29	16:26		07:58	17:16		07:03	18:07		08:18 (B084)	08:26 (B084)	19:59	06:53	07:50 (B178)	12	08:01 (B178)	08:01 (B178)	20:49	05:50	06:20 (B124)	21:33	30	05:09	07:46 (WEA03)	21:33	36	05:52 (B223)	06:29 (WEA02)	21:44	39	05:11	06:37 (WEA02)	21:09	34	05:08	05:48	36	06:25 (B124)	07:00 (B013)	20:06	26	06:37	07:26 (WEA03)	07:52 (WEA03)	18:57	26	07:26	08:16 (B083)	08:42 (B253)	16:53			07:18	07:53 (B082)	08:09			
6	08:29	16:27		07:56	17:16		07:01	18:07		08:17 (B084)	08:25 (B084)	20:00	06:51	07:57 (B178)	7	07:57 (B178)	08:03 (B178)	20:50	05:48	06:18 (B124)	21:34	29	05:08	07:45 (WEA03)	21:34	37	06:29 (WEA02)	06:37 (WEA02)	21:43	39	05:12	06:37 (WEA02)	21:08	30	05:08	05:48	36	06:26 (B124)	06:59 (B013)	20:04	21	06:40	07:50 (WEA03)	07:55 (WEA03)	18:55	22	07:25	08:16 (B083)	08:40 (B253)	16:51			07:17	07:53 (B082)	08:07			
7	08:28	16:28		07:55	17:18		07:00	18:09		08:16 (B084)	08:24 (B084)	20:02	06:50	07:57 (B178)	7	07:57 (B178)	08:03 (B178)	20:52	05:46	06:17 (B124)	21:34	37	05:08	07:44 (WEA03)	21:34	38	06:30 (WEA02)	06:29 (WEA02)	21:43	39	05:12	06:37 (WEA02)	21:08	30	05:08	05:48	36	06:26 (B124)	06:59 (B013)	20:04	21	06:40	07:50 (WEA03)	07:55 (WEA03)	18:55	22	07:25	08:16 (B083)	08:40 (B253)	16:51			07:16	07:53 (B082)	08:06			
8	08:28	16:29		07:55	17:20		06:59	18:11		08:16 (B084)	08:24 (B084)	20:04	06:48	07:37 (WEA03)	10	07:47 (WEA03)	07:54 (WEA03)	20:54	05:46	06:17 (B124)	21:36	29	05:08	07:43 (WEA03)	21:36	38	06:30 (WEA02)	06:29 (WEA02)	21:43	39	05:12	06:37 (WEA02)	21:08	30	05:08	05:48	36	06:26 (B124)	06:59 (B013)	20:04	21	06:40	07:50 (WEA03)	07:55 (WEA03)	18:55	22	07:25	08:16 (B083)	08:40 (B253)	16:51			07:16	07:53 (B082)	08:06			
9	08:28	16:30		07:53	17:22		06:57	18:12		08:16 (B084)	08:24 (B084)	20:05	06:46	07:33 (WEA03)	18	07:51 (WEA03)	07:54 (WEA03)	20:55	05:45	06:16 (B124)	21:36	28	05:07	07:42 (WEA03)	21:36	39	06:32 (WEA02)	06:29 (WEA02)	21:42	38	05:13	06:37 (WEA02)	21:02	26	05:08	05:48	36	06:26 (B124)	06:58 (B013)	20:02	15	06:40	07:50 (WEA03)	07:54 (WEA03)	18:53	5	07:25	08:16 (B083)	08:38 (B253)	16:49			07:15	07:53 (B082)	08:05			
10	08:28	16:31		07:51	17:24	5	08:26 (B082)	06:54		08:16 (B084)	08:22 (B084)	20:05	06:44	07:30 (WEA03)	18	07:54 (B253)	08:03 (B253)	20:57	05:43	06:15 (B124)	21:37	29	05:07	07:41 (WEA03)	21:37	39	06:32 (WEA02)	06:29 (WEA02)	21:42	38	05:13	06:37 (WEA02)	21:01	26	05:08	05:48	36	06:26 (B124)	06:58 (B013)	20:01	15	06:40	07:50 (WEA03)	07:54 (WEA03)	18:53	5	07:25	08:16 (B083)	08:38 (B253)	16:49			07:15	07:53 (B082)	08:05			
11	08:27	16:32		07:49	17:24	5	08:31 (B082)	18:14	5	07:59 (B253)	08:07 (B253)	20:07	24	07:54 (WEA03)	20:57	31	06:49 (B013)	21:38	40	06:32 (WEA02)	21:41	37	05:06	07:40 (WEA03)	21:41	37	06:32 (WEA02)	06:29 (WEA02)	21:41	37	05:15	06:36 (WEA02)	21:00	28	05:08	05:48	36	06:26 (B124)	06:58 (B013)	20:00	15	06:40	07:50 (WEA03)	07:54 (WEA03)	18:53	5	07:25	08:16 (B083)	08:38 (B253)	16:49			07:14	07:53 (B082)	08:04			
12	08:26	16:33		07:48	17:25	10	08:33 (B082)	08:23 (B082)		08:14 (B084)	08:22 (B082)	20:09	24	07:41 (B083)	06:42		06:16 (B124)	21:38	40	06:32 (WEA02)	21:40	37	05:06	07:39 (WEA03)	21:40	36	06:33 (WEA02)	06:29 (WEA02)	21:42	38	05:15	06:36 (WEA02)	20:59	30	05:08	05:48	36	06:26 (B124)	06:58 (B013)	19:58	15	06:40	07:50 (WEA03)	07:54 (WEA03)	18:52	5	07:25	08:16 (B083)	08:38 (B253)	16:47			07:14	07:53 (B082)	08:03			
13	08:25	16:34		07:44	17:27	13	08:35 (B082)	08:18	27	08:05 (B253)	08:10	20:10	30	07:56 (WEA03)	21:00	35	06:50 (B013)	21:39	40	06:32 (WEA02)	21:39	36	05:06	07:38 (WEA03)	21:39	34	06:35 (WEA02)	06:29 (WEA02)	21:43	39	05:15	06:36 (WEA02)	20:57	31	05:08	05:48	36	06:26 (B124)	06:58 (B013)	19:56	15	06:40	07:50 (WEA03)	07:54 (WEA03)	18:52	5	07:25	08:16 (B083)	08:38 (B253)	16:47			07:13	07:53 (B082)	08:02			
14	08:25	16:35		07:42	17:29	14	08:35 (B082)	18:19	30	08:06 (B253)	08:12	20:12	33	07:57 (WEA03)	21:02	35	06:50 (B013)	21:40	41	06:33 (WEA02)	21:39	34	06:35	07:37 (WEA03)	21:39	34	06:35 (WEA02)	06:29 (WEA02)	21:44	39	05:15	06:36 (WEA02)	20:55	37	05:08	05:48	36	06:26 (B124)	06:58 (B012)	19:54	15	06:40	07:50 (WEA03)	07:54 (WEA03)	18:52	5	07:25	08:16 (B083)	08:38 (B253)	16:47			07:13	07:53 (B082)	08:02			
15	08:24	16:36		07:40	17:31	16	08:36 (B082)	18:21	32	08:06 (B253)	08:14	20:14	35	07:58 (WEA03)	21:03	36	06:51 (B013)	21:41	40	06:33 (WEA02)	21:38	34	06:35 (WEA02)	07:36 (WEA03)	21:38	34	06:35 (WEA02)	06:29 (WEA02)	21:44	39	05:15	06:36 (WEA02)	20:53	42	08:00 (WEA03)	19:46	18	07:56 (B178)	18:37	13	09:04 (B084)	16:38		

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO020 - Beerengrund 7, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		07:12	08:12 (B084)	07:02	07:44 (B178)	05:58	06:47 (B012)	05:12	05:53 (B223)	05:08	05:56 (B223)	05:43	06:24 (B124)	06:32	07:22 (WEA03)	07:21	08:12 (B083)	07:14	07:51 (B082)	08:04	
	16:22		17:09		18:00	19 08:31 (B084)	19:54	18 08:02 (B178)	20:44	50 07:50 (WEA03)	21:30	29 06:22 (WEA02)	21:45	38 06:34 (WEA02)	21:14	34 06:58 (B013)	20:13	30 07:52 (WEA03)	19:04	29 08:41 (B253)	16:58	6 07:57 (B082)	16:18	
2	08:29		08:03		07:10	08:13 (B084)	07:00	07:44 (B178)	05:56	06:47 (B012)	05:11	05:52 (B223)	05:09	05:55 (B223)	05:45	06:24 (B124)	06:34	07:23 (WEA03)	07:22	08:12 (B083)	07:16		08:06	
	16:23		17:11		18:02	17 08:30 (B084)	19:55	17 08:01 (B178)	20:46	46 07:49 (WEA03)	21:31	31 06:23 (WEA02)	21:44	38 06:33 (WEA02)	21:13	34 06:58 (B013)	20:11	27 07:50 (WEA03)	19:02	27 08:39 (B253)	16:57		16:17	
3	08:29		08:01		07:08	08:14 (B084)	06:57	07:44 (B178)	05:54	06:47 (B012)	05:10	05:52 (B223)	05:09	05:56 (B223)	05:46	06:24 (B124)	06:36	07:24 (WEA03)	07:24	08:14 (B083)	07:17		08:07	
	16:24		17:13		18:04	15 08:29 (B084)	19:57	17 08:01 (B178)	20:47	42 07:47 (WEA03)	21:32	32 06:24 (WEA02)	21:44	38 06:34 (WEA02)	21:11	32 06:57 (B013)	20:09	23 07:47 (WEA03)	19:00	23 08:37 (B253)	16:55		16:16	
4	08:29		08:00		07:05	08:16 (B084)	06:55	07:45 (B178)	05:52	06:48 (B012)	05:10	05:52 (B223)	05:10	05:56 (B223)	05:48	06:24 (B124)	06:37	07:27 (WEA03)	07:26	08:18 (B083)	07:19		08:09	
	16:25		17:14		18:05	11 08:27 (B084)	19:59	15 08:00 (B178)	20:49	38 07:46 (WEA03)	21:33	33 06:25 (WEA02)	21:44	38 06:34 (WEA02)	21:09	30 06:56 (B013)	20:06	18 07:45 (WEA03)	18:57	13 08:34 (B253)	16:53		16:16	
5	08:29		07:58		07:03		06:53	07:45 (B178)	05:50	06:20 (B124)	05:09	05:51 (B223)	05:11	05:57 (B223)	05:49	06:25 (B124)	06:39	07:31 (WEA03)	07:27		07:21		08:10	
	16:26		17:16		18:07		20:00	12 07:57 (B178)	20:50	40 07:45 (WEA03)	21:34	35 06:26 (WEA02)	21:43	37 06:34 (WEA02)	21:08	25 06:54 (B013)	20:04	10 07:41 (WEA03)	18:55		16:51		16:15	
6	08:29		07:56		07:01		06:51	07:48 (B178)	05:48	06:18 (B124)	05:08	05:51 (B223)	05:12	05:57 (B223)	05:51	06:25 (B124)	06:40		07:29		07:23		08:11	
	16:28		17:18		18:09		20:02	7 07:55 (B178)	20:52	33 07:43 (WEA03)	21:35	35 06:26 (WEA02)	21:43	36 06:33 (WEA02)	21:06	25 07:46 (WEA03)	20:02		18:53		16:49		16:15	
7	08:28		07:55		06:59		06:48		05:46	06:16 (B124)	05:08	05:51 (B223)	05:12	05:57 (B223)	05:53	06:26 (B124)	06:42		07:31		07:24		08:13	
	16:29		17:20		18:11		20:04		20:54	31 07:40 (WEA03)	21:36	36 06:27 (WEA02)	21:42	36 06:33 (WEA02)	21:04	31 07:50 (WEA03)	20:00		18:51		16:48		16:14	
8	08:28		07:53		06:57		06:46		05:45	06:16 (B124)	05:07	05:52 (B223)	05:13	05:58 (B223)	05:54	06:27 (B124)	06:44	07:42 (B178)	07:32		07:26		08:14	
	16:30		17:22		18:12		20:05		20:55	26 07:37 (WEA03)	21:37	36 06:28 (WEA02)	21:42	35 06:33 (WEA02)	21:02	33 07:52 (WEA03)	19:57	9 07:51 (B178)	18:48		16:46		16:14	
9	08:28		07:51		06:54		06:44	07:32 (WEA03)	05:43	06:14 (B124)	05:06	05:51 (B223)	05:14	05:58 (B223)	05:56	06:29 (B124)	06:45	07:40 (B178)	07:34		07:28		08:15	
	16:31		17:24		18:14		20:07	14 07:46 (WEA03)	20:57	25 06:44 (B013)	21:38	37 06:28 (WEA02)	21:41	35 06:33 (WEA02)	21:00	38 07:54 (WEA03)	19:55	13 07:53 (B178)	18:46		16:44		16:14	
10	08:27		07:49		06:52		06:42	07:28 (WEA03)	05:41	06:14 (B124)	05:06	05:51 (B223)	05:15	05:59 (B223)	05:57	06:58 (B012)	06:47	07:38 (B178)	07:36		07:30		08:16	
	16:33		17:25		18:16		20:09	20 07:48 (WEA03)	20:59	30 06:46 (B013)	21:38	38 06:29 (WEA02)	21:40	33 06:32 (WEA02)	20:59	36 07:55 (WEA03)	19:53	16 07:54 (B178)	18:44		16:43		16:13	
11	08:26		07:48	08:23 (B082)	06:50	07:40 (B083)	06:39	07:25 (WEA03)	05:39	06:14 (B124)	05:06	05:51 (B223)	05:16	06:00 (B223)	05:59	06:57 (B012)	06:48	07:37 (B178)	07:37	08:51 (B084)	07:32		08:17	
	16:34		17:27	3 08:26 (B082)	18:18	14 07:56 (B253)	20:10	25 07:50 (WEA03)	21:00	32 06:47 (B013)	21:39	38 06:29 (WEA02)	21:39	32 06:32 (WEA02)	20:57	42 07:57 (WEA03)	19:51	17 07:54 (B178)	18:42	10 09:01 (B084)	16:41		16:13	
12	08:26		07:46	08:20 (B082)	06:48	07:36 (B083)	06:37	07:23 (WEA03)	05:38	06:13 (B124)	05:05	05:51 (B223)	05:17	06:00 (B223)	06:00	06:55 (B012)	06:50	07:36 (B178)	07:39	08:49 (B084)	07:33		08:18	
	16:36		17:29	9 08:29 (B082)	18:19	23 07:59 (B253)	20:12	29 07:52 (WEA03)	21:02	34 06:47 (B013)	21:40	38 06:29 (WEA02)	21:39	31 06:31 (WEA02)	20:55	46 07:57 (WEA03)	19:48	18 07:54 (B178)	18:40	14 09:03 (B084)	16:40		16:13	
13	08:25		07:44	08:18 (B082)	06:45	07:33 (B083)	06:35	07:22 (WEA03)	05:36	06:13 (B124)	05:05	05:52 (B223)	05:18	06:01 (B223)	06:02	06:55 (B012)	06:52	07:36 (B178)	07:41	08:46 (B084)	07:35		08:19	
	16:37		17:31	13 08:31 (B082)	18:21	27 08:00 (B253)	20:14	31 07:53 (WEA03)	21:03	35 06:48 (B013)	21:41	38 06:30 (WEA02)	21:38	29 06:30 (WEA02)	20:53	49 07:58 (WEA03)	19:46	18 07:54 (B178)	18:37	17 09:03 (B084)	16:38		16:13	
14	08:25		07:42	08:17 (B082)	06:43	07:32 (B083)	06:33	07:21 (WEA03)	05:35	06:14 (B124)	05:05	05:52 (B223)	05:19	06:02 (B223)	06:04	06:54 (B012)	06:53	07:35 (B178)	07:42	08:45 (B084)	07:37		08:20	
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16	08:23		07:38	08:16 (B082)	06:39	07:29 (B083)	06:28	07:17 (WEA03)	05:31	06:14 (B124)	05:04	05:53 (B223)	05:22	06:15 (WEA02)	06:07	06:54 (B012)	06:56	07:36 (B178)	07:46	08:44 (B084)	07:40		08:22	
	16:42		17:36	16 08:32 (B082)	18:26	32 08:01 (B253)	20:19	38 07:55 (WEA03)	21:08	35 06:49 (B013)	21:42	38 06:31 (WEA02)	21:35	11 06:26 (WEA02)	20:47	56 08:00 (WEA03)	19:39	16 07:52 (B178)	18:31	21 09:05 (B084)	16:34		16:13	
17	08:22		07:36	08:16 (B082)	06:36	07:28 (B083)	06:26	07:17 (WEA03)	05:30	06:14 (B124)	05:04	05:53 (B223)	05:23	06:18 (WEA02)	06:08	06:55 (B012)	06:58	07:37 (B178)	07:48	08:44 (B084)	07:42		08:23	
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18	08:21		07:34	08:16 (B082)	06:34	07:28 (B083)	06:24	07:16 (WEA03)	05:28	06:15 (B124)	05:04	05:53 (B223)	05:24	06:10	06:11	06:55 (B012)	07:00	07:39 (B178)	07:49	08:43 (B084)	07:44		08:24	
	16:45		17:40	16 08:32 (B082)	18:30	33 08:01 (B253)	20:22	39 07:55 (WEA03)	21:11	33 06:49 (B013)	21:43	39 06:32 (WEA02)	21:33		20:43	55 08:00 (WEA03)	19:34	22 08:33 (B083)	18:27	21 09:04 (B084)	16:31		16:13	
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	16:46		17:42	15 08:32 (B082)	18:31	33 08:00 (B253)	20:24	41 07:56 (WEA03)	21:12	32 06:49 (B013)	21:44	39 06:32 (WEA02)	21:32	4 06:52 (B013)	20:41	55 08:01 (WEA03)	19:32	17 08:34 (B083)	18:24	20 09:04 (B084)	16:30		16:14	
20	08:19		07:31	08:18 (B082)	06:29	07:27 (B083)	06:20	07:15 (WEA03)	05:26	06:17 (B124)	05:04	05:53 (B223)	05:27	06:47 (B013)	06:13	06:57 (B150)	07:03	08:15 (B083)	07:53	08:44 (B084)	07:47		08:25	
	16:48		17:44	13 08:31 (B082)	18:33	33 08:00 (B253)	20:25	41 07:56 (WEA03)	21:14	29 06:49 (B013)	21:44	39 06:32 (WEA02)	21:31	8 06:55 (B013)	20:39	53 08:00 (WEA03)	19:30	21 08:36 (B083)	18:22	19 09:03 (B084)	16:29		16:14	
21	08:18		07:29	08:16 (B084)	06:27	07:27 (B083)	06:18	07:15 (WEA03)	05:24	06:17 (B124)	05:04	05:53 (B223)	05:28	06:46 (B013)	06:15	06:59 (B150)	07:04	08:14 (B083)	07:54	08:45 (B084)	07:49		08:26	
	16:50		17:46	15 08:31 (B084)	18:35	32 07:59 (B253)	20:27	41 07:56 (WEA03)	21:15	27 06:47 (B013)	21:44	40 06:33 (WEA02)	21:30	11 06:56 (B013)	20:37	51 08:01 (WEA03)	19:27	24 08:38 (B253)	18:20	18 09:03 (B084)	16:27		16:14	
22	08:17		07:26	08:15 (B084)	06:25	07:27 (B083)	06:16	06:57 (B150)	05:23	06:19 (B124)	05:04	05:53 (B223)	05:29	06:33 (B124)	06:16	07:00 (B150)	07:06	08:13 (B083)	07:56	08:46 (B084)	07:50		08:27	
	16:51		17:47	17 08:32 (B084)	18:37	29 07:56 (B253)	20:29	45 07:56 (WEA03)	21:17	22 06:47 (B013)	21:45	40 06:33 (WEA02)	21:28	14 06:57 (B013)	20:35	47 08:00 (WEA03)	19:25	28 08:41 (B253)	18:18	16 09:02 (B084)	16:26		16:15	
23	08:16		07:24	08:13 (B084)	06:23	07:27 (B083)	06:14	06:54 (B150)	05:22	06:22 (B124)	05:05	05:53 (B223)	05:31	06:29 (B124)	06:18	07:19 (WEA03)	07:08	08:12 (B083)	07:58	08:48 (B082)	07:52		08:27	
	16:53		17:49	19 08:32 (B084)	18:38	27 07:54 (B253)	20:31	50 07:55 (WEA03)	21:18	15 06:47 (B013)	21:45	40 06:33 (WEA02)	21:27	22 06:57 (B013)	20:33	41 08:00 (WEA03)	19:23	30 08:42 (B253)	18:16	13 09:01 (B082)	16:25		16:15	
24	08:15		07:22	08:12 (B084)	06:20	07:28 (B083)	06:11	06:52 (B150)	05:20	06:35 (B013)	05:05	05:54 (B223)	05:32	06:29 (B124)	06:20	07:19 (WEA03)	07:09	08:11 (B083)	08:00	08:47 (B082)	07:54		08:28	
	16:55		17:51	20 08:32 (B084)	18:40	23 07:51 (B083)	20:32	53 07:55 (WEA03)	21:20	11 06:46 (B013)	21:45	39 06:33 (WEA02)	21:26	26 06:58 (B013)	20:31	40 07:59 (WEA03)	19:20	31 08:42 (B253)	18:14	14 09:01 (B082)	16:24		16:16	
25	08:14		07:20	08:12 (B084)	06:18	07:29 (B083)	06:09	06:50 (B012)	05:19	06:36 (B013)	05:05	05:54 (B223)	05:33	06:27 (B124)	06:21	07:19 (WEA03)	07:11	08:11 (B083)	08:01	08:46 (B082)	07:55		08:28	
	16:56		17:53	21 08:33 (B084)	18:42	20 07:49 (B083)	20:34	54 07:54 (WEA03)	21:21	9 06:45 (B013)	21:45	39 06:33 (WEA02)	21:25	29 06:59 (B013)	20:28	40 07:59 (WEA03)	19:18	32 08:43 (B253)	18:12	16 09:02 (B082)	16:23		16:16	
26	08:12		07:18	08:12 (B084)	07:16	07:53 (B178)	06:07	06:48 (B012)	05:18	06:39 (B013)	05:06	05:54 (B223)	05:35	06:26 (B124)	06:23	07:19 (WEA03)	07:13	08:11 (B083)	08:03	08:46 (B082)	07:57		08:28	
	16:58		17:55	21 08:33 (B084)	19:43	20 08:46 (B083)	20:36	57 07:54 (WEA03)	21:22	4 06:43 (B013)	21:45	39 06:33 (WEA02)	21:23	32 06:59 (B013)	20:26	39 07:58 (WEA03)	19:16	33 08:44 (B253)	18:10	16 09:02 (B082)	16:22		16:17	
27	08:11		07:16	08:12 (B084)	07:13	07:49 (B178)	06:05	06:47 (B012)	05:17		05:06	05:55 (B223)	05:36	06:25 (B124)	06:24	07:19 (WEA03)	07:14	08:10 (B083)	08:05	08:46 (B082)	07:58		08:29	
	17:00		17:56	21 08:33 (B084)	19:45	23 08:44 (B083)	20:37	57 07:53 (WEA03)	21:24		21:45	39 06:34 (WEA02)	21:22	33 06:59 (B013)	20:24	39 07:58 (WEA03)	19:14	33 08:43 (B253)	18:08	16 09:02 (B082)	16:21		16:18	
28	08:10		07:14	08:12 (B084)	07:11	07:48 (B178)	06:03	06:47 (B012)	05:16	06:09 (WEA02)	05:06	05:55 (B223)	05:38	06:25 (B124)	06:26	07:19 (WEA03)	07:16	08:10 (B083)	08:07	08:46 (B082)	08:00		08:29	
	17:02		17:58	21 08:33 (B084)	19:47	14 08:02 (B178)	20:39	55 07:52 (WEA03)	21:25	4 06:13 (WEA02)	21:45	38 06:33 (WEA02)	21:20	35 07:00 (B013)	20:22	38 07:57 (WEA03)	19:11	33 08:43 (B253)	18:06	16 09:02 (B082)	16:20		16:18	
29	08:09				07:09	07:46 (B178)	06:01	06:46 (B012)	05:15	06:06 (WEA02)	05:07	05:55 (B223)	05:39	06:24 (B124)	06:28	07:20 (WEA03)	07:17	08:10 (B083)	07:08	07:47 (B082)	08:02		08:29	
	17:03				19:48	16 08:02 (B178)	20:41	55 07:51 (WEA03)	21:26	11 06:17 (WEA02)	21:45	39 06:34 (WEA02)	21:19	35 06:59 (B013)	20:20	36 07:56 (WEA03)	19:09	32 08:42 (B253)	17:04	14 08:01 (B082)	16:19		16:19	
30	08:07				07:07	07:45 (B178)	05:59	06:47 (B012)	05:14	05:55 (B223)	05:07	05:55 (B223)	05:40	06:24 (B124)	06:29	07:20 (WEA03)	07:19	08:11 (B083)	07:10	07:47 (B082)	08:03		08:29	
	17:05				19:50	18 08:03 (B178)	20:42	52 07:51 (WEA03)	21:27	20 06:19 (WEA02)	21:45	38 06:33 (WEA02)	21:17	35 06:59 (B013)	20:18	35 07:55 (WEA03)	19:07	31 08:42 (B253)	17:02	14 08:01 (B082)	16:18		16:20	
31	08:06				07:04	07:45 (B178)			05:13	05:53 (B223)			05:42	06:24 (B124)	06:31	07:21 (WEA03)			07:12		07:49 (B082)			08:29	
	17:07				19:52	18 08:03 (B178)			21:28	26 06:20 (WEA02)			21:16	35 06:59 (B013)	20:15	33 07:54 (WEA03)			17:00	10 07:59 (B082)			16:21	
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333		268		245	
astr.max.mögl.Beschattung			285		590		990		844		1119		836		1275		635		437		6			
Red.Sonnenscheinwahrsch.			0.32		0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		0.23			
Reduktion Betriebsdauer			0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95			
Reduktion Windrichtung			0.63		0.67		0.73		0.74		0.74		0.74		0.73		0.69		0.64		0.63			
Gesamte Reduktion			0.20		0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.18		0.14			
Met.wahrsch.Beschattung			56		107		249		253		267		229		355		133		77		1			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO021 - Beerengrund 9, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	08:08 (B084)	07:02	07:41 (B178)	05:58	06:43 (B012)	05:12	05:53 (B223)	05:08	05:54 (B223)	05:43	06:22 (B124)	06:32	07:21 (WEA03)	07:21	08:11 (B083)	07:14	08:04
	16:22	17:09	18:00	21 08:29 (B084)	19:54	18 07:59 (B178)	20:44	55 07:48 (WEA03)	21:30	20 06:16 (WEA02)	21:45	36 06:30 (WEA02)	21:14	33 06:55 (B013)	20:13	24 07:45 (WEA03)	19:04	22 08:33 (B253)	16:58	16:18
2	08:29	08:03	07:10	08:09 (B084)	07:00	07:41 (B178)	05:56	06:42 (B012)	05:11	05:52 (B223)	05:09	05:54 (B223)	05:45	06:23 (B124)	06:34	07:24 (WEA03)	07:22	08:13 (B083)	07:16	08:06
	16:23	17:11	18:02	19 08:28 (B084)	19:55	18 07:59 (B178)	20:46	54 07:47 (WEA03)	21:31	26 06:18 (WEA02)	21:44	35 06:29 (WEA02)	21:13	31 06:54 (B013)	20:11	19 07:43 (WEA03)	19:02	15 08:29 (B253)	16:57	16:17
3	08:29	08:01	07:08	08:09 (B084)	06:57	07:41 (B178)	05:54	06:42 (B012)	05:10	05:51 (B223)	05:09	05:55 (B223)	05:46	06:23 (B124)	06:36	07:26 (WEA03)	07:24		07:17	08:07
	16:24	17:13	18:04	19 08:28 (B084)	19:57	18 07:59 (B178)	20:47	51 07:46 (WEA03)	21:32	28 06:19 (WEA02)	21:44	35 06:30 (WEA02)	21:11	27 06:52 (B013)	20:09	12 07:38 (WEA03)	19:00		16:55	16:16
4	08:29	08:00	07:05	08:11 (B084)	06:55	07:42 (B178)	05:52	06:42 (B012)	05:10	05:51 (B223)	05:10	05:55 (B223)	05:48	06:22 (B124)	06:37		07:26		07:19	08:09
	16:25	17:14	18:05	15 08:26 (B084)	19:59	17 07:59 (B178)	20:49	46 07:44 (WEA03)	21:33	29 06:20 (WEA02)	21:44	35 06:30 (WEA02)	21:09	31 07:42 (WEA03)	20:06		18:57		16:53	16:16
5	08:29	07:58	07:03	08:12 (B084)	06:53	07:42 (B178)	05:50	06:44 (B012)	05:09	05:51 (B223)	05:11	05:56 (B223)	05:49	06:24 (B124)	06:39		07:27		07:21	08:10
	16:26	17:16	18:07	13 08:25 (B084)	20:00	15 07:57 (B178)	20:50	42 07:44 (WEA03)	21:34	30 06:21 (WEA02)	21:43	34 06:30 (WEA02)	21:08	31 07:46 (WEA03)	20:04		18:55		16:51	16:15
6	08:29	07:56	07:01	08:14 (B084)	06:51	07:43 (B178)	05:48	06:18 (B124)	05:08	05:50 (B223)	05:12	05:56 (B223)	05:51	06:24 (B124)	06:40	07:43 (B178)	07:29		07:23	08:11
	16:28	17:18	18:09	7 08:21 (B084)	20:02	12 07:55 (B178)	20:52	46 07:42 (WEA03)	21:35	31 06:21 (WEA02)	21:43	33 06:29 (WEA02)	21:06	35 07:48 (WEA03)	20:02	4 07:47 (B178)	18:53		16:49	16:15
7	08:28	07:55	06:59		06:48	07:45 (B178)	05:46	06:15 (B124)	05:08	05:50 (B223)	05:12	05:56 (B223)	05:53	06:26 (B124)	06:42	07:40 (B178)	07:31		07:24	08:13
	16:29	17:20	18:11		20:04	8 07:53 (B178)	20:54	43 07:40 (WEA03)	21:36	33 06:23 (WEA02)	21:42	33 06:29 (WEA02)	21:04	41 07:50 (WEA03)	20:00	10 07:50 (B178)	18:51		16:48	16:14
8	08:28	07:53	06:57		06:46		05:45	06:15 (B124)	05:07	05:51 (B223)	05:13	05:57 (B223)	05:54	06:27 (B124)	06:44	07:37 (B178)	07:32		07:26	08:14
	16:30	17:22	18:12		20:05		20:55	35 07:39 (WEA03)	21:37	33 06:24 (WEA02)	21:42	31 06:28 (WEA02)	21:02	44 07:51 (WEA03)	19:57	14 07:51 (B178)	18:48		16:46	16:14
9	08:28	07:51	06:54		06:44		05:43	06:13 (B124)	05:06	05:50 (B223)	05:14	05:58 (B223)	05:56	06:53 (B012)	06:45	07:36 (B178)	07:34	08:50 (B084)	07:28	08:15
	16:31	17:24	18:14		20:07		20:57	34 07:37 (WEA03)	21:38	34 06:24 (WEA02)	21:41	30 06:28 (WEA02)	21:00	41 07:53 (WEA03)	19:55	16 07:52 (B178)	18:46	5 08:55 (B084)	16:44	16:14
10	08:27	07:49	06:52		06:42	07:33 (WEA03)	05:41	06:13 (B124)	05:06	05:50 (B223)	05:15	05:58 (B223)	05:57	06:52 (B012)	06:47	07:35 (B178)	07:36	08:47 (B084)	07:30	08:16
	16:33	17:25	18:16		20:09	3 07:36 (WEA03)	20:59	32 07:34 (WEA03)	21:38	35 06:25 (WEA02)	21:40	29 06:27 (WEA02)	20:59	46 07:54 (WEA03)	19:53	17 07:52 (B178)	18:44	12 08:59 (B084)	16:43	16:13
11	08:26	07:48	06:50		06:39	07:26 (WEA03)	05:39	06:12 (B124)	05:06	05:50 (B223)	05:16	05:59 (B223)	05:59	06:52 (B012)	06:48	07:35 (B178)	07:37	08:45 (B084)	07:32	08:17
	16:34	17:27	18:18		20:10	16 07:42 (WEA03)	21:00	28 06:42 (B013)	21:39	35 06:25 (WEA02)	21:39	28 06:27 (WEA02)	20:57	49 07:55 (WEA03)	19:51	17 07:52 (B178)	18:42	15 09:00 (B084)	16:41	16:13
12	08:26	07:46	06:48		06:37	07:23 (WEA03)	05:38	06:12 (B124)	05:05	05:50 (B223)	05:17	06:00 (B223)	06:00	06:51 (B012)	06:50	07:34 (B178)	07:39	08:44 (B084)	07:33	08:18
	16:36	17:29	18:19		20:12	22 07:45 (WEA03)	21:02	30 06:43 (B013)	21:40	35 06:25 (WEA02)	21:39	26 06:26 (WEA02)	20:55	53 07:55 (WEA03)	19:48	18 07:52 (B178)	18:40	18 09:02 (B084)	16:40	16:13
13	08:25	07:44	06:45	07:34 (B083)	06:35	07:21 (WEA03)	05:36	06:12 (B124)	05:05	05:50 (B223)	05:18	06:01 (B223)	06:02	06:51 (B012)	06:52	07:34 (B178)	07:41	08:42 (B084)	07:35	08:19
	16:37	17:31	18:21	15 07:50 (B253)	20:14	26 07:47 (WEA03)	21:03	32 06:44 (B013)	21:41	36 06:26 (WEA02)	21:38	20 06:24 (WEA02)	20:53	55 07:56 (WEA03)	19:46	18 07:52 (B178)	18:37	19 09:01 (B084)	16:38	16:13
14	08:25	07:42	08:16 (B082)	06:43	07:31 (B083)	06:33	07:19 (WEA03)	05:35	06:12 (B124)	05:05	05:51 (B223)	05:19	06:04 (B223)	06:04	06:51 (B012)	06:53	07:33 (B178)	07:42	08:42 (B084)	07:37	08:20
	16:39	17:33	8 08:24 (B082)	18:23	23 07:54 (B253)	20:15	29 07:48 (WEA03)	21:05	33 06:45 (B013)	21:41	36 06:27 (WEA02)	21:37	12 06:23 (WEA02)	20:51	56 07:56 (WEA03)	19:44	17 07:50 (B178)	18:35	20 09:02 (B084)	16:37	16:13
15	08:24	07:40	08:14 (B082)	06:41	07:29 (B083)	06:31	07:18 (WEA03)	05:33	06:12 (B124)	05:04	05:51 (B223)	05:20		06:05	06:51 (B012)	06:55	07:34 (B178)	07:44	08:41 (B084)	07:39	08:21
	16:40	17:35	12 08:26 (B082)	18:25	26 07:55 (B253)	20:17	32 07:50 (WEA03)	21:06	33 06:45 (B013)	21:42	36 06:27 (WEA02)	21:36		20:49	57 07:57 (WEA03)	19:41	15 07:49 (B178)	18:33	21 09:02 (B084)	16:35	16:13
16	08:23	07:38	08:13 (B082)	06:39	07:27 (B083)	06:28	07:16 (WEA03)	05:31	06:12 (B124)	05:04	05:51 (B223)	05:22		06:07	06:51 (B012)	06:56	07:36 (B178)	07:46	08:41 (B084)	07:40	08:22
	16:42	17:36	14 08:27 (B082)	18:26	29 07:56 (B253)	20:19	34 07:50 (WEA03)	21:08	34 06:46 (B013)	21:42	37 06:28 (WEA02)	21:35		20:47	58 07:57 (WEA03)	19:39	22 08:29 (B083)	18:31	21 09:02 (B084)	16:34	16:13
17	08:22	07:36	08:12 (B082)	06:36	07:26 (B083)	06:26	07:15 (WEA03)	05:30	06:12 (B124)	05:04	05:52 (B223)	05:23	06:45 (B013)	06:08	06:53 (B012)	06:58	07:37 (B178)	07:48	08:41 (B084)	07:42	08:23
	16:43	17:38	16 08:28 (B082)	18:28	30 07:56 (B253)	20:20	35 07:50 (WEA03)	21:09	34 06:46 (B013)	21:43	36 06:28 (WEA02)	21:34	5 06:50 (B013)	20:45	57 07:58 (WEA03)	19:37	24 08:31 (B083)	18:29	21 09:02 (B084)	16:32	16:13
18	08:21	07:34	08:12 (B082)	06:34	07:25 (B083)	06:24	07:14 (WEA03)	05:28	06:13 (B124)	05:04	05:52 (B223)	05:24	06:43 (B013)	06:10	06:54 (B012)	07:00	08:14 (B083)	07:49	08:41 (B084)	07:44	08:24
	16:45	17:40	16 08:28 (B082)	18:30	32 07:57 (B253)	20:22	37 07:51 (WEA03)	21:11	33 06:46 (B013)	21:43	36 06:28 (WEA02)	21:33	8 06:51 (B013)	20:43	55 07:57 (WEA03)	19:34	19 08:33 (B083)	18:27	20 09:01 (B084)	16:31	16:13
19	08:20	07:33	08:12 (B082)	06:32	07:24 (B083)	06:22	07:13 (WEA03)	05:27	06:13 (B124)	05:04	05:52 (B223)	05:25	06:42 (B013)	06:12	06:56 (B150)	07:01	08:12 (B083)	07:51	08:42 (B084)	07:45	08:25
	16:46	17:42	16 08:28 (B082)	18:31	32 07:56 (B253)	20:24	38 07:51 (WEA03)	21:12	33 06:46 (B013)	21:44	37 06:29 (WEA02)	21:32	10 06:52 (B013)	20:41	53 07:58 (WEA03)	19:32	22 08:34 (B083)	18:24	18 09:00 (B084)	16:30	16:14
20	08:19	07:31	08:12 (B082)	06:29	07:24 (B083)	06:20	07:12 (WEA03)	05:26	06:14 (B124)	05:04	05:52 (B223)	05:27	06:42 (B013)	06:13	06:57 (B150)	07:03	08:11 (B083)	07:53	08:43 (B084)	07:47	08:25
	16:48	17:44	16 08:28 (B082)	18:33	32 07:56 (B253)	20:25	40 07:52 (WEA03)	21:14	32 06:46 (B013)	21:44	37 06:29 (WEA02)	21:31	12 06:54 (B013)	20:39	50 07:57 (WEA03)	19:30	26 08:37 (B253)	18:22	16 08:59 (B084)	16:29	16:14
21	08:18	07:29	08:13 (B082)	06:27	07:24 (B083)	06:18	07:12 (WEA03)	05:24	06:14 (B124)	05:04	05:52 (B223)	05:28	06:29 (B124)	06:15	06:59 (B150)	07:04	08:10 (B083)	07:54	08:44 (B082)	07:49	08:26
	16:50	17:46	15 08:28 (B082)	18:35	32 07:56 (B253)	20:27	40 07:52 (WEA03)	21:15	30 06:45 (B013)	21:44	37 06:29 (WEA02)	21:30	19 06:55 (B013)	20:37	46 07:57 (WEA03)	19:27	29 08:39 (B253)	18:20	14 08:58 (B084)	16:27	16:14
22	08:17	07:26	08:13 (B082)	06:25	07:23 (B083)	06:16	07:11 (WEA03)	05:23	06:16 (B124)	05:04	05:52 (B223)	05:29	06:27 (B124)	06:16	07:16 (WEA03)	07:06	08:09 (B083)	07:56	08:43 (B082)	07:50	08:27
	16:51	17:47	14 08:27 (B082)	18:37	31 07:54 (B253)	20:29	41 07:52 (WEA03)	21:17	26 06:45 (B013)	21:45	37 06:29 (WEA02)	21:28	24 06:55 (B013)	20:35	40 07:56 (WEA03)	19:25	30 08:39 (B253)	18:18	15 08:58 (B082)	16:26	16:15
23	08:16	07:24	08:11 (B084)	06:23	07:23 (B083)	06:14	07:11 (WEA03)	05:22	06:17 (B124)	05:05	05:52 (B223)	05:31	06:26 (B124)	06:18	07:16 (WEA03)	07:08	08:08 (B083)	07:58	08:43 (B082)	07:52	08:27
	16:53	17:49	16 08:27 (B084)	18:38	30 07:53 (B253)	20:31	41 07:52 (WEA03)	21:18	24 06:45 (B013)	21:45	37 06:29 (WEA02)	21:27	26 06:55 (B013)	20:33	40 07:56 (WEA03)	19:23	32 08:40 (B253)	18:16	15 08:58 (B082)	16:25	16:15
24	08:15	07:22	08:10 (B084)	06:20	07:24 (B083)	06:11	06:52 (B150)	05:20	06:19 (B124)	05:05	05:53 (B223)	05:32	06:25 (B124)	06:20	07:16 (WEA03)	07:09	08:07 (B083)	08:00	08:41 (B082)	07:54	08:28
	16:55	17:51	18 08:28 (B084)	18:40	28 07:52 (B253)	20:32	48 07:51 (WEA03)	21:20	19 06:45 (B013)	21:45	37 06:30 (WEA02)	21:26	30 06:56 (B013)	20:31	39 07:55 (WEA03)	19:20	32 08:39 (B253)	18:14	17 08:58 (B082)	16:24	16:16
25	08:14	07:20	08:10 (B084)	06:18	07:24 (B083)	06:09	06:50 (B150)	05:19	06:32 (B013)	05:05	05:53 (B223)	05:33	06:24 (B124)	06:21	07:16 (WEA03)	07:11	08:07 (B083)	08:01	08:42 (B082)	07:55	08:28
	16:56	17:53	19 08:29 (B084)	18:42	26 07:50 (B253)	20:34	52 07:51 (WEA03)	21:21	12 06:44 (B013)	21:45	37 06:30 (WEA02)	21:25	32 06:56 (B013)	20:28	39 07:55 (WEA03)	19:18	33 08:40 (B253)	18:12	16 08:58 (B082)	16:23	16:16
26	08:12	07:18	08:09 (B084)	07:16	08:24 (B083)	06:07	06:49 (B150)	05:18	06:33 (B013)	05:06	05:53 (B223)	05:35	06:24 (B124)	06:23	07:16 (WEA03)	07:13	08:08 (B083)	08:03	08:42 (B082)	07:57	08:28
	16:58	17:55	21 08:30 (B084)	19:43	22 08:46 (B083)	20:36	54 07:51 (WEA03)	21:22	10 06:43 (B013)	21:45	36 06:29 (WEA02)	21:23	32 06:56 (B013)	20:26	38 07:54 (WEA03)	19:16	32 08:40 (B253)	18:10	15 08:57 (B082)	16:22	16:17
27	08:11	07:16	08:09 (B084)	07:13	08:26 (B083)	06:05	06:46 (B012)	05:17	06:34 (B013)	05:06	05:54 (B223)	05:36	06:23 (B124)	06:24	07:17 (WEA03)	07:14	08:07 (B083)	08:05	08:42 (B082)	07:58	08:29
	17:00	17:56	21 08:30 (B084)	19:45	18 08:44 (B083)	20:37	56 07:50 (WEA03)	21:24	8 06:42 (B013)	21:45	36 06:30 (WEA02)	21:22	33 06:56 (B013)	20:24	36 07:53 (WEA03)	19:14	32 08:39 (B253)	18:08	15 08:57 (B082)	16:21	16:18
28	08:10	07:14	08:09 (B084)	07:11	07:48 (B178)	06:03	06:44 (B012)	05:16	06:36 (B013)	05:06	05:53 (B223)	05:38	06:23 (B124)	06:26	07:17 (WEA03)	07:16	08:08 (B083)	08:07	08:43 (B082)	08:00	08:29
	17:02	17:58	21 08:30 (B084)	19:47	24 08:42 (B083)	20:39	58 07:50 (WEA03)	21:25	5 06:41 (B013)	21:45	37 06:30 (WEA02)	21:20	34 06:57 (B013)	20:22	35 07:52 (WEA03)	19:11	30 08:38 (B253)	18:06	13 08:56 (B082)	16:20	16:18
29	08:09		07:09	07:45 (B178)	06:01	06:43 (B012)	05:15			05:07	05:54 (B223)	05:39	06:22 (B124)	06:28	07:18 (WEA03)	07:17	08:08 (B083)	07:08	07:45 (B082)	08:02	08:29
	17:03		19:48	21 08:38 (B083)	20:41	58 07:49 (WEA03)	21:26			21:45	36 06:30 (WEA02)	21:19	34 06:56 (B013)	20:20	33 07:51 (WEA03)	19:09	28 08:36 (B253)	17:04	9 07:54 (B082)	16:19	16:19
30	08:07		07:07	07:44 (B178)	05:59	06:43 (B012)	05:14			05:07	05:54 (B223)	05:40	06:22 (B124)	06:29	07:19 (WEA03)	07:19	08:09 (B083)	07:10	07:48 (B082)	08:03	08:29
	17:05		19:50	15 07:59 (B178)	20:42	57 07:49 (WEA03)	21:27			21:45	36 06:30 (WEA02)	21:17	34 06:56 (B013)	20:18	30 07:49 (WEA03)	19:07	26 08:35 (B253)	17:02	4 07:52 (B082)	16:18	16:20
31	08:06		07:04	07:43 (B178)			05:13	05:54 (B223)				05:42	06:22 (B124)	06:31	07:20 (WEA03)			07:12			08:29
	17:07		19:52	17 08:00 (B178)			21:28	13 06:14 (WEA02)				21:16	34 06:56 (B013)	20:15	28 07:48 (WEA03)			17:00			16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		243	577	923	907	1026	784	1307	618	376		
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29		
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Reduktion Windrichtung		0.64	0.67	0.73	0.74	0.74	0.74	0.73	0.69	0.64		
Gesamte Reduktion		0.20	0.18	0.25	0.30	0.24	0.27	0.28	0.21	0.18		
Met.wahrsch.Beschattung		48	104	232	272	244	215	364	129	66		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO022 - Beerengrund 11, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	08:05 (B084)	07:02	07:40 (B178)	05:58	06:40 (B012)	05:12	05:08	05:53 (B223)	05:43	06:21 (B124)	06:32	07:23 (WEA03)	07:21	08:14 (B083)	07:14	08:04
	16:22	17:09	18:00 21	08:26 (B084)	19:54 17	07:57 (B178)	20:44 59	07:46 (WEA03)	21:30	21:45 33	06:26 (WEA02)	21:14 28	06:50 (B013)	20:13 14	07:37 (WEA03)	19:04 5	08:19 (B083)	16:58	16:18
2	08:29	08:03	07:10	08:05 (B084)	07:00	07:39 (B178)	05:56	06:39 (B012)	05:11	05:53 (B223)	05:09	05:53 (B223)	05:45	06:21 (B124)	06:34	07:22		07:16	08:06
	16:23	17:11	18:02 21	08:26 (B084)	19:55 18	07:57 (B178)	20:46 57	07:45 (WEA03)	21:31	06:11 (WEA02) 13	21:44 32	06:25 (WEA02)	21:13 35	07:40 (WEA03)	20:11	19:02		16:57	16:17
3	08:29	08:01	07:08	08:06 (B084)	06:57	07:39 (B178)	05:54	06:39 (B012)	05:10	05:51 (B223)	05:09	05:54 (B223)	05:46	06:21 (B124)	06:36	07:24		07:17	08:07
	16:24	17:13	18:04 20	08:26 (B084)	19:57 18	07:57 (B178)	20:47 55	07:44 (WEA03)	21:32	20 06:13 (WEA02)	21:44 31	06:25 (WEA02)	21:11 34	07:43 (WEA03)	20:09	19:00		16:55	16:16
4	08:29	08:00	07:05	08:06 (B084)	06:55	07:39 (B178)	05:52	06:38 (B012)	05:10	05:51 (B223)	05:10	05:54 (B223)	05:48	06:21 (B124)	06:37	07:26		07:19	08:09
	16:25	17:14	18:05 19	08:25 (B084)	19:59 18	07:57 (B178)	20:49 54	07:43 (WEA03)	21:33	24 06:15 (WEA02)	21:44 32	06:26 (WEA02)	21:09 37	07:45 (WEA03)	20:06	18:57		16:53	16:16
5	08:29	07:58	07:03	08:07 (B084)	06:53	07:38 (B178)	05:50	06:39 (B012)	05:09	05:50 (B223)	05:11	05:55 (B223)	05:49	06:23 (B124)	06:39	07:41 (B178)	07:27	07:21	08:10
	16:26	17:16	18:07 17	08:24 (B084)	20:00 17	07:55 (B178)	20:50 51	07:43 (WEA03)	21:34	26 06:16 (WEA02)	21:43 30	06:25 (WEA02)	21:08 44	07:47 (WEA03)	20:04 5	07:46 (B178)	18:55	16:51	16:15
6	08:29	07:56	07:01	08:08 (B084)	06:51	07:39 (B178)	05:48	06:39 (B012)	05:08	05:49 (B223)	05:12	05:55 (B223)	05:51	06:23 (B124)	06:40	07:37 (B178)	07:29	07:23	08:11
	16:28	17:18	18:09 14	08:22 (B084)	20:02 15	07:54 (B178)	20:52 45	07:41 (WEA03)	21:35	28 06:17 (WEA02)	21:43 29	06:24 (WEA02)	21:06 49	07:48 (WEA03)	20:02 11	07:48 (B178)	18:53	16:49	16:15
7	08:28	07:55	06:59	08:10 (B084)	06:48	07:40 (B178)	05:46	06:16 (B124)	05:08	05:49 (B223)	05:12	05:55 (B223)	05:53	06:26 (B124)	06:42	07:36 (B178)	07:31	07:24	08:13
	16:29	17:20	18:11 9	08:19 (B084)	20:04 13	07:53 (B178)	20:54 49	07:40 (WEA03)	21:36	29 06:18 (WEA02)	21:42 29	06:24 (WEA02)	21:04 49	07:50 (WEA03)	20:00 14	07:50 (B178)	18:51	16:48	16:14
8	08:28	07:53	06:57		06:46	07:42 (B178)	05:45	06:14 (B124)	05:07	05:50 (B223)	05:13	05:56 (B223)	05:54	06:48 (B012)	06:44	07:34 (B178)	07:32	08:46 (B084)	07:26	08:14
	16:30	17:22	18:12		20:05 9	07:51 (B178)	20:55 49	07:39 (WEA03)	21:37	29 06:19 (WEA02)	21:42 28	06:24 (WEA02)	21:02 45	07:50 (WEA03)	19:57 16	07:50 (B178)	18:48 9	08:55 (B084)	16:46	16:14
9	08:28	07:51	06:54		06:44		05:43	06:13 (B124)	05:06	05:49 (B223)	05:14	05:57 (B223)	05:56	06:48 (B012)	06:45	07:34 (B178)	07:34	08:43 (B084)	07:28	08:15
	16:31	17:24	18:14		20:07		20:57 45	07:37 (WEA03)	21:38	31 06:20 (WEA02)	21:41 26	06:23 (WEA02)	21:00 50	07:52 (WEA03)	19:55 17	07:51 (B178)	18:46 14	08:57 (B084)	16:44	16:14
10	08:27	07:49	06:52		06:42		05:41	06:12 (B124)	05:06	05:49 (B223)	05:15	05:58 (B223)	05:57	06:48 (B012)	06:47	07:32 (B178)	07:36	08:42 (B084)	07:30	08:16
	16:33	17:25	18:16		20:09		20:59 37	07:36 (WEA03)	21:38	32 06:21 (WEA02)	21:40 24	06:22 (WEA02)	20:59 52	07:52 (WEA03)	19:53 18	07:50 (B178)	18:44 16	08:58 (B084)	16:43	16:13
11	08:26	07:48	06:50		06:39		05:39	06:11 (B124)	05:06	05:49 (B223)	05:16	05:59 (B223)	05:59	06:48 (B012)	06:48	07:32 (B178)	07:37	08:41 (B084)	07:32	08:17
	16:34	17:27	18:18		20:10		21:00 33	07:33 (WEA03)	21:39	31 06:20 (WEA02)	21:39 20	06:21 (WEA02)	20:57 55	07:53 (WEA03)	19:51 18	07:50 (B178)	18:42 18	08:59 (B084)	16:41	16:13
12	08:26	07:46	06:48		06:37	07:26 (WEA03)	05:38	06:10 (B124)	05:05	05:49 (B223)	05:17	06:01 (B223)	06:00	06:48 (B012)	06:50	07:32 (B178)	07:39	08:40 (B084)	07:33	08:18
	16:36	17:29	18:19		20:12 10	07:36 (WEA03)	21:02 36	07:30 (WEA03)	21:40	32 06:21 (WEA02)	21:39 12	06:19 (WEA02)	20:55 57	07:53 (WEA03)	19:48 17	07:49 (B178)	18:40 20	09:00 (B084)	16:40	16:13
13	08:25	07:44	06:45		06:35	07:22 (WEA03)	05:36	06:10 (B124)	05:05	05:49 (B223)	05:18		06:02	06:48 (B012)	06:52	07:32 (B178)	07:41	08:39 (B084)	07:35	08:19
	16:37	17:31	18:21		20:14 18	07:40 (WEA03)	21:03 29	06:40 (B013)	21:41	33 06:22 (WEA02)	21:38		20:53 58	07:54 (WEA03)	19:46 17	07:49 (B178)	18:37 20	08:59 (B084)	16:38	16:13
14	08:25	07:42	06:43	07:33 (B083)	06:33	07:19 (WEA03)	05:35	06:11 (B124)	05:05	05:50 (B223)	05:19		06:04	06:48 (B012)	06:53	07:32 (B178)	07:42	08:38 (B084)	07:37	08:20
	16:39	17:33	18:23 6	07:39 (B083)	20:15 23	07:42 (WEA03)	21:05 31	06:42 (B013)	21:41	33 06:23 (WEA02)	21:37		20:51 59	07:54 (WEA03)	19:44 20	08:24 (B083)	18:35 21	08:59 (B084)	16:37	16:13
15	08:24	07:40	06:41	07:29 (B083)	06:31	07:17 (WEA03)	05:33	06:10 (B124)	05:04	05:50 (B223)	05:20	06:42 (B013)	06:05	06:50 (B012)	06:55	07:34 (B178)	07:44	08:39 (B084)	07:39	08:21
	16:40	17:35	18:25 18	07:47 (B253)	20:17 27	07:44 (WEA03)	21:06 32	06:42 (B013)	21:42	33 06:23 (WEA02)	21:36 6	06:48 (B013)	20:49 58	07:55 (WEA03)	19:41 25	08:28 (B083)	18:33 20	08:59 (B084)	16:35	16:13
16	08:23	07:38 08:12 (B082)	06:39	07:26 (B083)	06:28	07:14 (WEA03)	05:31	06:10 (B124)	05:04	05:50 (B223)	05:22	06:40 (B013)	06:07	06:51 (B012)	06:56	07:36 (B178)	07:46	08:39 (B084)	07:40	08:22
	16:42	17:36 8 08:20 (B082)	18:26 23	07:49 (B253)	20:19 30	07:44 (WEA03)	21:08 33	06:43 (B013)	21:42	34 06:24 (WEA02)	21:35 9	06:49 (B013)	20:47 56	07:54 (WEA03)	19:39 25	08:30 (B083)	18:31 20	08:59 (B084)	16:34	16:13
17	08:22	07:36 08:10 (B082)	06:36	07:25 (B083)	06:26	07:13 (WEA03)	05:30	06:10 (B124)	05:04	05:50 (B223)	05:23	06:39 (B013)	06:08	06:54 (B150)	06:58	08:10 (B083)	07:48	08:39 (B084)	07:42	08:23
	16:43	17:38 12 08:22 (B082)	18:28 26	07:51 (B253)	20:20 32	07:45 (WEA03)	21:09 33	06:43 (B013)	21:43	34 06:24 (WEA02)	21:34 11	06:50 (B013)	20:45 54	07:55 (WEA03)	19:37 21	08:31 (B083)	18:29 20	08:59 (B084)	16:32	16:13
18	08:21	07:34 08:09 (B082)	06:34	07:24 (B083)	06:24	07:12 (WEA03)	05:28	06:11 (B124)	05:04	05:51 (B223)	05:24	06:38 (B013)	06:10	06:54 (B150)	07:00	08:09 (B083)	07:49	08:39 (B084)	07:44	08:24
	16:45	17:40 14 08:23 (B082)	18:30 28	07:52 (B253)	20:22 34	07:46 (WEA03)	21:11 32	06:43 (B013)	21:43	34 06:25 (WEA02)	21:33 13	06:51 (B013)	20:43 53	07:54 (WEA03)	19:34 25	08:34 (B253)	18:27 18	08:57 (B084)	16:31	16:13
19	08:20	07:33 08:09 (B082)	06:32	07:22 (B083)	06:22	07:11 (WEA03)	05:27	06:11 (B124)	05:04	05:51 (B223)	05:25	06:38 (B013)	06:12	06:55 (B150)	07:01	08:07 (B083)	07:51	08:40 (B082)	07:45	08:25
	16:46	17:42 15 08:24 (B082)	18:31 29	07:51 (B253)	20:24 36	07:47 (WEA03)	21:12 33	06:44 (B013)	21:44	34 06:25 (WEA02)	21:32 13	06:51 (B013)	20:41 49	07:54 (WEA03)	19:32 28	08:35 (B253)	18:24 16	08:56 (B084)	16:30	16:14
20	08:19	07:31 08:08 (B082)	06:29	07:21 (B083)	06:20	07:10 (WEA03)	05:26	06:12 (B124)	05:04	05:51 (B223)	05:27	06:27 (B124)	06:13	06:58 (B150)	07:03	08:07 (B083)	07:53	08:39 (B082)	07:47	08:25
	16:48	17:44 16 08:24 (B082)	18:33 31	07:52 (B253)	20:25 37	07:47 (WEA03)	21:14 32	06:44 (B013)	21:44	34 06:25 (WEA02)	21:31 22	06:53 (B013)	20:39 44	07:54 (WEA03)	19:30 29	08:36 (B253)	18:22 15	08:54 (B082)	16:29	16:14
21	08:18	07:29 08:08 (B082)	06:27	07:21 (B083)	06:18	07:09 (WEA03)	05:24	06:12 (B124)	05:04	05:51 (B223)	05:28	06:25 (B124)	06:15	07:14 (WEA03)	07:04	08:07 (B083)	07:54	08:39 (B082)	07:49	08:26
	16:50	17:46 16 08:24 (B082)	18:35 31	07:52 (B253)	20:27 39	07:48 (WEA03)	21:15 31	06:43 (B013)	21:44	34 06:25 (WEA02)	21:30 25	06:53 (B013)	20:37 40	07:54 (WEA03)	19:27 30	08:37 (B253)	18:20 15	08:54 (B082)	16:27	16:14
22	08:17	07:26 08:08 (B082)	06:25	07:20 (B083)	06:16	07:09 (WEA03)	05:23	06:13 (B124)	05:04	05:51 (B223)	05:29	06:24 (B124)	06:16	07:13 (WEA03)	07:06	08:05 (B083)	07:56	08:39 (B082)	07:50	08:27
	16:51	17:47 16 08:24 (B082)	18:37 31	07:51 (B253)	20:29 39	07:48 (WEA03)	21:17 30	06:43 (B013)	21:45	34 06:25 (WEA02)	21:28 28	06:53 (B013)	20:35 40	07:53 (WEA03)	19:25 31	08:36 (B253)	18:18 16	08:55 (B082)	16:26	16:15
23	08:16	07:24 08:08 (B082)	06:23	07:20 (B083)	06:14	07:08 (WEA03)	05:22	06:14 (B124)	05:05	05:51 (B223)	05:31	06:23 (B124)	06:18	07:14 (WEA03)	07:08	08:05 (B083)	07:58	08:39 (B082)	07:52	08:27
	16:53	17:49 15 08:23 (B082)	18:38 31	07:51 (B253)	20:31 40	07:48 (WEA03)	21:18 28	06:43 (B013)	21:45	34 06:25 (WEA02)	21:27 30	06:53 (B013)	20:33 38	07:52 (WEA03)	19:23 32	08:37 (B253)	18:16 16	08:55 (B082)	16:25	16:15
24	08:15	07:22 08:09 (B082)	06:20	07:20 (B083)	06:11	07:08 (WEA03)	05:20	06:15 (B124)	05:05	05:52 (B223)	05:32	06:23 (B124)	06:20	07:13 (WEA03)	07:09	08:05 (B083)	08:00	08:38 (B082)	07:54	08:28
	16:55	17:51 15 08:24 (B084)	18:40 30	07:50 (B253)	20:32 40	07:48 (WEA03)	21:20 25	06:43 (B013)	21:45	34 06:26 (WEA02)	21:26 31	06:54 (B013)	20:31 38	07:51 (WEA03)	19:20 31	08:36 (B253)	18:14 15	08:53 (B082)	16:24	16:16
25	08:14	07:20 08:08 (B084)	06:18	07:20 (B083)	06:09	06:50 (B150)	05:19	06:17 (B124)	05:05	05:52 (B223)	05:33	06:22 (B124)	06:21	07:14 (WEA03)	07:11	08:05 (B083)	08:01	08:39 (B082)	07:55	08:28
	16:56	17:53 17 08:25 (B084)	18:42 29	07:49 (B253)	20:34 48	07:48 (WEA03)	21:21 22	06:43 (B013)	21:45	34 06:26 (WEA02)	21:25 32	06:54 (B013)	20:28 37	07:51 (WEA03)	19:18 31	08:36 (B253)	18:12 14	08:53 (B082)	16:23	16:16
26	08:12	07:18 08:07 (B084)	07:16	08:20 (B083)	06:07	06:48 (B150)	05:18	06:29 (B013)	05:06	05:51 (B223)	05:35	06:21 (B124)	06:23	07:14 (WEA03)	07:13	08:06 (B083)	08:03	08:40 (B082)	07:57	08:28
	16:58	17:55 19 08:26 (B084)	19:43 27	08:47 (B253)	20:36 52	07:48 (WEA03)	21:22 13	06:42 (B013)	21:45	35 06:26 (WEA02)	21:23 33	06:54 (B013)	20:26 35	07:49 (WEA03)	19:16 29	08:35 (B253)	18:10 12	08:52 (B082)	16:22	16:17
27	08:11	07:16 08:07 (B084)	07:13	08:21 (B083)	06:05	06:46 (B150)	05:17	06:29 (B013)	05:06	05:52 (B223)	05:36	06:21 (B124)	06:24	07:15 (WEA03)	07:14	08:06 (B083)	08:05	08:41 (B082)	07:58	08:29
	17:00	17:56 20 08:27 (B084)	19:45 24	08:45 (B253)	20:37 53	07:47 (WEA03)	21:24 13	06:42 (B013)	21:45	34 06:26 (WEA02)	21:22 32	06:53 (B013)	20:24 34	07:49 (WEA03)	19:14 27	08:33 (B253)	18:08 9	08:50 (B082)	16:21	16:18
28	08:10	07:14 08:06 (B084)	07:11	08:22 (B083)	06:03	06:44 (B012)	05:16	06:30 (B013)	05:06	05:52 (B223)	05:38	06:21 (B124)	06:26	07:16 (WEA03)	07:16	08:07 (B083)	08:07	08:45 (B082)	08:00	08:29
	17:02	17:58 21 08:27 (B084)	19:47 20	08:42 (B083)	20:39 56	07:47 (WEA03)	21:25 11	06:41 (B013)	21:45	34 06:26 (WEA02)	21:20 33	06:54 (B013)	20:22 31	07:47 (WEA03)	19:11 25	08:32 (B253)	18:06 1	08:46 (B082)	16:20	16:18
29	08:09		07:09	07:45 (B178)	06:01	06:42 (B012)	05:15	06:31 (B013)	05:07	05:53 (B223)	05:39	06:21 (B124)	06:28	07:17 (WEA03)	07:17	08:07 (B083)	07:08		08:02	08:29
	17:03		19:48 25	08:39 (B083)	20:41 58	07:46 (WEA03)	21:26 9	06:40 (B013)	21:45	33 06:26 (WEA02)	21:19 32	06:53 (B013)	20:20 28	07:45 (WEA03)	19:09 22	08:29 (B253)	17:04		16:19	16:19
30	08:07		07:07	07:43 (B178)	05:59	06:41 (B012)	05:14	06:33 (B013)	05:07	05:53 (B223)	05:40	06:20 (B124)	06:29	07:18 (WEA03)	07:19	08:09 (B083)	07:10		08:03	08:29
	17:05		19:50 25	08:37 (B083)	20:42 58	07:46 (WEA03)	21:27 6	06:39 (B013)	21:45	33 06:26 (WEA02)	21:17 32	06:52 (B013)	20:18 25	07:43 (WEA03)	19:07 17	08:26 (B253)	17:02		16:18	16:20
31	08:06		07:04	07:41 (B178)			05:13				05:42	06:21 (B124)	06:31	07:20 (WEA03)			07:12			08:29
	17:07		19:52 16	07:57 (B178)			21:28				21:16 31	06:52 (B013)	20:15 21	07:41 (WEA03)			17:00			16:21
Sonnenscheinstunden	259	277	366		414		483		497		501		454		382		333		268	245
astr.max.mögl.Beschattung		204	571		855		1013		903		739		1333		595		330			
Red.Sonnenscheinwahrsch.		0.32	0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29			
Reduktion Betriebsdauer		0.95	0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95			
Reduktion Windrichtung		0.64	0.67		0.73		0.74		0.74		0.74		0.73		0.69		0.64			
Gesamte Reduktion		0.20	0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.18			
Met.wahrsch.Beschattung		40	103		215		304		215		202		372		124		58			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO023 - Beerengrund 13, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	08:02 (B084)	07:02	07:38 (B178)	05:58	06:38 (B012)	05:12	06:31 (B013)	05:08	05:53 (B223)	05:43	06:19 (B124)	06:32	07:21	07:14	08:04
	16:22	17:09	18:00 21	08:23 (B084)	19:54 21	08:30 (B083)	20:44 59	07:43 (WEA03)	21:30 6	06:37 (B013)	21:45 29	06:22 (WEA02)	21:14 37	07:39 (WEA03)	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	08:02 (B084)	07:00	07:37 (B178)	05:56	06:37 (B012)	05:11		05:09	05:52 (B223)	05:45	06:20 (B124)	06:34	07:22	07:16	08:06
	16:23	17:11	18:02 21	08:23 (B084)	19:55 17	07:54 (B178)	20:46 59	07:42 (WEA03)	21:31		21:44 30	06:22 (WEA02)	21:13 37	07:42 (WEA03)	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	08:02 (B084)	06:57	07:37 (B178)	05:54	06:36 (B012)	05:10	05:52 (B223)	05:09	05:53 (B223)	05:46	06:20 (B124)	06:36	07:24	07:17	08:07
	16:24	17:13	18:04 21	08:23 (B084)	19:57 18	07:55 (B178)	20:47 58	07:41 (WEA03)	21:32 4	05:56 (B223)	21:44 29	06:22 (WEA02)	21:11 44	07:43 (WEA03)	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	08:03 (B084)	06:55	07:37 (B178)	05:52	06:35 (B012)	05:10	05:51 (B223)	05:10	05:54 (B223)	05:48	06:21 (B124)	06:37	07:38 (B178)	07:19	08:09
	16:25	17:14	18:05 20	08:23 (B084)	19:59 18	07:55 (B178)	20:49 57	07:40 (WEA03)	21:33 14	06:09 (WEA02)	21:44 28	06:22 (WEA02)	21:09 49	07:44 (WEA03)	20:06 6	07:44 (B178)	16:53	16:16
5	08:29	07:58	07:03	08:03 (B084)	06:53	07:36 (B178)	05:50	06:36 (B012)	05:09	05:50 (B223)	05:11	05:54 (B223)	05:49	06:22 (B124)	06:39	07:36 (B178)	07:21	08:10
	16:26	17:16	18:07 19	08:22 (B084)	20:00 17	07:53 (B178)	20:50 55	07:40 (WEA03)	21:34 20	06:11 (WEA02)	21:43 28	06:22 (WEA02)	21:08 52	07:46 (WEA03)	20:04 11	07:47 (B178)	16:51	16:15
6	08:29	07:56	07:01	08:03 (B084)	06:51	07:36 (B178)	05:48	06:35 (B012)	05:08	05:49 (B223)	05:12	05:54 (B223)	05:51	06:24 (B124)	06:40	07:33 (B178)	07:29 08:47 (B084)	07:23	08:11
	16:28	17:18	18:09 17	08:20 (B084)	20:02 17	07:53 (B178)	20:52 52	07:39 (WEA03)	21:35 23	06:12 (WEA02)	21:43 26	06:20 (WEA02)	21:06 51	07:47 (WEA03)	20:02 15	07:48 (B178)	18:53 2	08:49 (B084)	16:49	16:15
7	08:28	07:55	06:59	08:04 (B084)	06:48	07:37 (B178)	05:46	06:35 (B012)	05:08	05:49 (B223)	05:12	05:55 (B223)	05:53	06:46 (B012)	06:42	07:33 (B178)	07:31 08:42 (B084)	07:24	08:13
	16:29	17:20	18:11 15	08:19 (B084)	20:04 15	07:52 (B178)	20:54 46	07:38 (WEA03)	21:36 25	06:14 (WEA02)	21:42 25	06:20 (WEA02)	21:04 45	07:48 (WEA03)	20:00 16	07:49 (B178)	18:51 11	08:53 (B084)	16:48	16:14
8	08:28	07:53	06:57	08:06 (B084)	06:46	07:38 (B178)	05:45	06:15 (B124)	05:07	05:49 (B223)	05:13	05:56 (B223)	05:54	06:45 (B012)	06:44	07:31 (B178)	07:32 08:40 (B084)	07:26	08:14
	16:30	17:22	18:12 11	08:17 (B084)	20:05 13	07:51 (B178)	20:55 52	07:38 (WEA03)	21:37 26	06:15 (WEA02)	21:42 23	06:19 (WEA02)	21:02 51	07:48 (WEA03)	19:57 17	07:48 (B178)	18:48 15	08:55 (B084)	16:46	16:14
9	08:28	07:51	06:54	08:09 (B084)	06:44	07:40 (B178)	05:43	06:12 (B124)	05:06	05:48 (B223)	05:14	05:57 (B223)	05:56	06:45 (B012)	06:45	07:31 (B178)	07:34 08:38 (B084)	07:28	08:15
	16:31	17:24	18:14 3	08:12 (B084)	20:07 9	07:49 (B178)	20:57 52	07:36 (WEA03)	21:38 28	06:16 (WEA02)	21:41 20	06:18 (WEA02)	21:00 55	07:50 (WEA03)	19:55 18	07:49 (B178)	18:46 18	08:56 (B084)	16:44	16:14
10	08:27	07:49	06:52		06:42		05:41	06:12 (B124)	05:06	05:49 (B223)	05:15	05:58 (B223)	05:57	06:45 (B012)	06:47	07:30 (B178)	07:36 08:37 (B084)	07:30	08:16
	16:33	17:25	18:16		20:09		20:59 49	07:35 (WEA03)	21:38 28	06:17 (WEA02)	21:40 14	06:16 (WEA02)	20:59 56	07:50 (WEA03)	19:53 18	07:48 (B178)	18:44 19	08:56 (B084)	16:43	16:13
11	08:26	07:48	06:50		06:39		05:39	06:10 (B124)	05:06	05:48 (B223)	05:16	06:00 (B223)	05:59	06:45 (B012)	06:48	07:30 (B178)	07:37 08:37 (B084)	07:32	08:17
	16:34	17:27	18:18		20:10		21:00 45	07:33 (WEA03)	21:39 29	06:17 (WEA02)	21:39 4	06:04 (B223)	20:57 59	07:51 (WEA03)	19:51 18	07:48 (B178)	18:42 20	08:57 (B084)	16:41	16:13
12	08:26	07:46	06:48		06:37		05:38	06:09 (B124)	05:05	05:48 (B223)	05:17		06:00	06:45 (B012)	06:50	07:30 (B178)	07:39 08:37 (B084)	07:33	08:18
	16:36	17:29	18:19		20:12		21:02 36	07:31 (WEA03)	21:40 30	06:18 (WEA02)	21:39		20:55 60	07:51 (WEA03)	19:48 16	07:46 (B178)	18:40 20	08:57 (B084)	16:40	16:13
13	08:25	07:44	06:45		06:35		05:36	06:09 (B124)	05:05	05:49 (B223)	05:18	06:39 (B013)	06:02	06:47 (B012)	06:52	07:31 (B178)	07:41 08:35 (B084)	07:35	08:19
	16:37	17:31	18:21		20:14		21:03 37	07:29 (WEA03)	21:41 30	06:19 (WEA02)	21:38 6	06:45 (B013)	20:53 59	07:51 (WEA03)	19:46 25	08:24 (B083)	18:37 21	08:56 (B084)	16:38	16:13
14	08:25	07:42	06:43		06:33	07:20 (WEA03)	05:35	06:09 (B124)	05:05	05:49 (B223)	05:19	06:38 (B013)	06:04	06:47 (B012)	06:53	07:31 (B178)	07:42 08:36 (B084)	07:37	08:20
	16:39	17:33	18:23		20:15 14	07:34 (WEA03)	21:05 36	07:26 (WEA03)	21:41 30	06:19 (WEA02)	21:37 8	06:46 (B013)	20:51 59	07:51 (WEA03)	19:44 28	08:26 (B083)	18:35 20	08:56 (B084)	16:37	16:13
15	08:24	07:40	06:41		06:31	07:17 (WEA03)	05:33	06:09 (B124)	05:04	05:49 (B223)	05:20	06:37 (B013)	06:05	06:52 (B150)	06:55	07:34 (B178)	07:44 08:36 (B084)	07:39	08:21
	16:40	17:35	18:25		20:17 20	07:37 (WEA03)	21:06 29	06:38 (B013)	21:42 31	06:20 (WEA02)	21:36 10	06:47 (B013)	20:49 53	07:51 (WEA03)	19:41 26	08:28 (B083)	18:33 20	08:56 (B084)	16:35	16:13
16	08:23	07:38	06:39	07:27 (B083)	06:28	07:14 (WEA03)	05:31	06:09 (B124)	05:04	05:49 (B223)	05:22	06:36 (B013)	06:07	06:51 (B150)	06:56	08:07 (B083)	07:46 08:37 (B084)	07:40	08:22
	16:42	17:36	18:26 11	07:38 (B083)	20:19 24	07:38 (WEA03)	21:08 31	06:40 (B013)	21:42 31	06:20 (WEA02)	21:35 12	06:48 (B013)	20:47 54	07:51 (WEA03)	19:39 24	08:31 (B253)	18:31 18	08:55 (B084)	16:34	16:13
17	08:22	07:36	06:36	07:24 (B083)	06:26	07:12 (WEA03)	05:30	06:08 (B124)	05:04	05:49 (B223)	05:23	06:36 (B013)	06:08	06:53 (B150)	06:58	08:06 (B083)	07:48 08:37 (B082)	07:42	08:23
	16:43	17:38	18:28 18	07:42 (B253)	20:20 28	07:40 (WEA03)	21:09 32	06:40 (B013)	21:43 32	06:21 (WEA02)	21:34 13	06:49 (B013)	20:45 51	07:51 (WEA03)	19:37 25	08:31 (B253)	18:29 17	08:54 (B084)	16:32	16:13
18	08:21	07:34 08:09 (B082)	06:34	07:22 (B083)	06:24	07:10 (WEA03)	05:28	06:09 (B124)	05:04	05:50 (B223)	05:24	06:35 (B013)	06:10	06:53 (B150)	07:00	08:05 (B083)	07:49 08:35 (B082)	07:44	08:24
	16:45	17:40 6 08:15 (B082)	18:30 23	07:45 (B253)	20:22 31	07:41 (WEA03)	21:11 31	06:40 (B013)	21:43 31	06:21 (WEA02)	21:33 14	06:49 (B013)	20:43 50	07:51 (WEA03)	19:34 28	08:33 (B253)	18:27 17	08:52 (B084)	16:31	16:13
19	08:20	07:33 08:06 (B082)	06:32	07:20 (B083)	06:22	07:09 (WEA03)	05:27	06:09 (B124)	05:04	05:50 (B223)	05:25	06:24 (B124)	06:12	06:57 (B150)	07:01	08:04 (B083)	07:51 08:35 (B082)	07:45	08:25
	16:46	17:42 11 08:17 (B082)	18:31 25	07:45 (B253)	20:24 33	07:42 (WEA03)	21:12 32	06:41 (B013)	21:44 31	06:21 (WEA02)	21:32 22	06:50 (B013)	20:41 42	07:51 (WEA03)	19:32 28	08:32 (B253)	18:24 15	08:50 (B082)	16:30	16:14
20	08:19	07:31 08:05 (B082)	06:29	07:19 (B083)	06:20	07:08 (WEA03)	05:26	06:10 (B124)	05:04	05:50 (B223)	05:27	06:24 (B124)	06:13	07:10 (WEA03)	07:03	08:03 (B083)	07:53 08:34 (B082)	07:47	08:25
	16:48	17:44 14 08:19 (B082)	18:33 27	07:46 (B253)	20:25 35	07:43 (WEA03)	21:14 31	06:41 (B013)	21:44 32	06:22 (WEA02)	21:31 26	06:51 (B013)	20:39 40	07:50 (WEA03)	19:30 30	08:33 (B253)	18:22 16	08:50 (B082)	16:29	16:14
21	08:18	07:29 08:04 (B082)	06:27	07:18 (B083)	06:18	07:07 (WEA03)	05:24	06:10 (B124)	05:04	05:50 (B223)	05:28	06:23 (B124)	06:15	07:11 (WEA03)	07:04	08:03 (B083)	07:54 08:34 (B082)	07:49	08:26
	16:50	17:46 15 08:19 (B082)	18:35 29	07:47 (B253)	20:27 36	07:43 (WEA03)	21:15 31	06:41 (B013)	21:44 32	06:22 (WEA02)	21:30 28	06:51 (B013)	20:37 39	07:50 (WEA03)	19:27 30	08:33 (B253)	18:20 16	08:50 (B082)	16:27	16:14
22	08:17	07:26 08:04 (B082)	06:25	07:17 (B083)	06:16	07:06 (WEA03)	05:23	06:11 (B124)	05:04	05:50 (B223)	05:29	06:22 (B124)	06:16	07:11 (WEA03)	07:06	08:02 (B083)	07:56 08:35 (B082)	07:50	08:27
	16:51	17:47 16 08:20 (B082)	18:37 30	07:47 (B253)	20:29 38	07:44 (WEA03)	21:17 30	06:41 (B013)	21:45 32	06:22 (WEA02)	21:28 29	06:51 (B013)	20:35 38	07:49 (WEA03)	19:25 30	08:32 (B253)	18:18 15	08:50 (B082)	16:26	16:15
23	08:16	07:24 08:03 (B082)	06:23	07:17 (B083)	06:14	07:06 (WEA03)	05:22	06:11 (B124)	05:05	05:50 (B223)	05:31	06:21 (B124)	06:18	07:12 (WEA03)	07:08	08:03 (B083)	07:58 08:35 (B082)	07:52	08:27
	16:53	17:49 16 08:19 (B082)	18:38 30	07:47 (B253)	20:31 38	07:44 (WEA03)	21:18 30	06:41 (B013)	21:45 32	06:22 (WEA02)	21:27 30	06:51 (B013)	20:33 36	07:48 (WEA03)	19:23 29	08:32 (B253)	18:16 14	08:49 (B082)	16:25	16:15
24	08:15	07:22 08:03 (B082)	06:20	07:17 (B083)	06:11	07:05 (WEA03)	05:20	06:12 (B124)	05:05	05:51 (B223)	05:32	06:21 (B124)	06:20	07:11 (WEA03)	07:09	08:02 (B083)	08:00	08:36 (B082)	07:54	08:28
	16:55	17:51 16 08:19 (B082)	18:40 30	07:47 (B253)	20:32 39	07:44 (WEA03)	21:20 29	06:41 (B013)	21:45 32	06:23 (WEA02)	21:26 31	06:52 (B013)	20:31 36	07:47 (WEA03)	19:20 29	08:31 (B253)	18:14 11	08:47 (B082)	16:24	16:16
25	08:14	07:20 08:04 (B082)	06:18	07:17 (B083)	06:09	07:04 (WEA03)	05:19	06:14 (B124)	05:05	05:51 (B223)	05:33	06:20 (B124)	06:21	07:12 (WEA03)	07:11	08:03 (B083)	08:01 08:37 (B082)	07:55	08:28
	16:56	17:53 16 08:20 (B084)	18:42 29	07:46 (B253)	20:34 40	07:44 (WEA03)	21:21 26	06:41 (B013)	21:45 31	06:22 (WEA02)	21:25 32	06:52 (B013)	20:28 34	07:46 (WEA03)	19:18 27	08:30 (B253)	18:12 8	08:45 (B082)	16:23	16:16
26	08:12	07:18 08:04 (B082)	07:16	08:16 (B083)	06:07	06:47 (B150)	05:18	06:15 (B124)	05:06	05:51 (B223)	05:35	06:20 (B124)	06:23	07:13 (WEA03)	07:13	08:04 (B083)	08:03		07:57	08:28
	16:58	17:55 18 08:22 (B084)	19:43 29	08:45 (B253)	20:36 48	07:44 (WEA03)	21:22 22	06:41 (B013)	21:45 31	06:22 (WEA02)	21:23 31	06:51 (B013)	20:26 31	07:44 (WEA03)	19:16 25	08:29 (B253)	18:10		16:22	16:17
27	08:11	07:16 08:04 (B084)	07:13	08:17 (B083)	06:05	06:45 (B150)	05:17	06:26 (B013)	21:45 31	06:22 (WEA02)	21:25 31	06:51 (B223)	05:36	06:19 (B124)	06:24	07:14 (WEA03)	07:14		07:58	08:29
	17:00	17:56 19 08:23 (B084)	19:45 27	08:44 (B253)	20:37 51	07:44 (WEA03)	21:24 14	06:40 (B013)	21:45 32	06:23 (WEA02)	21:22 32	06:51 (B013)	20:24 29	07:43 (WEA03)	19:14 22	08:26 (B253)	18:08		16:21	16:18
28	08:10	07:14 08:04 (B084)	07:11	08:17 (B083)	06:03	06:44 (B150)	05:16	06:27 (B013)	21:45 31	06:23 (WEA02)	21:19 31	06:20 (B124)	06:26	07:15 (WEA03)	07:16	08:06 (B083)	08:07		08:00	08:29
	17:02	17:58 19 08:23 (B084)	19:47 25	08:42 (B253)	20:39 53	07:43 (WEA03)	21:25 13	06:40 (B013)	21:45 31	06:22 (WEA02)	21:20 31	06:51 (B013)	20:22 26	07:41 (WEA03)	19:11 17	08:23 (B253)	18:06		16:20	16:18
29	08:09		07:09	08:17 (B083)	06:01	06:43 (B150)	05:15	06:27 (B013)	05:07	05:52 (B223)	05:39	06:19 (B124)	06:28	07:17 (WEA03)	07:17	08:08 (B083)	07:08		08:02	08:29
	17:03		19:48 22	08:39 (B253)	20:41 54	07:43 (WEA03)	21:26 12	06:39 (B013)	21:45 31	06:23 (WEA02)	21:19 31	06:50 (B013)	20:20 22	07:39 (WEA03)	19:09 10	08:18 (B083)	17:04		16:19	16:19
30	08:07		07:07	07:43 (B178)	05:59	06:41 (B012)	05:14	06:28 (B013)	05:07	05:52 (B223)	05:40	06:19 (B124)	06:29	07:19 (WEA03)	07:19		07:10		08:03	08:29
	17:05		19:50 26	08:37 (B083)	20:42 57	07:44 (WEA03)	21:27 10	06:38 (B013)	21:45 30	06:22 (WEA02)	21:17 30	06:49 (B013)	20:18 17	07:36 (WEA03)	19:07		17:02		16:18	16:20
31	08:06		07:04	07:41 (B178)			05:13	06:29 (B013)			05:42	06:20 (B124)	06:31	07:23 (WEA03)			07:12			08:29
	17:07		19:52 26	08:35 (B083)			21:28 8	06:37 (B013)			21:16 34	07:36 (WEA03)	20:15 9	07:32 (WEA03)			17:00			16:21
Sonnenscheinstunden	259	277	366		414		483		497		501		454		382		333		268	245
astr.max.mögl.Beschattung		166	555		784		1104		795		706		1321		568		313			
Red.Sonnenscheinwahrsch.		0.32	0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29			
Reduktion Betriebsdauer		0.95	0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95			
Reduktion Windrichtung		0.64	0.67		0.73		0.74		0.74		0.74		0.73		0.69		0.65			
Gesamte Reduktion		0.20	0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.18			
Met.wahrsch.Beschattung		33	101		198		331		189		193		368		119		55			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO024 - Beerengrund 15, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November	Dezember
1	08:29		08:04		07:12		08:00 (B084)		07:02		07:37 (B178)		05:58		06:41 (B150)		05:12		06:26 (B013)		05:08		05:52 (B223)		05:43		06:18 (B124)		06:32		07:21		07:14	08:04
	16:22		17:09		18:00	19	08:19 (B084)		19:54	29	08:32 (B083)		20:44	54	07:40 (WEA03)		21:30	11	06:37 (B013)		21:45	26	06:18 (WEA02)		21:14	45	07:40 (WEA03)		20:13		19:04		16:58	16:18
2	08:29		08:03		07:10		08:00 (B084)		07:00		07:36 (B178)		05:56		06:36 (B012)		05:11		06:27 (B013)		05:09		05:51 (B223)		05:45		06:19 (B124)		06:34		07:22		07:16	08:06
	16:23		17:11		18:02	20	08:20 (B084)		19:55	25	08:29 (B083)		20:46	60	07:40 (WEA03)		21:31	9	06:36 (B013)		21:44	26	06:17 (WEA02)		21:13	50	07:42 (WEA03)		20:11		19:02		16:57	16:17
3	08:29		08:01		07:08		07:59 (B084)		06:57		07:35 (B178)		05:54		06:34 (B012)		05:10		06:28 (B013)		05:09		05:52 (B223)		05:46		06:20 (B124)		06:36		07:17 (B178)		07:24	08:07
	16:24		17:13		18:04	21	08:20 (B084)		19:57	17	07:52 (B178)		20:47	60	07:39 (WEA03)		21:32	7	06:35 (B013)		21:44	25	06:17 (WEA02)		21:11	54	07:43 (WEA03)		20:09	6	07:42 (B178)		19:00		16:55	16:16
4	08:29		08:00		07:05		07:59 (B084)		06:55		07:35 (B178)		05:52		06:33 (B012)		05:10		06:30 (B013)		05:10		05:53 (B223)		05:48		06:21 (B124)		06:37		07:33 (B178)		07:26		07:19	08:09
	16:25		17:14		18:05	21	08:20 (B084)		19:59	17	07:52 (B178)		20:49	60	07:38 (WEA03)		21:33	4	06:34 (B013)		21:44	24	06:17 (WEA02)		21:09	54	07:44 (WEA03)		20:06	12	07:45 (B178)		18:57		16:53	16:16
5	08:29		07:58		07:03		08:00 (B084)		06:53		07:34 (B178)		05:50		06:33 (B012)		05:09		05:50 (B223)		05:11		05:54 (B223)		05:49		06:23 (B124)		06:39		07:32 (B178)		07:27	08:41 (B084)	07:21	08:10
	16:26		17:16		18:07	20	08:20 (B084)		20:00	17	07:51 (B178)		20:50	59	07:38 (WEA03)		21:34	6	05:56 (B223)		21:43	22	06:16 (WEA02)		21:08	53	07:45 (WEA03)		20:04	14	07:46 (B178)		18:55	8	08:49 (B084)	16:51	16:15
6	08:29		07:56		07:01		07:59 (B084)		06:51		07:34 (B178)		05:48		06:32 (B012)		05:08		05:49 (B223)		05:12		05:54 (B223)		05:51		06:42 (B012)		06:40		07:30 (B178)		07:29		08:39 (B084)	07:23	08:11
	16:28		17:18		18:09	20	08:19 (B084)		20:02	17	07:51 (B178)		20:52	57	07:37 (WEA03)		21:35	8	06:03 (WEA02)		21:43	21	06:15 (WEA02)		21:06	47	07:45 (WEA03)		20:02	16	07:46 (B178)		18:53	12	08:51 (B084)	16:50	16:15
7	08:28		07:55		06:59		08:00 (B084)		06:48		07:34 (B178)		05:46		06:32 (B012)		05:08		05:49 (B223)		05:12		05:55 (B223)		05:53		06:42 (B012)		06:42		07:30 (B178)		07:31		08:37 (B084)	07:24	08:13
	16:29		17:20		18:11	18	08:18 (B084)		20:04	17	07:51 (B178)		20:54	54	07:36 (WEA03)		21:36	18	06:08 (WEA02)		21:42	17	06:13 (WEA02)		21:04	54	07:46 (WEA03)		20:00	17	07:47 (B178)		18:51	16	08:53 (B084)	16:48	16:14
8	08:28		07:53		06:57		08:01 (B084)		06:46		07:34 (B178)		05:45		06:32 (B012)		05:07		05:49 (B223)		05:13		05:56 (B223)		05:54		06:41 (B012)		06:44		07:29 (B178)		07:32		08:36 (B084)	07:26	08:14
	16:30		17:22		18:12	16	08:17 (B084)		20:05	16	07:50 (B178)		20:55	51	07:36 (WEA03)		21:37	21	06:10 (WEA02)		21:42	7	06:03 (B223)		21:02	56	07:46 (WEA03)		19:57	17	07:46 (B178)		18:48	18	08:54 (B084)	16:46	16:14
9	08:28		07:51		06:54		08:02 (B084)		06:44		07:35 (B178)		05:43		06:13 (B124)		05:06		05:48 (B223)		05:14		05:57 (B223)		05:56		06:42 (B012)		06:45		07:29 (B178)		07:34		08:34 (B084)	07:28	08:15
	16:31		17:24		18:14	12	08:14 (B084)		20:07	14	07:49 (B178)		20:57	54	07:35 (WEA03)		21:38	23	06:11 (WEA02)		21:41	5	06:02 (B223)		21:00	58	07:47 (WEA03)		19:55	18	07:47 (B178)		18:46	20	08:54 (B084)	16:44	16:14
10	08:27		07:49		06:52		08:04 (B084)		06:42		07:36 (B178)		05:41		06:11 (B124)		05:06		05:48 (B223)		05:15		06:37 (B013)		05:57		06:42 (B012)		06:47		07:28 (B178)		07:36		08:34 (B084)	07:30	08:16
	16:33		17:25		18:16	8	08:12 (B084)		20:09	10	07:46 (B178)		20:59	54	07:34 (WEA03)		21:38	24	06:12 (WEA02)		21:40	4	06:41 (B013)		20:59	59	07:47 (WEA03)		19:53	17	07:45 (B178)		18:44	20	08:54 (B084)	16:43	16:13
11	08:26		07:48		06:50				06:39				05:39		06:10 (B124)		05:06		05:47 (B223)		05:16		06:36 (B013)		05:59		06:43 (B012)		06:48		07:29 (B178)		07:37		08:34 (B084)	07:32	08:17
	16:34		17:27		18:18				20:10				21:00	54	07:33 (WEA03)		21:39	25	06:12 (WEA02)		21:39	7	06:43 (B013)		20:57	60	07:48 (WEA03)		19:51	18	08:18 (B083)		18:42	20	08:54 (B084)	16:41	16:13
12	08:26		07:46		06:48				06:37				05:38		06:08 (B124)		05:05		05:47 (B223)		05:17		06:35 (B013)		06:00		06:44 (B012)		06:50		07:29 (B178)		07:39		08:34 (B084)	07:33	08:18
	16:36		17:29		18:19				20:12				21:02	50	07:31 (WEA03)		21:40	26	06:13 (WEA02)		21:39	9	06:44 (B013)		20:55	59	07:48 (WEA03)		19:48	26	08:22 (B083)		18:40	20	08:54 (B084)	16:40	16:13
13	08:25		07:44		06:45				06:35				05:36		06:08 (B124)		05:05		05:48 (B223)		05:18		06:34 (B013)		06:02		06:50 (B150)		06:52		07:30 (B178)		07:41		08:33 (B084)	07:35	08:19
	16:37		17:31		18:21				20:14				21:03	45	07:30 (WEA03)		21:41	26	06:14 (WEA02)		21:38	11	06:45 (B013)		20:53	53	07:48 (WEA03)		19:46	29	08:25 (B083)		18:37	20	08:53 (B084)	16:38	16:13
14	08:25		07:42		06:43				06:33				05:35		06:08 (B124)		05:05		05:48 (B223)		05:19		06:34 (B013)		06:04		06:49 (B150)		06:53		07:32 (B178)		07:42		08:33 (B084)	07:37	08:20
	16:39		17:33		18:23				20:15				21:05	37	07:29 (WEA03)		21:41	27	06:15 (WEA02)		21:37	12	06:46 (B013)		20:51	54	07:48 (WEA03)		19:44	27	08:26 (B253)		18:35	20	08:53 (B084)	16:37	16:13
15	08:24		07:40		06:41				06:31		07:20 (WEA03)		05:33		06:07 (B124)		05:04		05:48 (B223)		05:21		06:33 (B013)		06:05		06:50 (B150)		06:55		08:04 (B083)		07:44		08:33 (B082)	07:39	08:21
	16:40		17:35		18:25				20:17	8	07:28 (WEA03)		21:06	41	07:26 (WEA03)		21:42	28	06:16 (WEA02)		21:36	14	06:47 (B013)		20:49	52	07:48 (WEA03)		19:41	24	08:28 (B253)		18:33	19	08:52 (B084)	16:35	16:13
16	08:23		07:38		06:39				06:28		07:15 (WEA03)		05:31		06:08 (B124)		05:04		05:48 (B223)		05:22		06:33 (B013)		06:07		06:50 (B150)		06:56		08:03 (B083)		07:46		08:32 (B082)	07:40	08:22
	16:42		17:36		18:26				20:19	16	07:31 (WEA03)		21:08	36	07:23 (WEA03)		21:42	28	06:16 (WEA02)		21:35	14	06:47 (B013)		20:47	52	07:48 (WEA03)		19:39	26	08:29 (B253)		18:31	19	08:51 (B084)	16:34	16:13
17	08:22		07:36		06:36		07:26 (B083)		06:26		07:12 (WEA03)		05:30		06:07 (B124)		05:04		05:48 (B223)		05:23		06:24 (B124)		06:08		06:52 (B150)		06:58		08:02 (B083)		07:48		08:32 (B082)	07:42	08:23
	16:43		17:38		18:28	6	07:32 (B083)		20:20	22	07:34 (WEA03)		21:09	29	06:36 (B013)		21:43	29	06:17 (WEA02)		21:34	18	06:47 (B013)		20:45	49	07:48 (WEA03)		19:37	27	08:29 (B253)		18:29	17	08:49 (B084)	16:32	16:13
18	08:21		07:34		06:34		07:22 (B083)		06:24		07:10 (WEA03)		05:28		06:07 (B124)		05:04		05:49 (B223)		05:24		06:22 (B124)		06:10		07:08 (WEA03)		07:00		08:01 (B083)		07:49		08:30 (B082)	07:44	08:24
	16:45		17:40		18:30	14	07:36 (B083)		20:22	26	07:36 (WEA03)		21:11	30	06:37 (B013)		21:43	28	06:17 (WEA02)		21:33	24	06:48 (B013)		20:43	39	07:47 (WEA03)		19:34	29	08:30 (B253)		18:27	16	08:46 (B082)	16:31	16:13
19	08:20		07:33		06:32		07:19 (B083)		06:22		07:08 (WEA03)		05:27		06:08 (B124)		05:04		05:49 (B223)		05:25		06:21 (B124)		06:12		07:08 (WEA03)		07:01		08:00 (B083)		07:51		08:30 (B082)	07:45	08:25
	16:46		17:42		18:31	18	07:37 (B083)		20:24	29	07:37 (WEA03)		21:12	30	06:38 (B013)		21:44	28	06:17 (WEA02)		21:32	27	06:48 (B013)		20:41	39	07:47 (WEA03)		19:32	29	08:29 (B253)		18:24	16	08:46 (B082)	16:30	16:14
20	08:19		07:31	08:05 (B082)	06:29		07:18 (B083)		06:20		07:07 (WEA03)		05:26		06:08 (B124)		05:04		05:49 (B223)		05:27		06:21 (B124)		06:13		07:08 (WEA03)		07:03		08:00 (B083)		07:53		08:31 (B082)	07:47	08:25
	16:48		17:44	6 08:11 (B082)	18:33	22	07:40 (B253)		20:25	31	07:38 (WEA03)		21:14	31	06:39 (B013)		21:44	29	06:18 (WEA02)		21:31	28	06:49 (B013)		20:39	38	07:46 (WEA03)		19:30	29	08:29 (B253)		18:22	15	08:46 (B082)	16:29	16:14
21	08:18		07:29	08:03 (B082)	06:27		07:17 (B083)		06:18		07:05 (WEA03)		05:24		06:08 (B124)		05:04		05:49 (B223)		05:28		06:20 (B124)		06:15		07:09 (WEA03)		07:04		08:01 (B083)		07:54		08:32 (B082)	07:49	08:26
	16:50		17:46	10 08:13 (B082)	18:35	25	07:42 (B253)		20:27	34	07:39 (WEA03)		21:15	30	06:38 (B013)		21:44	29	06:18 (WEA02)		21:30	29	06:49 (B013)		20:37	37	07:46 (WEA03)		19:27	28	08:29 (B253)		18:20	13	08:45 (B082)	16:27	16:14
22	08:17		07:26	08:01 (B082)	06:25		07:15 (B083)		06:16		07:04 (WEA03)		05:23		06:08 (B124)		05:04		05:49 (B223)		05:29		06:19 (B124)		06:16		07:09 (WEA03)		07:06		08:00 (B083)		07:56		08:33 (B082)	07:50	08:27
	16:51		17:47	14 08:15 (B082)	18:37	27	07:42 (B253)		20:29	35	07:39 (WEA03)		21:17	31	06:39 (B013)		21:45	29	06:18 (WEA02)		21:28	30	06:49 (B013)		20:35	35	07:44 (WEA03)		19:25	28	08:28 (B253)		18:18	11	08:44 (B082)	16:26	16:15
23	08:16		07:24	08:00 (B082)	06:23		07:14 (B083)		06:14		07:03 (WEA03)		05:22		06:09 (B124)		05:05		05:49 (B223)		05:31		06:18 (B124)		06:18		07:10 (WEA03)		07:08		08:01 (B083)		07:58		08:35 (B082)	07:52	08:27
	16:53		17:49	14 08:14 (B082)	18:38	28	07:42 (B253)		20:31	37	07:40 (WEA03)		21:18	30	06:39 (B013)		21:45	29	06:18 (WEA02)		21:27	31	06:49 (B013)		20:33	34	07:44 (WEA03)		19:23	26	08:27 (B253)		18:16	7	08:42 (B082)	16:25	16:15
24	08:15		07:22	07:59 (B082)	06:20		07:14 (B083)		06:11		07:03 (WEA03)		05:20		06:10 (B124)		05:05		05:50 (B223)		05:32		06:19 (B124)		06:20		07:10 (WEA03)		07:09		08:00 (B083)		08:00			07:54	08:28
	16:55		17:51	16 08:15 (B082)	18:40	29	07:43 (B253)		20:32	37	07:40 (WEA03)		21:20	29	06:39 (B013)		21:45	29	06:19 (WEA02)		21:26	30	06:49 (B013)		20:31	32	07:42 (WEA03)		19:20	25	08:25 (B253)		18:14			16:24	16:16
25	08:14		07:20	07:59 (B082)	06:18		07:14 (B083)		06:09		07:02 (WEA03)		05:19		06:11 (B124)		05:05		05:50 (B223)		05:33		06:18 (B124)		06:21		07:11 (WEA03)		07:11		08:02 (B083)		08:01			07:55	08:28
	16:56		17:53	16 08:15 (B082)	18:42	29	07:43 (B253)		20:34	38	07:40 (WEA03)		21:21	28	06:39 (B013)		21:45	28	06:18 (WEA02)		21:25	31	06:49 (B013)		20:28	30	07:41 (WEA03)		19:18	21	08:23 (B253)		18:12			16:23	16:16
26	08:12		07:18	07:59 (B082)	07:16		08:13 (B083)		06:07		07:01 (WEA03)		05:18		06:12 (B124)		05:06		05:50 (B223)		05:35		06:18 (B124)		06:23		07:12 (WEA03)		07:13		08:03 (B083)		08:03			07:57	08:28
	16:58		17:55	17 08:16 (B084)	19:43	29	08:42 (B253)		20:36	39	07:40 (WEA03)		21:22	27	06:39 (B013)		21:45	28	06:18 (WEA02)		21:23	30	06:48 (B013)		20:26	27	07:39 (WEA03)		19:16	18	08:21 (B083)		18:10			16:22	16:17
27	08:11		07:16	08:00 (B082)	07:13		08:13 (B083)		06:05		06:45 (B150)		05:17		06:13 (B124)		05:06		05:50 (B223)		05:36		06:17 (B124)		06:24		07:14 (WEA03)		07:14		08:04 (B083)		08:05			07:58	08:29
	17:00		17:56	18 08:18 (B084)	19:45	28	08:41 (B253)		20:37	46	07:40 (WEA03)		21:24	24	06:39 (B013)		21:45	29	06:19 (WEA02)		21:22	30	06:47 (B013)		20:24	23	07:37 (WEA03)		19:14	14	08:18 (B083)		18:08			16:21	16:18
28	08:10		07:14	08:00 (B082)	07:11		08:13 (B083)		06:03		06:43 (B150)		05:16		06:15 (B124)		05:06		05:50 (B223)		05:38		06:18 (B124)		06:26		07:15 (WEA03)		07:16		08:08 (B083)		08:07			08:00	08:29
	17:02		17:58	19 08:19 (B084)	19:47	28	08:41 (B253)		20:39	51	07:40 (WEA03)		21:25	18	06:38 (B013)		21:45	28	06:18 (WEA02)		21:25	28	06:18 (B124)		06:31		07:34 (WEA03)		19:11	6	08:14 (B083)		18:06			16:20	16:18
29	08:09				07:09		08:13 (B083)		06:01		06:42 (B150)		05:15		06:24 (B013)		05:07		05:51 (B223)		05:39		06:18 (B124)		06:28		07:19 (WEA03)		07:17							07:08		08:02	08:29
	17:03				19:48	26	08:39 (B253)		20:41	53	07:40 (WEA03)		21:26	14	06:38 (B013)		21:45	28	06:19 (WEA02)		21:19	35	07:32 (WEA03)		20:20	12	07:31 (WEA03)		19:09							17:04		16:19	16:19
30	08:07				07:07		08:14 (B083)		05:59		06:42 (B150)		05:14		06:24 (B013)		05:07		05:51 (B223)		05:40		06:17 (B124)		06:29				07:19							07:10		08:03	08:29
	17:05				19:50	23	08:37 (B253)		20:42	54	07:41 (WEA03)		21:27	14	06:38 (B013)		21:45	27	06:18 (WEA02)		21:17	40	07:36 (WEA03)		20:18				19:07							17:02		16:18	16:20
31	08:06				07:04		07:41 (B178)						05:13		06:25 (B013)						05:42		06:18 (B124)		06:31											07:12			08:29
	17:07				19:52	28	08:35 (B253)						21:28	12	06:37 (B013)						21:16	37	07:39 (WEA03)		20:15											17:00			16:21
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333		268	245
astr.max.mögl.Beschattung		130				535		735		1203		689		693		1274		547		307		
Red.Sonnenscheinwahrsch.		0.32				0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		
Reduktion Betriebsdauer		0.95				0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		
Reduktion Windrichtung		0.65				0.67		0.73		0.74		0.74		0.74		0.73		0.70		0.65		
Gesamte Reduktion		0.20				0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.18		
Met.wahrsch.Beschattung		26				97		185		361		164		190		356		116		55		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO025 - Beerengrund 17, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November	Dezember
1	08:29		08:04		07:12		07:52 (B082)		07:02		08:08 (B083)		05:58		06:39 (B150)		05:12		06:21 (B013)		05:08		05:51 (B223)		05:43		06:17 (B124)		06:32		07:33 (B178)		07:21		07:14	08:04
	16:22		17:09		18:00	21	08:13 (B084)		19:54	24	08:32 (B253)		20:44	52	07:35 (WEA03)		21:30	14	06:35 (B013)		21:45	14	06:07 (WEA02)		21:14	57	07:39 (WEA03)		20:13	6	07:39 (B178)		19:04		16:58	16:18
2	08:29		08:03		07:10		07:53 (B082)		07:00		07:36 (B178)		05:56		06:38 (B150)		05:11		06:21 (B013)		05:09		05:51 (B223)		05:45		06:19 (B124)		06:34		07:31 (B178)		07:22		07:16	08:06
	16:23		17:11		18:02	21	08:14 (B084)		19:55	30	08:30 (B253)		20:46	54	07:35 (WEA03)		21:31	14	06:35 (B013)		21:44	10	06:01 (B223)		21:13	57	07:40 (WEA03)		20:11	11	07:42 (B178)		19:02		16:57	16:17
3	08:29		08:01		07:08		07:54 (B082)		06:57		07:34 (B178)		05:54		06:38 (B150)		05:10		06:21 (B013)		05:09		05:52 (B223)		05:46		06:20 (B124)		06:36		07:29 (B178)		07:24		07:17	08:07
	16:24		17:13		18:04	21	08:15 (B084)		19:57	30	08:28 (B083)		20:47	53	07:34 (WEA03)		21:32	13	06:34 (B013)		21:44	9	06:01 (B223)		21:11	56	07:41 (WEA03)		20:09	14	07:43 (B178)		19:00	9	08:46 (B084)	16:55	16:16
4	08:29		08:00		07:05		07:55 (B082)		06:55		07:33 (B178)		05:52		06:37 (B150)		05:10		06:22 (B013)		05:10		05:53 (B223)		05:48		06:23 (B124)		06:37		07:28 (B178)		07:26		08:35 (B084)	07:19	08:09
	16:25		17:14		18:05	21	08:16 (B084)		19:59	27	08:25 (B083)		20:49	54	07:34 (WEA03)		21:33	13	06:35 (B013)		21:44	12	06:36 (B013)		21:09	55	07:42 (WEA03)		20:06	16	07:44 (B178)		18:57	14	08:49 (B084)	16:53	16:16
5	08:29		07:58		07:03		07:55 (B084)		06:53		07:31 (B178)		05:50		06:32 (B012)		05:09		06:22 (B013)		05:11		05:54 (B223)		05:49		06:37 (B012)		06:39		07:27 (B178)		07:27		08:32 (B084)	07:21	08:10
	16:27		17:16		18:07	21	08:16 (B084)		20:00	18	08:19 (B083)		20:50	57	07:34 (WEA03)		21:34	12	06:34 (B013)		21:43	12	06:38 (B013)		21:08	57	07:42 (WEA03)		20:04	17	07:44 (B178)		18:55	17	08:49 (B084)	16:51	16:15
6	08:29		07:56		07:01		07:54 (B084)		06:51		07:30 (B178)		05:48		06:29 (B012)		05:08		06:23 (B013)		05:12		05:55 (B223)		05:51		06:37 (B012)		06:40		07:26 (B178)		07:29		08:32 (B084)	07:23	08:11
	16:28		17:18		18:09	21	08:15 (B084)		20:02	18	07:48 (B178)		20:52	62	07:34 (WEA03)		21:35	10	06:33 (B013)		21:43	11	06:38 (B013)		21:06	58	07:42 (WEA03)		20:02	18	07:44 (B178)		18:53	18	08:50 (B084)	16:50	16:15
7	08:28		07:55		06:59		07:54 (B084)		06:48		07:30 (B178)		05:46		06:28 (B012)		05:08		06:24 (B013)		05:12		06:30 (B013)		05:53		06:38 (B012)		06:42		07:26 (B178)		07:31		08:31 (B084)	07:24	08:13
	16:29		17:20		18:11	21	08:15 (B084)		20:04	18	07:48 (B178)		20:54	61	07:33 (WEA03)		21:36	9	06:33 (B013)		21:42	9	06:39 (B013)		21:04	60	07:43 (WEA03)		20:00	18	07:44 (B178)		18:51	20	08:51 (B084)	16:48	16:14
8	08:28		07:53		06:57		07:55 (B084)		06:46		07:30 (B178)		05:45		06:28 (B012)		05:07		05:50 (B223)		05:13		06:30 (B013)		05:54		06:39 (B012)		06:44		07:26 (B178)		07:32		08:31 (B084)	07:26	08:14
	16:30		17:22		18:12	20	08:15 (B084)		20:05	17	07:47 (B178)		20:55	59	07:33 (WEA03)		21:37	12	06:33 (B013)		21:42	10	06:40 (B013)		21:02	60	07:43 (WEA03)		19:57	17	07:43 (B178)		18:48	20	08:51 (B084)	16:46	16:14
9	08:28		07:51		06:54		07:54 (B084)		06:44		07:30 (B178)		05:43		06:27 (B012)		05:06		05:48 (B223)		05:14		06:29 (B013)		05:56		06:41 (B012)		06:45		07:26 (B178)		07:34		08:29 (B084)	07:28	08:15
	16:31		17:24		18:14	19	08:13 (B084)		20:07	17	07:47 (B178)		20:57	58	07:32 (WEA03)		21:38	12	06:32 (B013)		21:41	12	06:41 (B013)		21:00	60	07:44 (WEA03)		19:55	24	08:17 (B083)		18:46	21	08:50 (B084)	16:44	16:14
10	08:28		07:49		06:52		07:55 (B084)		06:42		07:30 (B178)		05:41		06:14 (B124)		05:06		05:48 (B223)		05:15		06:29 (B013)		05:57		06:46 (B150)		06:47		07:26 (B178)		07:36		08:30 (B084)	07:30	08:16
	16:33		17:25		18:16	17	08:12 (B084)		20:09	15	07:45 (B178)		20:59	54	07:32 (WEA03)		21:38	11	06:31 (B013)		21:40	13	06:42 (B013)		20:59	54	07:43 (WEA03)		19:53	30	08:20 (B083)		18:44	20	08:50 (B084)	16:43	16:13
11	08:26		07:48		06:50		07:57 (B084)		06:39		07:31 (B178)		05:39		06:10 (B124)		05:06		05:47 (B223)		05:16		06:29 (B013)		05:59		06:47 (B150)		06:48		07:28 (B178)		07:37		08:29 (B082)	07:32	08:17
	16:34		17:27		18:18	14	08:11 (B084)		20:10	13	07:44 (B178)		21:00	57	07:31 (WEA03)		21:39	9	05:56 (B223)		21:39	13	06:42 (B013)		20:57	54	07:44 (WEA03)		19:51	30	08:22 (B083)		18:42	21	08:50 (B084)	16:41	16:13
12	08:26		07:46		06:48		07:59 (B084)		06:37		07:33 (B178)		05:38		06:08 (B124)		05:05		05:47 (B223)		05:17		06:29 (B013)		06:00		06:47 (B150)		06:50		07:29 (B178)		07:39		08:28 (B082)	07:33	08:18
	16:36		17:29		18:19	9	08:08 (B084)		20:12	9	07:42 (B178)		21:02	57	07:29 (WEA03)		21:40	10	05:57 (B223)		21:39	14	06:43 (B013)		20:55	53	07:43 (WEA03)		19:48	29	08:23 (B253)		18:40	21	08:49 (B084)	16:40	16:13
13	08:25		07:44		06:45				06:35				05:36		06:07 (B124)		05:05		05:47 (B223)		05:18		06:29 (B013)		06:02		06:47 (B150)		06:52		08:00 (B083)		07:41		08:26 (B082)	07:35	08:19
	16:37		17:31		18:21				20:14				21:03	57	07:29 (WEA03)		21:41	15	06:03 (WEA02)		21:38	14	06:43 (B013)		20:53	53	07:44 (WEA03)		19:46	24	08:24 (B253)		18:37	21	08:47 (B084)	16:38	16:13
14	08:25		07:42		06:43				06:33				05:35		06:07 (B124)		05:05		05:47 (B223)		05:19		06:23 (B124)		06:04		06:48 (B150)		06:53		07:58 (B083)		07:42		08:26 (B082)	07:37	08:20
	16:39		17:33		18:23				20:15				21:05	55	07:28 (WEA03)		21:41	18	06:05 (WEA02)		21:37	18	06:44 (B013)		20:51	50	07:43 (WEA03)		19:44	26	08:24 (B253)		18:35	20	08:46 (B084)	16:37	16:13
15	08:24		07:40		06:41				06:31				05:33		06:05 (B124)		05:04		05:47 (B223)		05:21		06:20 (B124)		06:05		06:49 (B150)		06:55		07:58 (B083)		07:44		08:26 (B082)	07:39	08:21
	16:40		17:35		18:25				20:17				21:06	54	07:27 (WEA03)		21:42	19	06:06 (WEA02)		21:36	23	06:44 (B013)		20:49	48	07:43 (WEA03)		19:41	27	08:25 (B253)		18:33	18	08:44 (B084)	16:35	16:13
16	08:23		07:38		06:39				06:28				05:31		06:05 (B124)		05:04		05:47 (B223)		05:22		06:19 (B124)		06:07		06:52 (B150)		06:56		07:58 (B083)		07:46		08:26 (B082)	07:40	08:22
	16:42		17:36		18:26				20:19				21:08	51	07:26 (WEA03)		21:42	20	06:07 (WEA02)		21:35	25	06:44 (B013)		20:47	40	07:42 (WEA03)		19:39	27	08:25 (B253)		18:31	15	08:41 (B082)	16:34	16:13
17	08:22		07:36		06:36				06:26				05:30		06:05 (B124)		05:04		05:47 (B223)		05:23		06:18 (B124)		06:08		07:04 (WEA03)		06:58		07:57 (B083)		07:48		08:26 (B082)	07:42	08:23
	16:43		17:38		18:28				20:20				21:09	45	07:24 (WEA03)		21:43	21	06:08 (WEA02)		21:34	26	06:44 (B013)		20:45	38	07:42 (WEA03)		19:37	27	08:24 (B253)		18:29	15	08:41 (B082)	16:32	16:13
18	08:21		07:34		06:34				06:24		07:12 (WEA03)		05:28		06:05 (B124)		05:04		05:47 (B223)		05:24		06:17 (B124)		06:10		07:04 (WEA03)		07:00		07:57 (B083)		07:49		08:26 (B082)	07:44	08:24
	16:45		17:40		18:30				20:22	11	07:23 (WEA03)		21:11	42	07:22 (WEA03)		21:43	22	06:09 (WEA02)		21:33	27	06:44 (B013)		20:43	37	07:41 (WEA03)		19:34	27	08:24 (B253)		18:27	13	08:39 (B082)	16:31	16:13
19	08:20		07:33		06:32				06:22		07:08 (WEA03)		05:27		06:05 (B124)		05:04		05:47 (B223)		05:25		06:16 (B124)		06:12		07:05 (WEA03)		07:01		07:56 (B083)		07:51		08:27 (B082)	07:45	08:25
	16:46		17:42		18:31				20:24	19	07:27 (WEA03)		21:12	39	07:20 (WEA03)		21:44	22	06:09 (WEA02)		21:32	28	06:44 (B013)		20:41	36	07:41 (WEA03)		19:32	27	08:23 (B253)		18:24	11	08:38 (B082)	16:30	16:14
20	08:19		07:31		06:29		07:18 (B083)		06:20		07:06 (WEA03)		05:26		06:05 (B124)		05:04		05:47 (B223)		05:27		06:17 (B124)		06:13		07:05 (WEA03)		07:03		07:57 (B083)		07:53		08:30 (B082)	07:47	08:25
	16:48		17:44		18:33	12	07:30 (B083)		20:25	23	07:29 (WEA03)		21:14	33	07:17 (WEA03)		21:44	22	06:09 (WEA02)		21:31	28	06:45 (B013)		20:39	34	07:39 (WEA03)		19:30	25	08:22 (B083)		18:22	5	08:35 (B082)	16:29	16:14
21	08:18		07:29		06:27		07:15 (B083)		06:18		07:04 (WEA03)		05:24		06:05 (B124)		05:04		05:48 (B223)		05:28		06:16 (B124)		06:15		07:06 (WEA03)		07:04		07:57 (B083)		07:54			07:49	08:26
	16:50		17:46		18:35	17	07:32 (B083)		20:27	26	07:30 (WEA03)		21:15	28	06:33 (B013)		21:44	22	06:10 (WEA02)		21:30	29	06:45 (B013)		20:37	33	07:39 (WEA03)		19:27	24	08:21 (B083)		18:20			16:27	16:14
22	08:17		07:26		06:25		07:13 (B083)		06:16		07:02 (WEA03)		05:23		06:05 (B124)		05:04		05:48 (B223)		05:29		06:16 (B124)		06:16		07:07 (WEA03)		07:06		07:57 (B083)		07:56			07:50	08:27
	16:51		17:47		18:37	20	07:33 (B083)		20:29	30	07:32 (WEA03)		21:17	29	06:34 (B013)		21:45	22	06:10 (WEA02)		21:28	28	06:44 (B013)		20:35	30	07:37 (WEA03)		19:25	22	08:19 (B083)		18:18			16:26	16:15
23	08:16		07:24		06:23		07:11 (B083)		06:14		07:01 (WEA03)		05:22		06:06 (B124)		05:05		05:48 (B223)		05:31		06:15 (B124)		06:18		07:08 (WEA03)		07:08		07:59 (B083)		07:58			07:52	08:27
	16:53		17:49	4	08:03 (B082)		18:38	23	07:34 (B083)		07:33 (WEA03)		21:18	28	06:34 (B013)		21:45	22	06:10 (WEA02)		21:27	29	06:44 (B013)		20:33	28	07:36 (WEA03)		19:23	19	08:18 (B083)		18:16			16:25	16:15
24	08:15		07:22		07:56 (B082)		06:20		07:11 (B083)		07:00 (WEA03)		05:20		06:06 (B124)		05:05		05:48 (B223)		05:32		06:16 (B124)		06:20		07:09 (WEA03)		07:09		07:59 (B083)		08:00			07:54	08:28
	16:55		17:51	10	08:06 (B082)		18:40	24	07:35 (B083)		07:33 (WEA03)		21:20	29	06:35 (B013)		21:45	22	06:10 (WEA02)		21:26	28	06:44 (B013)		20:31	24	07:33 (WEA03)		19:20	16	08:15 (B083)		18:14			16:24	16:16
25	08:14		07:20		07:55 (B082)		06:18		07:10 (B083)		06:59 (WEA03)		05:19		06:07 (B124)		05:05		05:48 (B223)		05:33		06:15 (B124)		06:21		07:11 (WEA03)		07:11		08:02 (B083)		08:01			07:55	08:28
	16:56		17:53	13	08:08 (B082)		18:42	25	07:35 (B083)		07:34 (WEA03)		21:21	28	06:35 (B013)		21:45	22	06:10 (WEA02)		21:25	32	07:26 (WEA03)		20:28	20	07:31 (WEA03)		19:18	11	08:13 (B083)		18:12			16:23	16:16
26	08:12		07:18		07:54 (B082)		07:16		08:09 (B083)		06:58 (WEA03)		05:18		06:07 (B124)		05:06		05:48 (B223)		05:35		06:15 (B124)		06:23		07:13 (WEA03)		07:13				08:03			07:57	08:28
	16:58		17:55	15	08:09 (B082)		19:43	26	08:35 (B083)		07:34 (WEA03)		21:22	28	06:35 (B013)		21:45	22	06:10 (WEA02)		21:23	39	07:30 (WEA03)		20:26	15	07:28 (WEA03)		19:16				18:10			16:22	16:17
27	08:11		07:16		07:53 (B082)		07:13		08:08 (B083)		06:57 (WEA03)		05:17		06:08 (B124)		05:06		05:49 (B223)		05:36		06:15 (B124)		06:24				07:14				08:05			07:58	08:29
	17:00		17:56	16	08:09 (B082)		19:45	28	08:36 (B253)		20:37	37	07:34 (WEA03)		21:24	27	06:35 (B013)		21:45	21	06:10 (WEA02)		21:22	42	07:32 (WEA03)		20:24				19:14				18:08			16:21	16:18
28	08:10		07:14		07:53 (B082)		07:11		08:08 (B083)		06:56 (WEA03)		05:16		06:09 (B124)		05:06		05:49 (B223)		05:38		06:16 (B124)		06:26				07:16				08:07			08:00	08:29
	17:02		17:58	18	08:11 (B084)		19:47	28	08:36 (B253)		20:39	39	07:35 (WEA03)		21:25	26	06:35 (B013)		21:45	20	06:09 (WEA02)		21:20	46	07:35 (WEA03)		20:22				19:11				18:06			16:20	16:18
29	08:09						07:09		08:07 (B083)		06:41 (B150)		05:15		06:10 (B124)		05:07		05:50 (B223)		05:39		06:16 (B124)		06:28				07:17				07:08			08:02	08:29
	17:03						19:48	28	08:35 (B253)		20:41	47	07:35 (WEA03)		21:26	25	06:35 (B013)		21:45	19	06:09 (WEA02)		21:19	48	07:36 (WEA03)		20:20				19:09				17:04			16:19	16:19
30	08:07						07:07		08:08 (B083)		05:59		05:14		06:41 (B150)		05:14		06:11 (B124)		05:07		05:50 (B223)		05:40		06:16 (B124)		06:29				07:19				07:10			08:03	08:29
	17:05						19:50	26	08:34 (B253)		20:42	49	07:35 (WEA03)		21:27	23	06:35 (B013)		21:45	18	06:08 (WEA02)		21:17	54	07:37 (WEA03)		20:18				19:07				17:02			16:18	16:20
31	08:06						07:04		08:08 (B083)				05:13		06:14 (B124)								05:42		06:17 (B124)		06:31								07:12				08:29	
	17:07						19:52	26	08:34 (B253)				21:28	18	06:35 (B013)								21:16	55	07:38 (WEA03)		20:15								17:00				16:21	
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333		268	245
astr.max.mögl.Beschattung				76		509		653		1343		508		758		1167		532		299		
Red.Sonnenscheinwahrsch.				0.32		0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		
Reduktion Betriebsdauer				0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		
Reduktion Windrichtung				0.65		0.67		0.72		0.74		0.74		0.74		0.73		0.70		0.65		
Gesamte Reduktion				0.20		0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.18		
Met.wahrsch.Beschattung				15		93		164		403		121		207		326		113		53		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO026 - Beerengrund 19, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November	Dezember
1	08:29		08:04		07:12		07:02		05:58		05:12		05:08		05:43		06:32		07:21		07:14	08:04
	16:22		17:09		18:00	18	19:54	25	08:31 (B253)	50	21:30	15	21:45	9	21:14	58	20:13	10	19:04		16:58	16:18
2	08:29		08:03		07:10		07:00		05:56		05:11		05:09		05:45		06:34		07:22		07:16	08:06
	16:23		17:11		18:02	21	19:55	24	08:29 (B253)	52	21:31	15	21:44	12	21:13	56	20:11	14	19:02	9	16:57	16:17
3	08:29		08:01		07:08		06:57		05:54		05:10		05:09		05:46		06:36		07:24		07:17	08:07
	16:24		17:13		18:04	22	19:57	31	08:28 (B253)	53	21:32	14	21:44	12	21:11	56	20:09	15	19:00	13	16:55	16:16
4	08:29		08:00		07:05		06:55		05:52		05:09		05:09		05:48		06:37		07:26		07:19	08:09
	16:25		17:14		18:05	23	19:59	30	08:26 (B253)	54	21:33	13	21:44	13	21:09	56	20:06	17	18:57	17	16:53	16:16
5	08:29		07:58		07:03		06:53		05:50		05:09		05:11		05:49		06:39		07:27		07:21	08:10
	16:27		17:16		18:07	22	20:00	27	08:22 (B083)	53	21:34	12	21:43	13	21:08	58	20:04	17	18:55	19	16:51	16:15
6	08:29		07:56		07:01		06:51		05:48		05:08		05:12		05:51		06:40		07:29		07:23	08:11
	16:28		17:18		18:09	21	20:02	19	08:17 (B083)	57	21:35	12	21:43	10	21:06	60	20:02	17	18:53	20	16:50	16:15
7	08:28		07:55		06:59		06:48		05:46		05:08		05:12		05:53		06:42		07:31		07:24	08:13
	16:29		17:20		18:11	21	20:04	17	08:13 (B083)	60	21:36	11	21:42	11	21:04	59	20:00	17	18:51	21	16:48	16:14
8	08:28		07:53		06:57		06:46		05:45		05:13		05:13		05:54		06:44		07:32		07:26	08:14
	16:30		17:22		18:12	21	20:05	17	08:18 (B083)	60	21:37	10	21:42	12	21:02	57	19:57	24	18:48	21	16:46	16:14
9	08:28		07:51		06:54		06:44		05:43		05:14		05:14		05:56		06:45		07:34		07:28	08:15
	16:31		17:24		18:14	20	20:07	17	08:13 (B083)	58	21:38	13	21:41	12	21:00	54	19:55	29	18:46	21	16:44	16:14
10	08:27		07:49		06:52		06:42		05:41		05:15		05:15		05:57		06:47		07:36		07:30	08:16
	16:33		17:25		18:16	19	20:09	16	08:11 (B083)	56	21:39	13	21:40	13	20:59	53	19:53	31	18:44	22	16:43	16:13
11	08:26		07:48		06:50		06:39		05:39		05:16		05:16		05:59		06:48		07:37		07:32	08:17
	16:34		17:27		18:18	17	20:10	14	08:10 (B083)	54	21:39	13	21:39	14	20:57	53	19:51	30	18:42	22	16:41	16:13
12	08:26		07:46		06:48		06:37		05:38		05:17		05:17		06:00		06:50		07:39		07:33	08:18
	16:36		17:29		18:19	13	20:12	12	08:08 (B083)	57	21:40	12	21:39	15	20:55	52	19:48	24	18:40	22	16:40	16:13
13	08:25		07:44		06:45		06:35		05:36		05:18		05:18		06:02		06:52		07:41		07:35	08:19
	16:37		17:31		18:21	9	20:14	8	08:05 (B083)	59	21:41	9	21:38	15	20:53	51	19:46	26	18:37	21	16:38	16:13
14	08:25		07:42		06:43		06:33		05:35		05:19		05:19		06:04		06:53		07:42		07:37	08:20
	16:39		17:33		18:23		20:15		08:03 (B083)	57	21:41	10	21:37	22	20:51	49	19:44	26	18:35	18	16:37	16:13
15	08:24		07:40		06:41		06:31		05:33		05:21		05:21		06:05		06:55		07:44		07:39	08:21
	16:40		17:35		18:25		20:17		08:01 (B083)	56	21:42	14	21:36	24	20:49	43	19:41	26	18:33	15	16:35	16:13
16	08:23		07:38		06:39		06:28		05:31		05:22		05:22		06:07		06:56		07:46		07:40	08:22
	16:42		17:36		18:26		20:19		08:00 (B083)	54	21:42	17	21:35	25	20:47	38	19:39	26	18:31	14	16:34	16:13
17	08:22		07:36		06:36		06:26		05:30		05:23		05:23		06:08		06:58		07:48		07:42	08:23
	16:43		17:38		18:28		20:20		07:59 (B083)	50	21:43	18	21:34	26	20:45	37	19:37	26	18:29	11	16:32	16:13
18	08:21		07:34		06:34		06:24		05:28		05:24		05:24		06:10		07:00		07:49		07:44	08:24
	16:45		17:40		18:30		20:22		07:57 (B083)	47	21:43	19	21:33	27	20:43	35	19:34	26	18:27	7	16:31	16:13
19	08:20		07:33		06:32		06:22		05:27		05:25		05:25		06:12		07:01		07:51		07:45	08:25
	16:46		17:42		18:31		20:24	11	07:55 (B083)	43	21:44	19	21:32	28	20:41	34	19:32	25	18:24		16:30	16:14
20	08:19		07:31		06:29		06:20		05:26		05:24		05:27		06:13		07:03		07:53		07:47	08:25
	16:48		17:44		18:33		20:25	19	07:53 (B083)	39	21:44	20	21:31	28	20:39	32	19:30	24	18:22		16:29	16:14
21	08:18		07:29		06:27		06:18		05:24		05:24		05:28		06:15		07:04		07:54		07:49	08:26
	16:50		17:46		18:35	11	20:27	23	07:51 (B083)	34	21:44	20	21:30	28	20:37	29	19:27	22	18:20		16:27	16:14
22	08:17		07:26		06:25		06:16		05:23		05:24		05:29		06:16		07:06		07:57		07:50	08:27
	16:51		17:47		18:37	17	20:29	26	07:49 (B083)	28	21:45	20	21:28	28	20:35	27	19:25	19	18:18		16:26	16:15
23	08:16		07:24		06:23		06:14		05:22		05:25		05:31		06:18		07:08		07:58		07:52	08:27
	16:53		17:49		18:38	20	20:31	29	07:46 (B083)	28	21:45	20	21:27	28	20:33	24	19:23	16	18:16		16:25	16:15
24	08:15		07:22		06:20		06:11		05:20		05:25		05:32		06:20		07:09		07:59		07:54	08:28
	16:55		17:51		18:40	22	20:32	31	07:43 (B083)	28	21:45	20	21:26	33	20:31	20	19:20	10	18:14		16:24	16:16
25	08:14		07:20	07:55 (B082)	06:18		06:09		05:19		05:25		05:33		06:21		07:11		08:01		07:55	08:28
	16:56		17:53	7 08:02 (B082)	18:42	24	20:34	33	07:41 (B083)	28	21:45	19	21:27	33	20:28	15	19:18		18:12		16:23	16:16
26	08:12		07:18	07:53 (B082)	07:16		06:07		05:18		05:26		05:35		06:23		07:13		08:03		07:57	08:28
	16:58		17:55	11 08:04 (B082)	19:43	25	20:36	35	07:39 (B083)	28	21:45	19	21:23	43	20:26		19:16		18:10		16:22	16:17
27	08:11		07:16	07:52 (B082)	07:13		06:05		05:17		05:26		05:36		06:24		07:14		08:05		07:58	08:29
	17:00		17:56	13 08:05 (B082)	19:45	26	20:37	36	07:36 (B083)	27	21:45	18	21:22	49	20:24		19:14		18:08		16:21	16:18
28	08:10		07:14	07:51 (B082)	07:11		06:03		05:16		05:26		05:38		06:26		07:16		08:07		08:00	08:29
	17:02		17:58	15 08:06 (B082)	19:47	27	20:39	37	07:32 (B083)	26	21:45	17	21:20	50	20:26		19:11		18:06		16:20	16:18
29	08:09				07:09		06:01		06:43 (B150)	26	21:45	17	21:20	50	20:22		19:09		18:04		16:19	16:19
	17:03				19:48	27	20:41	40	07:32 (B083)	25	21:45	14	21:20	50	20:18		19:07		18:02		16:18	16:20
30	08:07				07:07		05:59		06:40 (B150)	25	21:45	10	21:20	50	20:20				18:00		16:17	16:21
	17:05				19:50	27	20:42	47	07:33 (B083)	24	21:45		21:20	50	20:18				17:58		16:16	16:22
31	08:06				07:04		06:00				21:45		21:20	50	20:16				17:56		16:15	16:23
	17:07				19:52	26	20:43				21:45		21:20	50	20:14				17:54		16:14	16:24
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333		268	245
astr.max.mögl.Beschattung				46		499		624		1367		456		806		1109		517		293		
Red.Sonnenscheinwahrsch.				0.32		0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		
Reduktion Betriebsdauer				0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		
Reduktion Windrichtung				0.65		0.67		0.72		0.74		0.74		0.74		0.73		0.70		0.65		
Gesamte Reduktion				0.20		0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.18		
Met.wahrsch.Beschattung				9		91		156		410		108		220		310		110		53		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO027 - Beerengrund 21, 21a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1 | 08:29	| 08:04	| 07:12	07:47 (B082) | 07:02	08:03 (B083) | 05:58	06:52 (WEA03) | 05:12	06:17 (B013) | 05:08	05:51 (B223) | 05:43	06:33 (B012) | 06:32	07:26 (B178) | 07:21	08:32 (B084) | 07:14	| 08:04
| 16:22	| 17:09	| 18:00 13	08:00 (B082) | 19:54 25	08:28 (B083) | 20:44 38	07:30 (WEA03) | 21:30 16	06:33 (B013) | 21:45 15	06:35 (B013) | 21:14 47	07:36 (WEA03) | 20:13 14	07:40 (B178) | 19:04 12	08:44 (B084) | 16:58	| 16:18
2 | 08:29	| 08:03	| 07:10	07:46 (B082) | 07:00	08:02 (B083) | 05:56	06:52 (WEA03) | 05:11	06:17 (B013) | 05:09	05:51 (B223) | 05:45	06:34 (B012) | 06:34	07:25 (B178) | 07:22	08:29 (B084) | 07:16	| 08:06
| 16:23	| 17:11	| 18:02 17	08:03 (B084) | 19:55 25	08:27 (B083) | 20:46 38	07:30 (WEA03) | 21:31 16	06:33 (B013) | 21:44 15	06:35 (B013) | 21:13 48	07:38 (WEA03) | 20:11 16	07:41 (B178) | 19:02 15	08:44 (B084) | 16:57	| 16:17
3 | 08:28	| 08:01	| 07:08	07:46 (B082) | 06:57	08:03 (B083) | 05:54	06:51 (WEA03) | 05:10	06:17 (B013) | 05:09	05:53 (B223) | 05:46	06:33 (B012) | 06:36	07:24 (B178) | 07:24	08:28 (B084) | 07:17	| 08:07
| 16:24	| 17:13	| 18:04 21	08:07 (B084) | 19:57 23	08:26 (B083) | 20:47 39	07:30 (WEA03) | 21:32 15	06:32 (B013) | 21:44 14	06:36 (B013) | 21:11 49	07:38 (WEA03) | 20:09 17	07:41 (B178) | 19:00 18	08:46 (B084) | 16:55	| 16:16
4 | 08:29	| 08:00	| 07:05	07:46 (B082) | 06:55	07:32 (B178) | 05:52	06:51 (WEA03) | 05:10	06:18 (B013) | 05:10	06:26 (B013) | 05:48	06:35 (B012) | 06:37	07:24 (B178) | 07:26	08:27 (B084) | 07:19	| 08:09
| 16:25	| 17:14	| 18:05 22	08:08 (B084) | 19:59 31	08:25 (B083) | 20:49 38	07:29 (WEA03) | 21:33 15	06:33 (B013) | 21:44 11	06:37 (B013) | 21:09 48	07:39 (WEA03) | 20:06 17	07:41 (B178) | 18:57 19	08:46 (B084) | 16:53	| 16:16
5 | 08:29	| 07:58	| 07:03	07:46 (B082) | 06:53	07:29 (B178) | 05:50	06:51 (WEA03) | 05:09	06:18 (B013) | 05:11	06:26 (B013) | 05:49	06:35 (B012) | 06:39	07:24 (B178) | 07:27	08:26 (B084) | 07:21	| 08:10
| 16:27	| 17:16	| 18:07 24	08:10 (B084) | 20:00 32	08:23 (B253) | 20:50 39	07:30 (WEA03) | 21:34 14	06:32 (B013) | 21:43 11	06:37 (B013) | 21:08 48	07:39 (WEA03) | 20:04 17	07:41 (B178) | 18:55 20	08:46 (B084) | 16:51	| 16:15
6 | 08:29	| 07:56	| 07:01	07:46 (B082) | 06:51	07:28 (B178) | 05:48	06:51 (WEA03) | 05:08	06:18 (B013) | 05:12	06:25 (B013) | 05:51	06:36 (B012) | 06:40	07:23 (B178) | 07:29	08:26 (B084) | 07:23	| 08:11
| 16:28	| 17:18	| 18:09 23	08:09 (B084) | 20:02 30	08:21 (B253) | 20:52 38	07:29 (WEA03) | 21:35 14	06:32 (B013) | 21:43 12	06:37 (B013) | 21:06 43	07:38 (WEA03) | 20:02 17	07:40 (B178) | 18:53 20	08:46 (B084) | 16:50	| 16:15
7 | 08:28	| 07:55	| 06:59	07:47 (B082) | 06:48	07:27 (B178) | 05:46	06:51 (WEA03) | 05:08	06:19 (B013) | 05:12	06:25 (B013) | 05:53	07:01 (WEA03) | 06:42	07:24 (B178) | 07:31	08:25 (B082) | 07:24	| 08:13
| 16:29	| 17:20	| 18:11 23	08:10 (B084) | 20:04 25	08:17 (B083) | 20:54 38	07:29 (WEA03) | 21:36 13	06:32 (B013) | 21:42 13	06:38 (B013) | 21:04 38	07:39 (WEA03) | 20:00 28	08:16 (B253) | 18:51 21	08:46 (B084) | 16:48	| 16:14
8 | 08:28	| 07:53	| 06:57	07:49 (B082) | 06:46	07:27 (B178) | 05:45	06:27 (B012) | 05:07	06:20 (B013) | 05:13	06:25 (B013) | 05:54	07:00 (WEA03) | 06:44	07:24 (B178) | 07:32	08:23 (B082) | 07:26	| 08:14
| 16:30	| 17:22	| 18:12 21	08:10 (B084) | 20:05 17	07:44 (B178) | 20:55 44	07:29 (WEA03) | 21:37 12	06:32 (B013) | 21:42 14	06:39 (B013) | 21:02 39	07:39 (WEA03) | 19:57 31	08:17 (B253) | 18:48 23	08:46 (B084) | 16:46	| 16:14
9 | 08:28	| 07:51	| 06:54	07:49 (B084) | 06:44	07:27 (B178) | 05:43	06:25 (B012) | 05:06	06:20 (B013) | 05:14	06:25 (B013) | 05:56	07:01 (WEA03) | 06:45	07:25 (B178) | 07:34	08:21 (B082) | 07:28	| 08:15
| 16:31	| 17:24	| 18:14 20	08:09 (B084) | 20:07 17	07:44 (B178) | 20:57 46	07:28 (WEA03) | 21:38 11	06:31 (B013) | 21:41 14	06:39 (B013) | 21:00 38	07:39 (WEA03) | 19:55 32	08:19 (B253) | 18:46 24	08:45 (B084) | 16:44	| 16:14
10 | 08:27	| 07:49	| 06:52	07:49 (B084) | 06:42	07:26 (B178) | 05:41	06:24 (B012) | 05:06	06:21 (B013) | 05:15	06:25 (B013) | 05:57	07:00 (WEA03) | 06:47	07:26 (B178) | 07:36	08:20 (B082) | 07:30	| 08:16
| 16:33	| 17:25	| 18:16 20	08:09 (B084) | 20:09 17	07:43 (B178) | 20:59 48	07:28 (WEA03) | 21:38 11	06:32 (B013) | 21:40 15	06:40 (B013) | 20:59 39	07:39 (WEA03) | 19:53 30	08:19 (B083) | 18:44 24	08:44 (B084) | 16:43	| 16:13
11 | 08:26	| 07:48	| 06:50	07:49 (B084) | 06:39	07:26 (B178) | 05:39	06:23 (B012) | 05:06	05:48 (B223) | 05:16	06:25 (B013) | 05:59	07:00 (WEA03) | 06:48	07:56 (B083) | 07:37	08:20 (B082) | 07:32	| 08:17
| 16:34	| 17:27	| 18:18 20	08:09 (B084) | 20:10 16	07:42 (B178) | 21:00 49	07:28 (WEA03) | 21:39 14	06:31 (B013) | 21:39 15	06:40 (B013) | 20:57 39	07:39 (WEA03) | 19:51 24	08:20 (B083) | 18:42 23	08:43 (B084) | 16:41	| 16:13
12 | 08:26	| 07:46	| 06:48	07:50 (B084) | 06:37	07:27 (B178) | 05:38	06:22 (B012) | 05:05	05:47 (B223) | 05:17	06:25 (B013) | 06:00	07:00 (WEA03) | 06:50	07:55 (B083) | 07:39	08:20 (B082) | 07:33	| 08:18
| 16:36	| 17:29	| 18:19 18	08:08 (B084) | 20:12 14	07:41 (B178) | 21:02 48	07:26 (WEA03) | 21:40 15	06:31 (B013) | 21:39 16	06:41 (B013) | 20:55 38	07:38 (WEA03) | 19:48 24	08:19 (B083) | 18:40 21	08:41 (B084) | 16:40	| 16:13
13 | 08:25	| 07:44	| 06:45	07:51 (B084) | 06:35	07:28 (B178) | 05:36	06:23 (B012) | 05:05	05:47 (B223) | 05:18	06:25 (B013) | 06:02	07:01 (WEA03) | 06:52	07:54 (B083) | 07:41	08:19 (B082) | 07:35	| 08:19
| 16:37	| 17:31	| 18:21 14	08:05 (B084) | 20:14 12	07:40 (B178) | 21:03 46	07:26 (WEA03) | 21:41 15	06:31 (B013) | 21:38 16	06:41 (B013) | 20:53 37	07:38 (WEA03) | 19:46 26	08:20 (B083) | 18:37 18	08:37 (B084) | 16:38	| 16:13
14 | 08:25	| 07:42	| 06:43	07:52 (B084) | 06:33	07:30 (B178) | 05:35	06:23 (B012) | 05:05	05:47 (B223) | 05:19	06:25 (B013) | 06:04	07:00 (WEA03) | 06:53	07:53 (B083) | 07:42	08:20 (B082) | 07:37	| 08:20
| 16:39	| 17:33	| 18:23 11	08:03 (B084) | 20:15 8	07:38 (B178) | 21:05 46	07:26 (WEA03) | 21:41 15	06:31 (B013) | 21:37 16	06:41 (B013) | 20:51 37	07:37 (WEA03) | 19:44 26	08:19 (B083) | 18:35 14	08:34 (B082) | 16:37	| 16:13
15 | 08:24	| 07:40	| 06:41	07:57 (B084) | 06:31	| 05:33	06:23 (B012) | 05:04	05:47 (B223) | 05:21	06:25 (B013) | 06:05	07:01 (WEA03) | 06:55	07:53 (B083) | 07:44	08:21 (B082) | 07:39	| 08:21
| 16:40	| 17:35	| 18:25 2	07:59 (B084) | 20:17	| 21:06 44	07:25 (WEA03) | 21:42 15	06:30 (B013) | 21:36 16	06:41 (B013) | 20:49 36	07:37 (WEA03) | 19:41 26	08:19 (B083) | 18:33 12	08:33 (B082) | 16:35	| 16:13
16 | 08:23	| 07:38	| 06:39	| 06:28	| 05:31	06:23 (B012) | 05:04	05:47 (B223) | 05:22	06:25 (B013) | 06:07	07:01 (WEA03) | 06:56	07:53 (B083) | 07:46	08:23 (B082) | 07:40	| 08:22
| 16:42	| 17:36	| 18:26	| 20:19	| 21:08 42	07:24 (WEA03) | 21:42 14	06:30 (B013) | 21:35 16	06:41 (B013) | 20:47 35	07:36 (WEA03) | 19:39 26	08:19 (B083) | 18:31 7	08:30 (B082) | 16:34	| 16:13
17 | 08:22	| 07:36	| 06:36	| 06:26	| 05:30	06:23 (B012) | 05:04	05:47 (B223) | 05:23	06:25 (B013) | 06:08	07:02 (WEA03) | 06:58	07:53 (B083) | 07:48	| 07:42	| 08:23
| 16:43	| 17:38	| 18:28	| 20:20	| 21:09 40	07:23 (WEA03) | 21:43 14	06:30 (B013) | 21:34 16	06:41 (B013) | 20:45 34	07:36 (WEA03) | 19:37 25	08:18 (B083) | 18:29	| 16:32	| 16:13
18 | 08:21	| 07:34	| 06:34	| 06:24	| 05:28	06:24 (B012) | 05:04	05:47 (B223) | 05:24	06:25 (B013) | 06:10	07:02 (WEA03) | 07:00	07:53 (B083) | 07:49	| 07:44	| 08:24
| 16:45	| 17:40	| 18:30	| 20:22	| 21:11 36	07:22 (WEA03) | 21:43 12	06:29 (B013) | 21:33 16	06:41 (B013) | 20:43 32	07:34 (WEA03) | 19:34 25	08:18 (B083) | 18:27	| 16:31	| 16:13
19 | 08:20	| 07:33	| 06:32	| 06:22	| 05:27	06:25 (B012) | 05:04	05:47 (B223) | 05:25	06:25 (B013) | 06:12	07:03 (WEA03) | 07:01	07:53 (B083) | 07:51	| 07:45	| 08:25
| 16:46	| 17:42	| 18:31	| 20:24	| 21:12 32	07:21 (WEA03) | 21:44 10	05:57 (B223) | 21:32 16	06:41 (B013) | 20:41 31	07:34 (WEA03) | 19:32 23	08:16 (B083) | 18:24	| 16:30	| 16:14
20 | 08:19	| 07:31	| 06:29	| 06:20	07:11 (WEA03) | 05:26	06:21 (B013) | 05:04	05:47 (B223) | 05:27	06:27 (B013) | 06:13	07:04 (WEA03) | 07:03	07:54 (B083) | 07:53	| 07:47	| 08:25
| 16:48	| 17:44	| 18:33	| 20:25 3	07:14 (WEA03) | 21:14 32	07:20 (WEA03) | 21:44 11	05:58 (B223) | 21:31 14	06:41 (B013) | 20:39 28	07:32 (WEA03) | 19:30 21	08:15 (B083) | 18:22	| 16:29	| 16:14
21 | 08:18	| 07:29	| 06:27	| 06:18	07:05 (WEA03) | 05:24	06:18 (B013) | 05:04	05:47 (B223) | 05:28	06:27 (B013) | 06:15	07:05 (WEA03) | 07:04	07:56 (B083) | 07:54	| 07:49	| 08:26
| 16:50	| 17:46	| 18:35	| 20:27 15	07:20 (WEA03) | 21:15 27	07:18 (WEA03) | 21:44 11	05:58 (B223) | 21:30 14	06:41 (B013) | 20:37 26	07:31 (WEA03) | 19:27 17	08:13 (B083) | 18:20	| 16:27	| 16:14
22 | 08:17	| 07:26	| 06:25	07:14 (B083) | 06:16	07:02 (WEA03) | 05:23	06:18 (B013) | 05:04	05:47 (B223) | 05:29	06:27 (B013) | 06:16	07:06 (WEA03) | 07:06	07:57 (B083) | 07:56	| 07:50	| 08:27
| 16:51	| 17:47	| 18:37 8	07:22 (B083) | 20:29 21	07:23 (WEA03) | 21:17 24	07:16 (WEA03) | 21:45 11	05:58 (B223) | 21:28 20	07:23 (WEA03) | 20:35 22	07:28 (WEA03) | 19:25 13	08:10 (B083) | 18:18	| 16:26	| 16:15
23 | 08:16	| 07:24	| 06:23	07:11 (B083) | 06:14	07:00 (WEA03) | 05:22	06:17 (B013) | 05:05	05:47 (B223) | 05:31	06:28 (B013) | 06:18	07:09 (WEA03) | 07:08	08:01 (B083) | 07:58	| 07:52	| 08:27
| 16:53	| 17:49	| 18:38 14	07:25 (B083) | 20:31 24	07:24 (WEA03) | 21:18 20	07:13 (WEA03) | 21:45 11	05:58 (B223) | 21:27 24	07:26 (WEA03) | 20:33 17	07:26 (WEA03) | 19:23 5	08:06 (B083) | 18:16	| 16:25	| 16:15
24 | 08:15	| 07:22	| 06:20	07:09 (B083) | 06:11	06:58 (WEA03) | 05:20	06:17 (B013) | 05:05	05:48 (B223) | 05:32	06:29 (B013) | 06:20	07:12 (WEA03) | 07:09	| 08:00	| 07:54	| 08:28
| 16:55	| 17:51	| 18:40 18	07:27 (B083) | 20:32 28	07:26 (WEA03) | 21:20 14	06:31 (B013) | 21:45 11	05:59 (B223) | 21:26 27	07:29 (WEA03) | 20:31 9	07:21 (WEA03) | 19:20	| 18:14	| 16:24	| 16:16
25 | 08:14	| 07:20	| 06:18	07:07 (B083) | 06:09	06:57 (WEA03) | 05:19	06:16 (B013) | 05:05	05:48 (B223) | 05:33	06:31 (B013) | 06:21	| 07:11	| 08:01	| 07:55	| 08:28
| 16:56	| 17:53	| 18:42 22	07:29 (B083) | 20:34 30	07:27 (WEA03) | 21:21 15	06:31 (B013) | 21:45 10	05:58 (B223) | 21:25 32	07:30 (WEA03) | 20:28	| 19:18	| 18:12	| 16:23	| 16:16
26 | 08:12	| 07:18	| 07:16	08:05 (B083) | 06:07	06:56 (WEA03) | 05:18	06:16 (B013) | 05:06	05:48 (B223) | 05:35	06:35 (B012) | 06:23	| 07:13	| 08:03	| 07:57	| 08:28
| 16:58	| 17:55	| 19:43 24	08:29 (B083) | 20:36 31	07:27 (WEA03) | 21:22 16	06:32 (B013) | 21:45 12	06:30 (B013) | 21:23 32	07:31 (WEA03) | 20:26	| 19:16	| 18:10	| 16:22	| 16:17
27 | 08:11	| 07:16 | 07:52 (B082)	| 07:13	08:05 (B083) | 06:05	06:54 (WEA03) | 05:17	06:16 (B013) | 05:06	05:49 (B223) | 05:36	06:34 (B012) | 06:24	| 07:14	| 08:05	| 07:58	| 08:29
| 17:00	| 17:56 6 07:58 (B082)	| 19:45 24	08:29 (B083) | 20:37 34	07:28 (WEA03) | 21:24 16	06:32 (B013) | 21:45 14	06:32 (B013) | 21:22 36	07:32 (WEA03) | 20:24	| 19:14	| 18:08	| 16:21	| 16:18
28 | 08:10	| 07:14 | 07:49 (B082)	| 07:11	08:04 (B083) | 06:03	06:54 (WEA03) | 05:16	06:16 (B013) | 05:06	05:49 (B223) | 05:38	06:34 (B012) | 06:26	| 07:16	| 08:07	| 08:00	| 08:29
| 17:02	| 17:58 11 08:00 (B082)	| 19:47 26	08:30 (B083) | 20:39 34	07:28 (WEA03) | 21:25 16	06:32 (B013) | 21:45 14	06:32 (B013) | 21:20 39	07:34 (WEA03) | 20:22	| 19:11	| 18:06	| 16:20	| 16:18
29 | 08:09	|	| 07:09	08:03 (B083) | 06:01	06:53 (WEA03) | 05:15	06:16 (B013) | 05:07	05:50 (B223) | 05:39	06:33 (B012) | 06:28	| 07:17	| 07:08	| 08:02	| 08:29
| 17:03	|	| 19:48 26	08:29 (B083) | 20:41 36	07:29 (WEA03) | 21:26 16	06:32 (B013) | 21:45 15	06:33 (B013) | 21:19 42	07:34 (WEA03) | 20:20	| 19:09	| 17:04	| 16:19	| 16:19
30 | 08:07	|	| 07:07	08:03 (B083) | 05:59	06:53 (WEA03) | 05:14	06:16 (B013) | 05:07	05:50 (B223) | 05:40	06:33 (B012) | 06:29	07:32 (B178) | 07:19	08:36 (B084) | 07:10	| 08:03	| 08:29
| 17:05	|	| 19:50 26	08:29 (B083) | 20:42 37	07:30 (WEA03) | 21:27 16	06:32 (B013) | 21:45 16	06:34 (B013) | 21:17 44	07:35 (WEA03) | 20:18 4	07:36 (B178) | 19:07 4	08:40 (B084) | 17:02	| 16:18	| 16:20
31 | 08:06	|	| 07:04	08:03 (B083) |	| 05:13	06:16 (B013) |	| 05:42	06:33 (B012) | 06:31	07:29 (B178) |	| 07:12		| 08:29
| 17:07	|	| 19:52 26	08:29 (B083) |	| 21:28 16	06:32 (B013) |	| 21:16 46	07:36 (WEA03) | 20:15 10	07:39 (B178) |	| 17:00		| 16:21
Sonnenscheinstunden | 259	| 277	| 366	483	| 414	585	| 483	1017	| 497	647	| 501	872	| 454	504	| 382	291	| 333	| 268	| 245
astr.max.mögl.Beschattung |	| 17	|	0.28	|	0.36	|	0.43	|	0.34	|	0.39	|	0.40	|	0.32	|	0.29	|	|
Red.Sonnenscheinwahrsch. |	| 0.32	|	0.95	|	0.95	|	0.95	|	0.95	|	0.95	|	0.95	|	0.95	|	0.95	|	|
Reduktion Betriebsdauer |	| 0.95	|	0.68	|	0.72	|	0.73	|	0.74	|	0.74	|	0.73	|	0.71	|	0.66	|	|
Reduktion Windrichtung |	| 0.66	|	0.18	|	0.25	|	0.30	|	0.24	|	0.27	|	0.28	|	0.21	|	0.18	|	|
Gesamte Reduktion |	| 0.20	|	88	|	146	|	304	|	94	|	176	|	243	|	108	|	52	|	|
Met.wahrsch.Beschattung |	| 3																			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO028 - Beerengrund 23, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 - 16:22	08:04 - 17:09	07:12 - 18:00	07:49 (B082) - 07:51 (B082)	08:00 (B083) - 08:26 (B083)	05:58 - 07:59 (B083)	06:50 (WEA03) - 07:26 (WEA03)	05:12 - 21:30	06:15 (B013) - 06:31 (B013)	05:08 - 21:45	06:23 (B013) - 06:34 (B013)	05:43 - 21:14	06:31 (B012) - 07:35 (WEA03)	06:32 - 20:13	07:23 (B178) - 07:39 (B178)	07:21 - 19:04	08:27 (B084) - 08:43 (B084)	07:14 - 16:58	08:04 - 16:18
2	08:29 - 16:23	08:03 - 17:11	07:10 - 18:02	07:45 (B082) - 07:54 (B082)	07:59 (B083) - 08:25 (B083)	05:56 - 07:59 (B083)	06:50 (WEA03) - 07:26 (WEA03)	05:11 - 21:31	06:15 (B013) - 06:31 (B013)	05:09 - 21:44	06:22 (B013) - 06:34 (B013)	05:45 - 21:13	06:32 (B012) - 07:36 (WEA03)	06:34 - 20:11	07:23 (B178) - 07:39 (B178)	07:22 - 19:02	08:25 (B084) - 08:43 (B084)	07:16 - 16:57	08:06 - 16:17
3	08:29 - 16:24	08:01 - 17:13	07:08 - 18:04	07:44 (B082) - 07:56 (B082)	07:59 (B083) - 08:24 (B083)	05:54 - 08:47	06:49 (WEA03) - 07:26 (WEA03)	05:10 - 21:32	06:15 (B013) - 06:30 (B013)	05:09 - 21:44	06:22 (B013) - 06:35 (B013)	05:46 - 21:11	06:32 (B012) - 07:35 (WEA03)	06:36 - 20:09	07:22 (B178) - 07:39 (B178)	07:24 - 19:00	08:24 (B084) - 08:44 (B084)	07:17 - 16:55	08:07 - 16:16
4	08:29 - 16:25	08:00 - 17:14	07:05 - 18:05	07:43 (B082) - 07:57 (B082)	08:00 (B083) - 08:23 (B083)	05:52 - 08:49	06:48 (WEA03) - 07:26 (WEA03)	05:10 - 21:33	06:16 (B013) - 06:31 (B013)	05:10 - 21:44	06:23 (B013) - 06:36 (B013)	05:48 - 21:09	06:35 (B012) - 07:36 (WEA03)	06:37 - 20:06	07:22 (B178) - 07:39 (B178)	07:26 - 18:57	08:24 (B084) - 08:44 (B084)	07:19 - 16:53	08:09 - 16:16
5	08:29 - 16:27	07:58 - 17:16	07:03 - 18:07	07:42 (B082) - 08:04 (B084)	07:30 (B178) - 08:21 (B083)	05:50 - 07:59 (B083)	06:49 (WEA03) - 07:27 (WEA03)	05:09 - 21:34	06:16 (B013) - 06:31 (B013)	05:11 - 21:43	06:23 (B013) - 06:37 (B013)	05:49 - 21:08	06:58 (WEA03) - 07:36 (WEA03)	06:39 - 20:04	07:22 (B178) - 08:13 (B253)	07:27 - 18:55	08:20 (B082) - 08:43 (B084)	07:21 - 16:51	08:10 - 16:15
6	08:29 - 16:28	07:56 - 17:18	07:01 - 18:09	07:41 (B082) - 08:05 (B084)	07:27 (B178) - 08:20 (B083)	05:48 - 07:59 (B083)	06:48 (WEA03) - 07:26 (WEA03)	05:08 - 21:35	06:15 (B013) - 06:30 (B013)	05:12 - 21:43	06:22 (B013) - 06:36 (B013)	05:51 - 21:06	06:58 (WEA03) - 07:36 (WEA03)	06:40 - 20:02	07:22 (B178) - 08:14 (B253)	07:29 - 18:53	08:19 (B082) - 08:43 (B084)	07:23 - 16:50	08:11 - 16:15
7	08:28 - 16:29	07:55 - 17:20	06:59 - 18:11	07:41 (B082) - 08:06 (B084)	07:26 (B178) - 08:19 (B083)	05:46 - 07:59 (B083)	06:48 (WEA03) - 07:26 (WEA03)	05:08 - 21:36	06:16 (B013) - 06:31 (B013)	05:12 - 21:42	06:22 (B013) - 06:37 (B013)	05:53 - 21:04	06:58 (WEA03) - 07:36 (WEA03)	06:42 - 20:00	07:23 (B178) - 08:16 (B253)	07:31 - 18:51	08:18 (B082) - 08:43 (B084)	07:24 - 16:48	08:13 - 16:14
8	08:28 - 16:30	07:53 - 17:22	06:57 - 18:12	07:42 (B082) - 08:07 (B084)	07:25 (B178) - 08:17 (B253)	05:45 - 07:59 (B083)	06:48 (WEA03) - 07:26 (WEA03)	05:07 - 21:37	06:17 (B013) - 06:31 (B013)	05:13 - 21:42	06:22 (B013) - 06:37 (B013)	05:54 - 21:02	06:58 (WEA03) - 07:36 (WEA03)	06:44 - 19:57	07:23 (B178) - 08:16 (B083)	07:32 - 18:48	08:17 (B082) - 08:42 (B084)	07:26 - 16:46	08:14 - 16:14
9	08:28 - 16:31	07:51 - 17:24	06:54 - 18:14	07:42 (B082) - 08:06 (B084)	07:25 (B178) - 08:14 (B253)	05:43 - 07:59 (B083)	06:48 (WEA03) - 07:26 (WEA03)	05:06 - 21:38	06:17 (B013) - 06:31 (B013)	05:14 - 21:41	06:23 (B013) - 06:38 (B013)	05:56 - 21:00	06:58 (WEA03) - 07:36 (WEA03)	06:45 - 19:55	07:26 (B178) - 08:17 (B083)	07:34 - 18:46	08:16 (B082) - 08:40 (B084)	07:28 - 16:44	08:15 - 16:14
10	08:27 - 16:33	07:49 - 17:25	06:52 - 18:16	07:43 (B082) - 08:06 (B084)	07:24 (B178) - 08:20 (B083)	05:41 - 07:59 (B083)	06:25 (B012) - 07:26 (WEA03)	05:06 - 21:38	06:18 (B013) - 06:31 (B013)	05:15 - 21:40	06:23 (B013) - 06:38 (B013)	05:57 - 20:59	06:58 (WEA03) - 07:36 (WEA03)	06:47 - 19:53	07:53 (B083) - 08:17 (B083)	07:36 - 18:44	08:16 (B082) - 08:39 (B084)	07:30 - 16:43	08:16 - 16:13
11	08:26 - 16:34	07:48 - 17:27	06:50 - 18:18	07:46 (B084) - 08:06 (B084)	07:24 (B178) - 08:19 (B083)	05:39 - 07:59 (B083)	06:22 (B012) - 07:26 (WEA03)	05:06 - 21:39	06:18 (B013) - 06:30 (B013)	05:16 - 21:39	06:23 (B013) - 06:38 (B013)	05:59 - 20:57	06:58 (WEA03) - 07:36 (WEA03)	06:48 - 19:51	07:52 (B083) - 08:18 (B083)	07:37 - 18:42	08:17 (B082) - 08:36 (B084)	07:32 - 16:41	08:17 - 16:13
12	08:26 - 16:36	07:46 - 17:29	06:48 - 18:19	07:46 (B084) - 08:06 (B084)	07:24 (B178) - 08:17 (B253)	05:38 - 07:59 (B083)	06:21 (B012) - 07:25 (WEA03)	05:05 - 21:40	06:18 (B013) - 06:30 (B013)	05:17 - 21:39	06:23 (B013) - 06:39 (B013)	06:00 - 20:55	06:58 (WEA03) - 07:35 (WEA03)	06:50 - 19:48	07:51 (B083) - 08:17 (B083)	07:39 - 18:40	08:18 (B082) - 08:30 (B082)	07:33 - 16:40	08:18 - 16:13
13	08:25 - 16:37	07:44 - 17:31	06:45 - 18:21	07:46 (B084) - 08:04 (B084)	07:24 (B178) - 08:14 (B253)	05:36 - 07:59 (B083)	06:21 (B012) - 07:26 (WEA03)	05:05 - 21:41	06:19 (B013) - 06:30 (B013)	05:18 - 21:41	06:23 (B013) - 06:39 (B013)	06:02 - 20:53	06:59 (WEA03) - 07:36 (WEA03)	06:52 - 19:46	07:51 (B083) - 08:17 (B083)	07:41 - 18:37	08:18 (B082) - 08:28 (B082)	07:35 - 16:38	08:19 - 16:13
14	08:25 - 16:39	07:42 - 17:33	06:43 - 18:23	07:47 (B084) - 08:03 (B084)	07:25 (B178) - 08:15 (B083)	05:35 - 07:59 (B083)	06:21 (B012) - 07:24 (WEA03)	05:05 - 21:41	06:19 (B013) - 06:31 (B013)	05:19 - 21:37	06:23 (B013) - 06:39 (B013)	06:04 - 20:51	06:58 (WEA03) - 07:36 (WEA03)	06:53 - 19:44	07:50 (B083) - 08:16 (B083)	07:42 - 18:35	08:21 (B082) - 08:25 (B082)	07:37 - 16:37	08:20 - 16:13
15	08:24 - 16:40	07:40 - 17:35	06:41 - 18:25	07:48 (B084) - 08:02 (B084)	07:27 (B178) - 08:17 (B253)	05:33 - 07:59 (B083)	06:20 (B012) - 07:23 (WEA03)	05:04 - 21:42	05:48 (B223) - 06:31 (B013)	05:21 - 21:36	06:23 (B013) - 06:39 (B013)	06:05 - 20:49	06:59 (WEA03) - 07:33 (WEA03)	06:55 - 19:41	07:51 (B083) - 08:16 (B083)	07:44 - 18:33		07:39 - 16:35	08:21 - 16:13
16	08:23 - 16:42	07:38 - 17:36	06:39 - 18:26	07:50 (B084) - 07:58 (B084)	06:28 - 06:28	05:31 - 21:08	06:20 (B012) - 07:23 (WEA03)	05:04 - 21:42	05:47 (B223) - 06:31 (B013)	05:22 - 21:35	06:23 (B013) - 06:39 (B013)	06:07 - 20:47	06:59 (WEA03) - 07:32 (WEA03)	06:56 - 19:39	07:51 (B083) - 08:16 (B083)	07:46 - 18:31		07:40 - 16:34	08:22 - 16:13
17	08:22 - 16:43	07:36 - 17:38	06:36 - 18:28		06:26 - 20:20	05:30 - 21:09	06:20 (B012) - 07:22 (WEA03)	05:04 - 21:43	05:47 (B223) - 06:31 (B013)	05:23 - 21:34	06:24 (B013) - 06:39 (B013)	06:08 - 20:45	07:01 (WEA03) - 07:31 (WEA03)	06:58 - 19:37	07:51 (B083) - 08:14 (B083)	07:48 - 18:29		07:42 - 16:32	08:23 - 16:13
18	08:21 - 16:45	07:34 - 17:40	06:34 - 18:30		06:24 - 20:22	05:28 - 21:11	06:20 (B012) - 07:21 (WEA03)	05:04 - 21:43	05:47 (B223) - 06:31 (B013)	05:24 - 21:33	06:24 (B013) - 06:38 (B013)	06:10 - 20:43	07:01 (WEA03) - 07:29 (WEA03)	07:00 - 19:34	07:52 (B083) - 08:13 (B083)	07:49 - 18:27		07:44 - 16:31	08:24 - 16:13
19	08:20 - 16:46	07:33 - 17:42	06:32 - 18:31		06:22 - 20:24	05:27 - 21:12	06:21 (B012) - 07:24 (WEA03)	05:04 - 21:44	05:47 (B223) - 06:31 (B013)	05:25 - 21:32	06:24 (B013) - 06:38 (B013)	06:12 - 20:41	07:03 (WEA03) - 07:28 (WEA03)	07:01 - 19:32	07:52 (B083) - 08:11 (B083)	07:51 - 18:24		07:45 - 16:30	08:25 - 16:14
20	08:19 - 16:48	07:31 - 17:44	06:29 - 18:33		06:20 - 20:25	05:26 - 21:14	06:22 (B012) - 07:20 (WEA03)	05:04 - 21:44	05:47 (B223) - 06:31 (B013)	05:27 - 21:31	06:25 (B013) - 06:38 (B013)	06:13 - 20:39	07:04 (WEA03) - 07:26 (WEA03)	07:03 - 19:30	07:54 (B083) - 08:09 (B083)	07:53 - 18:22		07:47 - 16:29	08:25 - 16:14
21	08:18 - 16:50	07:29 - 17:46	06:27 - 18:35		06:18 - 20:27	05:24 - 21:15	06:22 (B012) - 07:18 (WEA03)	05:04 - 21:44	05:47 (B223) - 06:31 (B013)	05:28 - 21:30	06:26 (B013) - 07:22 (WEA03)	06:15 - 20:37	07:06 (WEA03) - 07:24 (WEA03)	07:04 - 19:27	07:57 (B083) - 08:06 (B083)	07:54 - 18:20		07:49 - 16:27	08:26 - 16:14
22	08:17 - 16:51	07:26 - 17:47	06:25 - 18:37		06:16 - 20:29	05:23 - 21:17	06:18 (B013) - 07:06 (WEA03)	05:04 - 21:45	05:47 (B223) - 06:31 (B013)	05:29 - 21:28	06:27 (B013) - 07:24 (WEA03)	06:16 - 20:35	07:08 (WEA03) - 07:20 (WEA03)	07:06 - 19:25		07:56 - 18:18		07:50 - 16:26	08:27 - 16:15
23	08:16 - 16:53	07:24 - 17:49	06:23 - 18:38		06:14 - 20:31	05:22 - 21:18	06:17 (B013) - 07:14 (WEA03)	05:05 - 21:45	05:47 (B223) - 06:31 (B013)	05:31 - 21:27	06:28 (B013) - 07:27 (WEA03)	06:18 - 20:33		07:08 - 19:23		07:58 - 18:16		07:52 - 16:25	08:27 - 16:15
24	08:15 - 16:55	07:22 - 17:51	06:20 - 18:40	07:10 (B083) - 07:20 (B083)	06:11 - 20:32	05:20 - 21:20	06:16 (B013) - 07:14 (WEA03)	05:05 - 21:45	05:48 (B223) - 06:32 (B013)	05:32 - 21:26	06:33 (B012) - 07:29 (WEA03)	06:20 - 20:31		07:09 - 19:20		08:00 - 18:14		07:54 - 16:24	08:28 - 16:16
25	08:14 - 16:56	07:20 - 17:53	06:18 - 18:42	07:07 (B083) - 07:23 (B083)	06:09 - 20:34	05:19 - 21:21	06:15 (B013) - 07:12 (WEA03)	05:05 - 21:45	05:48 (B223) - 06:32 (B013)	05:33 - 21:25	06:32 (B012) - 07:30 (WEA03)	06:21 - 20:28		07:11 - 19:18		08:01 - 18:12		07:55 - 16:23	08:28 - 16:16
26	08:12 - 16:58	07:18 - 17:55	07:16 - 19:43	08:04 (B083) - 08:24 (B083)	06:07 - 20:36	05:18 - 21:22	06:15 (B013) - 07:23 (WEA03)	05:06 - 21:45	05:48 (B223) - 06:32 (B013)	05:35 - 21:23	06:31 (B012) - 07:31 (WEA03)	06:23 - 20:26		07:13 - 19:16		08:03 - 18:10		07:57 - 16:22	08:28 - 16:17
27	08:11 - 17:00	07:16 - 17:56	07:13 - 19:45	08:03 (B083) - 08:25 (B083)	06:05 - 20:37	05:17 - 21:24	06:15 (B013) - 07:29 (WEA03)	05:06 - 21:45	05:49 (B223) - 06:33 (B013)	05:36 - 21:22	06:30 (B012) - 07:31 (WEA03)	06:24 - 20:24		07:14 - 19:14		08:05 - 18:08		07:58 - 16:21	08:29 - 16:18
28	08:10 - 17:02	07:14 - 17:58	07:11 - 19:47	08:02 (B083) - 08:26 (B083)	06:03 - 20:39	05:16 - 21:25	06:15 (B013) - 07:24 (WEA03)	05:06 - 21:45	05:49 (B223) - 06:33 (B013)	05:38 - 21:20	06:31 (B012) - 07:33 (WEA03)	06:26 - 20:22		07:16 - 19:11		08:07 - 18:06		08:00 - 16:20	08:29 - 16:18
29	08:09 - 17:03		07:09 - 19:48	08:01 (B083) - 08:25 (B083)	06:01 - 20:41	05:15 - 21:26	06:14 (B013) - 07:25 (WEA03)	05:07 - 21:45	05:51 (B223) - 06:34 (B013)	05:39 - 21:19	06:30 (B012) - 07:33 (WEA03)	06:28 - 20:20	07:29 (B178) - 07:36 (B178)	07:17 - 19:09	08:30 (B084) - 08:39 (B084)	07:08 - 17:04		08:02 - 16:19	08:29 - 16:19
30	08:07 - 17:05		07:07 - 19:50	08:00 (B083) - 08:26 (B083)	05:59 - 20:42	06:51 (WEA03) - 07:26 (WEA03)	05:14 - 21:27	05:07 - 21:45	06:14 (B013) - 06:30 (B013)	05:46 - 21:16	05:51 (B223) - 06:34 (B013)	05:40 - 21:17	06:30 (B012) - 07:33 (WEA03)	06:29 - 20:18	07:26 (B178) - 07:37 (B178)	07:19 - 19:07	08:28 (B084) - 08:42 (B084)	07:10 - 17:02		08:03 - 16:18	08:29 - 16:20
31	08:06 - 17:07		07:04 - 19:52	08:00 (B083) - 08:26 (B083)		05:13 - 21:28	06:14 (B013) - 06:30 (B013)	05:07 - 21:45		05:42 - 21:16	06:31 (B012) - 07:34 (WEA03)	06:31 - 20:15	07:25 (B178) - 07:39 (B178)			07:12 - 17:00			08:29 - 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	263	268	245
astr.max.mögl.Beschattung			449	564	1056	468	721	792	505	263			
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29			
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Reduktion Windrichtung			0.68	0.72	0.73	0.74	0.74	0.73	0.71	0.66			
Gesamte Reduktion			0.18	0.25	0.30	0.24	0.27	0.28	0.21	0.18			
Met.wahrsch.Beschattung			82	140	315	111	196	221	108	47			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO029 - Beerengrund 25, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	07:57 (B083)	05:58	06:48 (WEA03)	05:12	06:13 (B013)	05:08	06:20 (B013)	05:43	06:29 (B012)	06:32	07:20 (B178)	07:21	08:22 (B084)	07:14	08:04
	16:22	17:09	18:00	19:54 25	08:22 (B083)	20:44 34	07:22 (WEA03)	21:30 16	06:29 (B013)	21:45 13	06:33 (B013)	21:14 46	07:32 (WEA03)	20:13 17	07:37 (B178)	19:04 19	08:41 (B084)	16:58	16:18
2	08:29	08:03	07:10	07:00	07:56 (B083)	05:56	06:47 (WEA03)	05:11	06:13 (B013)	05:09	06:19 (B013)	05:45	06:31 (B012)	06:34	07:20 (B178)	07:22	08:19 (B082)	07:16	08:06
	16:23	17:11	18:02	19:55 25	08:21 (B083)	20:46 35	07:22 (WEA03)	21:31 16	06:29 (B013)	21:44 14	06:33 (B013)	21:13 44	07:33 (WEA03)	20:11 17	07:37 (B178)	19:02 22	08:41 (B084)	16:57	16:17
3	08:29	08:01	07:08	06:57	07:56 (B083)	05:54	06:46 (WEA03)	05:10	06:13 (B013)	05:09	06:20 (B013)	05:46	06:56 (WEA03)	06:36	07:19 (B178)	07:24	08:16 (B082)	07:17	08:07
	16:24	17:13	18:04	19:57 25	08:21 (B083)	20:47 36	07:22 (WEA03)	21:32 15	06:28 (B013)	21:44 13	06:33 (B013)	21:11 37	07:33 (WEA03)	20:09 25	08:08 (B253)	19:00 25	08:41 (B084)	16:55	16:16
4	08:29	08:00	07:05	07:41 (B082) 06:55	07:56 (B083)	05:52	06:46 (WEA03)	05:10	06:13 (B013)	05:10	06:20 (B013)	05:48	06:56 (WEA03)	06:37	07:20 (B178)	07:26	08:15 (B082)	07:19	08:09
	16:25	17:14	18:05 8	07:49 (B082) 19:59 25	08:21 (B083)	20:49 36	07:22 (WEA03)	21:33 16	06:29 (B013)	21:44 14	06:34 (B013)	21:09 37	07:33 (WEA03)	20:06 29	08:10 (B253)	18:57 26	08:41 (B084)	16:53	16:16
5	08:29	07:58	07:03	07:39 (B082) 06:53	07:55 (B083)	05:50	06:46 (WEA03)	05:09	06:13 (B013)	05:11	06:20 (B013)	05:49	06:55 (WEA03)	06:39	07:21 (B178)	07:27	08:13 (B082)	07:21	08:10
	16:27	17:16	18:07 12	07:51 (B082) 20:00 24	08:19 (B083)	20:50 37	07:23 (WEA03)	21:34 16	06:29 (B013)	21:43 15	06:35 (B013)	21:08 38	07:33 (WEA03)	20:04 31	08:12 (B083)	18:55 27	08:40 (B084)	16:51	16:15
6	08:29	07:56	07:01	07:37 (B082) 06:51	07:28 (B178)	05:48	06:45 (WEA03)	05:08	06:13 (B013)	05:12	06:20 (B013)	05:51	06:55 (WEA03)	06:40	07:21 (B178)	07:29	08:13 (B082)	07:23	08:11
	16:28	17:18	18:09 22	07:59 (B084) 20:02 29	08:18 (B083)	20:52 38	07:23 (WEA03)	21:35 15	06:28 (B013)	21:43 14	06:34 (B013)	21:06 37	07:32 (WEA03)	20:02 33	08:13 (B083)	18:53 26	08:39 (B084)	16:50	16:15
7	08:28	07:55	06:59	07:37 (B082) 06:48	07:25 (B178)	05:46	06:45 (WEA03)	05:08	06:14 (B013)	05:12	06:20 (B013)	05:53	06:55 (WEA03)	06:42	07:22 (B178)	07:31	08:13 (B082)	07:24	08:13
	16:29	17:20	18:11 24	08:01 (B084) 20:04 32	08:17 (B083)	20:54 38	07:23 (WEA03)	21:36 15	06:29 (B013)	21:42 15	06:35 (B013)	21:04 38	07:33 (WEA03)	20:00 33	08:14 (B083)	18:51 25	08:38 (B084)	16:48	16:14
8	08:28	07:53	06:57	07:37 (B082) 06:46	07:24 (B178)	05:45	06:45 (WEA03)	05:07	06:15 (B013)	05:13	06:20 (B013)	05:54	06:55 (WEA03)	06:44	07:24 (B178)	07:32	08:13 (B082)	07:26	08:14
	16:30	17:22	18:12 25	08:02 (B084) 20:05 32	08:16 (B083)	20:55 38	07:23 (WEA03)	21:37 14	06:29 (B013)	21:42 15	06:35 (B013)	21:02 37	07:32 (WEA03)	19:57 28	08:14 (B083)	18:48 24	08:37 (B084)	16:46	16:14
9	08:28	07:51	06:54	07:36 (B082) 06:44	07:23 (B178)	05:43	06:45 (WEA03)	05:06	06:14 (B013)	05:14	06:20 (B013)	05:56	06:55 (WEA03)	06:45	07:50 (B083)	07:34	08:12 (B082)	07:28	08:15
	16:31	17:24	18:14 26	08:02 (B084) 20:07 30	08:14 (B083)	20:57 38	07:23 (WEA03)	21:38 15	06:29 (B013)	21:41 16	06:36 (B013)	21:00 38	07:33 (WEA03)	19:55 25	08:15 (B083)	18:46 22	08:34 (B084)	16:44	16:14
10	08:27	07:49	06:52	07:36 (B082) 06:42	07:22 (B178)	05:41	06:46 (WEA03)	05:06	06:15 (B013)	05:15	06:20 (B013)	05:57	06:55 (WEA03)	06:47	07:49 (B083)	07:36	08:13 (B082)	07:30	08:16
	16:33	17:25	18:16 27	08:03 (B084) 20:09 27	08:11 (B253)	20:59 37	07:23 (WEA03)	21:38 14	06:29 (B013)	21:40 16	06:36 (B013)	20:59 37	07:32 (WEA03)	19:53 25	08:14 (B083)	18:44 12	08:25 (B082)	16:43	16:13
11	08:26	07:48	06:50	07:37 (B082) 06:39	07:21 (B178)	05:39	06:45 (WEA03)	05:06	06:15 (B013)	05:16	06:21 (B013)	05:59	06:56 (WEA03)	06:48	07:49 (B083)	07:37	08:15 (B082)	07:32	08:17
	16:34	17:27	18:18 26	08:03 (B084) 20:10 22	08:08 (B253)	21:00 37	07:22 (WEA03)	21:39 13	06:28 (B013)	21:39 15	06:36 (B013)	20:57 36	07:32 (WEA03)	19:51 26	08:15 (B083)	18:42 9	08:24 (B082)	16:41	16:13
12	08:26	07:46	06:48	07:38 (B082) 06:37	07:21 (B178)	05:38	06:20 (B012)	05:05	06:15 (B013)	05:17	06:21 (B013)	06:00	06:56 (WEA03)	06:50	07:48 (B083)	07:39		07:33	08:18
	16:36	17:29	18:19 25	08:03 (B084) 20:12 17	07:38 (B178)	21:02 44	07:22 (WEA03)	21:40 14	06:29 (B013)	21:39 15	06:36 (B013)	20:55 35	07:31 (WEA03)	19:48 26	08:14 (B083)	18:40		16:40	16:13
13	08:25	07:44	06:45	07:41 (B082) 06:35	07:21 (B178)	05:36	06:19 (B012)	05:05	06:16 (B013)	05:18	06:21 (B013)	06:02	06:56 (WEA03)	06:52	07:48 (B083)	07:41		07:35	08:19
	16:37	17:31	18:21 21	08:02 (B084) 20:14 17	07:38 (B178)	21:03 46	07:22 (WEA03)	21:41 13	06:29 (B013)	21:38 16	06:37 (B013)	20:53 35	07:31 (WEA03)	19:46 26	08:14 (B083)	18:37		16:38	16:13
14	08:25	07:42	06:43	07:42 (B084) 06:33	07:22 (B178)	05:35	06:19 (B012)	05:05	06:17 (B013)	05:19	06:21 (B013)	06:04	06:56 (WEA03)	06:53	07:48 (B083)	07:42		07:37	08:20
	16:39	17:33	18:23 19	08:01 (B084) 20:15 15	07:37 (B178)	21:05 46	07:22 (WEA03)	21:41 12	06:29 (B013)	21:37 16	06:37 (B013)	20:51 33	07:29 (WEA03)	19:44 24	08:12 (B083)	18:35		16:37	16:13
15	08:24	07:40	06:41	07:43 (B084) 06:31	07:23 (B178)	05:33	06:18 (B012)	05:04	06:17 (B013)	05:21	06:21 (B013)	06:05	06:58 (WEA03)	06:55	07:48 (B083)	07:44		07:39	08:21
	16:40	17:35	18:25 17	08:00 (B084) 20:17 13	07:36 (B178)	21:06 47	07:21 (WEA03)	21:42 12	06:29 (B013)	21:36 16	06:37 (B013)	20:49 31	07:29 (WEA03)	19:41 24	08:12 (B083)	18:33		16:35	16:13
16	08:23	07:38	06:39	07:43 (B084) 06:28	07:23 (B178)	05:31	06:18 (B012)	05:04	05:49 (B223)	05:22	06:22 (B013)	06:07	06:58 (WEA03)	06:56	07:49 (B083)	07:46		07:40	08:22
	16:42	17:36	18:26 15	07:58 (B084) 20:19 10	07:33 (B178)	21:08 47	07:21 (WEA03)	21:42 12	06:29 (B013)	21:35 14	06:36 (B013)	20:47 29	07:27 (WEA03)	19:39 22	08:11 (B083)	18:31		16:34	16:13
17	08:22	07:36	06:36	07:45 (B084) 06:26		05:30	06:17 (B012)	05:04	05:48 (B223)	05:23	06:22 (B013)	06:08	06:59 (WEA03)	06:58	07:49 (B083)	07:48		07:42	08:23
	16:43	17:38	18:28 11	07:56 (B084) 20:20		21:09 45	07:19 (WEA03)	21:43 15	06:30 (B013)	21:34 14	06:36 (B013)	20:45 27	07:26 (WEA03)	19:37 20	08:09 (B083)	18:29		16:32	16:13
18	08:21	07:34	06:34	07:49 (B084) 06:24		05:28	06:17 (B012)	05:04	05:48 (B223)	05:24	06:22 (B013)	06:10	07:00 (WEA03)	07:00	07:51 (B083)	07:49		07:44	08:24
	16:45	17:40	18:30 3	07:52 (B084) 20:22		21:11 44	07:19 (WEA03)	21:43 16	06:30 (B013)	21:33 24	07:18 (WEA03)	20:43 24	07:24 (WEA03)	19:34 17	08:08 (B083)	18:27		16:31	16:13
19	08:20	07:33	06:32	06:22		05:27	06:18 (B012)	05:04	05:47 (B223)	05:25	06:23 (B013)	06:12	07:02 (WEA03)	07:01	07:52 (B083)	07:51		07:45	08:25
	16:46	17:42	18:31	20:24		21:12 43	07:19 (WEA03)	21:44 17	06:30 (B013)	21:32 26	07:20 (WEA03)	20:41 21	07:23 (WEA03)	19:32 12	08:04 (B083)	18:24		16:30	16:14
20	08:19	07:31	06:29	06:20		05:26	06:18 (B012)	05:04	05:47 (B223)	05:27	06:24 (B013)	06:13	07:04 (WEA03)	07:03		07:53		07:47	08:25
	16:48	17:44	18:33	20:25		21:14 41	07:18 (WEA03)	21:44 17	06:30 (B013)	21:31 30	07:23 (WEA03)	20:39 15	07:19 (WEA03)	19:30		18:22		16:29	16:14
21	08:18	07:29	06:27	06:18		05:24	06:18 (B012)	05:04	05:47 (B223)	05:28	06:25 (B013)	06:15	07:09 (WEA03)	07:04		07:54		07:49	08:26
	16:50	17:46	18:35	20:27		21:15 39	07:17 (WEA03)	21:44 17	06:30 (B013)	21:30 33	07:24 (WEA03)	20:37 6	07:15 (WEA03)	19:27		18:20		16:27	16:14
22	08:17	07:26	06:25	06:16		05:23	06:18 (B012)	05:04	05:47 (B223)	05:29	06:27 (B013)	06:16		07:06		07:56		07:50	08:27
	16:51	17:47	18:37	20:29		21:17 36	07:16 (WEA03)	21:45 17	06:30 (B013)	21:28 34	07:25 (WEA03)	20:35		19:25		18:18		16:26	16:15
23	08:16	07:24	06:23	06:14		05:22	06:17 (B013)	05:05	05:47 (B223)	05:31	06:29 (B012)	06:18		07:08		07:58		07:52	08:27
	16:53	17:49	18:38	20:31		21:18 35	07:15 (WEA03)	21:45 17	06:30 (B013)	21:27 35	07:26 (WEA03)	20:33		19:23		18:16		16:25	16:15
24	08:15	07:22	06:20	06:11	07:00 (WEA03)	05:20	06:15 (B013)	05:05	05:48 (B223)	05:32	06:29 (B012)	06:20		07:09		08:00		07:54	08:28
	16:55	17:51	18:40	20:32 13	07:13 (WEA03)	21:20 33	07:14 (WEA03)	21:45 17	06:31 (B013)	21:26 39	07:28 (WEA03)	20:31		19:20		18:14		16:24	16:16
25	08:14	07:20	06:18	07:09 (B083) 06:09	06:56 (WEA03)	05:19	06:14 (B013)	05:05	05:48 (B223)	05:33	06:28 (B012)	06:21		07:11		08:01		07:55	08:28
	16:56	17:53	18:42 6	07:15 (B083) 20:34 19	07:15 (WEA03)	21:21 30	07:13 (WEA03)	21:45 17	06:31 (B013)	21:25 41	07:28 (WEA03)	20:28		19:18		18:12		16:23	16:16
26	08:12	07:18	07:16	08:04 (B083) 06:07	06:54 (WEA03)	05:18	06:14 (B013)	05:06	05:49 (B223)	05:35	06:28 (B012)	06:23		07:13		08:03		07:57	08:28
	16:58	17:55	19:43 14	08:18 (B083) 20:36 23	07:17 (WEA03)	21:22 26	07:11 (WEA03)	21:45 16	06:31 (B013)	21:23 43	07:29 (WEA03)	20:26		19:16		18:10		16:22	16:17
27	08:11	07:16	07:13	08:02 (B083) 06:05	06:52 (WEA03)	05:17	06:13 (B013)	05:06	05:50 (B223)	05:36	06:27 (B012)	06:24		07:14	08:30 (B084)	08:05		07:58	08:29
	17:00	17:56	19:45 18	08:20 (B083) 20:37 26	07:18 (WEA03)	21:24 24	07:09 (WEA03)	21:45 15	06:32 (B013)	21:22 45	07:29 (WEA03)	20:24		19:14 5	08:35 (B084)	18:08		16:21	16:18
28	08:10	07:14	07:11	08:00 (B083) 06:03	06:51 (WEA03)	05:16	06:13 (B013)	05:06	05:51 (B223)	05:38	06:28 (B012)	06:26	07:26 (B178)	07:16	08:27 (B084)	08:07		08:00	08:29
	17:02	17:58	19:47 21	08:21 (B083) 20:39 28	07:19 (WEA03)	21:25 14	06:27 (B013)	21:45 12	06:31 (B013)	21:20 45	07:30 (WEA03)	20:22 7	07:33 (B178)	19:11 11	08:38 (B084)	18:06		16:20	16:18
29	08:09		07:09	07:58 (B083) 06:01	06:49 (WEA03)	05:15	06:13 (B013)	05:07	06:20 (B013)	05:39	06:28 (B012)	06:28	07:24 (B178)	07:17	08:24 (B084)	07:08		08:02	08:29
	17:04		19:48 23	08:21 (B083) 20:41 31	07:20 (WEA03)	21:26 14	06:27 (B013)	21:45 12	06:32 (B013)	21:19 47	07:31 (WEA03)	20:20 12	07:36 (B178)	19:09 15	08:39 (B084)	17:04		16:19	16:19
30	08:07		07:07	07:58 (B083) 05:59	06:49 (WEA03)	05:14	06:12 (B013)	05:07	06:20 (B013)	05:40	06:28 (B012)	06:29	07:22 (B178)	07:19	08:23 (B084)	07:10		08:03	08:29
	17:05		19:50 24	08:22 (B083) 20:42 33	07:22 (WEA03)	21:27 16	06:28 (B013)	21:45 12	06:32 (B013)	21:17 46	07:31 (WEA03)	20:18 14	07:36 (B178)	19:07 17	08:40 (B084)	17:02		16:18	16:20
31	08:06		07:04	07:57 (B083)		05:13	06:12 (B013)			05:42	06:29 (B012)	06:31	07:22 (B178)			07:12			08:29
	17:07		19:52 25	08:22 (B083)		21:28 16	06:28 (B013)			21:16 46	07:32 (WEA03)	20:15 15	07:37 (B178)			17:00			16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung			412	541	1090	445	785	729	508	237		
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29		
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Reduktion Windrichtung			0.68	0.72	0.73	0.74	0.74	0.73	0.71	0.66		
Gesamte Reduktion			0.18	0.25	0.30	0.24	0.27	0.28	0.21	0.18		
Met.wahrsch.Beschattung			75	135	325	106	214	203	109	43		

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO030 - Beerengrund 27, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	19:02	18:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:27	17:16	18:07	20:00	20:50	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:24	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:43	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:57	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:38	21:40	20:59	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:42	07:37	08:20
	16:39	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:21	06:05	06:55	07:44	07:39	08:21
	16:40	17:35	18:25	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:53	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:27	16:31	16:13
19	08:20	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:19	07:31	06:29	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:23	06:14	05:22	05:05	05:31	06:23	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:24	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	07:00 (WEA03)	05:05	05:33	06:26	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	3 07:03 (WEA03)	21:45	21:25	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	06:54 (WEA03)	05:04	05:35	06:23	07:13	08:25 (B084)	08:03	07:57	08:28
	16:58	17:55	19:43	20:36	15 07:09 (WEA03)	21:45	21:23	20:26	19:16	9 08:34 (B084)	18:10	16:22	16:17
27	08:11	07:16	07:13	08:02 (B083)	06:05	05:05	05:36	06:24	07:24 (B178)	07:14	08:22 (B084)	08:05	07:58	08:29
	17:00	17:56	19:45	10 08:12 (B083)	20:37	21:45	21:22	20:24	8 07:32 (B178)	19:14	14 08:36 (B084)	18:08	16:21	16:18
28	08:10	07:14	07:11	07:59 (B083)	06:03	05:04	05:38	06:26	07:21 (B178)	07:16	08:20 (B084)	08:07	08:00	08:29
	17:02	17:58	19:47	15 08:14 (B083)	20:39	21:45	21:20	20:22	12 07:33 (B178)	19:11	17 08:37 (B084)	18:06	16:20	16:18
29	08:09		07:09	07:56 (B083)	06:01	05:04	05:39	06:28	07:20 (B178)	07:17	08:19 (B084)	08:07	08:02	08:29
	17:04		19:48	19 08:15 (B083)	20:41	21:45	21:19	20:20	14 07:34 (B178)	19:09	18 08:37 (B084)	18:04	16:19	16:19
30	08:07		07:07	07:55 (B083)	05:59	05:04	05:40	06:29	07:18 (B178)	07:19	08:14 (B082)	07:10	08:03	08:29
	17:05		19:50	21 08:16 (B083)	20:42	21:45	21:17	20:18	16 07:34 (B178)	19:07	24 08:38 (B084)	17:02	16:18	16:20
31	08:06		07:04	07:54 (B083)	05:04	05:04	05:42	06:31	07:18 (B178)			07:12		08:29
	17:07		19:52	23 08:17 (B083)	21:28	15 06:24 (B013)	21:16	42 07:28 (WEA03)	20:15	17 07:35 (B178)		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung			379	540	1130	428	867	658	526	212		
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29		
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Reduktion Windrichtung			0.67	0.72	0.73	0.74	0.74	0.73	0.71	0.66		
Gesamte Reduktion			0.18	0.25	0.30	0.24	0.27	0.28	0.21	0.18		
Met.wahrsch.Beschattung			69	134	337	102	235	183	113	39		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO031 - Beerengrund 31, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April			Mai			Juni			Juli			August			September			Oktober			November	Dezember
1	08:29		08:04		07:12		07:02		07:50 (B083)	05:58		06:43 (WEA03)	05:12		06:06 (B013)	05:08		06:10 (B013)	05:43		06:44 (WEA03)	06:32		07:13 (B178)	07:21		08:01 (B082)	07:14	08:04
	16:22		17:09		18:00		19:54	19	08:09 (B083)	20:44	21	07:04 (WEA03)	21:30	33	07:05 (WEA03)	21:45	15	06:25 (B013)	21:14	37	07:21 (WEA03)	20:13	37	08:03 (B083)	19:04	30	08:31 (B084)	16:58	16:18
2	08:29		08:03		07:10		07:00		07:47 (B083)	05:56		06:41 (WEA03)	05:11		06:06 (B013)	05:09		06:09 (B013)	05:45		06:45 (WEA03)	06:34		07:14 (B178)	07:22		08:00 (B082)	07:16	08:06
	16:23		17:11		18:02		19:55	22	08:09 (B083)	20:46	25	07:06 (WEA03)	21:31	32	07:04 (WEA03)	21:44	16	06:25 (B013)	21:13	37	07:22 (WEA03)	20:11	38	08:05 (B083)	19:02	30	08:30 (B084)	16:57	16:17
3	08:29		08:01		07:08		06:57		07:46 (B083)	05:54		06:40 (WEA03)	05:10		06:05 (B013)	05:09		06:10 (B013)	05:46		06:45 (WEA03)	06:36		07:14 (B178)	07:24		08:01 (B082)	07:17	08:07
	16:24		17:13		18:04		19:57	24	08:10 (B083)	20:47	27	07:07 (WEA03)	21:32	32	07:03 (WEA03)	21:44	15	06:25 (B013)	21:11	36	07:21 (WEA03)	20:09	37	08:05 (B083)	19:00	28	08:29 (B084)	16:55	16:16
4	08:29		08:00		07:05		06:55		07:46 (B083)	05:52		06:38 (WEA03)	05:10		06:05 (B013)	05:10		06:10 (B013)	05:48		06:45 (WEA03)	06:37		07:16 (B178)	07:26		08:02 (B082)	07:19	08:09
	16:25		17:14		18:05		19:59	24	08:10 (B083)	20:49	29	07:07 (WEA03)	21:33	31	07:03 (WEA03)	21:44	16	06:26 (B013)	21:09	36	07:21 (WEA03)	20:06	32	08:05 (B083)	18:57	25	08:27 (B084)	16:53	16:16
5	08:29		07:58		07:03		06:53		07:44 (B083)	05:50		06:38 (WEA03)	05:09		06:05 (B013)	05:11		06:11 (B013)	05:49		06:45 (WEA03)	06:39		07:41 (B083)	07:27		08:03 (B082)	07:21	08:10
	16:27		17:16		18:07		20:00	25	08:09 (B083)	20:50	31	07:09 (WEA03)	21:34	28	07:01 (WEA03)	21:43	15	06:26 (B013)	21:08	36	07:21 (WEA03)	20:04	25	08:06 (B083)	18:55	16	08:24 (B084)	16:51	16:15
6	08:29		07:56		07:01		06:51		07:44 (B083)	05:48		06:37 (WEA03)	05:08		06:04 (B013)	05:12		06:10 (B013)	05:51		06:45 (WEA03)	06:40		07:40 (B083)	07:29			07:23	08:11
	16:28		17:18		18:09		20:02	26	08:10 (B083)	20:52	32	07:08 (WEA03)	21:35	27	07:00 (WEA03)	21:43	20	07:02 (WEA03)	21:06	35	07:20 (WEA03)	20:02	25	08:05 (B083)	18:53			16:50	16:15
7	08:28		07:55		06:59		06:48		07:44 (B083)	05:46		06:36 (WEA03)	05:08		06:05 (B013)	05:12		06:11 (B013)	05:53		06:46 (WEA03)	06:42		07:40 (B083)	07:31			07:24	08:13
	16:29		17:20		18:11		20:04	25	08:09 (B083)	20:54	33	07:09 (WEA03)	21:36	24	06:59 (WEA03)	21:42	23	07:05 (WEA03)	21:04	34	07:20 (WEA03)	20:00	26	08:06 (B083)	18:51			16:48	16:14
8	08:28		07:53		06:57		06:46		07:44 (B083)	05:45		06:36 (WEA03)	05:07		06:05 (B013)	05:13		06:11 (B013)	05:54		06:46 (WEA03)	06:44		07:39 (B083)	07:32			07:26	08:14
	16:30		17:22		18:12		20:05	25	08:09 (B083)	20:55	34	07:10 (WEA03)	21:37	19	06:57 (WEA03)	21:42	28	07:07 (WEA03)	21:02	33	07:19 (WEA03)	19:57	26	08:05 (B083)	18:48			16:46	16:14
9	08:27		07:51		06:54		06:44		07:44 (B083)	05:43		06:35 (WEA03)	05:06		06:05 (B013)	05:14		06:12 (B013)	05:56		06:47 (WEA03)	06:45		07:40 (B083)	07:34			07:28	08:15
	16:31		17:24		18:14		20:07	25	08:09 (B083)	20:57	35	07:10 (WEA03)	21:38	15	06:20 (B013)	21:41	28	07:08 (WEA03)	21:00	31	07:18 (WEA03)	19:55	25	08:05 (B083)	18:46			16:44	16:14
10	08:27		07:49		06:52		07:26 (B082)		06:42			07:17 (B178)	05:41		06:35 (WEA03)	05:06		06:05 (B013)	05:15		06:12 (B013)	05:57		06:47 (WEA03)	06:47		07:39 (B083)	07:36			07:30	08:16
	16:33		17:25		18:16	16	07:47 (B084)		20:09	35		08:07 (B083)	20:59	36	07:11 (WEA03)	21:38	16	06:21 (B013)	21:40	31	07:10 (WEA03)	20:59	30	07:17 (WEA03)	19:53	24	08:03 (B083)	18:44			16:43	16:13
11	08:26		07:48		06:50		07:24 (B082)		06:39			07:15 (B178)	05:39		06:34 (WEA03)	05:06		06:05 (B013)	05:16		06:13 (B013)	05:59		06:48 (WEA03)	06:48		07:40 (B083)	07:37			07:32	08:17
	16:34		17:27		18:18	25	07:49 (B084)		20:10	37		08:06 (B083)	21:00	37	07:11 (WEA03)	21:39	15	06:20 (B013)	21:39	32	07:11 (WEA03)	20:57	27	07:16 (WEA03)	19:51	23	08:03 (B083)	18:42			16:41	16:13
12	08:26		07:46		06:48		07:23 (B082)		06:37			07:14 (B178)	05:38		06:34 (WEA03)	05:05		06:05 (B013)	05:17		06:14 (B013)	06:00		06:49 (WEA03)	06:50		07:40 (B083)	07:39			07:33	08:18
	16:36		17:29		18:19	28	07:51 (B084)		20:12	38		08:05 (B083)	21:02	36	07:10 (WEA03)	21:40	16	06:21 (B013)	21:39	32	07:12 (WEA03)	20:55	25	07:14 (WEA03)	19:48	21	08:01 (B083)	18:40			16:40	16:13
13	08:25		07:44		06:45		07:21 (B082)		06:35			07:13 (B178)	05:36		06:34 (WEA03)	05:05		06:06 (B013)	05:18		06:14 (B013)	06:02		06:51 (WEA03)	06:52		07:42 (B083)	07:41			07:35	08:19
	16:37		17:31		18:21	30	07:51 (B084)		20:14	38		08:03 (B083)	21:03	37	07:11 (WEA03)	21:41	15	06:21 (B013)	21:38	33	07:13 (WEA03)	20:53	22	07:13 (WEA03)	19:46	17	07:59 (B083)	18:37			16:38	16:13
14	08:25		07:42		06:43		07:21 (B082)		06:33			07:13 (B178)	05:35		06:34 (WEA03)	05:05		06:06 (B013)	05:19		06:15 (B013)	06:04		06:52 (WEA03)	06:53		07:43 (B083)	07:42			07:37	08:20
	16:39		17:33		18:23	31	07:52 (B084)		20:15	35		08:01 (B083)	21:05	37	07:11 (WEA03)	21:41	15	06:21 (B013)	21:37	33	07:14 (WEA03)	20:51	19	07:11 (WEA03)	19:44	13	07:56 (B083)	18:35			16:37	16:13
15	08:24		07:40		06:41		07:21 (B082)		06:31			07:13 (B178)	05:33		06:34 (WEA03)	05:04		06:06 (B013)	05:21		06:16 (B013)	06:05		06:56 (WEA03)	06:55		07:46 (B083)	07:44			07:39	08:21
	16:40		17:35		18:25	31	07:52 (B084)		20:17	32		07:59 (B253)	21:06	37	07:11 (WEA03)	21:42	16	06:22 (B013)	21:36	33	07:15 (WEA03)	20:49	12	07:08 (WEA03)	19:41	7	07:53 (B083)	18:33			16:35	16:13
16	08:23		07:38		06:39		07:21 (B082)		06:28			07:12 (B178)	05:31		06:34 (WEA03)	05:04		06:07 (B013)	05:22		06:18 (B013)	06:07			06:56			07:46			07:40	08:22
	16:42		17:36		18:26	30	07:51 (B084)		20:19	29		07:57 (B253)	21:08	37	07:11 (WEA03)	21:42	15	06:22 (B013)	21:35	29	07:15 (WEA03)	20:47			19:39			18:31			16:34	16:13
17	08:22		07:36		06:36		07:21 (B082)		06:26			07:12 (B178)	05:30		06:34 (WEA03)	05:04		06:07 (B013)	05:23		06:48 (WEA03)	06:08			06:58			07:48			07:42	08:23
	16:43		17:38		18:28	30	07:51 (B084)		20:20	24		07:54 (B253)	21:09	36	07:10 (WEA03)	21:43	15	06:22 (B013)	21:34	28	07:16 (WEA03)	20:45			19:37			18:29			16:32	16:13
18	08:21		07:34		06:34		07:23 (B082)		06:24			07:13 (B178)	05:28		06:34 (WEA03)	05:04		06:07 (B013)	05:24		06:47 (WEA03)	06:10			07:00			07:49			07:44	08:24
	16:45		17:40		18:30	28	07:51 (B084)		20:22	14		07:27 (B178)	21:11	36	07:10 (WEA03)	21:43	15	06:22 (B013)	21:33	30	07:17 (WEA03)	20:43			19:34			18:27			16:31	16:13
19	08:20		07:33		06:32		07:25 (B082)		06:22			07:14 (B178)	05:27		06:35 (WEA03)	05:04		06:07 (B013)	05:25		06:47 (WEA03)	06:12			07:01			07:51			07:45	08:25
	16:46		17:42		18:31	22	07:49 (B084)		20:24	11		07:25 (B178)	21:12	36	07:11 (WEA03)	21:44	16	06:23 (B013)	21:32	30	07:17 (WEA03)	20:41			19:32			18:24			16:30	16:14
20	08:19		07:31		06:29		07:32 (B084)		06:20			07:15 (B178)	05:26		06:35 (WEA03)	05:04		06:07 (B013)	05:27		06:47 (WEA03)	06:13			07:03			07:53			07:47	08:25
	16:48		17:44		18:33	16	07:48 (B084)		20:25	8		07:23 (B178)	21:14	36	07:11 (WEA03)	21:44	16	06:23 (B013)	21:31	31	07:18 (WEA03)	20:39			19:30			18:22			16:29	16:14
21	08:18		07:29		06:27		07:33 (B084)		06:18				05:24		06:35 (WEA03)	05:04		06:08 (B013)	05:28		06:47 (WEA03)	06:15			07:04			07:54			07:49	08:26
	16:50		17:46		18:35	13	07:46 (B084)		20:27				21:15	34	07:09 (WEA03)	21:44	15	06:23 (B013)	21:30	32	07:19 (WEA03)	20:37			19:27			18:20			16:27	16:14
22	08:17		07:26		06:25		07:35 (B084)		06:16				05:23		06:35 (WEA03)	05:04		06:08 (B013)	05:29		06:46 (WEA03)	06:16			07:06			07:56			07:50	08:27
	16:51		17:47		18:37	7	07:42 (B084)		20:29				21:17	34	07:09 (WEA03)	21:45	15	06:23 (B013)	21:28	33	07:19 (WEA03)	20:35			19:25			18:18			16:26	16:15
23	08:16		07:24		06:23				06:14				05:22		06:36 (WEA03)	05:05		06:08 (B013)	05:31		06:46 (WEA03)	06:18			07:08		08:20 (B084)	07:58			07:52	08:27
	16:53		17:49		18:38				20:31				21:18	33	07:09 (WEA03)	21:45	15	06:23 (B013)	21:27	33	07:19 (WEA03)	20:33			19:23	9	08:29 (B084)	18:16			16:25	16:15
24	08:15		07:22		06:20				06:11				05:20		06:37 (WEA03)	05:05		06:08 (B013)	05:32		06:46 (WEA03)	06:20		07:20 (B178)	07:09		08:17 (B084)	08:00			07:54	08:28
	16:55		17:51		18:40				20:32				21:20	32	07:09 (WEA03)	21:45	16	06:24 (B013)	21:26	35	07:21 (WEA03)	20:31	6	07:26 (B178)	19:20	13	08:30 (B084)	18:14			16:24	16:16
25	08:14		07:20		06:18				06:09				05:19		06:37 (WEA03)	05:05		06:08 (B013)	05:33		06:45 (WEA03)	06:21		07:18 (B178)	07:11		08:15 (B084)	08:01			07:55	08:28
	16:56		17:53		18:42				20:34				21:21	31	07:08 (WEA03)	21:45	16	06:24 (B013)	21:25	36	07:21 (WEA03)	20:28	11	07:29 (B178)	19:18	17	08:32 (B084)	18:12			16:23	16:16
26	08:12		07:18		07:16				06:07				05:18		06:38 (WEA03)	05:06		06:08 (B013)	05:35		06:45 (WEA03)	06:23		07:16 (B178)	07:13		08:08 (B082)	08:03			07:57	08:28
	16:58		17:55		19:43				20:36				21:22	30	07:08 (WEA03)	21:45	15	06:23 (B013)	21:23	36	07:21 (WEA03)	20:26	13	07:29 (B178)	19:16	24	08:33 (B084)	18:10			16:22	16:17
27	08:11		07:16		07:13				06:05				05:17		06:38 (WEA03)	05:06		06:09 (B013)	05:36		06:44 (WEA03)	06:24		07:15 (B178)	07:14		08:04 (B082)	08:05			07:58	08:29
	17:00		17:56		19:45				20:37				21:23	30	07:08 (WEA03)	21:45	15	06:24 (B013)	21:22	37	07:21 (WEA03)	20:24	19	07:55 (B253)	19:14	28	08:32 (B084)	18:08			16:21	16:18
28	08:10		07:14		07:11				06:03				05:16		06:39 (WEA03)	05:06		06:09 (B013)	05:38		06:45 (WEA03)	06:26		07:14 (B178)	07:16		08:03 (B082)	08:07			08:00	08:29
	17:02		17:58		19:47				20:39				21:25	28	07:07 (WEA03)	21:45	15	06:24 (B013)	21:20	36	07:21 (WEA03)	20:22	26	07:57 (B253)	19:11	30	08:33 (B084)	18:06			16:20	16:18
29	08:09				07:09				06:01		06:48 (WEA03)	05:15		06:09 (B013)	05:07		06:09 (B013)	05:39		06:44 (WEA03)	06:28		07:14 (B178)	07:17		08:01 (B082)	07:08			08:02	08:29
	17:04				19:48				20:41	10	06:58 (WEA03)	21:26	29	07:06 (WEA03)	21:45	16	06:25 (B013)	21:19	37	07:21 (WEA03)	20:20	31	07:59 (B253)	19:09	31	08:32 (B084)	17:04			16:19	16:19
30	08:07				07:07		07:54 (B083)		05:59		06:46 (WEA03)	05:14		06:07 (B013)	05:07		06:09 (B013)	05:40		06:44 (WEA03)	06:29		07:13 (B178)	07:19		08:01 (B082)	07:10			08:03	08:29
	17:05				19:50	10	08:04 (B083)		20:42	16	07:02 (WEA03)	21:27	33	07:06 (WEA03)	21:45	15	06:24 (B013)	21:17	37	07:21 (WEA03)	20:18	34	08:00 (B083)	19:07	31	08:32 (B084)	17:02			16:18	16:20
31	08:06				07:04		07:51 (B083)					05:13		06:06 (B013)				05:42		06:45 (WEA03)	06:31		07:13 (B178)				07:12				08:29
	17:07				19:52	16	08:07 (B083)					21:28	33	07:05 (WEA03)				21:16	37	07:22 (WEA03)	20:15	36	08:02 (B083)				17:00				16:21
Sonnenscheinstunden	259		277		366		414			483			497			501			454			382			333			268	245
astr.max.mögl.Beschattung					333			542			1015			564			907			626			559			129			
Red.Sonnenscheinwahrsch.					0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			
Reduktion Betriebsdauer					0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung					0.67			0.72			0.73			0.74			0.73			0.73			0.70			0.67			
Gesamte Reduktion					0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			
Met.wahrsch.Beschattung					60			135			303			134			246			174			119			24			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO032 - Beerengrund 33, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:54 14	07:49 (B083)	06:43 (WEA03)	06:05 (B013)	06:08 (B013)	06:42 (WEA03)	07:11 (B178)	07:57 (B082)	16:58
2	08:29	08:03	07:10	07:00	08:03 (B083)	20:44 15	21:30 33	21:45 15	20:13 38	19:04 30	08:27 (B084)	16:18
	16:23	17:11	18:02	19:55 18	07:46 (B083)	06:58 (WEA03)	07:03 (WEA03)	06:23 (B013)	07:18 (WEA03)	08:01 (B083)	07:57 (B082)	16:58
3	08:29	08:01	07:08	06:57	08:04 (B083)	20:46 20	21:31 34	21:14 36	20:11 36	19:02 27	08:25 (B084)	16:57
	16:24	17:13	18:04	19:57 21	07:44 (B083)	06:59 (WEA03)	07:02 (WEA03)	06:22 (B013)	07:18 (WEA03)	08:02 (B083)	07:59 (B082)	17:17
4	08:29	08:00	07:05	06:55	08:05 (B083)	20:47 24	07:02 (WEA03) 32	07:01 (WEA03) 18	06:58 (WEA03) 36	07:18 (WEA03) 32	07:24	08:07
	16:25	17:14	18:05	19:59 23	07:43 (B083)	06:37 (WEA03)	21:32	21:44	21:11	20:09	08:02 (B083)	17:17
5	08:29	07:58	07:03	06:53	08:06 (B083)	21:05 26	06:37 (WEA03) 32	06:04 (B013) 22	06:09 (B013) 35	07:18 (WEA03) 26	19:00 19	08:07
	16:27	17:16	18:07	20:00 23	07:42 (B083)	05:52	05:10	05:10	05:48	06:43 (WEA03)	08:23 (B084)	16:55
6	08:29	07:56	07:01	06:51	08:05 (B083)	20:49	07:03 (WEA03) 32	07:01 (WEA03)	07:01 (WEA03)	20:06	08:16 (B084)	17:19
	16:28	17:18	18:09	20:02 25	07:41 (B083)	20:50 28	21:33	21:44	21:09	08:03 (B083)	07:19	08:09
7	08:28	07:55	06:59	06:48	08:06 (B083)	07:04 (WEA03) 31	07:01 (WEA03)	07:01 (WEA03)	07:18 (WEA03)	18:57 3	16:53	16:16
	16:29	17:20	18:11	20:04 25	07:41 (B083)	21:34	21:44	21:09	20:06	08:19 (B084)	07:27	08:10
8	08:28	07:53	06:57	06:46	08:06 (B083)	06:35 (WEA03) 32	06:03 (B013) 22	06:09 (B013) 35	06:49 (WEA03) 26		07:21	08:10
	16:30	17:22	18:12	20:05 25	07:41 (B083)	05:08	05:11	05:49	06:39		07:38 (B083)	07:27
9	08:27	07:51	06:54	06:44	08:06 (B083)	21:37 26	07:01 (WEA03) 32	07:01 (WEA03) 22	07:18 (WEA03) 35		16:51	16:15
	16:31	17:24	18:14	20:07 25	07:41 (B083)	20:55 33	21:44	21:09	20:06		07:18 (WEA03)	08:11
10	08:27	07:49	06:52	06:42	08:06 (B083)	05:43	05:14	05:49	06:39		07:39 (B083)	07:29
	16:33	17:25	18:16	20:09 25	07:39 (B253)	20:57 34	07:02 (WEA03) 31	07:01 (WEA03) 26	07:18 (WEA03) 34		07:23	08:11
11	08:26	07:48	06:50	07:38 (B084) 06:39	05:41	05:06	05:14	05:49	06:39		16:50	16:15
	16:34	17:27	18:18 3	07:41 (B084) 20:10 35	05:48	21:38	21:43	21:06	07:17 (WEA03)		07:37 (B083)	07:31
12	08:26	07:46	06:48	07:21 (B082) 06:37	07:13 (B178)	05:36	05:13	05:54	20:02 25		16:48	16:14
	16:36	17:29	18:19 19	07:45 (B084) 20:12 38	05:38	05:03	05:10	05:48	08:02 (B083)		07:38 (B083)	07:31
13	08:25	07:44	06:45	07:18 (B082) 06:35	07:12 (B178)	21:40	06:04 (B013) 26	06:09 (B013) 33	18:51		16:48	16:14
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								07:01 (WEA03) 22	18:49		13:00	16:13
								07:01 (WEA03) 22	18:49		07:00 (B083)	07:36
								07:01 (WEA03) 22	18:49		12:58	16:13
								07:01 (WEA03) 22	18:49		07:00 (B083)	07:36
								07:01 (WEA03) 22	18:49		12:56	16:13
								07:01 (WEA03) 22	18:49		07:00 (B083)	07:36
								07:01 (WEA03) 22	18:49		12:54	16:13
								07:01 (WEA03) 22	18:49		07:00 (B083)	07:36
								07:01 (WEA03) 22	18:49		12:52	16:13
								07:01 (WEA03) 22	18:49		07:00 (B083)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO033 - Ebbinghauser Str. 13, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:58	05:12	05:08	06:04 (B013)	05:43	06:35 (WEA03)	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	06:56 (WEA03)	21:14	07:08 (WEA03)	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:56	05:11	05:09	06:03 (B013)	05:45	06:36 (WEA03)	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	06:56 (WEA03)	21:13	07:09 (WEA03)	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	06:39 (WEA03)	05:10	06:01 (B013)	05:09	06:04 (B013)	05:46	06:36 (WEA03)	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	06:45 (WEA03)	21:32	06:56 (WEA03)	21:44	06:57 (WEA03)	21:11	07:08 (WEA03)	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	07:41 (B083)	05:52	06:35 (WEA03)	05:10	06:01 (B013)	05:10	06:05 (B013)	05:48	06:37 (WEA03)	06:37	07:29 (B083)	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	9	07:50 (B083)	20:49	14	06:49 (WEA03)	21:33	33	06:56 (WEA03)	21:44	31	06:59 (WEA03)	21:09	31	07:08 (WEA03)	20:06	24	07:53 (B083)	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	07:37 (B083)	05:50	06:33 (WEA03)	05:09	06:00 (B013)	05:11	06:05 (B013)	05:49	06:38 (WEA03)	06:39	07:30 (B083)	07:27	07:21	08:10
	16:27	17:16	18:07	20:00	15	07:52 (B083)	20:50	19	06:52 (WEA03)	21:34	34	06:55 (WEA03)	21:43	33	07:00 (WEA03)	21:08	28	07:06 (WEA03)	20:04	23	07:53 (B083)	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	07:35 (B083)	05:48	06:31 (WEA03)	05:08	05:59 (B013)	05:12	06:05 (B013)	05:51	06:38 (WEA03)	06:40	07:29 (B083)	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	18	07:53 (B083)	20:52	22	06:53 (WEA03)	21:35	33	06:54 (WEA03)	21:43	33	07:00 (WEA03)	21:06	27	07:05 (WEA03)	20:02	22	07:51 (B083)	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	07:34 (B083)	05:46	06:29 (WEA03)	05:08	06:00 (B013)	05:12	06:06 (B013)	05:53	06:39 (WEA03)	06:42	07:31 (B083)	07:31	07:24	08:13
	16:29	17:20	18:11	20:04	20	07:54 (B083)	20:54	25	06:54 (WEA03)	21:36	32	06:54 (WEA03)	21:42	32	07:00 (WEA03)	21:04	25	07:04 (WEA03)	20:00	19	07:50 (B083)	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	07:33 (B083)	05:45	06:29 (WEA03)	05:07	06:00 (B013)	05:13	06:06 (B013)	05:54	06:40 (WEA03)	06:44	07:31 (B083)	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	22	07:55 (B083)	20:55	27	06:56 (WEA03)	21:37	33	06:55 (WEA03)	21:42	33	07:01 (WEA03)	21:02	23	07:03 (WEA03)	19:57	17	07:48 (B083)	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	07:32 (B083)	05:43	06:28 (WEA03)	05:06	05:59 (B013)	05:14	06:07 (B013)	05:56	06:42 (WEA03)	06:45	07:33 (B083)	07:34	07:28	08:15
	16:32	17:24	18:14	20:07	24	07:56 (B083)	20:57	28	06:56 (WEA03)	21:38	33	06:54 (WEA03)	21:41	33	07:02 (WEA03)	21:00	20	07:02 (WEA03)	19:55	13	07:46 (B083)	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	07:31 (B083)	05:41	06:27 (WEA03)	05:06	06:00 (B013)	05:15	06:08 (B013)	05:57	06:44 (WEA03)	06:47	07:36 (B083)	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	24	07:55 (B083)	20:59	30	06:57 (WEA03)	21:38	31	06:54 (WEA03)	21:40	33	07:03 (WEA03)	20:59	15	06:59 (WEA03)	19:53	6	07:42 (B083)	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	07:31 (B083)	05:39	06:26 (WEA03)	05:06	05:59 (B013)	05:16	06:09 (B013)	05:59	06:47 (WEA03)	06:48				07:37	07:32	08:17
	16:34	17:27	18:18	20:10	24	07:55 (B083)	21:00	31	06:57 (WEA03)	21:39	30	06:52 (WEA03)	21:39	32	07:04 (WEA03)	20:57	9	06:56 (WEA03)	19:51				18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	07:30 (B083)	05:38	06:26 (WEA03)	05:05	05:59 (B013)	05:17	06:11 (B013)	06:00						19:50					07:39	07:33	08:18
	16:36	17:29	18:19	20:12	25	07:55 (B083)	21:02	32	06:58 (WEA03)	21:40	30	06:52 (WEA03)	21:39	29	07:04 (WEA03)	20:55							19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	07:10 (B178)	05:36	06:25 (WEA03)	05:05	06:00 (B013)	05:18	06:37 (WEA03)	06:02						06:52					07:41	07:35	08:19
	16:37	17:31	18:21	20:14	33	07:55 (B083)	21:03	33	06:58 (WEA03)	21:41	28	06:52 (WEA03)	21:38	28	07:05 (WEA03)	20:53							19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	07:07 (B178)	05:35	06:25 (WEA03)	05:05	06:00 (B013)	05:19	06:37 (WEA03)	06:04						06:53					07:42	07:37	08:20
	16:39	17:33	18:23	20:15	38	07:54 (B083)	21:05	34	06:59 (WEA03)	21:41	28	06:52 (WEA03)	21:37	29	07:06 (WEA03)	20:51							19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	07:06 (B178)	05:33	06:25 (WEA03)	05:04	06:00 (B013)	05:21	06:37 (WEA03)	06:05						06:55					07:44	07:39	08:21
	16:40	17:35	18:25	20:17	39	07:53 (B083)	21:06	34	06:59 (WEA03)	21:42	27	06:52 (WEA03)	21:36	29	07:06 (WEA03)	20:49							19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	07:22 (B084)	06:28	07:04 (B178)	05:31	06:25 (WEA03)	05:04	06:00 (B013)	05:22	06:36 (WEA03)	06:07					06:56					07:46	07:40	08:22
	16:42	17:36	18:26	11	07:33 (B084)	20:19	41	07:51 (B083)	21:08	34	06:59 (WEA03)	21:42	26	06:52 (WEA03)	21:35	31	07:07 (WEA03)	20:47					19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	07:08 (B082)	06:26	07:03 (B178)	05:30	06:24 (WEA03)	05:04	06:01 (B013)	05:23	06:36 (WEA03)	06:08					06:58					07:48	07:42	08:23
	16:43	17:38	18:28	20	07:35 (B084)	20:20	41	07:50 (B083)	21:09	35	06:59 (WEA03)	21:43	24	06:51 (WEA03)	21:34	31	07:07 (WEA03)	20:45					19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	07:05 (B082)	06:24	07:03 (B178)	05:28	06:24 (WEA03)	05:04	06:01 (B013)	05:24	06:36 (WEA03)	06:10					07:00	08:08 (B084)	07:49	07:44	08:24
	16:45	17:40	18:30	27	07:36 (B084)	20:22	39	07:48 (B083)	21:11	35	06:59 (WEA03)	21:43	24	06:51 (WEA03)	21:33	31	07:07 (WEA03)	20:43					19:34	10	08:18 (B084)	18:27	16:31	16:13
19	08:20	07:33	06:32	07:03 (B082)	06:22	07:03 (B178)	05:27	06:25 (WEA03)	05:04	06:01 (B013)	05:25	06:35 (WEA03)	06:12					07:01	07:52 (B082)	07:51	07:45	08:25
	16:46	17:42	18:31	32	07:36 (B084)	20:24	37	07:46 (B083)	21:12	34	06:59 (WEA03)	21:44	23	06:51 (WEA03)	21:32	32	07:07 (WEA03)	20:41					19:32	20	08:19 (B084)	18:24	16:30	16:14
20	08:19	07:31	06:29	07:02 (B082)	06:20	07:03 (B178)	05:26	06:25 (WEA03)	05:04	06:01 (B013)	05:27	06:36 (WEA03)	06:13					07:03	07:50 (B082)	07:53	07:47	08:25
	16:48	17:44	18:33	33	07:36 (B084)	20:25	32	07:42 (B253)	21:14	35	07:00 (WEA03)	21:44	23	06:51 (WEA03)	21:31	33	07:09 (WEA03)	20:39					19:30	26	08:20 (B084)	18:22	16:29	16:14
21	08:18	07:29	06:27	07:02 (B082)	06:18	07:03 (B178)	05:24	06:24 (WEA03)	05:04	06:01 (B013)	05:28	06:35 (WEA03)	06:15		07:12 (B178)	07:05			07:49 (B082)	07:54	07:49	08:26
	16:50	17:46	18:35	34	07:36 (B084)	20:27	30	07:41 (B253)	21:15	35	06:59 (WEA03)	21:44	23	06:51 (WEA03)	21:30	34	07:09 (WEA03)	20:37	11	07:40 (B253)	19:27	30	08:21 (B084)	18:20	16:27	16:14
22	08:17	07:27	06:25	07:02 (B082)	06:16	07:04 (B178)	05:23	06:25 (WEA03)	05:04	06:01 (B013)	05:29	06:35 (WEA03)	06:16		07:09 (B178)	07:06			07:47 (B082)	07:56	07:50	08:27
	16:51	17:47	18:37	34	07:36 (B084)	20:29	24	07:39 (B253)	21:17	34	06:59 (WEA03)	21:45	22	06:51 (WEA03)	21:28	34	07:09 (WEA03)	20:35	22	07:43 (B253)	19:25	34	08:21 (B084)	18:18	16:26	16:15
23	08:16	07:24	06:23	07:01 (B082)	06:14	07:05 (B178)	05:22	06:25 (WEA03)	05:05	06:01 (B013)	05:31	06:35 (WEA03)	06:18		07:08 (B178)	07:08			07:47 (B082)	07:58	07:52	08:27
	16:53	17:49	18:38	33	07:36 (B084)	20:31	16	07:36 (B253)	21:18	34	06:59 (WEA03)	21:45	23	06:51 (WEA03)	21:27	34	07:09 (WEA03)	20:33	28	07:45 (B253)	19:23	34	08:21 (B084)	18:16	16:25	16:15
24	08:15	07:22	06:20	07:02 (B082)	06:11	07:08 (B178)	05:20	06:25 (WEA03)	05:05	06:02 (B013)	05:32	06:35 (WEA03)	06:20		07:07 (B178)	07:09			07:46 (B082)	08:00	07:54	08:28
	16:55	17:51	18:40	30	07:34 (B084)	20:32	3	07:11 (B178)	21:20	34	06:59 (WEA03)	21:45	23	06:52 (WEA03)	21:26	35	07:10 (WEA03)	20:31	30	07:45 (B253)	19:20	34	08:20 (B084)	18:14	16:24	16:16
25	08:14	07:20	06:18	07:04 (B082)	06:09		05:19	06:26 (WEA03)	05:05	06:02 (B013)	05:33	06:35 (WEA03)	06:21		07:07 (B178)	07:11			07:46 (B082)	08:01	07:55	08:28
	16:56	17:53	18:42	25	07:33 (B084)	20:34			21:21	33	06:59 (WEA03)	21:45	23	06:52 (WEA03)	21:25	35	07:10 (WEA03)	20:28	35	07:48 (B083)	19:18	33	08:20 (B084)	18:12	16:23	16:16
26	08:12	07:18	07:16	08:05 (B082)	06:07		05:18	06:26 (WEA03)	05:06	06:02 (B013)	05:35	06:35 (WEA03)	06:23		07:06 (B178)	07:13			07:47 (B082)	08:03	07:57	08:28
	16:58	17:55	19:43	17	08:31 (B084)	20:36			21:22	32	06:58 (WEA03)	21:45	24	06:52 (WEA03)	21:23	34	07:09 (WEA03)	20:26	38	07:50 (B083)	19:16	30	08:19 (B084)	18:10	16:22	16:17
27	08:11	07:16	07:13	08:20 (B084)	06:05		05:17	06:26 (WEA03)	05:06	06:03 (B013)	05:36	06:34 (WEA03)	06:24		07:06 (B178)	07:14			07:47 (B082)	08:05	07:58	08:29
	17:00	17:56	19:45	8	08:28 (B084)	20:37			21:23	32	06:58 (WEA03)	21:45	24	06:53 (WEA03)	21:22	35	07:09 (WEA03)	20:24	40	07:52 (B083)	19:14	27	08:18 (B084)	18:08	16:21	16:18
28	08:10	07:14	07:11		06:03		05:16	06:27 (WEA03)	05:06	06:02 (B013)	05:38	06:35 (WEA03)	06:26		07:06 (B178)	07:16			07:51 (B082)	08:07	08:00	08:29
	17:02	17:58	19:47		20:39		21:25	31	06:58 (WEA03)	21:45	26	06:54 (WEA03)	21:20	35	07:10 (WEA03)	20:22	41	07:53 (B083)	19:11	17	08:16 (B084)	18:06	16:20	16:18
29	08:09		07:09		06:01		05:15	06:27 (WEA03)	05:07	06:03 (B013)	05:39	06:35 (WEA03)	06:28		07:06 (B178)	07:17			08:03 (B084)	07:08	08:02	08:29
	17:04		19:48		20:41		21:26	31	06:58 (WEA03)	21:45	27	06:55 (WEA03)	21:19	34	07:09 (WEA03)	20:20	42	07:54 (B083)	19:09	10	08:13 (B084)	17:04	16:19	16:19
30	08:07		07:07		05:59		05:14	06:28 (WEA03)	05:07	06:03 (B013)	05:40	06:36 (WEA03)	06:29		07:07 (B178)	07:19					07:10	08:03	08:29
	17:05		19:50		20:42		21:27	29	06:57 (WEA03)	21:45	28	06:55 (WEA03)	21:17	34	07:10 (WEA03)	20:18	39	07:54 (B083)	19:07			17:02	16:18	16:20
31	08:06		07:04				05:13	06:28 (WEA03)			05:42	06:36 (WEA03)	06:31		07:08 (B178)						07:12		08:29
	17:07		19:52				21:28	29	06:57 (WEA03)				21:16	33	07:09 (WEA03)	20:15	35	07:54 (B083)				17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung			304	554	862	824	998	637	504			
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32			
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Reduktion Windrichtung			0.69	0.73	0.74	0.74	0.74	0.73	0.70			
Gesamte Reduktion			0.19	0.25	0.30	0.24	0.27	0.28	0.21			
Met.wahrsch.Beschattung			57	139	259	195	272	178	108			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO034 - Ebbinghauser Str. 15, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32 (WEA03)	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:21	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:19	07:18	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:18	07:21	08:10
	16:27	17:16	18:07	20:00	20:50	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51 07:36 (B083)	05:48 06:31 (WEA03)	05:08	05:12	05:51	06:40	07:15	07:23	08:11
	16:28	17:18	18:09	20:02 6	07:42 (B083) 20:52 12	06:43 (WEA03) 21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	07:32 (B083) 05:46	06:28 (WEA03) 05:08	05:12	05:53	06:42	07:29	07:31	07:24	08:13
	16:29	17:20	18:11	20:04 13	07:45 (B083) 20:54 17	06:45 (WEA03) 21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	07:30 (B083) 05:45	06:27 (WEA03) 05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05 17	07:47 (B083) 20:55 20	06:47 (WEA03) 21:37	21:42	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	07:29 (B083) 05:43	06:25 (WEA03) 05:06	05:14	05:57	06:45	07:34	07:28	08:15
	16:32	17:24	18:14	20:07 19	07:48 (B083) 20:57 23	06:48 (WEA03) 21:38	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	07:27 (B083) 05:41	06:24 (WEA03) 05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09 21	07:48 (B083) 20:59 26	06:50 (WEA03) 21:38	21:40	21:00	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	07:26 (B083) 05:39	06:23 (WEA03) 05:06	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10 23	07:49 (B083) 21:00 27	06:50 (WEA03) 21:39	21:39	21:00	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	07:25 (B083) 05:38	06:23 (WEA03) 05:05	05:17	06:31 (WEA03)	06:50	07:39	07:33	08:18
	16:36	17:29	18:19	20:12 24	07:49 (B083) 21:02 28	06:51 (WEA03) 21:40	21:39	21:00	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	07:25 (B083) 05:36	06:22 (WEA03) 05:05	05:18	06:31 (WEA03)	06:52	07:41	07:35	08:19
	16:37	17:31	18:21	20:14 24	07:49 (B083) 21:03 30	06:52 (WEA03) 21:41	21:38	21:00	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	07:25 (B083) 05:35	06:21 (WEA03) 05:05	05:19	06:31 (WEA03)	06:53	07:42	07:37	08:20
	16:39	17:33	18:23	20:15 24	07:49 (B083) 21:05 32	06:53 (WEA03) 21:41	21:37	21:00	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	07:05 (B178) 05:33	06:20 (WEA03) 05:04	05:21	06:31 (WEA03)	06:55	08:06 (B084)	07:44	07:39	08:21
	16:40	17:35	18:25	20:17 34	07:49 (B083) 21:06 32	06:52 (WEA03) 21:42	21:36	21:00	19:41	4 08:10 (B084)	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	07:02 (B178) 05:31	06:20 (WEA03) 05:04	05:22	06:30 (WEA03)	06:56	07:46 (B082)	07:40	07:40	08:22
	16:42	17:36	18:26	20:19 38	07:47 (B083) 21:08 33	06:53 (WEA03) 21:42	21:35	21:00	19:39	19 08:14 (B084)	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	07:00 (B178) 05:30	06:20 (WEA03) 05:04	05:23	06:30 (WEA03)	06:58	07:43 (B082)	07:48	07:42	08:23
	16:43	17:38	18:28	20:20 42	07:47 (B083) 21:09 33	06:53 (WEA03) 21:43	21:34	21:00	19:37	26 08:15 (B084)	18:29	16:32	16:13
18	08:21	07:34	06:34 07:18 (B084)	06:24	07:00 (B178) 05:28	06:20 (WEA03) 05:04	05:24	06:30 (WEA03)	06:10 07:30 (B253)	07:00	07:42 (B082)	07:49	07:44	08:24
	16:45	17:40	18:30 8 07:26 (B084)	20:22 43	07:46 (B083) 21:11 33	06:53 (WEA03) 21:43	21:33	07:03 (WEA03)	20:43 4 07:34 (B253)	19:34	30 08:16 (B084)	18:27	16:31	16:13
19	08:20	07:33	06:32 07:14 (B084)	06:22	06:59 (B178) 05:27	06:20 (WEA03) 05:04	05:25	06:30 (WEA03)	06:12 07:09 (B178)	07:01	07:40 (B082)	07:51	07:45	08:25
	16:46	17:42	18:31 13 07:27 (B084)	20:24 42	07:44 (B083) 21:12 34	06:54 (WEA03) 21:44	21:32	07:03 (WEA03)	20:41 17 07:37 (B253)	19:32	34 08:16 (B084)	18:24	16:30	16:14
20	08:19	07:31	06:29 07:13 (B084)	06:20	06:59 (B178) 05:26	06:20 (WEA03) 05:04	05:27	06:30 (WEA03)	06:13 07:06 (B178)	07:03	07:40 (B082)	07:53	07:47	08:25
	16:48	17:44	18:33 16 07:29 (B084)	20:25 41	07:43 (B083) 21:14 34	06:54 (WEA03) 21:44	21:31	07:04 (WEA03)	20:39 24 07:38 (B253)	19:30	34 08:16 (B084)	18:22	16:29	16:14
21	08:18	07:29	06:27 06:57 (B082)	06:18	06:59 (B178) 05:24	06:19 (WEA03) 05:04	05:28	06:30 (WEA03)	06:15 07:05 (B178)	07:05	07:40 (B082)	07:54	07:49	08:26
	16:50	17:46	18:35 28 07:30 (B084)	20:27 38	07:41 (B083) 21:15 34	06:53 (WEA03) 21:44	21:30	07:04 (WEA03)	20:37 29 07:40 (B253)	19:27	34 08:16 (B084)	18:20	16:27	16:14
22	08:17	07:27	06:25 06:56 (B082)	06:16	06:59 (B178) 05:23	06:20 (WEA03) 05:04	05:29	06:30 (WEA03)	06:16 07:04 (B178)	07:06	07:40 (B082)	07:56	07:50	08:27
	16:51	17:47	18:37 31 07:30 (B084)	20:29 34	07:37 (B083) 21:17 34	06:54 (WEA03) 21:45	21:28	07:04 (WEA03)	20:35 31 07:40 (B253)	19:25	32 08:15 (B084)	18:18	16:26	16:15
23	08:16	07:24	06:23 06:54 (B082)	06:14	06:59 (B178) 05:22	06:20 (WEA03) 05:05	05:31	06:30 (WEA03)	06:18 07:03 (B178)	07:08	07:41 (B082)	07:58	07:52	08:27
	16:53	17:49	18:38 34 07:30 (B084)	20:31 30	07:34 (B253) 21:18 34	06:54 (WEA03) 21:45	21:27	07:04 (WEA03)	20:33 39 07:45 (B083)	19:23	30 08:15 (B084)	18:16	16:25	16:15
24	08:15	07:22	06:20 06:54 (B082)	06:11	07:00 (B178) 05:20	06:20 (WEA03) 05:05	05:32	06:30 (WEA03)	06:20 07:02 (B178)	07:09	07:42 (B082)	08:00	07:54	08:28
	16:55	17:51	18:40 34 07:30 (B084)	20:32 26	07:33 (B253) 21:20 34	06:54 (WEA03) 21:45	21:26	07:04 (WEA03)	20:31 41 07:46 (B083)	19:20	25 08:13 (B084)	18:14	16:24	16:16
25	08:14	07:20	06:18 06:54 (B082)	06:09	07:01 (B178) 05:19	06:20 (WEA03) 05:05	05:33	06:30 (WEA03)	06:21 07:03 (B178)	07:11	07:57 (B084)	08:01	07:55	08:28
	16:56	17:53	18:42 33 07:29 (B084)	20:34 20	07:31 (B253) 21:21 34	06:54 (WEA03) 21:45	21:25	07:04 (WEA03)	20:28 42 07:48 (B083)	19:18	15 08:12 (B084)	18:12	16:23	16:16
26	08:12	07:18	07:16 07:53 (B082)	06:07	07:22 (B253) 05:18	06:21 (WEA03) 05:06	05:35	06:30 (WEA03)	06:23 07:02 (B178)	07:13	07:58 (B084)	08:03	07:57	08:28
	16:58	17:55	19:43 32 08:28 (B084)	20:36 7	07:29 (B253) 21:22 33	06:54 (WEA03) 21:45	21:23	07:04 (WEA03)	20:26 43 07:48 (B083)	19:16	13 08:11 (B084)	18:10	16:22	16:17
27	08:11	07:16	07:13 07:54 (B082)	06:05	05:17	06:21 (WEA03) 05:06	05:36	06:30 (WEA03)	06:24 07:03 (B178)	07:14	08:00 (B084)	08:05	07:58	08:29
	17:00	17:56	19:45 29 08:27 (B084)	20:37	21:23 33	06:54 (WEA03) 21:45	21:22	07:03 (WEA03)	20:24 41 07:49 (B083)	19:14	7 08:07 (B084)	18:08	16:21	16:18
28	08:10	07:14	07:11 07:55 (B082)	06:03	05:16	06:21 (WEA03) 05:06	05:39	06:31 (WEA03)	06:26 07:03 (B178)	07:16		08:07	08:00	08:29
	17:02	17:58	19:47 24 08:26 (B084)	20:39	21:25 32	06:53 (WEA03) 21:45	21:20	07:04 (WEA03)	20:22 40 07:49 (B083)	19:11		18:06	16:20	16:18
29	08:09		07:09 07:56 (B082)	06:01	05:15	06:21 (WEA03) 05:07	06:00 (B013)	05:39	06:31 (WEA03)	06:28 07:05 (B178)	07:17		07:08	08:02	08:29
	17:04		19:48 15 08:23 (B084)	20:41	21:26 32	06:53 (WEA03) 21:45	21:19	07:03 (WEA03)	20:20 35 07:49 (B083)	19:09		17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	06:22 (WEA03) 05:07	06:00 (B013)	05:40	06:32 (WEA03)	06:29 07:07 (B178)	07:19		07:10	08:03	08:29
	17:05		19:50	20:42	21:27 31	06:53 (WEA03) 21:45	21:17	07:04 (WEA03)	20:18 29 07:49 (B083)	19:07		17:02	16:18	16:20
31	08:06		07:04		05:13	06:22 (WEA03)	05:42	06:32 (WEA03)	06:31 07:25 (B083)			07:12		08:29
	17:07		19:52		21:28 31	06:53 (WEA03)	21:16	07:03 (WEA03)	20:15 24 07:49 (B083)			17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382		333	268	245
astr.max.mögl.Beschattung			297	566	776	960	1003	631	440				
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32				
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95				
Reduktion Windrichtung			0.70	0.73	0.74	0.74	0.74	0.73	0.71				
Gesamte Reduktion			0.19	0.25	0.30	0.24	0.27	0.28	0.21				
Met.wahrsch.Beschattung			56	143	234	228	274	176	94				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO035 - Ebbinghauser Str. 15a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	07:51 (B084)	05:58	06:37 (B178)	05:12	05:08	05:59 (WEA03)	05:43	06:53 (B253)	06:32	07:20 (B082)	07:21	07:14	08:04
	16:22	17:09	18:00	19:53 20	08:11 (B084)	20:44 45	07:25 (B083)	21:30	21:45 26	06:25 (WEA03)	21:14 21	07:14 (B253)	20:13 15	07:35 (B082)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	07:50 (B084)	05:56	06:36 (B178)	05:11	06:02 (WEA03)	05:59 (WEA03)	05:45	06:53 (B253)	06:34	07:19 (B082)	07:22	07:16	08:06
	16:23	17:11	18:02	19:55 22	08:12 (B084)	20:46 46	07:25 (B083)	21:31 8	06:10 (WEA03)	06:24 (WEA03)	21:13 22	07:15 (B253)	20:11 19	07:58 (B084)	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	07:49 (B084)	05:54	06:36 (B178)	05:10	06:00 (WEA03)	06:00 (WEA03)	05:46	06:53 (B253)	06:36	07:18 (B082)	07:24	07:17	08:07
	16:24	17:13	18:04	19:57 23	08:12 (B084)	20:47 44	07:24 (B083)	21:32 12	06:12 (WEA03)	06:24 (WEA03)	21:11 29	07:24 (B083)	20:09 30	08:02 (B084)	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	07:49 (B084)	05:52	06:35 (B178)	05:10	05:59 (WEA03)	06:01 (WEA03)	05:48	06:51 (B178)	06:37	07:18 (B082)	07:26	07:19	08:09
	16:25	17:14	18:05	19:59 23	08:12 (B084)	20:49 44	07:23 (B083)	21:33 15	06:14 (WEA03)	06:24 (WEA03)	21:09 36	07:27 (B083)	20:06 34	08:04 (B084)	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	07:26 (B082)	05:50	06:36 (B178)	05:09	05:58 (WEA03)	06:02 (WEA03)	05:49	06:49 (B178)	06:39	07:19 (B082)	07:27	07:21	08:10
	16:27	17:16	18:07	20:00 32	08:11 (B084)	20:50 45	07:23 (B083)	21:34 17	06:15 (WEA03)	06:24 (WEA03)	21:07 39	07:28 (B083)	20:04 35	08:05 (B084)	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	07:24 (B082)	05:48	06:36 (B178)	05:08	05:57 (WEA03)	06:02 (WEA03)	05:51	06:47 (B178)	06:40	07:18 (B082)	07:29	07:23	08:11
	16:28	17:18	18:09	20:02 35	08:10 (B084)	20:52 46	07:22 (B083)	21:35 19	06:16 (WEA03)	06:23 (WEA03)	21:06 42	07:29 (B083)	20:02 36	08:05 (B084)	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	07:23 (B082)	05:46	06:36 (B178)	05:08	05:57 (WEA03)	06:03 (WEA03)	05:53	06:47 (B178)	06:42	07:19 (B082)	07:31	07:24	08:13
	16:29	17:20	18:11	20:04 36	08:10 (B084)	20:54 45	07:21 (B083)	21:36 20	06:17 (WEA03)	06:23 (WEA03)	21:04 44	07:31 (B083)	20:00 36	08:06 (B084)	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	07:22 (B082)	05:45	06:38 (B178)	05:07	05:57 (WEA03)	06:04 (WEA03)	05:54	06:46 (B178)	06:44	07:20 (B082)	07:32	07:26	08:14
	16:30	17:22	18:12	20:05 35	08:09 (B084)	20:55 42	07:20 (B083)	21:37 21	06:18 (WEA03)	06:22 (WEA03)	21:02 45	07:31 (B083)	19:57 33	08:06 (B084)	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	07:21 (B082)	05:43	06:38 (B178)	05:06	05:56 (WEA03)	06:05 (WEA03)	05:56	06:46 (B178)	06:45	07:22 (B082)	07:34	07:28	08:15
	16:31	17:24	18:14	20:07 35	08:08 (B084)	20:57 40	07:18 (B083)	21:38 22	06:18 (WEA03)	06:22 (WEA03)	21:00 44	07:32 (B083)	19:55 30	08:06 (B084)	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	07:20 (B082)	05:41	06:41 (B178)	05:06	05:56 (WEA03)	06:06 (WEA03)	05:57	06:45 (B178)	06:47	07:43 (B084)	07:36	07:30	08:16
	16:33	17:25	18:16	20:09 32	08:05 (B084)	20:59 36	07:17 (B083)	21:38 23	06:19 (WEA03)	06:21 (WEA03)	21:40 15	06:21 (WEA03)	20:59 42	07:32 (B083)	19:53 22	08:05 (B084)	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	07:20 (B082)	05:39	06:43 (B253)	05:06	05:55 (WEA03)	06:08 (WEA03)	05:59	06:45 (B178)	06:48	07:43 (B084)	07:37	07:31	08:17
	16:34	17:27	18:18	20:10 25	08:02 (B084)	21:00 30	07:14 (B083)	21:39 24	06:19 (WEA03)	06:20 (WEA03)	20:57 44	07:33 (B083)	19:51 22	08:05 (B084)	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	07:20 (B082)	05:38	06:42 (B253)	05:05	05:55 (WEA03)	06:10 (WEA03)	06:00	06:45 (B178)	06:50	07:42 (B084)	07:39	07:33	08:18
	16:36	17:29	18:19	20:12 17	07:37 (B082)	21:02 21	07:03 (B253)	21:40 25	06:20 (WEA03)	06:18 (WEA03)	21:39 8	07:33 (B083)	19:48 22	08:04 (B084)	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	07:21 (B082)	05:36	06:42 (B253)	05:05	05:55 (WEA03)	05:18	06:02	06:45 (B178)	06:52	07:43 (B084)	07:41	07:35	08:19
	16:37	17:31	18:21	20:14 15	07:36 (B082)	21:03 22	07:04 (B253)	21:41 26	06:21 (WEA03)	21:38	20:53 44	07:33 (B083)	19:46 20	08:03 (B084)	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	07:22 (B082)	05:35	06:43 (B253)	05:05	05:55 (WEA03)	05:19	06:04	06:45 (B178)	06:53	07:43 (B084)	07:42	07:37	08:20
	16:39	17:33	18:23	20:15 13	07:35 (B082)	21:05 22	07:05 (B253)	21:41 27	06:22 (WEA03)	21:37	20:51 44	07:33 (B083)	19:44 18	08:01 (B084)	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	07:24 (B082)	05:33	06:42 (B253)	05:04	05:55 (WEA03)	05:21	06:05	06:46 (B178)	06:55	07:45 (B084)	07:44	07:39	08:21
	16:40	17:35	18:25	20:17 9	07:33 (B082)	21:06 22	07:04 (B253)	21:42 27	06:22 (WEA03)	21:36	20:49 42	07:33 (B083)	19:41 15	08:00 (B084)	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28		05:31	06:43 (B253)	05:04	05:55 (WEA03)	05:22	06:07	06:46 (B178)	06:56	07:47 (B084)	07:46	07:40	08:22
	16:42	17:36	18:26	20:19		21:08 21	07:04 (B253)	21:42 28	06:23 (WEA03)	21:35	20:47 40	07:32 (B083)	19:39 11	07:58 (B084)	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26		05:30	06:42 (B253)	05:04	05:55 (WEA03)	05:23	06:08	06:48 (B178)	06:58		07:48	07:42	08:23
	16:43	17:38	18:28	20:20		21:09 21	07:03 (B253)	21:43 28	06:23 (WEA03)	21:34	20:45 36	07:32 (B083)	19:37		18:29	16:32	16:13
18	08:21	07:34	06:34	06:24		05:28	06:43 (B253)	05:04	05:55 (WEA03)	05:24	06:10	07:05 (B083)	07:00		07:49	07:43	08:24
	16:45	17:40	18:30	20:22		21:11 20	07:03 (B253)	21:43 28	06:23 (WEA03)	21:33	20:43 26	07:31 (B083)	19:34		18:27	16:31	16:13
19	08:20	07:33	06:32	06:22		05:27	06:43 (B253)	05:04	05:55 (WEA03)	05:25	06:59 (B253) 06:12	07:06 (B083)	07:01		07:51	07:45	08:25
	16:46	17:42	18:31	20:24		21:12 20	07:03 (B253)	21:44 29	06:24 (WEA03)	21:32 7	07:06 (B253) 20:41	07:31 (B083)	19:32		18:24	16:30	16:14
20	08:19	07:31	06:29	06:20	07:10 (B083)	05:26	06:44 (B253)	05:04	05:56 (WEA03)	05:27	06:58 (B253) 06:13	07:06 (B083)	07:03		07:53	07:47	08:25
	16:48	17:44	18:33	20:25 6	07:16 (B083)	21:14 19	07:03 (B253)	21:44 28	06:24 (WEA03)	21:31 11	07:09 (B253) 20:39	07:30 (B083)	19:30		18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	07:06 (B083)	05:24	06:44 (B253)	05:04	05:56 (WEA03)	05:28	06:57 (B253) 06:15	07:07 (B083)	07:04		07:54	07:49	08:26
	16:50	17:46	18:35	20:27 14	07:20 (B083)	21:15 18	07:02 (B253)	21:44 28	06:24 (WEA03)	21:30 13	07:10 (B253) 20:37	07:29 (B083)	19:27		18:20	16:27	16:14
22	08:17	07:26	06:25	06:16	07:04 (B083)	05:23	06:45 (B253)	05:04	05:56 (WEA03)	05:29	06:56 (B253) 06:16	07:08 (B083)	07:06		07:56	07:50	08:27
	16:51	17:47	18:37	20:29 17	07:21 (B083)	21:17 16	07:01 (B253)	21:45 28	06:24 (WEA03)	21:28 15	07:11 (B253) 20:35	07:27 (B083)	19:25		18:18	16:26	16:15
23	08:16	07:24	06:23	06:14	07:02 (B083)	05:22	06:46 (B253)	05:05	05:56 (WEA03)	05:31	06:55 (B253) 06:18	07:10 (B083)	07:08		07:58	07:52	08:27
	16:53	17:49	18:38	20:31 21	07:23 (B083)	21:18 15	07:01 (B253)	21:45 28	06:24 (WEA03)	21:27 16	07:11 (B253) 20:33	07:25 (B083)	19:23		18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	07:01 (B083)	05:20	06:47 (B253)	05:05	05:57 (WEA03)	05:32	06:55 (B253) 06:20	07:12 (B083)	07:09		08:00	07:54	08:28
	16:55	17:51	18:40	20:32 23	07:24 (B083)	21:19 13	07:00 (B253)	21:45 28	06:25 (WEA03)	21:26 18	07:13 (B253) 20:31	07:22 (B083)	19:20		18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	07:00 (B083)	05:19	06:48 (B253)	05:05	05:56 (WEA03)	05:33	06:54 (B253) 06:21		07:11		08:01	07:55	08:28
	16:56	17:53	18:42	20:34 24	07:24 (B083)	21:21 11	06:59 (B253)	21:45 29	06:25 (WEA03)	21:25 19	07:13 (B253) 20:28		19:18		18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	06:59 (B083)	05:18	06:50 (B253)	05:06	05:56 (WEA03)	05:35	06:53 (B253) 06:23		07:13		08:03	07:57	08:28
	16:58	17:55	19:43	20:36 26	07:25 (B083)	21:22 7	06:57 (B253)	21:45 28	06:24 (WEA03)	21:23 20	07:13 (B253) 20:26		19:16		18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	06:42 (B178)	05:17		05:06	05:57 (WEA03)	05:36	06:53 (B253) 06:24		07:14		08:05	07:58	08:29
	17:00	17:56	19:45	20:37 34	07:25 (B083)	21:23		21:45 28	06:25 (WEA03)	21:22 21	07:14 (B253) 20:24		19:14		18:08	16:21	16:18
28	08:10	07:14	07:11 08:00 (B084)	06:03	06:39 (B178)	05:16		05:06	05:57 (WEA03)	05:38	06:53 (B253) 06:26		07:16		08:07	08:00	08:29
	17:02	17:58	19:47 6 08:06 (B084)	20:39 39	07:25 (B083)	21:25		21:45 28	06:25 (WEA03)	21:20 21	07:14 (B253) 20:22		19:11		18:06	16:20	16:18
29	08:08		07:09 07:56 (B084)	06:01	06:38 (B178)	05:15		05:07	05:58 (WEA03)	05:39	06:53 (B253) 06:28	07:26 (B082)	07:17		07:08	08:01	08:29
	17:04		19:48 12 08:08 (B084)	20:41 42	07:25 (B083)	21:26		21:45 27	06:25 (WEA03)	21:19 21	07:14 (B253) 20:20 6	07:32 (B082)	19:09		17:04	16:19	16:19
30	08:07		07:07 07:54 (B084)	05:59	06:38 (B178)	05:14		05:07	05:58 (WEA03)	05:40	06:53 (B253) 06:29	07:23 (B082)	07:19		07:10	08:03	08:29
	17:05		19:50 16 08:10 (B084)	20:42 42	07:25 (B083)	21:27		21:45 27	06:25 (WEA03)	21:17 22	07:15 (B253) 20:18 11	07:34 (B082)	19:07		17:02	16:18	16:20
31	08:06		07:04 07:52 (B084)			05:13				05:42	06:53 (B253) 06:31	07:21 (B082)			07:12		08:29
	17:07		19:52 19 08:11 (B084)			21:28				21:16 22	07:15 (B253) 20:15 14	07:35 (B082)			17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung			53	660	731	706	457	830	398			
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32			
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Reduktion Windrichtung			0.71	0.72	0.73	0.74	0.74	0.73	0.72			
Gesamte Reduktion			0.19	0.25	0.30	0.24	0.27	0.28	0.22			
Met.wahrsch.Beschattung			10	165	218	168	124	231	87			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO036 - Ebbinghauser Str. 17, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	07:50 (B084)	05:58	06:35 (B178)	05:12	06:39 (B253)	05:08	05:43	06:45 (B178)	06:32	07:13 (B082)	07:21	07:14	08:04
	16:22	17:09	18:00	19:53 15	08:05 (B084)	20:44 40	07:20 (B083)	21:30 17	06:56 (B253)	21:44	21:14 38	07:25 (B083)	20:13 33	08:01 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	07:48 (B084)	05:56	06:34 (B178)	05:11	06:40 (B253)	05:09	05:45	06:45 (B178)	06:34	07:13 (B082)	07:22	07:16	08:06
	16:23	17:11	18:02	19:55 18	08:06 (B084)	20:46 42	07:20 (B083)	21:31 15	06:55 (B253)	21:44	21:13 40	07:27 (B083)	20:11 36	08:03 (B084)	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	07:47 (B084)	05:54	06:32 (B178)	05:10	06:40 (B253)	05:09	05:46	06:43 (B178)	06:36	07:13 (B082)	07:24	07:17	08:07
	16:24	17:13	18:04	19:57 20	08:07 (B084)	20:47 45	07:20 (B083)	21:32 15	06:55 (B253)	21:44	21:11 41	07:27 (B083)	20:09 36	08:03 (B084)	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	07:46 (B084)	05:52	06:32 (B178)	05:10	06:42 (B253)	05:10	05:48	06:43 (B178)	06:37	07:15 (B082)	07:26	07:19	08:09
	16:25	17:14	18:05	19:59 22	08:08 (B084)	20:49 46	07:20 (B083)	21:33 13	06:55 (B253)	21:44	21:09 40	07:28 (B083)	20:06 34	08:04 (B084)	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	07:45 (B084)	05:50	06:32 (B178)	05:09	06:42 (B253)	05:11	05:49	06:42 (B178)	06:39	07:17 (B082)	07:27	07:21	08:10
	16:27	17:16	18:07	20:00 22	08:07 (B084)	20:50 46	07:20 (B083)	21:34 12	06:54 (B253)	21:43	21:07 42	07:28 (B083)	20:04 30	08:04 (B084)	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	07:44 (B084)	05:48	06:31 (B178)	05:08	06:43 (B253)	05:12	06:52 (B253) 05:51	06:41 (B178)	06:40	07:40 (B084)	07:29	07:23	08:11
	16:28	17:18	18:09	20:02 24	08:08 (B084)	20:52 46	07:20 (B083)	21:35 9	06:52 (B253)	21:43 4	06:56 (B253) 21:06	07:28 (B083)	20:02 24	08:04 (B084)	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	07:44 (B084)	05:46	06:31 (B178)	05:08	06:45 (B253)	05:12	06:51 (B253) 05:53	06:41 (B178)	06:42	07:40 (B084)	07:31	07:24	08:13
	16:29	17:20	18:11	20:04 24	08:08 (B084)	20:54 45	07:19 (B083)	21:36 7	06:52 (B253)	21:42 7	06:58 (B253) 21:04	07:29 (B083)	20:00 24	08:04 (B084)	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	07:23 (B082)	05:45	06:32 (B178)	05:07	06:47 (B253)	05:13	06:50 (B253) 05:54	06:41 (B178)	06:44	07:40 (B084)	07:32	07:26	08:14
	16:30	17:22	18:12	20:05 26	08:07 (B084)	20:55 44	07:19 (B083)	21:37 4	06:51 (B253)	21:41 9	06:59 (B253) 21:02	07:29 (B083)	19:57 23	08:03 (B084)	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	07:19 (B082)	05:43	06:32 (B178)	05:06		05:14	06:49 (B253) 05:56	06:41 (B178)	06:45	07:40 (B084)	07:34	07:28	08:15
	16:31	17:24	18:14	20:07 32	08:07 (B084)	20:57 43	07:18 (B083)	21:38		21:41 12	07:01 (B253) 21:00	07:30 (B083)	19:55 23	08:03 (B084)	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	07:16 (B082)	05:41	06:33 (B178)	05:06		05:15	06:49 (B253) 05:57	06:41 (B178)	06:47	07:40 (B084)	07:36	07:30	08:16
	16:33	17:25	18:16	20:09 35	08:05 (B084)	20:59 41	07:18 (B083)	21:38		21:40 13	07:02 (B253) 20:59	07:29 (B083)	19:53 21	08:01 (B084)	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	07:15 (B082)	05:39	06:33 (B178)	05:06		05:16	06:48 (B253) 05:59	06:42 (B178)	06:48	07:41 (B084)	07:37	07:31	08:17
	16:34	17:27	18:18	20:10 35	08:04 (B084)	21:00 40	07:17 (B083)	21:39		21:39 15	07:03 (B253) 20:57	07:29 (B083)	19:51 19	08:00 (B084)	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	07:14 (B082)	05:38	06:33 (B178)	05:05		05:17	06:48 (B253) 06:00	06:42 (B178)	06:50	07:41 (B084)	07:39	07:33	08:18
	16:36	17:29	18:19	20:12 34	08:03 (B084)	21:02 41	07:16 (B083)	21:40		21:39 15	07:03 (B253) 20:55	07:29 (B083)	19:48 17	07:58 (B084)	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	07:14 (B082)	05:36	06:35 (B178)	05:05		05:18	06:47 (B253) 06:02	06:43 (B178)	06:52	07:43 (B084)	07:41	07:35	08:19
	16:37	17:31	18:21	20:14 32	08:01 (B084)	21:03 39	07:15 (B083)	21:41		21:38 17	07:04 (B253) 20:53	07:29 (B083)	19:46 14	07:57 (B084)	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	07:13 (B082)	05:35	06:38 (B178)	05:05	05:59 (WEA03)	05:19	06:47 (B253) 06:04	06:44 (B178)	06:53	07:45 (B084)	07:42	07:37	08:20
	16:39	17:33	18:23	20:15 27	07:58 (B084)	21:05 34	07:14 (B083)	21:41 5	06:04 (WEA03)	21:37 18	07:05 (B253) 20:51	07:28 (B083)	19:44 8	07:53 (B084)	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	07:13 (B082)	05:33	06:37 (B253)	05:04	05:58 (WEA03)	05:21	06:47 (B253) 06:05	06:47 (B178)	06:55		07:44	07:39	08:21
	16:40	17:35	18:25	20:17 18	07:31 (B082)	21:06 32	07:12 (B083)	21:42 8	06:06 (WEA03)	21:36 18	07:05 (B253) 20:49	07:28 (B083)	19:41		18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	07:12 (B082)	05:31	06:37 (B253)	05:04	05:58 (WEA03)	05:22	06:46 (B253) 06:07	07:02 (B083)	06:56		07:46	07:40	08:22
	16:42	17:36	18:26	20:19 18	07:30 (B082)	21:08 28	07:10 (B083)	21:42 9	06:07 (WEA03)	21:35 20	07:06 (B253) 20:47	07:26 (B083)	19:39		18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	07:13 (B082)	05:30	06:36 (B253)	05:04	05:57 (WEA03)	05:23	06:46 (B253) 06:08	07:03 (B083)	06:58		07:48	07:42	08:23
	16:43	17:38	18:28	20:20 16	07:29 (B082)	21:09 20	06:56 (B253)	21:43 11	06:08 (WEA03)	21:34 20	07:06 (B253) 20:45	07:26 (B083)	19:37		18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	07:14 (B082)	05:28	06:36 (B253)	05:04	05:57 (WEA03)	05:24	06:46 (B253) 06:10	07:03 (B083)	07:00		07:49	07:44	08:24
	16:45	17:40	18:30	20:22 14	07:28 (B082)	21:11 21	06:57 (B253)	21:43 12	06:09 (WEA03)	21:33 20	07:06 (B253) 20:43	07:24 (B083)	19:34		18:27	16:31	16:13
19	08:20	07:33	06:32	06:22	07:15 (B082)	05:27	06:36 (B253)	05:04	05:57 (WEA03)	05:25	06:45 (B253) 06:12	07:05 (B083)	07:01		07:51	07:45	08:25
	16:46	17:42	18:31	20:24 11	07:26 (B082)	21:12 22	06:58 (B253)	21:44 12	06:09 (WEA03)	21:32 22	07:07 (B253) 20:41	07:23 (B083)	19:32		18:24	16:30	16:14
20	08:19	07:31	06:29	06:20	07:18 (B082)	05:26	06:36 (B253)	05:04	05:57 (WEA03)	05:27	06:46 (B253) 06:13	07:06 (B083)	07:03		07:53	07:47	08:25
	16:48	17:44	18:33	20:25 5	07:23 (B082)	21:14 22	06:58 (B253)	21:44 12	06:09 (WEA03)	21:31 22	07:08 (B253) 20:39	07:20 (B083)	19:30		18:22	16:29	16:14
21	08:18	07:29	06:27	06:18		05:24	06:35 (B253)	05:04	05:57 (WEA03)	05:28	06:46 (B253) 06:15	07:10 (B083)	07:04		07:54	07:49	08:26
	16:50	17:46	18:35	20:27		21:15 22	06:57 (B253)	21:44 13	06:10 (WEA03)	21:30 22	07:08 (B253) 20:37	07:16 (B083)	19:27		18:20	16:27	16:14
22	08:17	07:26	06:25	06:16		05:23	06:35 (B253)	05:04	05:57 (WEA03)	05:29	06:45 (B253) 06:16		07:06		07:56	07:50	08:27
	16:51	17:47	18:37	20:29		21:17 23	06:58 (B253)	21:45 13	06:10 (WEA03)	21:28 23	07:08 (B253) 20:35		19:25		18:18	16:26	16:15
23	08:16	07:24	06:23	06:14		05:22	06:35 (B253)	05:03	05:57 (WEA03)	05:31	06:45 (B253) 06:18		07:08		07:58	07:52	08:27
	16:53	17:49	18:38	20:31		21:18 23	06:58 (B253)	21:45 13	06:10 (WEA03)	21:27 23	07:08 (B253) 20:33		19:23		18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	07:02 (B083)	05:20	06:36 (B253)	05:05	05:58 (WEA03)	05:32	06:46 (B253) 06:20		07:09		08:00	07:54	08:28
	16:55	17:51	18:40	20:32 11	07:13 (B083)	21:19 22	06:58 (B253)	21:45 12	06:10 (WEA03)	21:26 22	07:08 (B253) 20:31		19:20		18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	06:59 (B083)	05:19	06:36 (B253)	05:05	05:58 (WEA03)	05:33	06:46 (B253) 06:21	07:20 (B082)	07:11		08:01	07:55	08:28
	16:56	17:53	18:42	20:34 17	07:16 (B083)	21:21 22	06:58 (B253)	21:45 12	06:10 (WEA03)	21:25 22	07:08 (B253) 20:28	07:29 (B082)	19:18		18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	06:57 (B083)	05:18	06:36 (B253)	05:06	05:58 (WEA03)	05:35	06:46 (B253) 06:23	07:17 (B082)	07:13		08:03	07:57	08:28
	16:58	17:55	19:43	20:36 20	07:17 (B083)	21:22 22	06:58 (B253)	21:45 11	06:09 (WEA03)	21:23 22	07:08 (B253) 20:26 13	07:30 (B082)	19:16		18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	06:56 (B083)	05:17	06:37 (B253)	05:06	05:59 (WEA03)	05:36	06:46 (B253) 06:24	07:16 (B082)	07:14		08:05	07:58	08:29
	17:00	17:56	19:45	20:37 22	07:18 (B083)	21:23 20	06:57 (B253)	21:45 11	06:10 (WEA03)	21:22 21	07:07 (B253) 20:24 15	07:31 (B082)	19:14		18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	06:55 (B083)	05:16	06:37 (B253)	05:06	06:00 (WEA03)	05:38	06:47 (B253) 06:26	07:15 (B082)	07:16		08:07	08:00	08:29
	17:02	17:58	19:47	20:39 24	07:19 (B083)	21:25 20	06:57 (B253)	21:45 9	06:09 (WEA03)	21:20 20	07:07 (B253) 20:22 16	07:31 (B082)	19:11		18:06	16:20	16:18
29	08:08		07:09	06:01	06:53 (B083)	05:15	06:37 (B253)	05:07	06:01 (WEA03)	05:39	06:47 (B253) 06:28	07:14 (B082)	07:17		07:08	08:01	08:29
	17:04		19:48	20:41 26	07:19 (B083)	21:26 20	06:57 (B253)	21:45 8	06:09 (WEA03)	21:19 29	07:20 (B083) 20:20 18	07:32 (B082)	19:09		17:04	16:19	16:19
30	08:07		07:07	05:59	06:37 (B178)	05:14	06:38 (B253)	05:07	06:02 (WEA03)	05:40	06:48 (B253) 06:29	07:13 (B082)	07:19		07:10	08:03	08:29
	17:05		19:50	20:42 35	07:20 (B083)	21:27 18	06:56 (B253)	21:45 5	06:07 (WEA03)	21:17 33	07:23 (B083) 20:18 22	07:56 (B084)	19:07		17:02	16:18	16:20
31	08:06		07:04	07:53 (B084)		05:13	06:38 (B253)			05:42	06:48 (B178) 06:31	07:13 (B082)			07:12		08:29
	17:07		19:52 10	08:03 (B084)		21:28 18	06:56 (B253)			21:16 34	07:24 (B083) 20:15	08:00 (B084)			17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung			10	603	967	268	503	854	342			
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32			
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Reduktion Windrichtung			0.72	0.72	0.73	0.74	0.74	0.73	0.72			
Gesamte Reduktion			0.19	0.25	0.30	0.24	0.27	0.28	0.22			
Met.wahrsch.Beschattung			2	151	289	64	137	238	75			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO037 - Ebbinghauser Str. 20a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:54 8 08:14 (B084)	20:44	21:30 31	06:18 (WEA03) 21:45 34	06:29 (WEA03) 21:14 26	07:20 (B083) 20:13 22	07:21 19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:56	05:11	06:49 (WEA03) 05:09	06:52 (WEA03) 05:45	07:42 (B083) 06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31 31	06:18 (WEA03) 21:44 34	06:55 (WEA03) 21:13 25	07:21 (B083) 20:11 20	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	06:49 (WEA03) 05:09	06:52 (WEA03) 05:46	07:41 (B083) 06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32 30	06:18 (WEA03) 21:44 34	06:53 (WEA03) 21:11 22	07:21 (B083) 20:09 18	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	06:48 (WEA03) 05:10	06:53 (WEA03) 05:48	07:39 (B083) 06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33 30	06:19 (WEA03) 21:44 32	06:01 (B013) 21:09 19	07:23 (B083) 20:06 15	19:02	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	06:49 (WEA03) 05:11	06:53 (WEA03) 05:49	06:52 (WEA03) 06:39	07:27	07:21	08:10
	16:27	17:16	18:07	20:00	20:50	21:34 29	06:19 (WEA03) 21:43 32	06:02 (B013) 21:08 16	06:34 (WEA03) 20:04 9	19:00	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	06:48 (WEA03) 05:12	06:54 (WEA03) 05:51	06:50 (WEA03) 06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35 29	06:19 (WEA03) 21:43 28	06:25 (WEA03) 21:06 11	06:36 (WEA03) 06:47 (WEA03) 20:02	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	05:46	05:08	06:48 (WEA03) 05:12	06:53 (WEA03) 05:53	06:42	07:31	07:24	08:13
	16:29	17:20	18:11	20:04	20:54	21:36 28	06:20 (WEA03) 21:42 28	06:26 (WEA03) 21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46 07:32 (B083)	05:45 06:27 (WEA03)	05:07	06:48 (WEA03) 21:42 29	06:54 (WEA03) 05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05 3 07:35 (B083)	20:55 10 06:37 (WEA03)	21:37 27	06:21 (WEA03) 05:13	06:26 (WEA03) 21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44 07:27 (B083)	05:43 06:24 (WEA03)	05:07	06:48 (WEA03) 21:42 29	06:55 (WEA03) 05:56	06:45	07:34	07:28	08:15
	16:32	17:24	18:14	20:07 12 07:39 (B083)	20:57 15 06:39 (WEA03)	21:38 32	05:56 (B013) 05:14	06:26 (WEA03) 21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42 07:24 (B083)	05:41 06:23 (WEA03)	05:06	06:48 (WEA03) 21:40 30	05:56 (B013) 05:15	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09 16 07:40 (B083)	20:59 19 06:42 (WEA03)	21:38 32	05:54 (B013) 05:16	06:26 (WEA03) 20:59	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39 07:23 (B083)	05:39 06:21 (WEA03)	05:06	06:47 (WEA03) 21:39 30	06:26 (WEA03) 05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10 19 07:42 (B083)	21:00 22 06:43 (WEA03)	21:39 34	05:54 (B013) 05:17	06:26 (WEA03) 20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37 07:21 (B083)	05:38 06:20 (WEA03)	05:05	06:47 (WEA03) 21:39 34	06:26 (WEA03) 06:00	06:50	07:39	07:33	08:18
	16:36	17:29	18:19	20:12 21 07:42 (B083)	21:02 24 06:44 (WEA03)	21:40 34	05:55 (B013) 05:18	06:25 (WEA03) 20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35 07:21 (B083)	05:36 06:19 (WEA03)	05:05	06:47 (WEA03) 21:40 31	06:25 (WEA03) 06:02	06:52 07:40 (B082)	07:41	07:35	08:19
	16:37	17:31	18:21	20:14 22 07:43 (B083)	21:03 26 06:45 (WEA03)	21:41 34	05:55 (B013) 05:19	06:26 (WEA03) 20:53	19:46 13 08:07 (B084)	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33 07:20 (B083)	05:35 06:18 (WEA03)	05:05	06:48 (WEA03) 21:38 32	06:25 (WEA03) 06:04	06:53 07:37 (B082)	07:42	07:37	08:20
	16:39	17:33	18:23	20:15 23 07:43 (B083)	21:05 28 06:46 (WEA03)	21:41 34	05:55 (B013) 05:19	06:25 (WEA03) 20:51	19:44 24 08:09 (B084)	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31 07:20 (B083)	05:33 06:17 (WEA03)	05:04	06:48 (WEA03) 21:37 32	06:26 (WEA03) 06:05	07:26 (B253) 06:55	07:36 (B082)	07:39	08:21
	16:40	17:35	18:25	20:17 23 07:43 (B083)	21:06 29 06:46 (WEA03)	21:42 35	05:55 (B013) 05:21	06:26 (WEA03) 20:49 1	07:27 (B253) 19:41 28	08:10 (B084)	18:33	16:13
16	08:23	07:38	06:39	06:28 07:18 (B083)	05:31 06:17 (WEA03)	05:04	06:48 (WEA03) 21:36 33	06:25 (WEA03) 06:07	07:21 (B253) 06:56	07:35 (B082)	07:40	08:22
	16:42	17:36	18:26	20:19 24 07:42 (B083)	21:08 30 06:47 (WEA03)	21:42 34	05:55 (B013) 05:22	06:25 (WEA03) 20:55	19:48	18:40	16:40	16:13
17	08:22	07:36	06:36	06:26 06:59 (B178)	05:30 06:16 (WEA03)	05:04	06:48 (WEA03) 21:33 33	06:26 (WEA03) 06:08	07:30 (B253) 19:39 31	08:11 (B084)	18:31	16:13
	16:43	17:38	18:28	20:20 35 07:42 (B083)	21:09 31 06:47 (WEA03)	21:43 34	05:55 (B013) 05:23	06:25 (WEA03) 06:08	07:07 (B178) 06:58	07:34 (B082)	07:48	08:23
18	08:21	07:34	06:34	06:24 06:57 (B178)	05:29 06:16 (WEA03)	05:04	06:48 (WEA03) 21:34 33	06:26 (WEA03) 06:10	07:03 (B178) 07:00	07:34 (B082)	07:49	08:24
	16:45	17:40	18:30	20:22 40 07:42 (B083)	21:11 32 06:48 (WEA03)	21:43 34	05:55 (B013) 05:24	06:25 (WEA03) 20:43 25	07:33 (B253) 19:34 34	08:11 (B084)	18:27	16:13
19	08:20	07:33	06:32	06:22 06:56 (B178)	05:27 06:16 (WEA03)	05:04	06:48 (WEA03) 21:33 33	06:26 (WEA03) 06:12	07:02 (B178) 07:01	07:34 (B082)	07:51	08:25
	16:46	17:42	18:31	20:24 42 07:41 (B083)	21:12 32 06:48 (WEA03)	21:44 34	05:55 (B013) 05:25	06:25 (WEA03) 20:41 29	07:34 (B253) 19:32 33	08:11 (B084)	18:24	16:30
20	08:19	07:31	06:29 07:13 (B084)	06:20 06:55 (B178)	05:26 06:16 (WEA03)	05:04	06:48 (WEA03) 21:32 33	06:26 (WEA03) 06:13	07:01 (B178) 07:03	07:35 (B082)	07:53	08:14
	16:48	17:44	18:33 5 07:18 (B084)	20:25 44 07:40 (B083)	21:14 33 06:49 (WEA03)	21:44 34	05:55 (B013) 05:27	06:26 (WEA03) 20:39 35	07:37 (B083) 19:30 31	08:11 (B084)	18:22	16:29
21	08:18	07:29	06:27 07:09 (B084)	06:18 06:55 (B178)	05:24 06:15 (WEA03)	05:04	06:48 (WEA03) 21:31 33	06:25 (WEA03) 06:15	07:00 (B178) 07:05	07:37 (B082)	07:54	08:26
	16:50	17:46	18:35 12 07:21 (B084)	20:27 44 07:39 (B083)	21:15 33 06:48 (WEA03)	21:44 34	05:55 (B013) 05:28	06:25 (WEA03) 20:37 40	07:40 (B083) 19:27 26	08:10 (B084)	18:20	16:27
22	08:17	07:27	06:25 07:08 (B084)	06:16 06:55 (B178)	05:23 06:15 (WEA03)	05:04	06:48 (WEA03) 21:30 34	06:25 (WEA03) 06:16	06:59 (B178) 07:06	07:52 (B084)	07:56	08:27
	16:51	17:47	18:37 15 07:23 (B084)	20:29 42 07:38 (B083)	21:17 33 06:48 (WEA03)	21:45 34	05:55 (B013) 05:29	06:26 (WEA03) 20:35 43	07:42 (B083) 19:25 16	08:08 (B084)	18:18	16:26
23	08:16	07:24	06:23 07:06 (B084)	06:14 06:55 (B178)	05:22 06:15 (WEA03)	05:05	06:48 (WEA03) 21:28 34	06:25 (WEA03) 06:18	06:59 (B178) 07:08	07:53 (B084)	07:58	08:27
	16:53	17:49	18:38 17 07:23 (B084)	20:31 40 07:36 (B083)	21:18 34 06:49 (WEA03)	21:45 34	05:55 (B013) 05:31	06:26 (WEA03) 20:33 43	07:43 (B083) 19:23 14	08:07 (B084)	18:16	16:25
24	08:15	07:22	06:20 06:50 (B082)	06:11 06:55 (B178)	05:20 06:15 (WEA03)	05:05	06:48 (WEA03) 21:27 33	06:26 (WEA03) 06:20	06:59 (B178) 07:09	07:54 (B084)	08:00	07:54	08:28
	16:55	17:51	18:40 27 07:24 (B084)	20:32 36 07:33 (B083)	21:20 34 06:49 (WEA03)	21:45 34	05:56 (B013) 05:32	06:26 (WEA03) 20:31 44	07:44 (B083) 19:21 11	08:05 (B084)	18:14	16:24
25	08:14	07:20	06:18 06:48 (B082)	06:09 06:55 (B178)	05:19 06:16 (WEA03)	05:05	06:49 (WEA03) 21:26 33	06:26 (WEA03) 06:21	07:00 (B178) 07:11	07:57 (B084)	08:01	07:55	08:28
	16:56	17:53	18:42 31 07:24 (B084)	20:34 30 07:28 (B253)	21:21 33 06:49 (WEA03)	21:45 34	05:56 (B013) 05:33	06:26 (WEA03) 20:28 42	07:44 (B083) 19:18 4 08:01 (B084)	18:12	16:23	16:16
26	08:12	07:18	07:16 07:46 (B082)	06:07 06:56 (B178)	05:18 06:16 (WEA03)	05:06	06:49 (WEA03) 21:25 33	06:26 (WEA03) 06:23	07:00 (B178) 07:13	08:03	07:57	08:28
	16:58	17:55	19:43 33 08:23 (B084)	20:36 27 07:27 (B253)	21:22 33 06:49 (WEA03)	21:45 34	05:56 (B013) 05:35	06:26 (WEA03) 20:26 41	07:44 (B083) 19:16	18:10	16:22	16:17
27	08:11	07:16	07:13 07:46 (B082)	06:05 06:58 (B178)	05:17 06:16 (WEA03)	05:06	06:49 (WEA03) 21:23 32	06:26 (WEA03) 06:24	07:01 (B178) 07:14	08:05	07:58	08:29
	17:00	17:56	19:45 33 08:23 (B084)	20:37 20 07:25 (B253)	21:23 33 06:49 (WEA03)	21:45 34	05:57 (B013) 05:36	06:26 (WEA03) 20:24 37	07:45 (B083) 19:14	18:08	16:21	16:18
28	08:10	07:14	07:11 07:46 (B082)	06:03 07:13 (B253)	05:16 06:16 (WEA03)	05:06	06:50 (WEA03) 21:22 32	06:27 (WEA03) 06:26	07:03 (B178) 07:16	08:07	08:00	08:29
	17:02	17:58	19:47 32 08:22 (B084)	20:39 11 07:24 (B253)	21:25 33 06:49 (WEA03)	21:45 34	05:57 (B013) 05:38	06:26 (WEA03) 20:22 29	07:44 (B083) 19:11	18:06	16:20	16:18
29	08:09		07:09 07:45 (B082)	06:01 07:16 (B253)	05:15 06:16 (WEA03)	05:07	06:50 (WEA03) 21:20 31	06:27 (WEA03) 06:28	07:20 (B083) 07:17	07:08	08:02	08:29
	17:04		19:48 31 08:21 (B084)	20:41 5 07:21 (B253)	21:26 33 06:49 (WEA03)	21:45 35	05:58 (B013) 05:39	06:27 (WEA03) 20:20 24	07:44 (B083) 19:09	17:04	16:19	16:19
30	08:07		07:07 07:46 (B082)	05:59 05:14	06:16 (WEA03) 05:07	06:51 (WEA03)	05:58 (B013) 05:40	06:28 (WEA03) 06:29	07:20 (B083) 07:19	07:10	08:03	08:29
	17:05		19:50 26 08:19 (B084)	20:42 21:27 33	06:49 (WEA03) 21:45 34		06:51 (WEA03) 21:17 29	06:57 (WEA03) 20:18 23	07:43 (B083) 19:07	17:02	16:19	16:20
31	08:06		07:04 07:47 (B082)	05:13	06:16 (WEA03)		05:42	06:28 (WEA03) 06:31	07:20 (B083)	07:12		08:29
	17:07		19:52 21 08:18 (B084)	21:28 32	06:48 (WEA03)		21:16 28	06:56 (WEA03) 20:15 23	07:43 (B083)	17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung			283	587	695	981	982	623	383			
Red.Sonnenscheinwahrsch.			0.28	0.36	0.43	0.34	0.39	0.40	0.32			
Reduktion Betriebsdauer			0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Reduktion Windrichtung			0.70	0.73	0.74	0.74	0.74	0.73	0.71			
Gesamte Reduktion			0.19	0.25	0.30	0.24	0.27	0.28	0.22			
Met.wahrsch.Beschattung			54	148	210	233	269	174	82			

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO038 - Eggestr. 15, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			09:14 (B082)	08:04		09:03 (B253)	07:12		07:49 (B178)	07:02		07:59 (B013)	05:57		06:43 (B223)	05:12		05:47 (B087)	05:08		05:51 (B087)	05:43		06:36 (B153)	06:32		07:14 (B124)	07:21		08:31 (WEA03)	07:14		08:07 (B063)	08:04			
	16:22	13	09:27 (B082)	17:09	19	09:22 (B084)	18:00	36	08:25 (WEA03)	19:54	17	08:16 (B013)	20:44	44	07:52 (WEA02)	21:30	58	06:56 (WEA01)	21:45	66	07:04 (WEA01)	21:14	11	06:47 (B153)	20:13	46	08:00 (WEA02)	19:04	34	09:05 (WEA03)	16:58	22	08:29 (B063)	16:18			
2	08:29		09:15 (B082)	08:03		09:03 (B253)	07:10		07:48 (B178)	07:00		07:59 (B013)	05:56		06:43 (B223)	05:11		05:46 (B087)	05:09		05:51 (B087)	05:45		06:39 (B153)	06:34		07:14 (B124)	07:22		08:29 (WEA03)	07:16		08:08 (B063)	08:06			
	16:23	12	09:27 (B082)	17:11	17	09:20 (B253)	18:02	38	08:26 (WEA03)	19:55	17	08:16 (B013)	20:46	41	07:50 (WEA02)	21:31	60	06:56 (WEA01)	21:44	64	07:03 (WEA01)	21:13	7	06:46 (B153)	20:11	45	07:59 (WEA02)	19:02	36	09:05 (WEA03)	16:57	25	08:44 (B253)	16:17			
3	08:29		09:16 (B082)	08:01		09:02 (B253)	07:08		07:48 (B012)	06:57		08:00 (B013)	05:54		06:43 (B223)	05:10		05:46 (B087)	05:09		05:51 (B087)	05:46			06:36		07:13 (B124)	07:24		08:29 (WEA03)	07:17		08:08 (B063)	08:07			
	16:24	12	09:28 (B082)	17:13	18	09:20 (B253)	18:04	39	08:27 (WEA03)	19:57	15	08:15 (B013)	20:47	35	07:47 (WEA02)	21:32	60	06:56 (WEA01)	21:44	66	07:04 (WEA01)	21:11			20:09	44	07:57 (WEA02)	19:00	36	09:05 (WEA03)	16:55	28	08:46 (B253)	16:16			
4	08:29		09:17 (B082)	08:00		09:03 (B253)	07:05		07:47 (B012)	06:55		08:01 (B013)	05:52		06:43 (B223)	05:10		05:46 (B087)	05:10		05:52 (B087)	05:48			06:37		07:13 (B124)	07:26		08:29 (WEA03)	07:19		08:09 (B063)	08:09		09:05	(B082)
	16:25	11	09:28 (B082)	17:14	17	09:20 (B253)	18:05	41	08:28 (WEA03)	19:59	13	08:14 (B013)	20:49	29	07:44 (WEA02)	21:33	62	06:57 (WEA01)	21:44	64	07:04 (WEA01)	21:09			20:06	43	07:56 (WEA02)	18:57	37	09:06 (WEA03)	16:53	30	08:48 (B253)	16:16	5	09:10	(B082)
5	08:29		09:17 (B082)	07:58		09:03 (B253)	07:03		07:46 (B012)	06:53		07:22 (B124)	05:50		06:44 (B223)	05:09		05:46 (B087)	05:11		05:52 (B087)	05:49			06:39		07:14 (B124)	07:27		08:26 (B012)	07:21		08:11 (B063)	08:10		09:05	(B082)
	16:26	11	09:28 (B082)	17:16	17	09:20 (B253)	18:07	43	08:29 (WEA03)	20:00	19	08:11 (B013)	20:50	16	07:39 (WEA02)	21:34	62	06:57 (WEA01)	21:43	65	07:05 (WEA01)	21:08			20:04	41	07:55 (WEA02)	18:55	39	09:05 (WEA03)	16:51	28	08:49 (B253)	16:15	7	09:12	(B082)
6	08:29		09:18 (B082)	07:56		08:45 (B083)	07:01		07:45 (B012)	06:51		07:19 (B124)	05:48		06:45 (B223)	05:08		05:46 (B087)	05:12		05:52 (B087)	05:51			06:40		07:13 (B124)	07:29		08:23 (B012)	07:23		08:13 (B083)	08:11		09:04	(B082)
	16:28	10	09:28 (B082)	17:18	22	09:20 (B253)	18:09	43	08:28 (WEA03)	20:02	29	08:08 (B013)	20:52	11	06:56 (B223)	21:35	63	06:57 (WEA01)	21:43	64	07:04 (WEA01)	21:06			20:02	39	07:52 (WEA02)	18:53	42	09:05 (WEA03)	16:49	25	08:49 (B253)	16:15	9	09:13	(B082)
7	08:28		09:18 (B082)	07:55		08:42 (B083)	06:59		07:46 (B012)	06:48		07:18 (B124)	05:46		06:46 (B223)	05:08		05:46 (B087)	05:12		05:52 (B087)	05:52		06:57 (B223)	06:42		07:15 (B124)	07:31		08:22 (B012)	07:24		08:33 (B253)	08:13		09:05	(B082)
	16:29	10	09:28 (B082)	17:20	27	09:19 (B253)	18:11	43	08:29 (WEA03)	20:04	35	07:54 (WEA02)	20:54	8	06:54 (B223)	21:36	64	06:58 (WEA01)	21:42	64	07:04 (WEA01)	21:04	7	07:04 (B223)	20:00	31	07:49 (WEA02)	18:51	43	09:05 (WEA03)	16:48	17	08:50 (B253)	16:14	9	09:14	(B082)
8	08:28		09:20 (B082)	07:53		08:41 (B083)	06:57		07:46 (B012)	06:46		07:17 (B124)	05:45			05:07		05:47 (B087)	05:13		05:52 (B087)	05:54		06:54 (B223)	06:44		07:15 (B124)	07:32		08:22 (B012)	07:26		08:33 (B253)	08:14		09:04	(B082)
	16:30	8	09:28 (B082)	17:22	29	09:19 (B253)	18:12	43	08:29 (WEA03)	20:05	39	07:56 (WEA02)	20:55			21:37	64	06:59 (WEA01)	21:42	64	07:04 (WEA01)	21:02	12	07:06 (B223)	19:57	24	08:05 (B083)	18:48	43	09:05 (WEA03)	16:46	17	08:50 (B253)	16:14	11	09:15	(B082)
9	08:28		09:21 (B082)	07:51		08:39 (B083)	06:54		07:46 (B012)	06:44		07:16 (B124)	05:43			05:06		05:46 (B087)	05:14		05:53 (B087)	05:56		06:54 (B223)	06:45		07:16 (B124)	07:34		08:21 (B012)	07:28		08:33 (B253)	08:15		09:04	(B082)
	16:31	6	09:27 (B082)	17:24	30	09:18 (B253)	18:14	42	08:28 (WEA03)	20:07	42	07:58 (WEA02)	20:57			21:38	65	06:59 (WEA01)	21:41	62	07:04 (WEA01)	21:00	13	07:07 (B223)	19:55	18	08:07 (B013)	18:46	42	09:03 (WEA03)	16:44	17	08:50 (B253)	16:14	11	09:15	(B082)
10	08:27		09:22 (B082)	07:49		08:38 (B083)	06:52		07:49 (B012)	06:42		07:15 (B124)	05:41			05:06		05:47 (B087)	05:15		05:53 (B087)	05:57		06:52 (B223)	06:47		07:53 (B013)	07:36		08:21 (B012)	07:30		08:33 (B253)	08:16		09:04	(B082)
	16:33	4	09:26 (B082)	17:25	28	09:16 (B253)	18:16	39	08:28 (WEA03)	20:09	44	07:59 (WEA02)	20:59			21:38	64	06:59 (WEA01)	21:40	62	07:04 (WEA01)	20:59	28	07:53 (WEA02)	19:53	15	08:08 (B013)	18:44	42	09:03 (WEA03)	16:43	18	08:51 (B084)	16:13	12	09:16	(B082)
11	08:26			07:48		08:38 (B083)	06:50		07:51 (WEA03)	06:39		07:15 (B124)	05:39			05:06		05:46 (B087)	05:16		05:54 (B087)	05:59		06:52 (B223)	06:48		07:53 (B013)	07:37		08:21 (B012)	07:32		08:34 (B253)	08:17		09:04	(B082)
	16:34			17:27	21	08:59 (B083)	18:18	37	08:28 (WEA03)	20:10	45	08:00 (WEA02)	21:00			21:39	66	06:59 (WEA01)	21:40	60	07:04 (WEA01)	20:57	34	07:56 (WEA02)	19:51	16	08:09 (B013)	18:42	41	09:02 (WEA03)	16:41	18	08:52 (B084)	16:13	12	09:16	(B082)
12	08:26			07:46		08:37 (B083)	06:48		07:51 (WEA03)	06:37		07:15 (B124)	05:38		06:28 (B153)	05:05		05:47 (B087)	05:17		05:54 (B087)	06:00		06:51 (B223)	06:50		07:51 (B013)	07:39		08:22 (B012)	07:33		08:35 (B253)	08:18		09:06	(B082)
	16:36			17:29	22	08:59 (B083)	18:19	36	08:27 (WEA03)	20:12	46	08:01 (WEA02)	21:02	6	06:34 (B153)	21:40	64	06:59 (WEA01)	21:39	60	07:04 (WEA01)	20:55	40	07:58 (WEA02)	19:48	17	08:08 (B013)	18:40	39	09:01 (WEA03)	16:40	18	08:53 (B084)	16:13	12	09:18	(B082)
13	08:25			07:44		08:37 (B083)	06:46		07:50 (WEA03)	06:35		07:15 (B124)	05:36		06:26 (B153)	05:05		05:47 (B087)	05:18		05:55 (B087)	06:02		06:51 (B223)	06:52		07:51 (B013)	07:41		08:21 (B178)	07:35		08:35 (B253)	08:19		09:06	(B082)
	16:37			17:31	23	09:00 (B083)	18:21	36	08:26 (WEA03)	20:14	46	08:01 (WEA02)	21:03	11	06:37 (B153)	21:41	66	07:00 (WEA01)	21:38	58	07:04 (WEA01)	20:53	44	08:00 (WEA02)	19:46	17	08:08 (B013)	18:37	38	08:59 (WEA03)	16:38	19	08:54 (B084)	16:13	12	09:18	(B082)
14	08:25			07:42		08:36 (B083)	06:43		07:51 (WEA03)	06:33		07:15 (B124)	05:35		06:25 (B153)	05:05		05:48 (B087)	05:19		05:55 (B087)	06:04		06:51 (B223)	06:53		07:50 (B013)	07:42		08:22 (B178)	07:37		08:37 (B253)	08:20		09:06	(B082)
	16:39			17:33	24	09:00 (B083)	18:23	34	08:25 (WEA03)	20:15	47	08:02 (WEA02)	21:05	14	06:39 (B153)	21:41	65	07:00 (WEA01)	21:37	57	07:04 (WEA01)	20:51	46	08:01 (WEA02)	19:44	17	08:07 (B013)	18:35	36	08:58 (WEA03)	16:37	17	08:54 (B084)	16:13	13	09:19	(B082)
15	08:24			07:40		08:36 (B083)	06:41		07:52 (WEA03)	06:31		07:16 (B124)	05:33		06:24 (B153)	05:04		05:48 (B087)	05:20		05:56 (B087)	06:05		06:51 (B223)	06:55		07:51 (B013)	07:44		08:23 (B178)	07:39		08:37 (B084)	08:21		09:07	(B082)
	16:40			17:35	24	09:00 (B083)	18:25	32	08:24 (WEA03)	20:17	46	08:02 (WEA02)	21:06	15	06:39 (B153)	21:42	65	07:01 (WEA01)	21:36	55	07:03 (WEA01)	20:49	48	08:02 (WEA02)	19:41	16	08:07 (B013)	18:33	34	08:57 (WEA03)	16:35	18	08:55 (B084)	16:13	12	09:19	(B082)
16	08:23			07:38		08:36 (B083)	06:39		07:52 (WEA03)	06:28		07:16 (B124)	05:31		06:23 (B153)	05:04		05:48 (B087)	05:22		05:57 (B087)	06:07		06:51 (B223)	06:56		07:51 (B150)	07:46		08:24 (B178)	07:40		08:37 (B084)	08:22		09:06	(B082)
	16:42			17:36	24	09:00 (B083)	18:26	30	08:22 (WEA03)	20:19	46	08:02 (WEA02)	21:08	17	06:40 (B153)	21:42	66	07:01 (WEA01)	21:35	52	07:03 (WEA01)	20:47	50	08:03 (WEA02)	19:39	15	08:06 (B013)	18:31	31	08:55 (WEA03)	16:34	18	08:55 (B084)	16:13	13	09:19	(B082)
17	08:22			07:36		08:37 (B083)	06:36		07:53 (WEA03)	06:26		07:19 (B124)	05:30		06:22 (WEA01)	05:04		05:49 (B087)	05:23		05:58 (B087)	06:08		06:52 (B223)	06:58		07:49 (B150)	07:48		08:27 (B178)	07:42		08:37 (B084)	08:23		09:07	(B082)
	16:43			17:38	22	08:59 (B083)	18:28	28	08:21 (WEA03)	20:20	43	08:02 (WEA02)	21:09	18	06:40 (B153)	21:43	65	07:01 (WEA01)	21:34	49	07:02 (WEA01)	20:45	50	08:04 (WEA02)	19:37	15	08:04 (B013)	18:29	21	08:52 (WEA03)	16:32	18	08:55 (B084)	16:13	13	09:20	(B082)
18	08:21			07:34		08:37 (B083)	06:34		07:55 (WEA03)	06:24		07:21 (WEA02)	05:28		06:20 (WEA01)	05:04		05:49 (B087)	05:24		06:00 (WEA01)	06:10		06:52 (B223)	07:00		07:48 (B150)	07:49		08:40 (WEA03)	07:44		08:37 (B084)	08:24		09:07	(B082)
	16:45			17:40	22	08:59 (B083)	18:30	24	08:19 (WEA03)	20:22	41	08:02 (WEA02)	21:11	22	06:42 (WEA01)	21:43	66	07:02 (WEA01)	21:33	42	07:02 (WEA01)	20:43	49	08:04 (WEA02)	19:34	15	08:03 (B150)	18:27	6	08:46 (WEA03)	16:31	18	08:55 (B084)	16:13	13	09:20	(B082)
19	08:20		09:08 (B084)	07:33		08:38 (B083)	06:32		07:56 (WEA03)	06:22		07:20 (WEA02)	05:27		06:18 (WEA01)	05:04		05:49 (B087)	05:25		06:21 (WEA01)	06:12		06:54 (B223)	07:01		07:47 (B150)	07:51			07:45		08:36 (B084)	08:25		09:08	(B082)
	16:46	6	09:14 (B084)	17:42	20	08:58 (B083)	18:31	20	08:16 (WEA03)	20:24	42	08:02 (WEA02)	21:12	26	06:44 (WEA01)	21:44	66	07:02 (WEA01)	21:32	40	07:01 (WEA01)	20:41	48	08:05 (WEA02)	19:32	15	08:02 (B150)	18:24			16:30	17	08:55 (B084)	16:14	13	09:21	(B082)
20	08:19		09:06 (B084)	07:31		08:39 (B083)	06:29		07:59 (WEA03)	06:20		07:20 (WEA02)	05:26		06:17 (WEA01)	05:04		05:49 (B087)	05:27		06:22 (WEA01)	06:13		06:56 (B223)	07:03		07:48 (B150)	07:53			07:47		08:38 (B084)	08:25		09:08	(B082)
	16:48	10	09:16 (B084)	17:44	18	08:57 (B083)	18:33	14	08:13 (WEA03)	20:26	41	08:01 (WEA02)	21:14	29	06:46 (WEA01)	21:44	66	07:02 (WEA01)	21:31	39	07:01 (WEA01)	20:39	44	08:05 (WEA02)	19:30	14	08:02 (B150)	18:22			16:29	16	08:55 (B084)	16:14	13	09:21	(B082)
21	08:18		09:06 (B084)	07:29		08:40 (B083)	06:27					06:18			07:20 (WEA02)	05:24		06:15 (WEA01)	05:04		05:49 (B087)	05:28		06:23 (WEA01)	06:15		07:26 (WEA02)	07:04		07:48 (B150)	07:54		09:14 (B083)	07:49		08:40 (B084)	08:26		09:09	(B082)
	16:50	12	09:18 (B084)	17:46	16	08:56 (B083)	18:35					06:27		41	08:01 (WEA02)	21:15	32	06:47 (WEA01)	21:44	66	07:02 (WEA01)	21:30	37	07:00 (WEA01)	20:37	39	08:05 (WEA02)	19:27	14	08:02 (B150)	18:20	9	09:23 (B083)	16:27	14	08:54 (B084)	16:14	13	09:22	(B082)
22	08:17			09:05 (B084)	07:27		08:43 (B083)	06:25		07:04 (B150)	06:16		07:20 (WEA02)	05:23		06:14 (WEA01)	05:04		05:49 (B087)	05:29		06:23 (WEA01)	06:16		07:25 (WEA02)	07:06		07:48 (B150)	07:56		09:11 (B083)	07:50		08:41 (B084)	08:27		09:10	(B082)
	16:51	14	09:19 (B084)	17:47	10	08:53 (B083)	18:37	9	07:13 (B150)	20:29	41	08:01 (WEA02)	21:17	34	06:48 (WEA01)	21:45	66	07:02 (WEA01)	21:28	36	06:59 (WEA01)	20:35	40	08:05 (WEA02)	19:25	12	08:00 (B150)	18:18	15	09:26 (B083)	16:26	13	08:54 (B084)	16:15	13	09:23	(B082)
23	08:16		09:04 (B084)	07:24		06:23			07:02 (B150)	06:14		07:20 (WEA02)	05:22		06:13 (WEA01)	05:05		05:49 (B087)	05:31		06:24 (WEA01)	06:18		07:25 (WEA02)	07:08		07:50 (B150)	07:58		09:10 (B083)	07:52		08:42 (B084)	08:27		09:10	(B082)
	16:53	15	09:19 (B084)	17:49		18:38	12	07:14 (B150)	20:31	40	08:00 (WEA02)	21:18	36	06:49 (WEA01)	21:45	66	07:02 (WEA01)	21:27	34	06:58 (WEA01)	20:33	41	08:06 (WEA02)	19:23	8	07:58 (B150)	18:16	17	09:27 (B083)	16:25	11	08:53 (B084)	16:15	13	09:23	(B082)
24	08:15		09:04 (B084)	07:22		06:20		07:01 (B150)	06:11		07:20 (WEA02)	05:20		06:13 (WEA01)	05:05		05:50 (B087)	05:32		06:25 (WEA01)	06:20		07:24 (WEA02)	07:09		08:47 (WEA03)	08:00		09:08 (B083)	07:54		08:43 (B084)	08:28		09:10	(B082)
	16:55	17	09:21 (B084)	17:51		18:40	14	07:15 (B150)	20:32	39	07:59 (WEA02)	21:20	37	06:50 (WEA01)	21:45	66	07:03 (WEA01)	21:26	32	06:57 (WEA01)	20:31	41	08:05 (WEA02)	19:20	5	08:52 (WEA03)	18:14	19	09:27 (B083)	16:24	9	08:52 (B084)	16:16	13	09:23	(B082)
25	08:14		09:04 (B084)	07:20		06:18		07:01 (B150)	06:09		06:48 (B223)	05:19		06:12 (WEA01)	05:05		05:50 (B087)	05:33		06:27 (WEA01)	06:21		07:24 (WEA02)	07:11		08:42 (WEA03)	08:01		09:07 (B083)	07:55		08:47 (B084)	08:28		09:11	(B082)
	16:56	17	09:21 (B084)	17:53		18:42	15	07:16 (B150)	20:34	47	07:58 (WEA02)	21:21	39	06:51 (WEA01)	21:45	66	07:03 (WEA01)	21:25	29	06:56 (WEA01)	20:28	41	08:05 (WEA02)	19:18	15	08:57 (WEA03)	18:12	21	09:28 (B083)	16:23	3	08:50 (B084)	16:16	13	09:24	(B082)
26	08:13		09:04 (B084)	07:18		07:56 (B178)	07:16		08:00 (B150)	06:07		06:46 (B223)	05:18		06:12 (WEA01)	05:05		05:50 (B087)	05:35		06:28 (WEA01)	06:23		07:23 (WEA02)	07:13		08:39 (WEA03)	08:03		09:06 (B083)	07:57			08:28		09:11	(B082)
	16:58	18	09:22 (B084)	17:55	17	08:19 (WEA03)	19:43	15	08:15 (B150)	20:36	49	07:58 (WEA02)	21:22	40	06:52 (WEA01)	21:45	66	07:03 (WEA01)	21:23	26	06:54 (WEA01)	20:26	41	08:04 (WEA02)	19:16	21	09:00 (WEA03)	18:10	23	09:29 (B083)	16:22		08:29 (B083)	16:17	13	09:24	(B082)
27	08:11		09:04 (B084)	07:16		07:52 (B178)	07:13		08:00 (B150)	06:05		06:44 (B223)	05:17		06:11 (WEA01)	05:06		05:51 (B087)	05:36		06:30 (WEA01)	06:24		07:23 (B124)	07:14		08:36 (WEA03)	08:05		09:06 (B083)	07:58			08:29		09:12	(B082)
	17:00	18	09:22 (B084)	17:56	30	08:22 (WEA03)	19:45	15	08:15 (B013)	20:37	51	07:57 (WEA02)	21:24	42	06:53 (WEA01)	21:45	65	07:03 (WEA01)	21:22	22	06:52 (WEA01)	20:24	42	08:05 (WEA02)	19:14	25	09:01 (WEA03)	18:08	23	09:29 (B083)	16:21			16:18	12	09:24	(B082)
28	08:10		09:04 (B084)	07:14		07:51 (B178)	07:11		08:01 (B150)	06:03		06:43 (B223)	05:16		06:10 (WEA01)	05:06		05:50 (B087)	05:37		06:33 (WEA01)	06:26		07:19 (B124)	07:16		08:35 (WEA03)	08:07		09:06 (B083)	08:00			08:29		09:12	(B082)
	17:02	18	09:22 (B084)	17:58	33	08:24 (WEA03)	19:47	15	08:16 (B013)	20:39	49	07:55 (WEA02)	21:25	49	06:53 (WEA01)	21:45	66	07:03 (WEA01)	21:20	19	06:52 (B153)	20:22	44	08:03 (WEA02)	19:11	28	09:03 (WEA03)	18:06	24	09:30 (B083)	16:20			16:18	13	09:25	(B082)
29	08:09		09:05 (B084)			07:09		08:01 (B150)	06:01		06:43 (B223)	05:15		05:48 (B087)	05:07		05:51 (B087)	05:39		06:33 (B153)	06:28		07:18 (B124)	07:17		08:33 (WEA03)	07:08		08:06 (B083)	08:02			08:29		09:12	(B082)
	17:03	18	09:23 (B084)			19:48	15	08:16 (B013)	20:41	49	07:54 (WEA02)	21:26	52	06:54 (WEA01)	21:45	65	07:04 (WEA01)	21:19	18	06:51 (B153)	20:20	45	08:03 (WEA02)	19:09	30	09:03 (WEA03)	17:04	24	09:30 (B083)	16:19			16:19	13	09:25	(B082)
30	08:07		09:04 (B253)			07:07		08:00 (B013)	05:59		06:43 (B223)	05:14		05:47 (B087)	05:07		05:51 (B087)	05:40		06:34 (B153)	06:29		07:16 (B124)	07:19		08:32 (WEA03)	07:10		08:06 (B083)	08:03			08:29		09:13	(B082)
	17:05	18	09:22 (B084)			19:50	17	08:17 (B013)	20:42	48	07:54 (WEA02)	21:27	54	06:54 (WEA01)	21:45	65	07:03 (WEA01)	21:17	16	06:50 (B153)	20:18	46	08:02 (WEA02)	19:07	32	09:04 (WEA03)	17:02	23	09:29 (B083)	16:18			16:20	12	09:25	(B082)
	17:07	19	09:22 (B084)			19:52	17	08:17 (B013)					21:28	57	06:55 (WEA01)				21:16	14	06:49 (B153)	20:15	47	08:02 (WEA02)				17:00	23	08:29 (B083)				16:21	13	09:26	(B082)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	297			550			842			1167			814			1934			1436			998			693			861			454			331		
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.56			0.60			0.66			0.73			0.74			0.74			0.74			0.73			0.70			0.64			0.57			0.54		
Gesamte Reduktion	0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			0.12			0.09		
Met.wahrsch.Beschattung	30			102			150			293			245			461			394			277			148			151			56			29		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO039 - Eggestr. 16, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			09:07 (B082)	08:04		08:58 (B084)	07:12		07:02			07:45 (B150)	05:57		06:57 (WEA02)	05:12		06:06 (B153)	05:08		05:43 (B087)	05:43		06:39 (B223)	06:32		07:04 (B124)	07:21		08:05 (B012)	07:14		08:08 (B083)	08:04		08:54 (B082)
	16:22	13		09:20 (B082)	17:09	19	09:17 (B084)	18:00		19:54	15		08:00 (B150)	20:44	44	07:41 (WEA02)	21:30	17	06:23 (B153)	21:45	28	06:31 (B153)	21:14	51	07:45 (WEA02)	20:13	29	07:55 (B013)	19:04	49	08:54 (WEA03)	16:58	21	08:42 (B253)	16:18	12	09:06 (B082)
2	08:29			09:07 (B082)	08:03		08:58 (B084)	07:10		07:00			07:44 (B150)	05:56		06:36 (B223)	05:11		06:06 (B153)	05:09		05:43 (B087)	05:45		06:39 (B223)	06:34		07:07 (B124)	07:22		08:05 (B012)	07:16		08:23 (B253)	08:06		08:53 (B082)
	16:23	13		09:20 (B082)	17:11	19	09:17 (B084)	18:02		19:55	16		08:00 (B150)	20:46	46	07:40 (WEA02)	21:31	17	06:23 (B153)	21:44	26	06:30 (B153)	21:13	54	07:47 (WEA02)	20:11	25	07:56 (B013)	19:02	47	08:52 (WEA03)	16:57	19	08:42 (B253)	16:17	13	09:06 (B082)
3	08:29			09:08 (B082)	08:01		08:58 (B084)	07:08		06:57			07:45 (B150)	05:54		06:33 (B223)	05:10		06:05 (B153)	05:09		05:45 (B087)	05:46		06:38 (B223)	06:36		07:37 (B013)	07:24		08:07 (B012)	07:17		08:22 (B253)	08:07		08:54 (B082)
	16:24	13		09:21 (B082)	17:13	19	09:17 (B084)	18:04		19:57	15		08:00 (B150)	20:47	52	07:40 (WEA02)	21:32	18	06:23 (B153)	21:44	25	06:31 (B153)	21:11	56	07:47 (WEA02)	20:09	18	07:55 (B013)	19:00	43	08:51 (WEA03)	16:55	19	08:41 (B253)	16:16	14	09:08 (B082)
4	08:29			09:09 (B082)	08:00		08:58 (B253)	07:05		07:42 (B178)	06:55		07:45 (B150)	05:52		06:31 (B223)	05:10		06:06 (B153)	05:10		05:47 (B087)	05:48		06:38 (B223)	06:37		07:37 (B013)	07:26		08:15 (B178)	07:19		08:23 (B253)	08:09		08:54 (B082)
	16:25	13		09:22 (B082)	17:14	19	09:17 (B084)	18:05	9	07:51 (B178)	19:59	14	07:59 (B150)	20:49	55	07:39 (WEA02)	21:33	18	06:24 (B153)	21:44	21	06:31 (B153)	21:09	56	07:47 (WEA02)	20:06	18	07:55 (B013)	18:57	36	08:51 (WEA03)	16:53	18	08:41 (B253)	16:16	14	09:08 (B082)
5	08:29			09:08 (B082)	07:58		08:56 (B253)	07:03		07:40 (B178)	06:53		07:45 (B150)	05:50		06:30 (B223)	05:09		06:05 (B153)	05:11		06:11 (B153)	05:49		06:38 (B223)	06:39		07:38 (B013)	07:27		08:13 (B178)	07:21		08:23 (B253)	08:10		08:55 (B082)
	16:26	14		09:22 (B082)	17:16	21	09:17 (B084)	18:07	20	08:01 (WEA03)	20:00	12	07:57 (B150)	20:50	58	07:40 (WEA02)	21:34	19	06:24 (B153)	21:43	21	06:32 (B153)	21:08	58	07:48 (WEA02)	20:04	17	07:55 (B013)	18:55	36	08:49 (WEA03)	16:51	21	08:44 (B084)	16:15	14	09:09 (B082)
6	08:29			09:09 (B082)	07:56		08:55 (B253)	07:01		07:38 (B178)	06:51		07:43 (B013)	05:48		06:29 (B223)	05:08		06:05 (B153)	05:12		06:11 (B153)	05:51		06:38 (B223)	06:40		07:37 (B013)	07:29		08:13 (B178)	07:23		08:24 (B253)	08:11		08:55 (B082)
	16:28	14		09:23 (B082)	17:18	21	09:16 (B084)	18:09	27	08:05 (WEA03)	20:02	13	07:56 (B013)	20:52	58	07:39 (WEA02)	21:35	19	06:24 (B153)	21:43	20	06:31 (B153)	21:06	58	07:48 (WEA02)	20:02	17	07:54 (B013)	18:53	34	08:47 (WEA03)	16:49	21	08:45 (B084)	16:15	14	09:09 (B082)
7	08:28			09:09 (B082)	07:55		08:54 (B253)	06:59		07:37 (B178)	06:48		07:42 (B013)	05:46		06:28 (B223)	05:08		06:05 (B153)	05:12		06:11 (B153)	05:52		06:38 (B223)	06:42		07:38 (B013)	07:31		08:13 (B178)	07:24		08:25 (B253)	08:13		08:56 (B082)
	16:29	14		09:23 (B082)	17:20	20	09:14 (B084)	18:11	31	08:08 (WEA03)	20:04	15	07:57 (B013)	20:54	58	07:38 (WEA02)	21:36	20	06:25 (B153)	21:42	20	06:31 (B153)	21:04	59	07:49 (WEA02)	20:00	15	07:53 (B013)	18:51	33	08:46 (WEA03)	16:48	21	08:46 (B084)	16:14	14	09:10 (B082)
8	08:28			09:10 (B082)	07:53		08:54 (B253)	06:57		07:37 (B178)	06:46		07:41 (B013)	05:45		06:28 (B223)	05:07		06:06 (B153)	05:13		06:12 (B153)	05:54		06:38 (B223)	06:44		07:39 (B013)	07:32		08:13 (B178)	07:26		08:27 (B253)	08:14		08:56 (B082)
	16:30	14		09:24 (B082)	17:22	20	09:14 (B084)	18:12	33	08:10 (WEA03)	20:05	17	07:58 (B013)	20:55	59	07:39 (WEA02)	21:37	20	06:26 (B153)	21:42	19	06:31 (B153)	21:02	58	07:48 (WEA02)	19:57	12	07:51 (B150)	18:48	31	08:44 (WEA03)	16:46	20	08:47 (B084)	16:14	14	09:10 (B082)
9	08:28			09:10 (B082)	07:51		08:54 (B253)	06:54		07:36 (B178)	06:44		07:40 (B013)	05:43		06:28 (B223)	05:06		06:05 (B153)	05:14		06:12 (B153)	05:56		06:39 (B223)	06:45		07:40 (B150)	07:34		08:13 (B178)	07:28		08:29 (B084)	08:15		08:56 (B082)
	16:31	14		09:24 (B082)	17:24	18	09:12 (B253)	18:14	34	08:10 (WEA03)	20:07	18	07:58 (B013)	20:57	58	07:38 (WEA02)	21:38	21	06:26 (B153)	21:41	19	06:31 (B153)	21:00	57	07:49 (WEA02)	19:55	13	07:53 (B150)	18:46	27	08:40 (WEA03)	16:44	19	08:48 (B084)	16:14	14	09:10 (B082)
10	08:27			09:10 (B082)	07:49		08:53 (B253)	06:52		07:36 (B178)	06:42		07:39 (B013)	05:41		06:28 (B223)	05:06		05:42 (B087)	05:15		06:13 (B153)	05:57		06:40 (B223)	06:47		07:38 (B150)	07:36		08:14 (B178)	07:30		08:29 (B084)	08:16		08:56 (B082)
	16:33	14		09:24 (B082)	17:25	19	09:12 (B253)	18:16	36	08:12 (WEA03)	20:09	18	07:57 (B013)	20:59	57	07:38 (WEA02)	21:38	21	06:26 (B153)	21:40	18	06:31 (B153)	20:59	56	07:49 (WEA02)	19:53	15	07:53 (B150)	18:44	22	08:36 (WEA03)	16:43	19	08:48 (B084)	16:13	14	09:10 (B082)
11	08:26			09:11 (B082)	07:48		08:53 (B253)	06:50		07:37 (B178)	06:39		07:39 (B013)	05:39		06:28 (B223)	05:06		05:39 (B087)	05:16		06:13 (B153)	05:59		06:41 (B223)	06:48		07:38 (B150)	07:37		08:16 (B178)	07:32		08:29 (B084)	08:17		08:57 (B082)
	16:34	14		09:25 (B082)	17:27	19	09:12 (B253)	18:18	36	08:13 (WEA03)	20:10	18	07:57 (B013)	21:00	55	07:37 (WEA02)	21:39	20	06:26 (B153)	21:39	18	06:31 (B153)	20:57	54	07:49 (WEA02)	19:51	15	07:53 (B150)	18:42	10	08:26 (B178)	16:41	19	08:48 (B084)	16:13	13	09:10 (B082)
12	08:26			09:12 (B082)	07:46		08:35 (B083)	06:48		07:29 (B012)	06:37		07:06 (B124)	05:38		06:28 (B223)	05:05		05:39 (B087)	05:17		06:14 (B153)	06:00		06:43 (B223)	06:50		07:37 (B150)	07:39					07:33			08:58 (B082)
	16:36	13		09:25 (B082)	17:29	27	09:12 (B253)	18:19	44	08:14 (WEA03)	20:12	27	07:56 (B013)	21:02	53	07:35 (WEA02)	21:40	26	06:26 (B153)	21:39	17	06:31 (B153)	20:55	50	07:49 (WEA02)	19:48	15	07:52 (B150)	18:40				16:40	19	08:48 (B084)	16:13	13	09:11 (B082)
13	08:25			09:12 (B082)	07:44		08:32 (B083)	06:45		07:26 (B012)	06:35		07:04 (B124)	05:36		06:29 (B223)	05:05		05:39 (B087)	05:18		06:14 (B153)	06:02		06:46 (B223)	06:52		07:37 (B150)	07:41					07:35			08:59 (B082)
	16:37	13		09:25 (B082)	17:31	33	09:12 (B253)	18:21	47	08:13 (WEA03)	20:14	30	07:56 (B013)	21:03	51	07:35 (WEA02)	21:41	28	06:27 (B153)	21:38	17	06:31 (B153)	20:53	43	07:49 (WEA02)	19:46	15	07:52 (B150)	18:37				16:38	18	08:48 (B084)	16:13	12	09:11 (B082)
14	08:25			09:13 (B082)	07:42		08:30 (B083)	06:43		07:25 (B012)	06:33		07:03 (B124)	05:35		06:30 (B223)	05:05		05:39 (B087)	05:19		06:15 (B153)	06:04		07:05 (WEA02)	06:53		07:37 (B150)	07:42					07:37			09:00 (B082)
	16:39	12		09:25 (B082)	17:33	34	09:11 (B253)	18:23	49	08:14 (WEA03)	20:15	30	07:55 (B013)	21:05	49	07:35 (WEA02)	21:41	29	06:27 (B153)	21:37	16	06:31 (B153)	20:51	43	07:48 (WEA02)	19:44	14	07:51 (B150)	18:35				16:37	18	08:48 (B084)	16:13	12	09:12 (B082)
15	08:24			09:14 (B082)	07:40		08:29 (B083)	06:41		07:24 (B012)	06:31		07:02 (B124)	05:33		06:30 (B223)	05:04		05:39 (B087)	05:20		06:15 (B153)	06:05		07:06 (WEA02)	06:55		07:38 (B150)	07:44		09:06 (B083)	07:39		08:31 (B084)	08:21		09:00 (B082)
	16:40	10		09:24 (B082)	17:35	34	09:10 (B253)	18:25	50	08:14 (WEA03)	20:17	29	07:53 (B013)	21:06	45	07:33 (WEA02)	21:42	29	06:27 (B153)	21:36	15	06:30 (B153)	20:49	42	07:48 (WEA02)	19:41	22	08:44 (WEA03)	18:33	9	09:15 (B083)	16:35	17	08:48 (B084)	16:13	12	09:12 (B082)
16	08:23			09:15 (B082)	07:38		08:28 (B083)	06:39		07:23 (B012)	06:28		07:00 (B124)	05:31		06:31 (B223)	05:04		05:39 (B087)	05:22		06:16 (B153)	06:07		07:06 (WEA02)	06:56		07:40 (B150)	07:46		09:03 (B083)	07:40		08:32 (B084)	08:22		09:00 (B082)
	16:42	9		09:24 (B082)	17:36	33	09:08 (B253)	18:26	50	08:13 (WEA03)	20:19	25	07:49 (B013)	21:08	42	07:33 (WEA02)	21:42	30	06:28 (B153)	21:35	13	06:29 (B153)	20:47	41	07:47 (WEA02)	19:39	26	08:48 (WEA03)	18:31	15	09:18 (B083)	16:34	16	08:48 (B084)	16:13	11	09:11 (B082)
17	08:22			09:16 (B082)	07:36		08:28 (B083)	06:36		07:23 (B012)	06:26		07:00 (B124)	05:30		06:32 (B223)	05:04		05:39 (B087)	05:23		06:17 (B153)	06:08		07:06 (WEA02)	06:58		08:27 (WEA03)	07:48		09:02 (B083)	07:42		08:32 (B084)	08:23		09:01 (B082)
	16:43	7		09:23 (B082)	17:38	28	09:05 (B253)	18:28	51	08:14 (WEA03)	20:20	27	07:27 (WEA02)	21:09	36	07:31 (WEA02)	21:43	33	06:28 (B153)	21:34	11	06:28 (B153)	20:45	41	07:47 (WEA02)	19:37	23	08:50 (WEA03)	18:29	18	09:20 (B083)	16:32	14	08:46 (B084)	16:13	11	09:12 (B082)
18	08:21			07:34			08:27 (B083)	06:34		07:24 (B012)	06:24		06:59 (B124)	05:28		07:04 (WEA02)	05:04		05:39 (B087)	05:24		06:18 (B153)	06:10		07:06 (WEA02)	07:00		08:25 (WEA03)	07:49		08:59 (B083)	07:44		08:34 (B084)	08:24		09:02 (B082)
	16:45			17:40	24	08:51 (B083)	18:30	49	08:13 (WEA03)	20:22	32	07:31 (WEA02)	21:11	26	07:30 (WEA02)	21:43	34	06:28 (B153)	21:33	9	06:27 (B153)	20:43	40	07:46 (WEA02)	19:34	27	08:52 (WEA03)	18:27	21	09:20 (B083)	16:31	11	08:45 (B084)	16:13	10	09:12 (B082)
19	08:20			07:33			08:27 (B083)	06:32		07:23 (B012)	06:22		06:59 (B124)	05:27		07:06 (WEA02)	05:04		05:39 (B087)	05:25		06:20 (B153)	06:12		07:07 (WEA02)	07:01		08:23 (WEA03)	07:51		08:59 (B083)	07:45		08:36 (B084)	08:25		09:02 (B082)
	16:46			17:42	25	08:52 (B083)	18:31	49	08:12 (WEA03)	20:24	34	07:33 (WEA02)	21:12	23	07:29 (WEA02)	21:44	35	06:28 (B153)	21:32	5	06:25 (B153)	20:41	39	07:46 (WEA02)	19:32	30	08:53 (WEA03)	18:24	22	09:21 (B083)	16:30	8	08:44 (B084)	16:14	11	09:13 (B082)
20	08:19			07:31			08:27 (B083)	06:29		07:25 (B012)	06:20		06:59 (B124)	05:26		07:08 (WEA02)	05:04		05:39 (B087)	05:27		06:13			07:07 (WEA02)	07:03		08:21 (WEA03)	07:53		08:58 (B083)	07:47		08:25			09:02 (B082)
	16:48			17:44	25	08:52 (B083)	18:33	47	08:12 (WEA03)	20:26	36	07:35 (WEA02)	21:14	20	07:28 (WEA02)	21:44	36	06:28 (B153)	21:31			20:39	38	07:45 (WEA02)	19:30	33	08:54 (WEA03)	18:22	24	09:22 (B083)	16:29				16:14	11	09:13 (B082)
21	08:18			07:29			08:27 (B083)	06:27		07:28 (B012)	06:18		07:00 (B124)	05:24		07:09 (WEA02)	05:04		05:39 (B087)	05:28		06:15			07:07 (B124)	07:04		08:21 (WEA03)	07:54		08:57 (B083)	07:49		08:26			09:03 (B082)
	16:50			17:46	25	08:52 (B083)	18:35	42	08:12 (WEA03)	20:27	36	07:36 (WEA02)	21:15	16	07:25 (WEA02)	21:44	36	06:28 (B153)	21:30			20:37	37	07:44 (WEA02)	19:27	34	08:55 (WEA03)	18:20	25	09:22 (B083)	16:27				16:14	11	09:14 (B082)
22	08:17			07:27			08:27 (B083)	06:25		07:33 (WEA03)	06:16		07:00 (B124)	05:23		07:11 (WEA02)	05:04		05:39 (B087)	05:29		06:16			07:05 (B124)	07:06		08:19 (WEA03)	07:56		08:57 (B083)	07:50		08:27			09:04 (B082)
	16:51			17:47	25	08:52 (B083)	18:37	37	08:10 (WEA03)	20:29	37	07:37 (WEA02)	21:17	12	07:23 (WEA02)	21:45	36	06:28 (B153)	21:28			20:35	37	07:42 (WEA02)	19:25	36	08:55 (WEA03)	18:18	25	09:22 (B083)	16:26				16:15	10	09:14 (B082)
23	08:16			07:24			08:27 (B083)	06:23		07:33 (WEA03)	06:14		07:01 (B124)	05:22			05:05		05:39 (B087)	05:31		07:22 (WEA02)	06:18		07:05 (B124)	07:08		08:18 (WEA03)	07:58		08:57 (B083)	07:52		08:27			09:04 (B082)
	16:53			17:49	24	08:51 (B083)	18:38	36	08:09 (WEA03)	20:31	37	07:38 (WEA02)	21:18			21:45	36	06:28 (B153)	21:27	11	07:33 (WEA02)	20:33	36	07:41 (WEA02)	19:23	38	08:56 (WEA03)	18:16	25	09:22 (B083)	16:25				16:15	10	09:14 (B082)
24	08:15			09:04 (B084)	07:22		08:27 (B083)	06:20		07:34 (WEA03)	06:11		07:01 (WEA02)	05:20			05:05		05:40 (B087)	05:32		07:19 (WEA02)	06:20		07:03 (B124)	07:09		08:11 (B012)	08:00		08:56 (B083)	07:54		08:28			09:04 (B082)
	16:55	5		09:09 (B084)	17:51	23	08:50 (B083)	18:40	34	08:08 (WEA03)	20:32	38	07:39 (WEA02)	21:20			21:45	36	06:29 (B153)	21:26	16	07:35 (WEA02)	20:31	36	07:39 (WEA02)	19:20	43	08:55 (WEA03)	18:14	25	09:21 (B083)	16:24				16:16	11	09:15 (B082)
25	08:14			09:01 (B084)	07:20		08:28 (B083)	06:18		07:35 (WEA03)	06:09		07:00 (WEA02)	05:19			05:05		05:40 (B087)	05:33		07:18 (WEA02)	06:21		07:03 (B124)	07:11		08:08 (B012)	08:01		08:57 (B083)	07:55		08:28			09:05 (B082)
	16:56	10		09:11 (B084)	17:53	21	08:49 (B083)	18:42	32	08:07 (WEA03)	20:34	39	07:39 (WEA02)	21:21			21:45	35	06:29 (B153)	21:25	20	07:38 (WEA02)	20:28	35	07:38 (WEA02)	19:18	48	08:56 (WEA03)	18:12	24	09:21 (B083)	16:23				16:16	11	09:16 (B082)
26	08:13			09:00 (B084)	07:18		08:29 (B083)	07:16		08:35 (WEA03)	06:07		07:00 (WEA02)	05:18		06:11 (B153)	05:05		05:40 (B087)	05:35		07:16 (WEA02)	06:23		07:02 (B124)	07:13		08:07 (B012)	08:03		08:57 (B083)	07:57		08:56 (B082)	08:28		09:05 (B082)
	16:58	13		09:13 (B084)	17:55	18	08:47 (B083)	19:43	30	09:05 (WEA03)	20:36	40	07:40 (WEA02)	21:22	5	06:16 (B153)	21:45	34	06:29 (B153)	21:23	23	07:39 (WEA02)	20:26	33	07:35 (WEA02)	19:16	49	08:56 (WEA03)	18:10	26	09:33 (B253)	16:22	5	09:01 (B082)	16:17	11	09:16 (B082)
27	08:11			09:00 (B084)	07:16		08:31 (B083)	07:13		08:37 (WEA03)	06:05		06:59 (WEA02)	05:17		06:09 (B153)	05:06		05:41 (B087)	05:36		07:14 (WEA02)	06:24		07:02 (B124)	07:14		08:05 (B012)	08:05		08:58 (B083)	07:58		08:54 (B082)	08:29		09:06 (B082)
	17:00	14		09:14 (B084)	17:56	15	08:46 (B083)	19:45	26	09:03 (WEA03)	20:37	41	07:40 (WEA02)	21:24	9	06:18 (B153)	21:45	33	06:30 (B153)	21:22	26	07:40 (WEA02)	20:24	30	07:32 (WEA02)	19:14	50	08:55 (WEA03)	18:08	32	09:37 (B253)	16:21	8	09:02 (B082)	16:18	10	09:16 (B082)
28	08:10			08:59 (B084)	07:14		08:33 (B083)	07:11		07:53 (B150)	06:03		06:58 (WEA02)	05:16		06:08 (B153)	05:06		05:41 (B087)	05:37		06:44 (B223)	06:26		07:02 (B124)	07:16		08:05 (B012)	08:07		08:59 (B083)	08:00		08:52 (B082)	08:29		09:07 (B082)
	17:02	16		09:15 (B084)	17:58	10	08:43 (B083)	19:47	25	09:01 (WEA03)	20:39	42	07:40 (WEA02)	21:25	11	06:19 (B153)	21:45	30	06:30 (B153)	21:20	35	07:42 (WEA02)	20:22	20	07:22 (B124)	19:11	50	08:55 (WEA03)	18:06	33	09:39 (B253)	16:20	10	09:04 (B082)	16:18	11	09:17 (B082)
29	08:09			08:59 (B084)				07:09		07:48 (B150)	06:01		06:58 (WEA02)	05:15		06:07 (B153)	05:07		05:42 (B087)	05:39		06:42 (B223)	06:28		07:02 (B124)	07:17		08:04 (B012)	07:08		08:00 (B083)	08:02		08:54 (B082)	08:29		09:06 (B082)
	17:03	17		09:16 (B084)				19:48	26	08:57 (WEA03)	20:41	42	07:40 (WEA02)	21:26	13	06:20 (B153)	21:45	29	06:30 (B153)	21:19	40	07:43 (WEA02)	20:20	28	07:53 (B013)	19:09	50	08:54 (WEA03)	17:04	34	08:40 (B253)	16:19	11	09:05 (B082)	16:19	11	09:17 (B082)
30	08:07			08:58 (B084)				07:07		07:47 (B150)	05:59		06:58 (WEA02)	05:14		06:06 (B153)	05:07		05:42 (B087)	05:40		06:40 (B223)	06:29		07:02 (B124)	07:19		08:04 (B012)	07:10		08:01 (B083)	08:03		08:53 (B082)	08:29		09:06 (B082)
	17:05	18		09:16 (B084)				19:50	18	08:51 (WEA03)	20:42	43	07:41 (WEA02)	21:27	15	06:21 (B153)	21:45	29	06:30 (B153)	21:17	45	07:43 (WEA02)	20:18	31	07:54 (B013)	19:07	50	08:54 (WEA03)	17:02	33	08:41 (B253)	16:18	12	09:05 (B082)	16:20	12	09:18 (B082)
31	08:06			08:58 (B084)				07:04		07:46 (B150)				05:13		06:06 (B153)				05:42		06:40 (B223)	06:31		07:03 (B124)				07:12		08:03 (B083)				08:29		09:07 (B082)
	17:07	18		09:16 (B084)				19:52	15	08:01 (B150)				21:28	16	06:22 (B153)				21:16	49	07:45 (WEA02)	20:15	31	07:55 (B013)				17:00	31	08:42 (B253)				16:21	12	09:19 (B082)
Sonnenscheinstunden	259				277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		325			638			983			836			1042			830			603			1348			847			790			384			373		
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung		0.55			0.60			0.67			0.73			0.73			0.74			0.74			0.73			0.68			0.64			0.57			0.54		
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.17			0.12			0.09		
Met.wahrsch.Beschattung		32			118			176			210			311			197			164			376			175			138			47			33		

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)

Projekt:

Dörenhagen

Beschreibung:

2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:

anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:

08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO040 - Eggestr. 17, 17a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1 | 08:29			09:14 (B082) | 08:04			09:03 (B253) | 07:12			07:48 (B178) | 07:02			07:53 (B150) | 05:57			06:37 (B223) | 05:12			06:07 (WEA01) | 05:08			05:45 (B087) | 05:43			06:51 (B223) | 06:32			07:07 (B124) | 07:21			08:19 (B012) | 07:14			08:06 (B083) | 08:04		
16:22	13		09:27 (B082) | 17:09	19		09:22 (B084) | 18:00	25		08:14 (WEA03) | 19:54	13		08:06 (B150) | 20:44	55		07:50 (WEA02) | 21:30	26		06:33 (B153) | 21:45	50		06:41 (WEA01) | 21:14	20		07:45 (WEA02) | 20:13	35		07:42 (WEA02) | 19:04	44		09:03 (WEA03) | 16:58	31		08:46 (B253) | 16:18			
2 | 08:29			09:14 (B082) | 08:03			09:02 (B253) | 07:10			07:46 (B178) | 07:00			07:53 (B013) | 05:56			06:36 (B223) | 05:11			06:06 (WEA01) | 05:09			05:45 (B087) | 05:45			06:49 (B223) | 06:34			07:08 (B124) | 07:22			08:16 (B012) | 07:16			08:07 (B083) | 08:06			09:05 (B082)
16:23	14		09:28 (B082) | 17:11	19		09:21 (B084) | 18:02	31		08:17 (WEA03) | 19:55	15		08:08 (B013) | 20:46	56		07:49 (WEA02) | 21:31	27		06:33 (B153) | 21:44	48		06:40 (WEA01) | 21:13	29		07:48 (WEA02) | 20:11	29		07:38 (WEA02) | 19:02	46		09:02 (WEA03) | 16:57	33		08:48 (B253) | 16:17	4		09:09 (B082)
3 | 08:29			09:15 (B082) | 08:01			09:01 (B253) | 07:08			07:45 (B178) | 06:57			07:52 (B013) | 05:54			06:35 (B223) | 05:10			06:04 (WEA01) | 05:09			05:44 (B087) | 05:46			06:47 (B223) | 06:36			07:08 (B124) | 07:24			08:15 (B012) | 07:17			08:08 (B083) | 08:07			09:04 (B082)
16:24	13		09:28 (B082) | 17:13	19		09:20 (B084) | 18:04	34		08:19 (WEA03) | 19:57	16		08:08 (B013) | 20:47	56		07:48 (WEA02) | 21:32	29		06:33 (B153) | 21:44	48		06:40 (WEA01) | 21:11	37		07:50 (WEA02) | 20:09	25		07:59 (B013) | 19:00	47		09:02 (WEA03) | 16:55	30		08:48 (B253) | 16:16	7		09:11 (B082)
4 | 08:29			09:16 (B082) | 08:00			09:02 (B253) | 07:05			07:44 (B178) | 06:55			07:51 (B013) | 05:52			06:34 (B223) | 05:10			05:44 (B087) | 05:10			05:46 (B087) | 05:48			06:46 (B223) | 06:37			07:09 (B124) | 07:26			08:15 (B012) | 07:19			08:10 (B083) | 08:09			09:03 (B082)
16:25	13		09:29 (B082) | 17:14	18		09:20 (B253) | 18:05	37		08:21 (WEA03) | 19:59	18		08:09 (B013) | 20:49	56		07:47 (WEA02) | 21:33	34		06:34 (B153) | 21:44	46		06:40 (WEA01) | 21:09	41		07:51 (WEA02) | 20:06	27		08:02 (B013) | 18:57	47		09:02 (WEA03) | 16:53	28		08:49 (B253) | 16:16	9		09:12 (B082)
5 | 08:29			09:16 (B082) | 07:58			09:01 (B253) | 07:03			07:44 (B178) | 06:53			07:50 (B013) | 05:50			06:35 (B223) | 05:09			05:43 (B087) | 05:11			05:47 (B087) | 05:49			06:46 (B223) | 06:39			07:11 (B124) | 07:27			08:14 (B012) | 07:21			08:31 (B253) | 08:10			09:04 (B082)
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17:02	19		09:22 (B084) | 17:58			19:47	15		08:09 (B150) | 20:39	43		07:51 (WEA02) | 21:25	20		06:32 (B153) | 21:45	52		06:41 (WEA01) | 21:20			06:22	43		07:51 (WEA02) | 19:11	37		09:03 (WEA03) | 18:06	25		09:28 (B083) | 16:20			16:18	14		09:25 (B082)
29 | 08:09			09:04 (B084) |			07:09			07:53 (B150) | 06:01			06:40 (B223) | 05:15			06:12 (B153) | 05:07			05:44 (B087) | 05:39			06:28			07:08 (B124) | 07:17			08:24 (WEA03) | 07:58			08:04 (B083) | 08:02			08:29			09:12 (B082)
17:03	19		09:23 (B084) |			19:48	15		08:08 (B150) | 20:41	50		07:50 (WEA02) | 21:26	20		06:32 (B153) | 21:45	52		06:41 (WEA01) | 21:19			06:20	42		07:50 (WEA02) | 19:09	38		09:02 (WEA03) | 17:04	24		08:28 (B083) | 16:19			16:19	14		09:26 (B082)
30 | 08:07			09:04 (B084) |			07:07			07:53 (B150) | 05:59			06:39 (B223) | 05:14			06:12 (WEA01) | 05:07			05:44 (B087) | 05:40			06:29			07:07 (B124) | 07:19			08:22 (B012) | 07:10			08:04 (B083) | 08:03			08:29			09:12 (B082)
17:05	18		09:22 (B084) |			19:50	15		08:08 (B150) | 20:42	53		07:51 (WEA02) | 21:27	20		06:32 (B153) | 21:45	51		06:41 (WEA01) | 21:17			20:18	40		07:47 (WEA02) | 19:07	41		09:03 (WEA03) | 17:02	23		08:27 (B083) | 16:18			16:20	14		09:26 (B082)
31 | 08:06			09:03 (B253) |			07:04			07:53 (B150) |			05:13			06:08 (WEA01) |			05:42			07:35 (WEA02) | 06:31			07:08 (B124) |			07:12			08:05 (B083) |			08:29			09:13 (B082)
			17:07	19		09:22 (B084) |			19:52	15		08:08 (B150) |			21:28	24		06:32 (B153) |			21:16	7		07:45 (WEA02) | 20:15	37		07:45 (WEA02) |			17:00	29		08:44 (B253) |			16:21	13		09:26 (B082)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		309			542			976			1016			816			1404			722			1383			688			864			443			372	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17	
Reduktion Betriebsdauer		0.95		

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO041 - Eggestr. 25, 25a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		08:46 (B082)	07:12		08:01 (B083)	07:02		07:50 (WEA03)	05:57		06:28 (B124)	05:12		06:00 (B223)	05:08		06:07 (B223)	05:43		06:41 (B124)	06:32		07:19 (B012)	07:21		08:35 (B083)	07:14		08:06 (B084)	08:04
	16:22		17:09	16	09:02 (B082)	18:00	36	08:37 (B253)	19:53	34	08:24 (WEA03)	20:44	34	07:10 (B013)	21:30	52	06:52 (WEA02)	21:45	52	06:59 (WEA02)	21:14	14	07:12 (B013)	20:13	58	08:24 (WEA03)	19:04	21	08:56 (B083)	16:58	18	08:24 (B084)	16:18
2	08:29		08:03		08:46 (B082)	07:10		07:59 (B083)	07:00		07:48 (WEA03)	05:56		06:27 (B124)	05:11		06:00 (B223)	05:09		06:07 (B223)	05:45		06:40 (B124)	06:34		07:19 (B012)	07:22		08:33 (B083)	07:16		08:07 (B084)	08:06
	16:23		17:11	16	09:02 (B082)	18:02	38	08:37 (B253)	19:55	37	08:25 (WEA03)	20:46	36	07:10 (B013)	21:31	52	06:52 (WEA02)	21:44	52	06:59 (WEA02)	21:13	23	07:15 (B013)	20:11	58	08:25 (WEA03)	19:02	23	08:56 (B083)	16:57	16	08:23 (B084)	16:17
3	08:29		08:01		08:46 (B082)	07:08		07:57 (B083)	06:57		07:47 (WEA03)	05:54		06:27 (B124)	05:10		06:00 (B223)	05:09		06:07 (B223)	05:46		06:38 (B124)	06:36		07:20 (B012)	07:24		08:32 (B083)	07:17		08:08 (B084)	08:07
	16:24		17:13	15	09:01 (B082)	18:04	40	08:37 (B253)	19:57	39	08:26 (WEA03)	20:47	37	07:10 (B013)	21:32	52	06:52 (WEA02)	21:44	52	06:59 (WEA02)	21:11	29	07:17 (B013)	20:09	55	08:24 (WEA03)	19:00	25	08:57 (B083)	16:55	13	08:21 (B084)	16:16
4	08:29		08:00		08:48 (B082)	07:05		07:56 (B083)	06:55		07:47 (WEA03)	05:52		06:26 (B124)	05:10		06:01 (B223)	05:10		06:07 (B223)	05:48		06:37 (B124)	06:37		07:22 (B012)	07:26		08:31 (B083)	07:19		08:10 (B084)	08:09
	16:25		17:14	14	09:02 (B082)	18:05	41	08:37 (B253)	19:59	40	08:27 (WEA03)	20:49	39	07:10 (B013)	21:33	52	06:53 (WEA02)	21:44	53	07:00 (WEA02)	21:09	31	07:17 (B013)	20:06	51	08:24 (WEA03)	18:57	27	08:58 (B083)	16:53	9	08:19 (B084)	16:16
5	08:29		07:58		08:49 (B082)	07:03		07:56 (B083)	06:53		07:45 (WEA03)	05:50		06:26 (B124)	05:09		06:00 (B223)	05:11		06:08 (B223)	05:49		06:37 (B124)	06:39		07:41 (WEA03)	07:27		08:30 (B083)	07:21			08:10
	16:26		17:16	12	09:01 (B082)	18:07	40	08:36 (B253)	20:00	41	08:26 (WEA03)	20:50	39	07:10 (B013)	21:34	53	06:53 (WEA02)	21:43	52	07:00 (WEA02)	21:08	35	07:19 (B013)	20:04	43	08:24 (WEA03)	18:55	27	08:57 (B083)	16:51			16:15
6	08:29		07:56		08:50 (B082)	07:01		07:54 (B083)	06:51		07:44 (WEA03)	05:48		06:26 (B124)	05:08		06:00 (B223)	05:12		06:07 (B223)	05:51		06:36 (B124)	06:40		07:40 (WEA03)	07:29		08:30 (B083)	07:23		08:21 (B082)	08:11
	16:28		17:18	9	08:59 (B082)	18:09	41	08:35 (B253)	20:02	43	08:27 (WEA03)	20:52	40	07:10 (B013)	21:35	53	06:53 (WEA02)	21:43	52	06:59 (WEA02)	21:06	38	07:19 (B013)	20:02	43	08:23 (WEA03)	18:53	36	09:06 (B253)	16:49	7	08:28 (B082)	16:15
7	08:28		07:55		08:54 (B082)	06:59		07:54 (B083)	06:48		07:44 (WEA03)	05:46		06:26 (B124)	05:08		06:01 (B223)	05:12		06:07 (B223)	05:53		06:36 (B124)	06:42		07:40 (WEA03)	07:31		08:30 (B083)	07:24		08:19 (B082)	08:13
	16:29		17:20	1	08:55 (B082)	18:11	40	08:34 (B253)	20:04	43	08:27 (WEA03)	20:54	38	07:09 (B013)	21:36	53	06:54 (WEA02)	21:42	53	07:00 (WEA02)	21:04	38	07:20 (B013)	20:00	43	08:23 (WEA03)	18:51	38	09:08 (B253)	16:48	11	08:30 (B082)	16:14
8	08:28		07:53		08:42 (B084)	06:57		07:54 (B083)	06:46		07:44 (WEA03)	05:45		06:27 (B124)	05:07		06:02 (B223)	05:13		06:07 (B223)	05:54		06:35 (B124)	06:44		07:40 (WEA03)	07:32		08:30 (B083)	07:26		08:18 (B082)	08:14
	16:30		17:22	7	08:49 (B084)	18:12	38	08:32 (B253)	20:05	43	08:27 (WEA03)	20:55	36	07:09 (B013)	21:37	52	06:54 (WEA02)	21:42	53	07:00 (WEA02)	21:02	39	07:19 (B013)	19:57	42	08:22 (WEA03)	18:48	40	09:10 (B253)	16:46	13	08:31 (B082)	16:14
9	08:28		07:51		08:40 (B084)	06:54		07:53 (B083)	06:44		07:28 (B012)	05:43		06:27 (B124)	05:06		06:02 (B223)	05:14		06:07 (B223)	05:56		06:36 (B124)	06:45		07:40 (WEA03)	07:34		08:29 (B083)	07:28		08:17 (B082)	08:15
	16:31		17:24	12	08:52 (B084)	18:14	36	08:29 (B253)	20:07	45	08:27 (WEA03)	20:57	34	07:08 (B013)	21:38	52	06:54 (WEA02)	21:41	53	07:00 (WEA02)	21:00	39	07:20 (B013)	19:55	41	08:21 (WEA03)	18:46	41	09:10 (B253)	16:44	15	08:32 (B082)	16:14
10	08:27		07:49		08:38 (B084)	06:52		07:53 (B083)	06:42		07:23 (B012)	05:41		06:28 (B124)	05:06		06:02 (B223)	05:15		06:08 (B223)	05:57		06:35 (B124)	06:47		07:40 (WEA03)	07:36		08:30 (B083)	07:30		08:17 (B082)	08:16
	16:33		17:25	15	08:53 (B084)	18:16	27	08:20 (B083)	20:09	53	08:26 (WEA03)	20:59	31	07:08 (B013)	21:38	53	06:55 (WEA02)	21:40	52	07:00 (WEA02)	20:59	40	07:19 (B013)	19:53	40	08:20 (WEA03)	18:44	41	09:11 (B253)	16:43	16	08:33 (B082)	16:13
11	08:26		07:48		08:37 (B084)	06:50		07:53 (B083)	06:39		07:21 (B012)	05:39		06:28 (B124)	05:06		06:02 (B223)	05:16		06:08 (B223)	05:59		06:36 (B124)	06:48		07:41 (WEA03)	07:37		08:31 (B083)	07:32		08:17 (B082)	08:17
	16:34		17:27	17	08:54 (B084)	18:18	27	08:20 (B083)	20:10	57	08:26 (WEA03)	21:00	29	07:07 (B013)	21:39	52	06:54 (WEA02)	21:39	52	07:00 (WEA02)	20:57	38	07:19 (B013)	19:51	38	08:19 (WEA03)	18:42	40	09:11 (B253)	16:41	16	08:33 (B082)	16:13
12	08:26		07:46		08:36 (B084)	06:48		07:54 (B083)	06:37		07:20 (B012)	05:38		06:29 (B124)	05:05		06:03 (B223)	05:17		06:08 (B223)	06:00		06:36 (B124)	06:50		07:41 (WEA03)	07:39		08:32 (B083)	07:33		08:17 (B082)	08:18
	16:36		17:29	19	08:55 (B084)	18:19	25	08:19 (B083)	20:12	58	08:25 (WEA03)	21:02	24	07:05 (B013)	21:40	52	06:55 (WEA02)	21:39	52	07:00 (WEA02)	20:55	36	07:18 (B013)	19:48	36	08:17 (WEA03)	18:40	39	09:11 (B253)	16:40	17	08:34 (B082)	16:13
13	08:25		07:44		08:35 (B084)	06:45		07:54 (B083)	06:35		07:19 (B012)	05:36		06:30 (B124)	05:05		06:03 (B223)	05:18		06:08 (B223)	06:02		06:37 (B124)	06:52		07:42 (WEA03)	07:41		08:32 (B083)	07:35		08:17 (B082)	08:19
	16:37		17:31	20	08:55 (B084)	18:21	23	08:17 (B083)	20:14	59	08:25 (WEA03)	21:03	16	07:02 (B013)	21:41	52	06:55 (WEA02)	21:38	52	07:00 (WEA02)	20:53	34	07:18 (B013)	19:46	34	08:16 (WEA03)	18:37	38	09:10 (B253)	16:38	17	08:34 (B082)	16:13
14	08:25		07:42		08:35 (B084)	06:43		07:55 (B083)	06:33		07:14 (B150)	05:35		06:33 (B124)	05:05		06:04 (B223)	05:19		06:08 (B223)	06:04		06:37 (B124)	06:53		07:43 (WEA03)	07:42		08:34 (B083)	07:37		08:18 (B082)	08:20
	16:39		17:33	21	08:56 (B084)	18:23	21	08:16 (B083)	20:15	62	08:24 (WEA03)	21:05	7	06:40 (B124)	21:41	51	06:55 (WEA02)	21:37	52	07:00 (WEA02)	20:51	31	07:17 (B013)	19:44	31	08:14 (WEA03)	18:35	36	09:10 (B253)	16:37	16	08:34 (B082)	16:13
15	08:24		07:40		08:35 (B084)	06:41		07:56 (B083)	06:31		07:12 (B150)	05:33		06:27 (WEA02)	05:04		06:04 (B223)	05:20		06:08 (B223)	06:05		06:38 (B124)	06:55		07:45 (WEA03)	07:44		08:36 (B083)	07:39		08:19 (B082)	08:21
	16:40		17:35	21	08:56 (B084)	18:25	19	08:15 (B083)	20:17	64	08:24 (WEA03)	21:06	5	06:32 (WEA02)	21:42	52	06:56 (WEA02)	21:36	52	07:00 (WEA02)	20:49	26	07:16 (B013)	19:41	27	08:12 (WEA03)	18:33	31	09:09 (B253)	16:35	15	08:34 (B082)	16:13
16	08:23		07:38		08:35 (B084)	06:39		07:58 (B083)	06:28		07:09 (B150)	05:31		06:23 (WEA02)	05:04		06:05 (B223)	05:22		06:09 (B223)	06:07		06:39 (B124)	06:56		07:47 (WEA03)	07:46		08:50 (B253)	07:40		08:20 (B082)	08:22
	16:42		17:36	21	08:56 (B084)	18:26	13	08:11 (B083)	20:19	65	08:22 (WEA03)	21:08	14	06:37 (WEA02)	21:42	51	06:56 (WEA02)	21:35	50	07:00 (WEA02)	20:47	19	07:13 (B013)	19:39	23	08:10 (WEA03)	18:31	19	09:09 (B253)	16:34	13	08:33 (B082)	16:13
17	08:22		07:36		08:35 (B084)	06:36		08:02 (B083)	06:26		07:08 (B150)	05:30		06:20 (WEA02)	05:04		06:05 (B223)	05:23		06:09 (B223)	06:08		06:43 (B124)	06:58		07:49 (WEA03)	07:48		08:51 (B253)	07:42		08:20 (B082)	08:23
	16:43		17:38	21	08:56 (B084)	18:28	5	08:07 (B083)	20:20	63	08:21 (WEA03)	21:09	19	06:39 (WEA02)	21:43	51	06:56 (WEA02)	21:34	50	06:59 (WEA02)	20:45	4	06:47 (B124)	19:37	18	08:07 (B178)	18:29	17	09:08 (B253)	16:32	12	08:32 (B082)	16:13
18	08:21		07:34		08:35 (B084)	06:34		07:11 (B178)	06:24		07:08 (B150)	05:28		06:18 (WEA02)	05:04		06:05 (B223)	05:24		06:09 (B223)	06:10			07:00		07:53 (B178)	07:49		08:51 (B253)	07:44		08:21 (B082)	08:24
	16:45		17:40	20	08:55 (B084)	18:30	9	07:20 (B178)	20:22	60	08:20 (WEA03)	21:11	23	06:41 (WEA02)	21:43	52	06:57 (WEA02)	21:33	50	06:59 (WEA02)	20:43			19:34	15	08:08 (B178)	18:27	14	09:05 (B253)	16:31	10	08:31 (B082)	16:13
19	08:20		07:33		08:36 (B084)	06:32		07:08 (B178)	06:22		07:07 (B150)	05:27		06:17 (WEA02)	05:04		06:06 (B223)	05:25		06:09 (B223)	06:12			07:01		07:51 (B178)	07:51		08:54 (B253)	07:45		08:23 (B082)	08:25
	16:46		17:42	19	08:55 (B084)	18:31	13	07:21 (B178)	20:24	58	08:18 (WEA03)	21:12	26	06:43 (WEA02)	21:44	51	06:57 (WEA02)	21:32	49	06:58 (WEA02)	20:41			19:32	17	08:08 (B178)	18:24	9	09:03 (B253)	16:30	7	08:30 (B082)	16:14
20	08:19		07:31		08:37 (B084)	06:29		07:07 (B178)	06:20		07:07 (B150)	05:26		06:16 (WEA02)	05:04		06:06 (B223)	05:27		06:11 (B223)	06:13		07:16 (B150)	07:03		07:51 (B178)	07:53			07:47			08:25
	16:48		17:44	17	08:54 (B084)	18:33	15	07:22 (B178)	20:25	53	08:17 (WEA03)	21:14	28	06:44 (WEA02)	21:44	51	06:57 (WEA02)	21:31	47	06:58 (WEA02)	20:39	19	08:12 (WEA03)	19:30	18	08:09 (B178)	18:22			16:29			16:14
21	08:18		07:29		08:39 (B084)	06:27		07:06 (B178)	06:18		07:07 (B150)	05:24		06:15 (WEA02)	05:04		06:06 (B223)	05:28		06:12 (B223)	06:15		07:14 (B150)	07:04		07:51 (B178)	07:54		09:12 (B084)	07:49			08:26
	16:50		17:46	13	08:52 (B084)	18:35	17	07:23 (B178)	20:27	43	08:15 (WEA03)	21:15	30	06:45 (WEA02)	21:44	51	06:57 (WEA02)	21:30	46	06:58 (WEA02)	20:37	30	08:15 (WEA03)	19:27	18	08:09 (B178)	18:20	7	09:19 (B084)	16:27			16:14
22	08:17		07:26		08:41 (B084)	06:25		07:04 (B178)	06:16		07:08 (B150)	05:23		06:04 (B223)	05:04		06:06 (B223)	05:29		06:12 (B223)	06:16		07:13 (B150)	07:06		07:50 (B178)	07:56		09:09 (B084)	07:50			08:27
	16:51		17:47	9	08:50 (B084)	18:37	19	07:23 (B178)	20:29	39	08:13 (WEA03)	21:17	39	06:46 (WEA02)	21:45	51	06:57 (WEA02)	21:28	45	06:57 (WEA02)	20:35	37	08:17 (WEA03)	19:25	18	08:08 (B178)	18:18	13	09:22 (B084)	16:26			16:15
23	08:16		07:24			06:23		07:04 (B178)	06:14		07:08 (B150)	05:22		06:02 (B223)	05:05		06:06 (B223)	05:31		06:14 (B223)	06:18		07:12 (B150)	07:08		07:50 (B178)	07:58		09:08 (B084)	07:52			08:27
	16:53		17:49			18:38	19	07:23 (B178)	20:31	33	08:11 (WEA03)	21:18	45	06:47 (WEA02)	21:45	51	06:57 (WEA02)	21:27	39	06:56 (WEA02)	20:33	42	08:19 (WEA03)	19:23	18	08:08 (B178)	18:16	16	09:24 (B084)	16:25			16:15
24	08:15		08:51 (B082)	07:22		08:23 (B253)	06:20		07:04 (B178)	06:11		07:10 (B150)	05:20		06:01 (B223)	05:05		06:07 (B223)	05:32		06:26 (WEA02)	06:20		07:11 (B150)	07:09		07:50 (B178)	08:00		09:06 (B084)	07:54			08:28
	16:55	3	08:54 (B082)	17:51	7	08:30 (B253)	18:40	19	07:23 (B178)	20:32	23	08:07 (WEA03)	21:20	47	06:48 (WEA02)	21:45	51	06:58 (WEA02)	21:26	30	06:56 (WEA02)	20:31	48	08:20 (WEA03)	19:20	17	08:07 (B178)	18:14	18	09:24 (B084)	16:24			16:16
25	08:14		08:48 (B082)	07:20		08:20 (B253)	06:18		07:05 (B178)	06:09		05:19		06:01 (B223)	05:05		06:07 (B223)	05:33		06:26 (WEA02)	06:21		07:11 (B150)	07:11		07:50 (B178)	08:01		09:05 (B084)	07:55			08:28
	16:56	8	08:56 (B082)	17:53	13	08:33 (B253)	18:42	17	07:22 (B178)	20:34				21:21	47	06:48 (WEA02)	21:45	51	06:58 (WEA02)	21:25	29	06:55 (WEA02)	20:28	56	08:22 (WEA03)	19:18	16	08:06 (B178)	18:12	20	09:25 (B084)	16:23			16:16
26	08:12		08:47 (B082)	07:18		08:19 (B253)	07:16		08:04 (B178)	06:07				06:18		06:00 (B223)	05:06		06:06 (B223)	05:35		06:27 (WEA02)	06:23		07:10 (B150)	07:13		07:52 (B178)	08:03		09:05 (B084)	07:57			08:28
	16:58	11	08:58 (B082)	17:55	16	08:35 (B253)	19:43	17	08:21 (B178)	20:36				21:22	49	06:49 (WEA02)	21:45	52	06:58 (WEA02)	21:23	26	06:53 (WEA02)	20:26	59	08:22 (WEA03)	19:16	13	08:05 (B178)	18:10	20	09:25 (B084)	16:22			16:17
27	08:11		08:47 (B082)	07:16		08:18 (B253)	07:13		08:04 (WEA03)	06:05				05:17		06:00 (B223)	05:06		06:07 (B223)	05:36		06:28 (WEA02)	06:24		07:11 (B150)	07:14		07:53 (B178)	08:05		09:04 (B084)	07:58			08:29
	17:00	13	09:00 (B082)	17:56	18	08:36 (B253)	19:45	16	08:20 (B178)	20:37				21:24	50	06:50 (WEA02)	21:45	51	06:58 (WEA02)	21:22	23	06:51 (WEA02)	20:24	62	08:23 (WEA03)	19:14	8	08:01 (B178)	18:08	21	09:25 (B084)	16:21			16:18
28	08:10		08:46 (B082)	07:14		08:05 (B083)	07:11		08:00 (WEA03)	06:03		06:32 (B124)	05:16		06:00 (B223)	05:06		06:07 (B223)	05:37		06:31 (WEA02)	06:26		07:11 (B150)	07:16		08:43 (B083)	08:07		09:04 (B084)	08:00			08:29
	17:02	14	09:00 (B082)	17:58	29	08:37 (B253)	19:47	18	08:18 (WEA03)	20:39	17	07:05 (B013)	21:25	50	06:50 (WEA02)	21:45	51	06:58 (WEA02)	21:20	19	06:50 (WEA02)	20:22	64	08:23 (WEA03)	19:11	7	08:50 (B083)	18:06	22	09:26 (B084)	16:20			16:18
29	08:09		08:46 (B082)				07:09		07:56 (WEA03)	06:01		06:30 (B124)	05:15		06:00 (B223)	05:07		06:07 (B223)	05:39		06:33 (WEA02)	06:28		07:12 (B150)	07:17		08:38 (B083)	07:08		09:05 (B084)	08:02			08:29
	17:03	16	09:02 (B082)				19:48	24	08:20 (WEA03)	20:41	25	07:07 (B013)	21:26	50	06:50 (WEA02)	21:45	52	06:59 (WEA02)	21:19	15	06:48 (WEA02)	20:20	64	08:24 (WEA03)	19:09	15	08:53 (B083)	17:04	21	08:26 (B084)	16:19			16:19
30	08:07		08:46 (B082)				07:07		07:54 (WEA03)	05:59		06:30 (B124)	05:14		05:59 (B223)	05:07		06:07 (B223)	05:40		06:36 (WEA02)	06:29		07:13 (B150)	07:19		08:36 (B083)	07:10		09:05 (B084)	08:03			08:29
	17:05	16	09:02 (B082)				19:50	28	08:22 (WEA03)	20:42	30	07:09 (B013)	21:27	52	06:51 (WEA02)	21:45	51	06:58 (WEA02)	21:17	7	06:43 (WEA02)	20:18	63	08:24 (WEA03)	19:07	19	08:55 (B083)	17:02	20	08:25 (B084)	16:18			16:20
31	08:06		08:45 (B082)				07:04		07:52 (WEA03)				05:13		05:59 (B223)				05:42		06:44 (B124)	06:31		07:19 (B012)				07:12		08:05 (B084)				08:29
	17:07	17	09:02 (B082)				19:52	32	08:24 (WEA03)				21:28	52	06:51 (WEA02)				21:16	6	06:50 (B124)	20:15	59	08:25 (WEA03)				17:00	20	08:25 (B084)				16:21
Sonnenscheinstunden	259			277		366		414		483		497		501		454		382		333		268		245
astr.max.m0g/l.Beschattung		98		418		773		1227		1066		1551		1315		1117		880		760		241		
Red.Sonnenscheinwahrsch.		0.19		0.32		0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		0.23		
Reduktion Betriebsdauer		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		
Reduktion Windrichtung		0.59		0.61		0.67		0.72		0.74		0.74		0.74		0.73		0.71		0.64		0.59		
Gesamte Reduktion		0.11		0.19		0.18		0.25		0.30		0.24		0.27		0.28		0.21		0.17		0.13		
Met.wahrsch.Beschattung		10		79		139		305		321		370		361		309		189		133		31		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO042 - Eggestr. 29, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		08:39 (B082)	07:12		08:14 (B253)	07:02		07:50 (WEA03)	05:57		06:27 (B124)	05:12		05:57 (B223)	05:08		06:03 (B223)	05:43		06:33 (B124)	06:32		07:32 (WEA03)	07:21		08:24 (B083)	07:14		08:09 (B082)	08:04
	16:22		17:09	9	08:48 (B082)	18:00	2	08:16 (B253)	19:53	15	08:05 (WEA03)	20:44	11	06:38 (B124)	21:30	45	06:42 (WEA02)	21:45	48	06:51 (WEA02)	21:14	33	07:11 (B013)	20:13	42	08:14 (WEA03)	19:04	33	08:57 (B253)	16:58	10	08:19 (B082)	16:18
2	08:29		08:03		08:37 (B082)	07:10		08:09 (B253)	07:00		07:46 (WEA03)	05:56		06:25 (B124)	05:11		05:57 (B223)	05:09		06:02 (B223)	05:45		06:33 (B124)	06:34		07:32 (WEA03)	07:22		08:22 (B083)	07:16		08:08 (B082)	08:06
	16:23		17:11	12	08:49 (B082)	18:02	11	08:20 (B253)	19:55	22	08:08 (WEA03)	20:46	22	06:58 (B013)	21:31	46	06:43 (WEA02)	21:44	48	06:50 (WEA02)	21:13	35	07:12 (B013)	20:11	42	08:14 (WEA03)	19:02	36	08:58 (B253)	16:57	12	08:20 (B082)	16:17
3	08:29		08:01		08:36 (B082)	07:08		08:07 (B253)	06:57		07:44 (WEA03)	05:54		06:24 (B124)	05:10		05:56 (B223)	05:09		06:02 (B223)	05:46		06:32 (B124)	06:36		07:32 (WEA03)	07:24		08:22 (B083)	07:17		08:06 (B082)	08:07
	16:24		17:13	14	08:50 (B082)	18:04	15	08:22 (B253)	19:57	26	08:10 (WEA03)	20:47	27	06:59 (B013)	21:32	47	06:43 (WEA02)	21:44	48	06:50 (WEA02)	21:11	37	07:12 (B013)	20:09	41	08:13 (WEA03)	19:00	37	08:59 (B253)	16:55	14	08:20 (B082)	16:16
4	08:29		08:00		08:36 (B082)	07:05		07:55 (B083)	06:55		07:42 (WEA03)	05:52		06:23 (B124)	05:10		05:57 (B223)	05:10		06:03 (B223)	05:48		06:31 (B124)	06:37		07:32 (WEA03)	07:26		08:23 (B083)	07:19		08:05 (B082)	08:09
	16:25		17:14	15	08:51 (B082)	18:05	28	08:24 (B253)	19:59	30	08:12 (WEA03)	20:49	32	07:00 (B013)	21:33	47	06:44 (WEA02)	21:44	48	06:51 (WEA02)	21:09	38	07:12 (B013)	20:06	41	08:13 (WEA03)	18:57	37	09:00 (B253)	16:53	16	08:21 (B082)	16:16
5	08:29		07:58		08:36 (B082)	07:03		07:52 (B083)	06:53		07:40 (WEA03)	05:50		06:23 (B124)	05:09		05:57 (B223)	05:11		06:03 (B223)	05:49		06:32 (B124)	06:39		07:33 (WEA03)	07:27		08:22 (B083)	07:21		08:05 (B082)	08:10
	16:26		17:16	16	08:52 (B082)	18:07	33	08:25 (B253)	20:00	32	08:12 (WEA03)	20:50	35	07:02 (B013)	21:34	47	06:44 (WEA02)	21:43	48	06:51 (WEA02)	21:08	38	07:12 (B013)	20:04	40	08:13 (WEA03)	18:55	38	09:00 (B253)	16:51	16	08:21 (B082)	16:15
6	08:29		07:56		08:35 (B082)	07:01		07:49 (B083)	06:51		07:38 (WEA03)	05:48		06:22 (B124)	05:08		05:56 (B223)	05:12		06:03 (B223)	05:51		06:31 (B124)	06:40		07:33 (WEA03)	07:29		08:22 (B083)	07:23		08:05 (B082)	08:11
	16:28		17:18	17	08:52 (B082)	18:09	35	08:24 (B253)	20:02	36	08:14 (WEA03)	20:52	37	07:02 (B013)	21:35	48	06:44 (WEA02)	21:43	47	06:50 (WEA02)	21:06	38	07:12 (B013)	20:02	38	08:11 (WEA03)	18:53	39	09:01 (B253)	16:49	16	08:21 (B082)	16:15
7	08:28		07:55		08:35 (B082)	06:59		07:48 (B083)	06:48		07:37 (WEA03)	05:46		06:21 (B124)	05:08		05:57 (B223)	05:12		06:03 (B223)	05:53		06:32 (B124)	06:42		07:34 (WEA03)	07:31		08:23 (B083)	07:24		08:05 (B082)	08:13
	16:29		17:20	17	08:52 (B082)	18:11	36	08:24 (B253)	20:04	37	08:14 (WEA03)	20:54	38	07:02 (B013)	21:36	48	06:45 (WEA02)	21:42	48	06:51 (WEA02)	21:04	38	07:12 (B013)	20:00	36	08:10 (WEA03)	18:51	38	09:01 (B253)	16:48	17	08:22 (B082)	16:14
8	08:28		07:53		08:36 (B082)	06:57		07:47 (B083)	06:46		07:36 (WEA03)	05:45		06:22 (B124)	05:07		05:58 (B223)	05:13		06:03 (B223)	05:54		06:31 (B124)	06:44		07:34 (WEA03)	07:32		08:24 (B083)	07:26		08:06 (B082)	08:14
	16:30		17:22	16	08:52 (B082)	18:12	38	08:25 (B253)	20:05	39	08:15 (WEA03)	20:55	39	07:03 (B013)	21:37	47	06:45 (WEA02)	21:42	48	06:51 (WEA02)	21:02	37	07:11 (B013)	19:57	34	08:08 (WEA03)	18:48	37	09:01 (B253)	16:46	15	08:21 (B082)	16:14
9	08:28		07:51		08:37 (B082)	06:54		07:45 (B083)	06:44		07:36 (WEA03)	05:43		06:21 (B124)	05:06		05:57 (B223)	05:14		06:04 (B223)	05:56		06:32 (B124)	06:45		07:35 (WEA03)	07:34		08:25 (B083)	07:28		08:06 (B082)	08:15
	16:31		17:24	15	08:52 (B082)	18:14	38	08:23 (B253)	20:07	40	08:16 (WEA03)	20:57	38	07:02 (B013)	21:38	48	06:45 (WEA02)	21:41	47	06:51 (WEA02)	21:00	35	07:11 (B013)	19:55	32	08:07 (WEA03)	18:46	34	08:59 (B253)	16:44	15	08:21 (B082)	16:14
10	08:27		07:49		08:38 (B082)	06:52		07:45 (B083)	06:42		07:34 (WEA03)	05:41		06:22 (B124)	05:06		05:58 (B223)	05:15		06:04 (B223)	05:57		06:32 (B124)	06:47		07:36 (WEA03)	07:36		08:26 (B083)	07:30		08:07 (B082)	08:16
	16:33		17:25	13	08:51 (B082)	18:16	38	08:23 (B253)	20:09	41	08:15 (WEA03)	20:59	39	07:03 (B013)	21:38	48	06:46 (WEA02)	21:40	47	06:51 (WEA02)	20:59	33	07:10 (B013)	19:53	29	08:05 (WEA03)	18:44	33	08:59 (B253)	16:43	13	08:20 (B082)	16:13
11	08:26		07:48		08:39 (B082)	06:50		07:45 (B083)	06:39		07:34 (WEA03)	05:39		06:22 (B124)	05:06		05:58 (B223)	05:16		06:04 (B223)	05:59		06:33 (B124)	06:48		07:38 (WEA03)	07:37		08:29 (B083)	07:32		08:09 (B082)	08:17
	16:34		17:27	11	08:50 (B082)	18:18	37	08:22 (B253)	20:10	41	08:15 (WEA03)	21:00	37	07:02 (B013)	21:39	47	06:45 (WEA02)	21:39	47	06:51 (WEA02)	20:57	29	07:09 (B013)	19:51	25	08:03 (WEA03)	18:42	28	08:58 (B253)	16:41	11	08:20 (B082)	16:13
12	08:26		07:46		08:35 (B084)	06:48		07:45 (B083)	06:37		07:33 (WEA03)	05:38		06:22 (B124)	05:05		05:58 (B223)	05:17		06:04 (B223)	06:00		06:33 (B124)	06:50		07:40 (WEA03)	07:39		08:41 (B253)	07:33		08:11 (B082)	08:18
	16:36		17:29	12	08:47 (B082)	18:19	37	08:22 (B253)	20:12	42	08:15 (WEA03)	21:02	35	07:01 (B013)	21:40	48	06:46 (WEA02)	21:39	47	06:51 (WEA02)	20:55	24	07:07 (B013)	19:48	19	07:59 (WEA03)	18:40	16	08:57 (B253)	16:40	7	08:18 (B082)	16:13
13	08:25		07:44		08:32 (B084)	06:45		07:44 (B083)	06:35		07:33 (WEA03)	05:36		06:23 (B124)	05:05		05:59 (B223)	05:18		06:05 (B223)	06:02		06:35 (B124)	06:52		07:44 (WEA03)	07:41		08:42 (B253)	07:35			08:19
	16:37		17:31	11	08:43 (B084)	18:21	35	08:19 (B253)	20:14	42	08:15 (WEA03)	21:03	33	07:01 (B013)	21:41	48	06:47 (WEA02)	21:38	45	06:50 (WEA02)	20:53	12	06:47 (B124)	19:46	16	08:00 (B178)	18:37	12	08:54 (B253)	16:38			16:13
14	08:25		07:42		08:30 (B084)	06:43		07:44 (B083)	06:33		07:33 (WEA03)	05:35		06:24 (B124)	05:05		05:59 (B223)	05:19		06:05 (B223)	06:04		06:36 (B124)	06:53		07:48 (B178)	07:42		08:46 (B253)	07:37			08:20
	16:39		17:33	15	08:45 (B084)	18:23	33	08:17 (B253)	20:15	42	08:15 (WEA03)	21:05	29	07:00 (B013)	21:41	48	06:47 (WEA02)	21:37	45	06:50 (WEA02)	20:51	8	06:44 (B124)	19:44	12	08:01 (B178)	18:35	4	08:50 (B253)	16:37			16:13
15	08:24		07:40		08:29 (B084)	06:41		07:44 (B083)	06:31		07:12 (B012)	05:33		06:25 (B124)	05:04		05:59 (B223)	05:20		06:05 (B223)	06:05		07:53 (WEA03)	06:55		07:48 (B178)	07:44					07:39		08:21
	16:40		17:35	17	08:46 (B084)	18:25	26	08:10 (B083)	20:17	51	08:15 (WEA03)	21:06	26	06:59 (B013)	21:42	48	06:47 (WEA02)	21:36	45	06:50 (WEA02)	20:49	9	08:02 (WEA03)	19:41	15	08:03 (B178)	18:33							16:13
16	08:23		07:38		08:28 (B084)	06:39		07:44 (B083)	06:28		07:09 (B012)	05:31		06:27 (B124)	05:04		06:00 (B223)	05:22		06:06 (B223)	06:07		07:49 (WEA03)	06:56		07:47 (B178)	07:46					07:40		08:22
	16:42		17:36	19	08:47 (B084)	18:26	25	08:09 (B083)	20:19	55	08:14 (WEA03)	21:08	20	06:58 (B013)	21:42	48	06:48 (WEA02)	21:35	43	06:49 (WEA02)	20:47	16	08:05 (WEA03)	19:39	17	08:04 (B178)	18:31							16:13
17	08:22		07:36		08:27 (B084)	06:36		07:45 (B083)	06:26		07:07 (B150)	05:30		06:28 (B124)	05:04		06:00 (B223)	05:23		06:06 (B223)	06:08		07:12 (B150)	06:58		07:46 (B178)	07:48		09:07 (B084)	07:42			08:23
	16:43		17:38	21	08:48 (B084)	18:28	23	08:08 (B083)	20:20	57	08:13 (WEA03)	21:09	11	06:55 (B013)	21:43	48	06:48 (WEA02)	21:34	43	06:49 (WEA02)	20:45	28	08:08 (WEA03)	19:37	17	08:03 (B178)	18:29	3	09:10 (B084)	16:32			16:13
18	08:21		07:34		08:27 (B084)	06:34		07:46 (B083)	06:24		07:04 (B150)	05:28			05:04		06:00 (B223)	05:24		06:07 (B223)	06:10		07:09 (B150)	07:00		07:45 (B178)	07:49		09:02 (B084)	07:44			08:24
	16:45		17:40	21	08:48 (B084)	18:30	20	08:06 (B083)	20:22	59	08:13 (WEA03)	21:11			21:43	48	06:48 (WEA02)	21:33	41	06:48 (WEA02)	20:43	36	08:09 (WEA03)	19:34	19	08:04 (B178)	18:27	11	09:13 (B084)	16:31			16:13
19	08:20		07:33		08:27 (B084)	06:32		07:47 (B083)	06:22		07:03 (B150)	05:27			05:04		06:01 (B223)	05:25		06:08 (B223)	06:12		07:08 (B150)	07:01		07:44 (B178)	07:51		09:00 (B084)	07:45			08:25
	16:46		17:42	21	08:48 (B084)	18:31	17	08:04 (B083)	20:24	59	08:12 (WEA03)	21:12			21:44	47	06:48 (WEA02)	21:32	39	06:47 (WEA02)	20:41	43	08:11 (WEA03)	19:32	19	08:03 (B178)	18:24	15	09:15 (B084)	16:30			16:14
20	08:19		07:31		08:27 (B084)	06:29		07:49 (B083)	06:20		07:02 (B150)	05:26		06:17 (WEA02)	05:04		06:01 (B223)	05:27		06:10 (B223)	06:13		07:07 (B150)	07:03		07:45 (B178)	07:53		08:59 (B084)	07:47			08:25
	16:48		17:44	21	08:48 (B084)	18:33	12	08:01 (B083)	20:25	59	08:11 (WEA03)	21:14	12	06:29 (WEA02)	21:44	48	06:49 (WEA02)	21:31	36	06:47 (WEA02)	20:39	48	08:12 (WEA03)	19:30	18	08:03 (B178)	18:22	18	09:17 (B084)	16:29			16:14
21	08:18		07:29		08:27 (B084)	06:27		07:04 (B178)	06:18		07:01 (B150)	05:24		06:14 (WEA02)	05:04		06:01 (B223)	05:28		06:12 (B223)	06:15		07:06 (B150)	07:04		07:45 (B178)	07:54		08:58 (B084)	07:49			08:26
	16:50		17:46	21	08:48 (B084)	18:35	9	07:13 (B178)	20:27	58	08:10 (WEA03)	21:15	17	06:31 (WEA02)	21:44	48	06:49 (WEA02)	21:30	30	06:46 (WEA02)	20:37	53	08:13 (WEA03)	19:27	17	08:02 (B178)	18:20	19	09:17 (B084)	16:27			16:14
22	08:17		07:26		08:28 (B084)	06:25		07:01 (B178)	06:16		07:01 (B150)	05:23		06:12 (WEA02)	05:04		06:01 (B223)	05:29		06:21 (WEA02)	06:16		07:06 (B150)	07:06		07:45 (B178)	07:56		08:58 (B084)	07:50			08:27
	16:51		17:47	19	08:47 (B084)	18:37	13	07:14 (B178)	20:29	56	08:09 (WEA03)	21:17	21	06:33 (WEA02)	21:45	48	06:49 (WEA02)	21:28	24	06:45 (WEA02)	20:35	56	08:14 (WEA03)	19:25	15	08:00 (B178)	18:18	20	09:18 (B084)	16:26			16:15
23	08:16		07:24		08:28 (B084)	06:23		06:59 (B178)	06:14		07:01 (B150)	05:22		06:11 (WEA02)	05:05		06:01 (B223)	05:31		06:22 (WEA02)	06:18		07:06 (B150)	07:08		07:47 (B178)	07:58		08:58 (B084)	07:52			08:27
	16:53		17:49	17	08:45 (B084)	18:38	16	07:15 (B178)	20:31	53	08:08 (WEA03)	21:18	24	06:35 (WEA02)	21:45	48	06:49 (WEA02)	21:27	21	06:43 (WEA02)	20:33	58	08:15 (WEA03)	19:23	12	07:59 (B178)	18:16	20	09:18 (B084)	16:25			16:15
24	08:15		07:22		08:29 (B084)	06:20		06:59 (B178)	06:11		07:01 (B150)	05:20		06:02 (B223)	05:05		06:02 (B223)	05:32		06:25 (WEA02)	06:20		07:05 (B150)	07:09		07:48 (B178)	08:00		08:56 (B084)	07:54			08:28
	16:55		17:51	15	08:44 (B084)	18:40	17	07:16 (B178)	20:32	50	08:07 (WEA03)	21:20	30	06:36 (WEA02)	21:45	48	06:50 (WEA02)	21:26	17	06:42 (WEA02)	20:31	60	08:15 (WEA03)	19:20	11	08:40 (B083)	18:14	22	09:18 (B084)	16:24			16:16
25	08:14		07:20		08:30 (B084)	06:18		06:58 (B178)	06:09		07:01 (B150)	05:19		06:00 (B223)	05:05		06:02 (B223)	05:33		06:27 (WEA02)	06:21		07:06 (B150)	07:11		08:32 (B083)	18:01		08:57 (B084)	07:55			08:28
	16:56		17:53	12	08:42 (B084)	18:42	18	07:16 (B178)	20:34	45	08:05 (WEA03)	21:21	36	06:37 (WEA02)	21:45	47	06:49 (WEA02)	21:25	13	06:40 (WEA02)	20:28	60	08:16 (WEA03)	19:18	13	08:45 (B083)	18:12	21	09:18 (B084)	16:23			16:16
26	08:12		07:18		08:34 (B084)	07:16		07:57 (B178)	06:07		07:02 (B150)	05:18		05:58 (B223)	05:06		06:01 (B223)	05:35		06:32 (WEA02)	06:23		07:06 (B150)	07:13		08:30 (B083)	18:03		08:57 (B084)	07:57			08:28
	16:58		17:55	5	08:39 (B084)	19:43	18	08:15 (B178)	20:36	38	08:03 (WEA03)	21:22	39	06:38 (WEA02)	21:45	48	06:49 (WEA02)	21:23	2	06:34 (WEA02)	20:26	59	08:15 (WEA03)	19:16	18	08:48 (B083)	18:10	20	09:17 (B084)	16:22			16:17
27	08:11		07:16			07:13		07:57 (B178)	06:05		07:03 (B150)	05:17		05:58 (B223)	05:06		06:02 (B223)	05:36		06:24			07:08 (B150)	07:14		08:28 (B083)	08:05		08:57 (B084)	07:58			08:29
	17:00		17:56			19:45	18	08:15 (B178)	20:37	32	08:01 (WEA03)	21:24	41	06:39 (WEA02)	21:45	48	06:50 (WEA02)	21:22		06:24		59	08:16 (WEA03)	19:14	20	08:48 (B083)	18:08	20	09:17 (B084)	16:21			16:18
28	08:10		07:14			07:11		07:57 (B178)	06:03		07:40 (WEA03)	05:16		05:57 (B223)	05:06		06:02 (B223)	05:37		06:40 (B124)	06:26		07:10 (B012)	07:16		08:26 (B083)	08:07		08:58 (B084)	08:00			08:29
	17:02		17:58			19:47	18	08:15 (B178)	20:39	19	07:59 (WEA03)	21:25	43	06:40 (WEA02)	21:45	48	06:50 (WEA02)	21:20	9	07:06 (B013)	20:22	56	08:16 (WEA03)	19:11	24	08:50 (B083)	18:06	18	09:16 (B084)	16:20			16:18
29	08:09					07:09		07:57 (B178)	06:01		07:43 (WEA03)	05:15		05:57 (B223)	05:07		06:02 (B223)	05:39		06:37 (B124)	06:28		07:12 (B012)	07:17		08:25 (B083)	07:08		09:17 (B084)	08:02			08:29
	17:03					19:48	16	08:13 (B178)	20:41	12	07:55 (WEA03)	21:26	43	06:40 (WEA02)	21:45	48	06:50 (WEA02)	21:19	20	07:08 (B013)	20:20	53	08:16 (WEA03)	19:09	25	08:50 (B083)	17:04	16	08:15 (B084)	16:19			16:19
30	08:07					07:07		07:58 (B178)	05:59		06:30 (B124)	05:14		05:57 (B223)	05:07		06:02 (B223)	05:40		06:35 (B124)	06:29		07:14 (B012)	07:19		08:24 (B083)	07:10		08:01 (B084)	08:03			08:29
	17:05					19:50	14	08:12 (B178)	20:42	6	06:36 (B124)	21:27	44	06:41 (WEA02)	21:45	48	06:50 (WEA02)	21:17	25	07:09 (B013)	20:18	47	08:15 (WEA03)	19:07	26	08:50 (B083)	17:02	13	08:14 (B084)	16:18			16:20
31	08:06	08:40 (B082)				07:04		08:00 (B178)				05:13		05:56 (B223)				05:42		06:35 (B124)	06:31		07:33 (WEA03)				07:12		08:03 (B084)				08:29
	17:07	5 08:45 (B082)				19:52	10	08:10 (B178)				21:28	45	06:41 (WEA02)				21:16	29	07:11 (B013)	20:15	42	08:15 (WEA03)				17:00	13	08:16 (B082)				16:21
Sonnenscheinstunden	259		277			366		414			483		497		501		454		382		333		268		245
astr.max.mögl.Beschattung	5		402			706		1194			904		1428		1098		1218		733		671		162	
Red.Sonnenscheinwahrsch.	0.19		0.32			0.28		0.36			0.43		0.34		0.39		0.40		0.32		0.29		0.23	
Reduktion Betriebsdauer	0.95		0.95			0.95		0.95			0.95		0.95		0.95		0.95		0.95		0.95		0.95	
Reduktion Windrichtung	0.60		0.61			0.67		0.72			0.74		0.74		0.74		0.73		0.71		0.64		0.60	
Gesamte Reduktion	0.11		0.19			0.18		0.25			0.30		0.24		0.27		0.28		0.21		0.18		0.13	
Met.wahrsch.Beschattung	1		76			127		299			272		340		301		338		157		118		21	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO043 - Eggestr. 30, 32, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:41 (B082)	07:12		08:00 (B083)	07:02		07:49 (WEA03)	05:57		06:30 (B124)	05:12		06:04 (B223)	05:08		06:14 (B223)	05:43		06:34 (WEA02)	06:32		07:20 (B012)	07:21		08:32 (B083)	07:14		08:04 (B084)	08:04	
	16:22			17:09	15		08:56 (B082)	18:00	31	08:31 (B253)	19:54	34	08:23 (WEA03)	20:44	36	07:12 (B013)	21:30	52	06:56 (WEA02)	21:45	48	07:02 (WEA02)	21:14	19	06:53 (WEA02)	20:13	54	08:21 (WEA03)	19:04	21	08:53 (B083)	16:58	15	08:19 (B084)	16:18			
2	08:29			08:03			08:40 (B082)	07:10		07:57 (B083)	07:00		07:48 (WEA03)	05:56		06:29 (B124)	05:11		06:04 (B223)	05:09		06:13 (B223)	05:45		06:37 (WEA02)	06:34		07:20 (B012)	07:22		08:30 (B083)	07:16		08:05 (B084)	08:06	
	16:23			17:11	16		08:56 (B082)	18:02	34	08:31 (B253)	19:55	36	08:24 (WEA03)	20:46	38	07:12 (B013)	21:31	52	06:56 (WEA02)	21:44	48	07:01 (WEA02)	21:13	14	06:51 (WEA02)	20:11	55	08:22 (WEA03)	19:02	23	08:53 (B083)	16:57	12	08:17 (B084)	16:17			
3	08:29			08:01			08:40 (B082)	07:08		07:56 (B083)	06:57		07:47 (WEA03)	05:54		06:29 (B124)	05:10		06:04 (B223)	05:09		06:13 (B223)	05:46		06:41 (WEA02)	06:36		07:20 (B012)	07:24		08:29 (B083)	07:17		08:07 (B084)	08:07	
	16:24			17:13	16		08:56 (B082)	18:04	35	08:31 (B253)	19:57	38	08:25 (WEA03)	20:47	38	07:12 (B013)	21:32	52	06:56 (WEA02)	21:44	49	07:02 (WEA02)	21:11	12	06:53 (B124)	20:09	54	08:21 (WEA03)	19:00	25	08:54 (B083)	16:55	7	08:14 (B084)	16:16			
4	08:29			08:00			08:41 (B082)	07:05		07:54 (B083)	06:55		07:46 (WEA03)	05:52		06:28 (B124)	05:10		06:05 (B223)	05:10		06:13 (B223)	05:48		06:42 (B124)	06:37		07:21 (B012)	07:26		08:29 (B083)	07:19		08:15 (B082)	08:09	
	16:25			17:14	15		08:56 (B082)	18:05	37	08:31 (B253)	19:59	39	08:25 (WEA03)	20:49	37	07:11 (B013)	21:33	51	06:56 (WEA02)	21:44	49	07:02 (WEA02)	21:09	12	06:54 (B124)	20:06	53	08:22 (WEA03)	18:57	25	08:54 (B083)	16:53	6	08:21 (B082)	16:16			
5	08:29			07:58			08:41 (B082)	07:03		07:54 (B083)	06:53		07:45 (WEA03)	05:50		06:29 (B124)	05:09		06:05 (B223)	05:11		06:13 (B223)	05:49		06:41 (B124)	06:39		07:22 (B012)	07:27		08:28 (B083)	07:21		08:13 (B082)	08:10	
	16:26			17:16	15		08:56 (B082)	18:07	37	08:31 (B253)	20:00	40	08:25 (WEA03)	20:50	36	07:11 (B013)	21:34	51	06:56 (WEA02)	21:43	50	07:03 (WEA02)	21:08	22	07:16 (B013)	20:04	51	08:22 (WEA03)	18:55	30	08:58 (B253)	16:51	10	08:23 (B082)	16:15			
6	08:29			07:56			08:42 (B082)	07:01		07:52 (B083)	06:51		07:44 (WEA03)	05:48		06:29 (B124)	05:08		06:05 (B223)	05:12		06:12 (B223)	05:51		06:40 (B124)	06:40		07:24 (B012)	07:29		08:27 (B083)	07:23		08:12 (B082)	08:11	
	16:28			17:18	13		08:55 (B082)	18:09	38	08:30 (B253)	20:02	41	08:25 (WEA03)	20:52	34	07:10 (B013)	21:35	51	06:56 (WEA02)	21:43	50	07:02 (WEA02)	21:06	26	07:17 (B013)	20:02	45	08:21 (WEA03)	18:53	35	09:02 (B253)	16:49	13	08:25 (B082)	16:15			
7	08:28			07:55			08:43 (B082)	06:59		07:52 (B083)	06:48		07:44 (WEA03)	05:46		06:29 (B124)	05:08		06:06 (B223)	05:12		06:12 (B223)	05:53		06:40 (B124)	06:42		07:40 (WEA03)	07:31		08:27 (B083)	07:24		08:11 (B082)	08:13	
	16:29			17:20	11		08:54 (B082)	18:11	37	08:29 (B253)	20:04	41	08:25 (WEA03)	20:54	32	07:09 (B013)	21:36	51	06:57 (WEA02)	21:42	51	07:03 (WEA02)	21:04	30	07:19 (B013)	20:00	41	08:21 (WEA03)	18:51	37	09:04 (B253)	16:48	15	08:26 (B082)	16:14			
8	08:28			07:53			08:45 (B082)	06:57		07:51 (B083)	06:46		07:26 (B012)	05:45		06:30 (B124)	05:07		06:07 (B223)	05:13		06:12 (B223)	05:54		06:39 (B124)	06:44		07:39 (WEA03)	07:32		08:28 (B083)	07:26		08:11 (B082)	08:14	
	16:30			17:22	9		08:54 (B082)	18:12	37	08:28 (B253)	20:05	49	08:25 (WEA03)	20:55	28	07:08 (B013)	21:37	50	06:57 (WEA02)	21:42	51	07:03 (WEA02)	21:02	33	07:19 (B013)	19:57	41	08:20 (WEA03)	18:48	37	09:05 (B253)	16:46	15	08:26 (B082)	16:14			
9	08:28			07:51			08:41 (B084)	06:54		07:50 (B083)	06:44		07:24 (B012)	05:43		06:31 (B124)	05:06		06:07 (B223)	05:14		06:12 (B223)	05:56		06:39 (B124)	06:45		07:40 (WEA03)	07:34		08:27 (B083)	07:28		08:11 (B082)	08:15	
	16:31			17:24	1		08:42 (B084)	18:14	35	08:25 (B253)	20:07	53	08:25 (WEA03)	20:57	22	07:06 (B013)	21:38	50	06:57 (WEA02)	21:41	51	07:03 (WEA02)	21:00	35	07:20 (B013)	19:55	40	08:20 (WEA03)	18:46	38	09:05 (B253)	16:44	16	08:27 (B082)	16:14			
10	08:27			07:49			08:37 (B084)	06:52		07:51 (B083)	06:42		07:22 (B012)	05:41		06:33 (B124)	05:06		06:08 (B223)	05:15		06:12 (B223)	05:57		06:38 (B124)	06:47		07:40 (WEA03)	07:36		08:28 (B083)	07:30		08:11 (B082)	08:16	
	16:33			17:25	10		08:47 (B084)	18:16	30	08:21 (B253)	20:09	55	08:24 (WEA03)	20:59	12	06:45 (B124)	21:38	49	06:57 (WEA02)	21:40	51	07:03 (WEA02)	20:59	37	07:20 (B013)	19:53	38	08:18 (WEA03)	18:44	37	09:05 (B253)	16:43	16	08:27 (B082)	16:13			
11	08:26			07:48			08:35 (B084)	06:50		07:51 (B083)	06:39		07:21 (B012)	05:39		06:32 (WEA02)	05:06		06:08 (B223)	05:16		06:12 (B223)	05:59		06:38 (B124)	06:48		07:40 (WEA03)	07:37		08:28 (B083)	07:32		08:12 (B082)	08:17	
	16:34			17:27	13		08:48 (B084)	18:18	25	08:16 (B083)	20:10	55	08:23 (WEA03)	21:00	11	06:43 (B124)	21:39	49	06:57 (WEA02)	21:39	52	07:04 (WEA02)	20:57	38	07:21 (B013)	19:51	38	08:18 (WEA03)	18:42	38	09:06 (B253)	16:41	15	08:27 (B082)	16:13			
12	08:26			07:46			08:33 (B084)	06:48		07:51 (B083)	06:37		07:21 (B012)	05:38		06:26 (WEA02)	05:05		06:09 (B223)	05:17		06:12 (B223)	06:00		06:38 (B124)	06:50		07:40 (WEA03)	07:39		08:30 (B083)	07:33		08:12 (B082)	08:18	
	16:36			17:29	17		08:50 (B084)	18:19	25	08:16 (B083)	20:12	55	08:23 (WEA03)	21:02	14	06:40 (WEA02)	21:40	48	06:57 (WEA02)	21:39	52	07:04 (WEA02)	20:55	36	07:20 (B013)	19:48	36	08:18 (WEA03)	18:40	36	09:06 (B253)	16:40	15	08:27 (B082)	16:13			
13	08:25			07:44			08:32 (B084)	06:45		07:51 (B083)	06:35		07:15 (B150)	05:36		06:24 (WEA02)	05:05		06:10 (B223)	05:18		06:12 (B223)	06:02		06:38 (B124)	06:52		07:41 (WEA03)	07:41		08:30 (B083)	07:35		08:13 (B082)	08:19	
	16:37			17:31	18		08:50 (B084)	18:21	23	08:14 (B083)	20:14	60	08:22 (WEA03)	21:03	19	06:43 (WEA02)	21:41	48	06:58 (WEA02)	21:38	52	07:04 (WEA02)	20:53	37	07:21 (B013)	19:46	34	08:15 (WEA03)	18:37	34	09:04 (B253)	16:38	13	08:26 (B082)	16:13			
14	08:25			07:42			08:32 (B084)	06:43		07:52 (B083)	06:33		07:13 (B150)	05:35		06:23 (WEA02)	05:05		06:11 (B223)	05:19		06:12 (B223)	06:04		06:38 (B124)	06:53		07:42 (WEA03)	07:42		08:32 (B083)	07:37		08:14 (B082)	08:20	
	16:39			17:33	19		08:51 (B084)	18:23	21	08:13 (B083)	20:15	60	08:21 (WEA03)	21:05	22	06:45 (WEA02)	21:41	47	06:58 (WEA02)	21:37	52	07:04 (WEA02)	20:51	35	07:20 (B013)	19:44	31	08:13 (WEA03)	18:35	32	09:04 (B253)	16:37	12	08:26 (B082)	16:13			
15	08:24			07:40			08:31 (B084)	06:41		07:54 (B083)	06:31		07:11 (B150)	05:33		06:21 (WEA02)	05:04		06:11 (B223)	05:20		06:12 (B223)	06:05		06:39 (B124)	06:55		07:43 (WEA03)	07:44		08:38 (B083)	07:39		08:15 (B082)	08:21	
	16:40			17:35	20		08:51 (B084)	18:25	17	08:11 (B083)	20:17	60	08:20 (WEA03)	21:06	25	06:46 (WEA02)	21:42	47	06:58 (WEA02)	21:36	52	07:04 (WEA02)	20:49	34	07:20 (B013)	19:41	29	08:12 (WEA03)	18:33	20	09:03 (B253)	16:35	10	08:25 (B082)	16:13			
16	08:23			07:38			08:31 (B084)	06:39		07:55 (B083)	06:28		07:10 (B150)	05:31		06:20 (WEA02)	05:04		06:12 (B223)	05:22		06:12 (B223)	06:07		06:39 (B124)	06:56		07:45 (WEA03)	07:46		08:46 (B253)	07:40		08:18 (B082)	08:22	
	16:42			17:36	21		08:52 (B084)	18:26	13	08:08 (B083)	20:19	57	08:18 (WEA03)	21:08	28	06:48 (WEA02)	21:42	46	06:58 (WEA02)	21:35	52	07:04 (WEA02)	20:47	30	07:18 (B013)	19:39	25	08:10 (WEA03)	18:31	16	09:02 (B253)	16:34	5	08:23 (B082)	16:13			
17	08:22			07:36			08:31 (B084)	06:36		07:59 (B083)	06:26		07:09 (B150)	05:30		06:18 (WEA02)	05:04		06:13 (B223)	05:23		06:12 (B223)	06:08		06:41 (B124)	06:58		07:46 (WEA03)	07:48		08:48 (B253)	07:42			08:23	
	16:43			17:38	20		08:51 (B084)	18:28	5	08:04 (B083)	20:20	54	08:17 (WEA03)	21:09	30	06:48 (WEA02)	21:43	45	06:59 (WEA02)	21:34	52	07:04 (WEA02)	20:45	25	07:18 (B013)	19:37	21	08:07 (WEA03)	18:29	13	09:01 (B253)	16:32				16:13	
18	08:21			07:34			08:31 (B084)	06:34		07:10 (B178)	06:24		07:09 (B150)	05:28		06:18 (WEA02)	05:04		06:14 (B223)	05:24		06:12 (B223)	06:10		06:42 (B124)	07:00		07:50 (WEA03)	07:49		08:49 (B253)	07:44			08:24	
	16:45			17:40	20		08:51 (B084)	18:30	9	07:19 (B178)	20:22	45	08:16 (WEA03)	21:11	31	06:49 (WEA02)	21:43	43	06:59 (WEA02)	21:33	51	07:03 (WEA02)	20:43	18	07:15 (B013)	19:34	17	08:07 (B178)	18:27	8	08:57 (B253)	16:31				16:13	
19	08:20			07:33			08:32 (B084)	06:32		07:07 (B178)	06:22		07:09 (B150)	05:27		06:07 (B223)	05:04		06:18 (WEA02)	05:25		06:12 (B223)	06:12		07:10 (B013)	07:01		07:51 (B178)	07:51					07:45		08:25
	16:46			17:42	19		08:51 (B084)	18:31	13	07:20 (B178)	20:24	42	08:14 (WEA03)	21:12	40	06:50 (WEA02)	21:44	41	06:59 (WEA02)	21:32	51	07:03 (WEA02)	20:41	2	07:12 (B013)	19:32	16	08:07 (B178)	18:24					16:30		16:14
20	08:19			07:31			08:32 (B084)	06:29		07:06 (B178)	06:20		07:09 (B150)	05:26		06:06 (B223)	05:04		06:18 (WEA02)	05:27		06:13 (B223)	06:13			07:03		07:51 (B178)	07:53		09:09 (B084)	07:47			08:25	
	16:48			17:44	18		08:50 (B084)	18:33	16	07:22 (B178)	20:25	38	08:12 (WEA03)	21:14	44	06:51 (WEA02)	21:44	41	06:59 (WEA02)	21:31	51	07:04 (WEA02)	20:39			19:30	17	08:08 (B178)	18:22	5	09:14 (B084)	16:29				16:14	
21	08:18			07:29			08:34 (B084)	06:27		07:05 (B178)	06:18		07:10 (B150)	05:24		06:04 (B223)	05:04		06:18 (WEA02)	05:28		06:13 (B223)	06:15			07:04		07:50 (B178)	07:54		09:06 (B084)	07:49			08:26	
	16:50			17:46	15		08:49 (B084)	18:35	17	07:22 (B178)	20:27	30	08:09 (WEA03)	21:15	47	06:51 (WEA02)	21:44	41	06:59 (WEA02)	21:30	50	07:03 (WEA02)	20:37			19:27	18	08:08 (B178)	18:20	11	09:17 (B084)	16:27				16:14	
22	08:17			07:26			08:35 (B084)	06:25		07:04 (B178)	06:16		07:11 (B150)	05:23		06:03 (B223)	05:04		06:18 (WEA02)	05:29		06:13 (B223)	06:16		07:16 (B150)	07:06		07:49 (B178)	07:56		09:04 (B084)	07:50			08:27	
	16:51			17:47	12		08:47 (B084)	18:37	18	07:22 (B178)	20:29	22	08:06 (WEA03)	21:17	49	06:52 (WEA02)	21:45	41	06:59 (WEA02)	21:28	50	07:03 (WEA02)	20:35	17	08:08 (WEA03)	19:25	18	08:07 (B178)	18:18	15	09:19 (B084)	16:26				16:15	
23	08:16			07:24			08:38 (B084)	06:23		07:04 (B178)	06:14		07:13 (B150)	05:22		06:03 (B223)	05:05		06:18 (WEA02)	05:31		06:13 (B223)	06:18		07:15 (B150)	07:08		07:50 (B178)	07:58		09:03 (B084)	07:52			08:27	
	16:53			17:49	7		08:45 (B084)	18:38	18	07:22 (B178)	20:31	5	07:18 (B150)	21:18	50	06:53 (WEA02)	21:45	41	06:59 (WEA02)	21:27	49	07:02 (WEA02)	20:33	28	08:13 (WEA03)	19:23	17	08:07 (B178)	18:16	17	09:20 (B084)	16:25				16:15	
24	08:15			07:22				06:20		07:04 (B178)	06:11			05:20		06:03 (B223)	05:05		06:19 (WEA02)	05:32		06:15 (B223)	06:20		07:13 (B150)	07:09		07:49 (B178)	08:00		09:01 (B084)	07:54			08:28	
	16:55			17:51				18:40	18	07:22 (B178)	20:32			21:20	50	06:53 (WEA02)	21:45	41	07:00 (WEA02)	21:26	47	07:02 (WEA02)	20:31	36	08:15 (WEA03)	19:20	17	08:06 (B178)	18:14	19	09:20 (B084)	16:24				16:16	
25	08:14			07:20			08:19 (B253)	06:18		07:04 (B178)	06:09			05:19		06:03 (B223)	05:05		06:19 (WEA02)	05:33		06:16 (B223)	06:21		07:13 (B150)	07:11		07:50 (B178)	08:01		09:01 (B084)	07:55			08:28	
	16:56			17:53	6		08:25 (B253)	18:42	17	07:21 (B178)	20:34			21:21	51	06:54 (WEA02)	21:45	41	07:00 (WEA02)	21:25	45	07:02 (WEA02)	20:28	40	08:17 (WEA03)	19:18	15	08:05 (B178)	18:12	20	09:21 (B084)	16:23				16:16	
26	08:12			07:18			08:16 (B253)	07:16		08:04 (B178)	06:07		06:37 (B124)	05:18		06:03 (B223)	05:06		06:15 (B223)	05:35		06:17 (B223)	06:23		07:12 (B150)	07:13		07:51 (B178)	08:03		09:01 (B084)	07:57			08:28	
	16:58			17:56	12		08:28 (B253)	19:43	15	08:19 (B178)	20:36	14	07:08 (B013)	21:22	51	06:54 (WEA02)	21:45	43	07:00 (WEA02)	21:23	41	07:01 (WEA02)	20:26	44	08:18 (WEA03)	19:16	13	08:04 (B178)	18:10	20	09:21 (B084)	16:22				16:17	
27	08:11			07:16			08:14 (B253)	07:13		08:00 (WEA03)	06:05		06:34 (B124)	05:17		06:03 (B223)	05:06		06:15 (B223)	05:36		06:28 (WEA02)	06:24		07:12 (B150)	07:14		07:52 (B178)	08:05		09:01 (B084)	07:58			08:29	
	17:00			17:56	16		08:30 (B253)	19:45	18	08:18 (B178)	20:37	23	07:10 (B013)	21:24	51	06:54 (WEA02)	21:45	45	07:01 (WEA02)	21:22	32	07:00 (WEA02)	20:24	52	08:19 (WEA03)	19:14	9	08:01 (B178)	18:08	20	09:21 (B084)	16:21				16:18	
28	08:10	08:43 (B082)		07:14			08:13 (B253)	07:11		07:57 (WEA03)	06:03		06:32 (B124)	05:16		06:03 (B223)	05:06		06:14 (B223)	05:37		06:29 (WEA02)	06:26		07:11 (B150)	07:16		08:40 (B083)	08:07		09:01 (B084)	08:00			08:29	
	17:02	8 08:51 (B082)		17:58	18		08:31 (B253)	19:47	22	08:19 (WEA03)	20:39	30	07:11 (B013)	21:25	52	06:55 (WEA02)	21:45	46	07:00 (WEA02)	21:20	30	06:59 (WEA02)	20:22	57	08:20 (WEA03)	19:11	6	08:46 (B083)	18:06	20	09:21 (B084)	16:20				16:18	
29	08:09	08:43 (B082)						07:09		07:54 (WEA03)	06:01		06:31 (B124)	05:15		06:03 (B223)	05:07		06:14 (B223)	05:39		06:30 (WEA02)	06:28		07:12 (B150)	07:17		08:36 (B083)	07:58		09:01 (B084)	08:02			08:29	
	17:03	10 08:53 (B082)						19:48	26	08:20 (WEA03)	20:41	32	07:11 (B013)	21:26	52	06:55 (WEA02)	21:45	47	07:01 (WEA02)	21:19	28	06:58 (WEA02)	20:20	60	08:21 (WEA03)	19:09	13	08:49 (B083)	17:04	20	09:21 (B084)	16:19				16:19	
30	08:07	08:41 (B082)						07:07		07:52 (WEA03)	05:59		06:31 (B124)	05:14		06:03 (B223)	05:07		06:13 (B223)	05:40		06:31 (WEA02)	06:29		07:12 (B150)	07:19		08:34 (B083)	07:10		09:02 (B084)	08:03			08:29	
	17:05	13 08:54 (B082)						19:50	30	08:22 (WEA03)	20:42	35	07:12 (B013)	21:27	52	06:55 (WEA02)	21:45	48	07:01 (WEA02)	21:17	25	06:56 (WEA02)	20:18	60	08:21 (WEA03)	19:07	17	08:51 (B083)	17:02	18	08:20 (B084)	16:18				16:20	
31	08:06	08:40 (B082)						07:04		07:51 (WEA03)				05:13		06:03 (B223)				05:42		06:33 (WEA02)	06:31		07:14 (B150)				07:12		08:03 (B084)				08:29	
	17:07	15 08:55 (B082)						19:52	32	08:23 (WEA03)				21:28	52	06:55 (WEA02)				21:16	23	06:56 (WEA02)	20:15	61	08:22 (WEA03)				17:00	17	08:20 (B084)				16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	46			392			749			1143			1134			1398			1435			950			879			707			195					
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23					
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung	0.60			0.61			0.67			0.72			0.74			0.74			0.74			0.73			0.71			0.64			0.60					
Gesamte Reduktion	0.11			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			0.13					
Met.wahrsch.Beschattung	5			74			135			284			342			333			393			263			189			124			25					

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)	

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO044 - Im Kirchenfelde 22, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			09:02 (B083)	07:12		08:43 (WEA03)	07:02		08:17 (WEA02)	05:57		07:11 (WEA01)	05:12		06:29 (B152)	05:08			05:43		06:21 (B087)	06:32		07:18 (B223)	07:21		08:10 (WEA02)	07:14		08:04 (WEA03)	08:04		09:08 (B253)
	16:22			17:09	22		09:24 (B083)	18:00	6	08:49 (WEA03)	19:54	31	08:48 (WEA02)	20:44	52	08:03 (WEA01)	21:30	13	06:42 (B152)	21:45			21:14	63	06:03 (WEA01)	20:13	38	07:56 (WEA01)	19:04	30	08:40 (B013)	16:58	28	08:32 (WEA03)	16:18	15	09:23 (B253)
2	08:29		09:28 (B253)	08:03			09:02 (B083)	07:10			07:00		08:18 (WEA02)	05:56		07:11 (WEA01)	05:11		06:29 (B152)	05:09			05:45		06:22 (B087)	06:34		07:18 (B223)	07:22		08:13 (WEA02)	07:16		08:06		09:08 (B253)
	16:23	3	09:31 (B253)	17:11	21		09:23 (B083)	18:02			19:55	29	08:47 (WEA02)	20:46	51	08:02 (WEA01)	21:31	12	06:41 (B152)	21:44			21:13	65	08:05 (WEA01)	20:11	36	07:54 (WEA01)	19:02	27	08:40 (B013)	16:57	26	08:31 (WEA03)	16:17	14	09:22 (B253)
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	16:25	7	09:34 (B253)	17:14	19		09:23 (B083)	18:05			19:59	22	08:43 (WEA02)	20:49	49	08:00 (WEA01)	21:33	9	06:40 (B152)	21:44			21:09	64	08:06 (WEA01)	20:06	25	07:45 (WEA01)	18:57	26	08:41 (B013)	16:53	24	08:28 (WEA03)	16:16	14	09:23 (B253)
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28	08:10		09:02 (B083)	07:14			08:39 (WEA03)	07:11		07:52 (B124)	06:03		07:07 (B153)	05:16		06:26 (B152)	05:06			05:37		06:21 (B087)	06:26		07:20 (WEA01)	07:16		08:05 (WEA02)	08:07		08:47 (B178)	08:00		09:06 (B253)	08:29		
	17:02	20	09:22 (B083)	17:58	16		08:55 (WEA03)	19:47	55	08:53 (WEA02)	20:39	56	08:03 (WEA01)	21:25	17	06:43 (B152)	21:45			21:20	55	07:58 (WEA01)	20:22	43	08:03 (WEA01)	19:11	30	08:35 (WEA02)	18:06	46	09:34 (WEA03)	16:20	16	09:22 (B253)	16:18		
29	08:09		09:02 (B083)					07:09		07:52 (B124)	06:01		07:07 (B153)	05:15		06:26 (B152)	05:07			05:39		06:20 (B087)	06:28		07:20 (B223)	07:17		08:06 (WEA02)	07:08		07:48 (B178)	08:02		09:07 (B253)	08:29		
	17:03	21	09:23 (B083)					19:48	52	08:52 (WEA02)	20:41	56	08:03 (WEA01)	21:26	16	06:42 (B152)	21:45			21:19	59	08:00 (WEA01)	20:28	42	08:02 (WEA01)	19:09	26	08:32 (WEA02)	17:04	44	08:34 (WEA03)	16:19	15	09:22 (B253)	16:19		
30	08:07		09:02 (B083)					07:07		07:53 (B124)	05:59		07:09 (B153)	05:14		06:27 (B152)	05:07			05:40		06:20 (B087)	06:29		07:19 (B223)	07:19		08:08 (WEA02)	07:10		07:50 (B178)	08:03		09:07 (B253)	08:29		
	17:05	21	09:23 (B083)					19:50	49	08:51 (WEA02)	20:42	54	08:03 (WEA01)	21:27	15	06:42 (B152)	21:45			21:17	61	08:01 (WEA02)	20:18	41	08:00 (WEA01)	19:07	30	08:38 (B013)	17:02	41	08:34 (WEA03)	16:18	15	09:22 (B253)	16:20		
31	08:06		09:23 (B083)					07:04		07:55 (B124)				05:13		06:27 (B152)				05:42		06:21 (B087)	06:31		07:19 (B223)				07:12		07:53 (B178)				08:29		
	17:07	21	09:23 (B083)					19:52	43	08:50 (WEA02)				21:28	14	06:41 (B152)				21:16	62	08:03 (WEA01)	20:15	39	07:58 (WEA01)				17:00	33	08:33 (WEA03)				16:21		
Sonnenscheinstunden	259			277				366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	446			902				1009			1177			1303			51			644			1646			1083			860			599			123		
Red.Sonnenscheinwahrsch.	0.19			0.32				0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95				0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.55			0.61				0.68			0.72			0.73			0.74			0.74			0.73			0.69			0.63			0.57			0.54		
Gesamte Reduktion	0.10			0.19				0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.15			0.12			0.09		
Met.wahrsch.Beschattung	44			168				185			295			390			12			175			458			227			148			73			11		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO045 - Im Kirchenfelde 24, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1 | 08:29			09:27 (B253) | 08:04			09:04 (B083) | 07:12			07:02			08:23 (WEA02) | 05:57			07:18 (WEA01) | 05:12			05:08			05:43			06:23 (B087) | 06:32			07:21 (B223) | 07:21			08:09 (WEA02) | 07:14			07:55 (B178) | 08:04			09:09 (B253)		
16:22	7		09:34 (B253) | 17:09	21		09:25 (B083) | 18:00			19:54	25		08:46 (WEA02) | 20:44	48		08:06 (WEA01) | 21:30			21:45			21:14	55		08:02 (WEA01) | 20:13	44		08:05 (WEA01) | 19:04	30		08:39 (B013) | 16:58	32		08:35 (WEA03) | 16:18	15		09:24 (B253)		
2 | 08:29			09:27 (B253) | 08:03			09:04 (B083) | 07:10			07:00			08:25 (WEA02) | 05:56			07:18 (WEA01) | 05:11			05:09			05:45			06:24 (B087) | 06:34			07:21 (B223) | 07:22			08:10 (WEA02) | 07:16			08:06 (WEA03) | 08:06			09:09 (B253)		
16:23	8		09:35 (B253) | 17:11	20		09:24 (B083) | 18:02			19:55	21		08:46 (WEA02) | 20:46	47		08:05 (WEA01) | 21:31			21:44			21:13	56		08:04 (WEA01) | 20:11	43		08:04 (WEA01) | 19:02	31		08:41 (B013) | 16:57	29		08:35 (WEA03) | 16:17	15		09:24 (B253)		
3 | 08:29			09:27 (B253) | 08:01			09:05 (B083) | 07:08			06:57			08:27 (WEA02) | 05:54			07:18 (WEA01) | 05:10			05:09			05:46			06:23 (B087) | 06:36			07:20 (B223) | 07:24			08:13 (WEA02) | 07:17			08:06 (WEA03) | 08:07			09:10 (B253)		
16:24	9		09:36 (B253) | 17:12	18		09:23 (B083) | 18:04			19:57	17		08:44 (WEA02) | 20:47	46		08:04 (WEA01) | 21:32			21:44			21:11	58		08:05 (WEA01) | 20:09	42		08:02 (WEA01) | 19:00	29		08:42 (B013) | 16:55	27		08:33 (WEA03) | 16:16	15		09:25 (B253)		
4 | 08:29			09:27 (B253) | 08:00			09:07 (B083) | 07:05			06:55			08:32 (WEA02) | 05:52			07:18 (WEA01) | 05:10			05:10			05:48			06:24 (B087) | 06:37			07:21 (B223) | 07:26			08:18 (B150) | 07:19			08:07 (WEA03) | 08:09			09:10 (B253)		
16:25	10		09:37 (B253) | 17:14	16		09:23 (B083) | 18:05			19:59	7		08:39 (WEA02) | 20:49	45		08:03 (WEA01) | 21:33			21:44			21:09	59		08:06 (WEA01) | 20:06	39		08:00 (WEA01) | 18:57	25		08:43 (B013) | 16:53	25		08:32 (WEA03) | 16:16	14		09:24 (B253)		
5 | 08:29			09:26 (B253) | 07:58			08:45 (WEA03) | 07:03		07:44 (B150)	06:53						07:19 (WEA01) | 05:09			05:11			05:49			06:25 (B087) | 06:39			07:21 (B223) | 07:27			08:16 (B150) | 07:21			08:09 (WEA03) | 08:10			09:12 (B253)		
16:26	12		09:38 (B253) | 17:16	26		09:22 (B083) | 18:07	17	08:04 (B013)	20:00						20:51	44		08:03 (WEA01) | 21:34			21:43			21:08	59		08:08 (WEA01) | 20:04	37		07:58 (WEA01) | 18:55	26		08:42 (B013) | 16:51	22		08:31 (WEA03) | 16:15	13		09:25 (B253)		
6 | 08:29			09:27 (B253) | 07:56			08:42 (WEA03) | 07:01		07:41 (B150)	06:51		07:31 (B223)	05:48			06:31 (B086)	05:08			05:12			05:51			06:26 (B087) | 06:40			07:22 (B223) | 07:29			08:16 (B150) | 07:23			08:11 (WEA03) | 08:11			09:12 (B253)		
16:28	12		09:39 (B253) | 17:18	27		09:20 (B083) | 18:09	24	08:05 (B013)	20:02	1	07:32 (B223)	20:52	48		08:02 (WEA01) | 21:35			21:43			21:06	57		08:09 (WEA01) | 20:02	32		07:54 (WEA01) | 18:53	27		08:43 (B013) | 16:49	27		08:49 (B083) | 16:15	13		09:25 (B253)		
7 | 08:28			09:26 (B253) | 07:55			08:40 (WEA03) | 06:59		07:40 (B150)	06:48		07:27 (B223)	05:46			06:29 (B086)	05:08			05:12			05:52			06:39 (B086)	06:42			07:24 (B223) | 07:31			08:16 (B150) | 07:24			08:13 (WEA03) | 08:13			09:13 (B253)		
16:29	13		09:39 (B253) | 17:20	26		09:18 (B083) | 18:11	26	08:06 (B013)	20:04	24	07:55 (WEA01)	20:54	49		08:00 (WEA01) | 21:36			21:42			21:04	49		08:10 (WEA01) | 20:00	16		07:48 (WEA01) | 18:51	26		08:42 (B013) | 16:48	27		08:51 (B083) | 16:14	13		09:26 (B253)		
8 | 08:28			09:27 (B253) | 07:53			08:39 (WEA03) | 06:57		07:40 (B150)	06:46		07:25 (B223)	05:45			06:17 (B087)	05:07			05:13			05:54			06:40 (B086)	06:44			07:32			08:17 (B150) | 07:26			08:17 (WEA03) | 08:14			09:14 (B253)		
16:30	13		09:40 (B253) | 17:22	24		09:03 (WEA03) | 18:12	26	08:06 (B013)	20:05	34	07:59 (WEA01)	20:55	57		08:00 (WEA01) | 21:37			21:42			21:02	49		08:11 (WEA01) | 19:57				18:48	25		08:42 (B013) | 16:46	22		08:53 (B083) | 16:14	11		09:25 (B253)		
9 | 08:28			09:27 (B253) | 07:51			08:38 (WEA03) | 06:54		07:39 (B150)	06:44		07:24 (B223)	05:43			06:15 (B087)	05:06			05:14			05:56			07:29 (WEA01) | 06:45				07:34			08:16 (B150) | 07:28			08:36 (B083) | 06:15			09:14 (B253)		
16:31	14		09:41 (B253) | 17:24	26		09:04 (WEA03) | 18:14	26	08:05 (B013)	20:07	38	08:02 (WEA01)	20:57	59		07:58 (WEA01) | 21:38			21:41			21:00	43		08:12 (WEA01) | 19:55				18:46	24		08:40 (B013) | 16:44	18		08:54 (B083) | 16:14	11		09:25 (B253)		
10 | 08:27			09:27 (B253) | 07:49			08:37 (WEA03) | 06:52		07:39 (B150)	06:42		07:22 (B223)	05:41			06:15 (B087)	05:06			05:15			05:57			07:28 (WEA01)	06:47			08:23 (WEA02)	07:36			08:18 (B150)	07:30			08:36 (B083)	06:16			09:15 (B253)		
16:33	14		09:41 (B253) | 17:25	28		09:05 (WEA03) | 18:16	26	08:05 (B013)	20:09	41	08:03 (WEA01)	20:59	58		07:57 (WEA01) | 21:38			21:40			20:59	44		08:12 (WEA01) | 19:53	11		08:34 (WEA02) | 18:44	18		08:38 (B013) | 16:43	19		08:55 (B083) | 16:13	10		09:25 (B253)		
11 | 08:27			09:28 (B253) | 07:48			08:36 (WEA03) | 06:50		07:40 (B150)	06:39		07:22 (B223)	05:39			06:13 (B087)	05:06			05:16			05:59			07:27 (WEA01)	06:48			08:20 (WEA02)	07:37			08:33 (B013)	07:32			08:35 (B083)	08:17			09:17 (B253)		
16:34	14		09:42 (B253) | 17:27	29		09:05 (WEA03) | 18:18	25	08:05 (B013)	20:10	42	08:04 (WEA01)	21:00	58		07:55 (WEA01) | 21:39			21:40			20:57	46		08:13 (WEA01) | 19:51	18		08:38 (WEA02) | 18:42	1		08:34 (B013) | 16:41	20		08:55 (B083) | 16:13	9		09:26 (B253)		
12 | 08:26			09:28 (B253) | 07:46			08:23 (B178) | 06:48		07:35 (WEA02)	06:37		07:22 (B223)	05:38			06:12 (B087)	05:05			05:17			06:00			07:26 (WEA01)	06:50			08:16 (WEA02)	07:39				07:33			08:35 (B083)	08:18			09:18 (B253)		
16:36	14		09:42 (B253) | 17:29	38		09:06 (WEA03) | 18:19	29	08:04 (B013)	20:12	44	08:06 (WEA01)	21:02	57		07:53 (WEA01) | 21:40			21:39			20:55	47		08:13 (WEA01) | 19:48	23		08:39 (WEA02) | 18:40				16:40	21		08:56 (B083) | 16:13	7		09:25 (B253)		
13 | 08:25			09:28 (B253) | 07:44			08:21 (B178) | 06:45		07:31 (WEA02)	06:35		07:22 (B223)	05:36			06:13 (B087)	05:05			05:18			06:02			07:26 (WEA01)	06:52			08:15 (WEA02)	07:41				07:35			08:35 (B083)	08:19			09:19 (B253)		
16:37	15		09:43 (B253) | 17:31	42		09:06 (WEA03) | 18:21	31	08:02 (B013)	20:14	45	08:07 (WEA01)	21:03	55		07:52 (WEA01) | 21:41			21:38			20:53	48		08:14 (WEA01) | 19:46	26		08:41 (WEA02) | 18:37				16:38	21		08:56 (B083) | 16:13	6		09:25 (B253)		
14 | 08:25			09:28 (B253) | 07:42			08:20 (B178) | 06:43		07:29 (WEA02)	06:33		07:22 (B223)	05:35			06:13 (B087)	05:05			05:19	06:45 (B152)	06:04			07:25 (WEA01)	06:53			08:12 (WEA02)	07:42				07:37			08:35 (B083)	08:20			09:20 (B253)		
16:38	15		09:43 (B253) | 17:33	46		09:07 (WEA03) | 18:23	30	07:59 (B013)	20:15	46	08:08 (WEA01)	21:05	51		07:50 (WEA01) | 21:41			21:37	5	06:50 (B152)	20:51	49		08:14 (WEA01) | 19:44	30		08:42 (WEA02) | 18:35				16:37	22		08:57 (B083) | 16:13	5		09:25 (B253)		
15 | 08:24			09:28 (B253) | 07:40			08:19 (B178) | 06:41		07:28 (WEA02)	06:31		07:23 (WEA01)	05:33			06:12 (B087)	05:04			05:20	06:43 (B152)	06:05			07:24 (B153)	06:55			07:48 (B124)	07:44				07:39			08:36 (B083)	08:21			09:21 (B253)		
16:40	15		09:43 (B253) | 17:35	48		09:07 (WEA03) | 18:25	29	07:57 (WEA02)	20:17	46	08:09 (WEA01)	21:06	46		07:46 (WEA01) | 21:42			21:36	9	06:52 (B152)	20:49	51		08:15 (WEA01) | 19:41	42		08:43 (WEA02) | 18:33				16:35	21		08:57 (B083) | 16:13	4		09:25 (B253)		
16 | 08:23			09:29 (B253) | 07:38			08:18 (B178) | 06:39		07:26 (WEA02)	06:28		07:17 (B153)	05:31			06:13 (B087)	05:04			05:22	06:42 (B152)	06:07			07:21 (B153)	06:56			07:46 (B124)	07:46			09:16 (WEA03)	07:40			08:36 (B083)	08:22					
16:42	14		09:43 (B253) | 17:36	49		09:07 (WEA03) | 18:26	31	07:57 (WEA02)	20:19	51	08:08 (WEA01)	21:08	32		06:46 (B152)	21:42			21:35	11	06:53 (B152)	20:47	54		08:15 (WEA01) | 19:39	47		08:44 (WEA02) | 18:31	11		09:27 (WEA03) | 16:34	21		08:57 (B083) | 16:13					
17 | 08:22			09:29 (B253) | 07:36			08:18 (B178) | 06:36		07:25 (WEA02)	06:26		07:15 (B153)	05:30			06:13 (B087)	05:04			05:23	06:41 (B152)	06:08			07:20 (B153)	06:58			07:44 (B124)	07:48			09:13 (WEA03)	07:42			08:36 (B083)	08:23					
16:43	14		09:43 (B253) | 17:38	49		09:07 (WEA03) | 18:28	33	07:58 (WEA02)	20:20	54	08:09 (WEA01)	21:09	31		06:46 (B152)	21:43			21:34	12	06:53 (B152)	20:45	55		08:15 (WEA01) | 19:37	51		08:44 (WEA02) | 18:29	17		09:30 (WEA03) | 16:32	20		08:56 (B083) | 16:13					
18 | 08:21			09:30 (B253) | 07:35			08:18 (B178) | 06:34		07:24 (WEA02)	06:24		07:13 (B153)	05:28			06:13 (B087)	05:04			05:24	06:41 (B152)	06:10			07:18 (B153)	07:00			07:43 (B124)	07:49			09:10 (WEA03)	07:44			08:37 (B083)	08:24					
16:45	13		09:43 (B253) | 17:40	49		09:07 (WEA03) | 18:30	35	07:59 (WEA02)	20:22	56	08:09 (WEA01)	21:11	30		06:46 (B152)	21:43			21:33	13	06:54 (B152)	20:43	57		08:15 (WEA01)	19:34	55		08:45 (WEA02)	18:27	22		09:32 (WEA03)	16:31	19		08:56 (B083)	16:13					
19 | 08:20			09:31 (B253) | 07:33			08:19 (B178) | 06:32		07:01 (B124)	06:22		07:12 (B153)	05:27			06:14 (B087)	05:04			05:25	06:40 (B152)	06:12			07:17 (B153)	07:01			07:42 (B124)	07:51			09:08 (WEA03)	07:45			08:38 (B083)	08:25					
16:46	12		09:43 (B253) | 17:42	48		09:07 (WEA03) | 18:31	45	07:58 (WEA02)	20:24	57	08:09 (WEA01)	21:12	30		06:47 (B152)	21:44			21:32	15	06:55 (B152)	20:41	58		08:15 (WEA01)	19:32	55		08:44 (WEA02)	18:24	25		09:33 (WEA03)	16:30	18		08:56 (B083)	16:14					
20 | 08:19			09:08 (B083) | 07:31			08:20 (B178) | 06:29		06:59 (B124)	06:20		07:12 (B153)	05:26			06:15 (B087)	05:04			05:27	06:40 (B152)	06:13			07:16 (B153)	07:03			07:41 (B124)	07:53			09:07 (WEA03)	07:47			08:39 (B083)	08:25					
16:48	18		09:43 (B253) | 17:44	44		09:06 (WEA03) | 18:33	50	07:59 (WEA02)	20:26	57	08:09 (WEA01)	21:14	27		06:46 (B152)	21:44			21:31	16	06:56 (B152)	20:39	59		08:15 (WEA01)	19:30	58		08:45 (WEA02)	18:22	27		09:34 (WEA03)	16:29	16		08:55 (B083)	16:14					
21 | 08:18			09:06 (B083) | 07:29			08:21 (B178) | 06:27		06:58 (B124)	06:18		07:11 (B153)	05:24			06:16 (B087)	05:04			05:28	06:40 (B152)	06:15			07:16 (B153)	07:04			07:42 (B124)	07:54			08:55 (B178)	07:49			08:40 (B083)	08:26					
16:50	20		09:42 (B253) | 17:46	41		09:06 (WEA03) | 18:35	53	07:59 (WEA02)	20:27	58	08:09 (WEA01)	21:15	25		06:46 (B152)	21:44			21:30	16	06:56 (B152)	20:37	59		08:15 (WEA01)	19:27	57		08:45 (WEA02)	18:20	33		09:35 (WEA03)	16:27	15		08:55 (B083)	16:14					
22 | 08:17			09:06 (B083) | 07:27			08:23 (B178) | 06:25		06:56 (B124)	06:16		07:11 (B153)	05:23			06:19 (B087)	05:04			05:29	06:39 (B152)	06:16			07:15 (B153)	07:06			07:41 (B124)	07:56			08:52 (B178)	07:50			08:41 (B083)	08:27					
16:51	18		09:41 (B253) | 17:47	35		09:05 (WEA03) | 18:37	55	07:58 (WEA02)	20:29	58	08:09 (WEA01)	21:17	19		06:46 (B152)	21:45			21:28	17	06:56 (B152)	20:35	59		08:14 (WEA01)	19:25	56		08:44 (WEA02)	18:18	40		09:36 (WEA03)	16:26	19		09:17 (B253)	16:15					
23 | 08:16			09:04 (B083) | 07:24			08:37 (WEA03) | 06:23		06:55 (B124)	06:14		07:10 (B153)	05:22			06:29 (B152)	05:05			05:30	06:39 (B152)	06:18			07:16 (B153)	07:08			07:41 (B124)	07:58			08:50 (B178)	07:52			08:42 (B083)	08:27					
24 | 08:15			09:04 (B083) | 07:22			08:37 (WEA03) | 06:20		06:55 (B124)	06:11		07:11 (B153)	05:20			06:30 (B152)	05:05			05:32	06:26 (B087)	06:20			07:15 (B153)	07:09			07:41 (B124)	08:00			08:49 (B178)	07:54			08:45 (B083)	08:28					
16:55	17		09:21 (B083) | 17:51	25		09:02 (WEA03) | 18:40	57	07:58 (WEA02)	20:32	58	08:09 (WEA01)	21:20	16		06:46 (B152)	21:45			21:26	24	06:56 (B152)	20:31	58		08:13 (WEA01)	19:20	54		08:43 (WEA02)	18:14	46		09:36 (WEA03)	16:24	18		09:20 (B253)	16:16					
25 | 08:14			09:04 (B083) | 07:20			08:38 (WEA03) | 06:18		06:55 (B124)	06:09		07:11 (B153)	05:19			06:30 (B152)	05:05			05:33	06:26 (B087)	06:21			07:16 (B153)	07:11			07:43 (B124)	08:01			08:48 (B178)	07:55			09:08 (B253)	08:28					
16:56	19		09:23 (B083) | 17:53	23		09:01 (WEA03) | 18:42	57	07:58 (WEA02)	20:34	58	08:09 (WEA01)	21:21	16		06:46 (B152)	21:45			21:25	27	06:57 (B152)	20:28	57		08:13 (WEA01)	19:18	50		08:43 (WEA02)	18:12	47		09:36 (WEA03)	16:23	13		09:21 (B253)	16:16					
26 | 08:13			09:03 (B083) | 07:18			08:40 (WEA03) | 07:16		06:54 (B124)	06:07		07:11 (B153)	05:18			06:31 (B152)	05:05			05:35	06:25 (B087)	06:23			07:16 (B153)	07:13			07:45 (B124)	08:03			08:48 (B178)	07:57			09:08 (B253)	08:28					
16:58	20		09:23 (B083) | 17:55	19		08:59 (WEA03) | 19:43	56	08:57 (WEA02)	20:36	57	08:08 (WEA01)	21:22	15		06:46 (B152)	21:45			21:23	29	06:57 (B152)	20:26	56		08:12 (WEA01)	19:16	44		08:42 (WEA02)	18:10	49		09:37 (WEA03)	16:22	14		09:22 (B253)	16:17					
27 | 08:11			09:04 (B083) | 07:16			08:43 (WEA03) | 07:13		07:55 (B124)	06:05		07:12 (B153)	05:17			06:32 (B152)	05:06			05:36	06:24 (B087)	06:24			07:17 (B153)	07:14			07:46 (WEA02)	08:05			08:48 (B178)	07:58			09:08 (B253)	08:29					
17:00	20		09:24 (B083) | 17:56	13		08:56 (WEA03) | 19:45	53	08:56 (WEA02)	20:37	56	08:08 (WEA01)	21:24	13		06:45 (B152)	21:45			21:22	30	06:57 (B152)	20:24	55		08:12 (WEA01)	19:14	35		08:41 (WEA02)	18:08	49		09:37 (WEA03)	16:21	14		09:22 (B253)	16:18					
28 | 08:10			09:03 (B083) | 07:14			07:11		07:56 (B124)	06:03		07:13 (B153)	05:16			06:32 (B152)	05:06			05:37	06:24 (B087)	06:26			07:18 (B153)	07:16			08:07 (WEA02)	08:07			08:48 (B178)	08:00			09:08 (B253)	08:29					
17:02	21		09:02 (B083) | 17:58			19:47	49	08:55 (WEA02)	20:39	54	08:07 (WEA01)	21:25	12		06:44 (B152)	21:45			21:20	32	06:57 (B152)	20:22	52		08:10 (WEA01)	19:11	33		08:40 (WEA02)	18:06	48		09:37 (WEA03)	16:20	15		09:23 (B253)	16:18					
29 | 08:09			09:04 (B083)			07:09			07:56 (B124)	06:01		07:15 (B153)	05:15			06:33 (B152)	05:07			05:39	06:23 (B087)	06:28			07:21 (B153)	07:17			08:07 (WEA02)	07:08			07:49 (B178)	08:02			09:09 (B253)	08:29					
17:03	21		09:25 (B083)			19:48	47	08:54 (WEA02)	20:41	52	08:07 (WEA01)	21:26	11		06:44 (B152)	21:45			21:19	33	06:56 (B152)	20:20	49		08:10 (WEA01)	19:09	31		08:38 (WEA02)	17:04	46		08:36 (WEA03)	16:19	15		09:24 (B253)	16:19					
30 | 08:07			09:03 (B083)			07:07		07:58 (B124)	05:59		07:17 (WEA01)	05:14			06:34 (B152)	05:07			05:40	06:23 (B087)	06:29			07:22 (B223)	07:19			08:08 (WEA02)	07:10			07:50 (B178)	08:03			09:08 (B253)	08:29			09:27 (B253)		
17:05	22		09:25 (B083)			19:50	40	08:52 (WEA02)	20:42	50	08:07 (WEA01)	21:27	9		06:43 (B152)	21:45			21:17	45	07:56 (WEA01)	20:18	46		08:08 (WEA02)	19:07	29		08:37 (WEA02)	17:02	44		08:36 (WEA03)	16:18	16		09:24 (B253)	16:20	4		09:31 (B253)		
31 | 08:06			09:25 (B083)			07:04		08:22 (WEA02)				05:13			06:36 (B152)				05:42		06:23 (B087)	06:31			07:22 (B223)					07:12			07:51 (B178)				08:29			09:27 (B253)		
	17:07	21		09:24 (B083)			19:52	29	08:51 (WEA02)			21:28	5		06:41 (B152)				21:16	51	08:00 (WEA01)	20:15	45		08:07 (WEA01)					17:00	41		08:36 (WEA03)				16:21	5		09:32 (B253)		
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			246					
astr.max.mögl.Beschattung	471			857			1036			1266			1076						403			1647			1114			852			605			170					
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43						0.39			0.40			0.32			0.29			0.23			0.17					
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95						0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung	0.55			0.60			0.68			0.72			0.73						0.74			0.73			0.69			0.63			0.57			0.54					
Gesamte Reduktion	0.10			0.19			0.18			0.25			0.30						0.27			0.28			0.21			0.17			0.12			0.09					
Met.wahrsch.Beschattung	47			159			189			317			322						110			458			233			146			74			15					

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)	

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO046 - Im Kirchenfelde 26, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni		Juli			August			September			Oktober			November			Dezember		
1	08:29			09:27 (B253)	08:04		09:08 (B083)	07:12		07:02			08:32 (WEA02)	05:57		07:25 (WEA01)	05:12		05:08			05:43			06:25 (B087)	06:32		07:24 (B223)	07:21		08:11 (WEA02)	07:14		07:54 (B178)	08:04		09:12 (B253)
2	08:29			09:28 (B253)	08:03		09:08 (B083)	07:10		07:00			08:36 (WEA02)	05:56		07:25 (WEA01)	05:11		05:09			21:14	35	07:00 (B152)	20:13	50	08:14 (WEA01)	19:04	31	08:42 (WEA02)	16:58	42	08:40 (WEA03)	16:18	15	09:27 (B253)
	16:23	12	09:40 (B253)	17:11	18	09:26 (B083)	18:02			19:55	7	08:43 (WEA02)	20:46	43	08:08 (WEA01)	21:31		21:44			05:45		06:25 (B087)	06:34		07:23 (B223)	07:22		08:11 (WEA02)	07:16		07:56 (B178)	08:06		09:12 (B253)
3	08:29		09:28 (B253)	08:01		08:48 (WEA03)	07:08		07:48 (B150)	06:57			05:54		07:26 (WEA01)	05:10		05:09			21:13	39	07:58 (WEA01)	20:11	49	08:13 (WEA01)	19:02	29	08:40 (WEA02)	16:57	35	08:39 (WEA03)	16:17	15	09:27 (B253)
	16:24	13	09:41 (B253)	17:12	26	09:25 (B083)	18:04	13	08:07 (B013)	19:57			20:47	41	08:07 (WEA01)	21:32		21:44			05:46		06:25 (B087)	06:36		07:23 (B223)	07:24		08:13 (WEA02)	07:17		08:08 (WEA03)	08:07		09:13 (B253)
4	08:29		09:29 (B253)	08:00		08:46 (WEA03)	07:05		07:46 (B150)	06:55		07:50 (WEA01)	05:52		06:35 (B086)	05:10		05:10			21:11	48	08:03 (WEA01)	20:09	48	08:11 (WEA01)	19:00	30	08:43 (B013)	16:55	30	08:38 (WEA03)	16:16	15	09:28 (B253)
	16:25	13	09:42 (B253)	17:14	29	09:24 (B083)	18:05	22	08:09 (B013)	19:59	9	07:59 (WEA01)	20:49	43	08:06 (WEA01)	21:33		21:44			05:48		06:25 (B087)	06:37		07:23 (B223)	07:26		08:15 (WEA02)	07:19		08:09 (WEA03)	08:09		09:13 (B253)
5	08:29		09:28 (B253)	07:58		08:44 (WEA03)	07:03		07:45 (B150)	06:53		07:32 (B223)	05:50		06:33 (B086)	05:09		05:11			21:09	52	08:06 (WEA01)	20:06	47	08:10 (WEA01)	18:57	30	08:45 (B013)	16:53	28	08:37 (WEA03)	16:16	15	09:28 (B253)
	16:26	14	09:42 (B253)	17:16	29	09:22 (B083)	18:07	25	08:10 (B013)	20:00	25	08:04 (WEA01)	20:51	45	08:05 (WEA01)	21:34		21:43			05:49		06:26 (B087)	06:39		07:23 (B223)	07:27		08:16 (WEA02)	07:21		08:10 (WEA03)	08:10		09:14 (B253)
6	08:29		09:29 (B253)	07:56		08:42 (WEA03)	07:01		07:43 (B150)	06:51		07:29 (B223)	05:48		06:31 (B086)	05:08		05:12			21:08	53	08:08 (WEA01)	20:04	46	08:09 (WEA01)	18:55	29	08:45 (B013)	16:51	26	08:36 (WEA03)	16:15	15	09:29 (B253)
	16:28	14	09:43 (B253)	17:18	23	09:05 (WEA03)	18:09	27	08:10 (B013)	20:02	38	08:07 (WEA01)	20:52	47	08:04 (WEA01)	21:35		21:43			05:51		06:26 (B087)	06:40		07:23 (B223)	07:29		08:20 (B150)	07:23		08:11 (WEA03)	08:11		09:14 (B253)
7	08:28		09:29 (B253)	07:55		08:41 (WEA03)	06:59		07:43 (B150)	06:48		07:27 (B223)	05:46		06:18 (B087)	05:08		05:12			21:06	54	08:10 (WEA01)	20:02	43	08:06 (WEA01)	18:53	26	08:46 (B013)	16:49	24	08:35 (WEA03)	16:15	15	09:29 (B253)
	16:29	14	09:43 (B253)	17:20	25	09:06 (WEA03)	18:11	27	08:10 (B013)	20:04	42	08:09 (WEA01)	20:54	54	08:02 (WEA01)	21:36		21:42			05:52		06:28 (B087)	06:42		07:24 (B223)	07:31		08:19 (B150)	07:24		08:13 (WEA03)	08:13		09:15 (B253)
8	08:28		09:29 (B253)	07:53		08:41 (WEA03)	06:57		07:43 (B150)	06:46		07:26 (B223)	05:45		06:17 (B087)	05:07		05:13			21:04	53	08:12 (WEA01)	20:00	40	08:04 (WEA01)	18:51	27	08:46 (B013)	16:48	29	08:51 (B083)	16:14	14	09:29 (B253)
	16:30	15	09:44 (B253)	17:22	27	09:08 (WEA03)	18:12	27	08:10 (B013)	20:05	45	08:11 (WEA01)	20:55	55	08:01 (WEA01)	21:37		21:42			05:54		06:40 (B086)	06:44		07:25 (B223)	07:32		08:19 (B150)	07:26		08:15 (WEA03)	08:14		09:16 (B253)
9	08:28		09:29 (B253)	07:51		08:40 (WEA03)	06:54		07:42 (B150)	06:44		07:26 (B223)	05:43		06:16 (B087)	05:06		05:14			21:02	47	08:13 (WEA01)	19:57	34	08:01 (WEA01)	18:48	27	08:46 (B013)	16:46	30	08:54 (B083)	16:14	13	09:29 (B253)
	16:31	15	09:44 (B253)	17:24	29	09:09 (WEA03)	18:14	27	08:09 (B013)	20:07	46	08:12 (WEA01)	20:57	52	07:58 (WEA01)	21:38		21:41			05:56		06:42 (B086)	06:45		07:40 (WEA01)	07:34		08:18 (B150)	07:28		08:17 (WEA03)	08:15		09:16 (B253)
10	08:27		09:29 (B253)	07:49		08:39 (WEA03)	06:52		07:39 (WEA02)	06:42		07:25 (B223)	05:41		06:16 (B087)	05:06		05:15			21:00	46	08:14 (WEA01)	19:55	17	07:57 (WEA01)	18:46	27	08:45 (B013)	16:44	28	08:55 (B083)	16:14	13	09:29 (B253)
	16:33	15	09:44 (B253)	17:25	30	09:09 (WEA03)	18:16	29	08:08 (B013)	20:09	47	08:12 (WEA01)	20:59	52	07:57 (WEA01)	21:38		21:40			05:57		06:44 (B086)	06:47			07:36		08:19 (B150)	07:30		08:22 (WEA03)	08:16		09:17 (B253)
11	08:27		09:30 (B253)	07:48		08:24 (B178)	06:50		07:37 (WEA02)	06:39		07:24 (B223)	05:39		06:15 (B087)	05:06		05:16			20:59	43	08:15 (WEA01)	19:53			18:44	25	08:44 (B013)	16:43	21	08:56 (B083)	16:13	12	09:29 (B253)
	16:34	15	09:45 (B253)	17:27	41	09:10 (WEA03)	18:18	30	08:07 (B013)	20:10	49	08:13 (WEA01)	21:00	49	07:53 (WEA01)	21:39		21:40			05:59		07:35 (WEA01)	06:48			07:37		08:20 (B150)	07:32		08:39 (B083)	08:17		09:18 (B253)
12	08:26		09:31 (B253)	07:46		08:23 (B178)	06:48		07:35 (WEA02)	06:37		07:25 (B223)	05:38		06:14 (B087)	05:05		05:17			20:57	41	08:16 (WEA01)	19:51			18:42	22	08:43 (B013)	16:41	18	08:57 (B083)	16:13	12	09:30 (B253)
	16:36	14	09:45 (B253)	17:29	44	09:10 (WEA03)	18:19	30	08:05 (B013)	20:12	49	08:14 (WEA01)	21:02	40	07:48 (WEA01)	21:40		21:39			06:00		07:34 (WEA01)	06:50		08:26 (WEA02)	07:39		08:22 (B150)	07:33		08:38 (B083)	08:18		09:19 (B253)
13	08:25		09:31 (B253)	07:44		08:22 (B178)	06:45		07:32 (WEA02)	06:35		07:25 (B223)	05:36		06:15 (B087)	05:05		05:18			20:55	43	08:17 (WEA01)	19:48	11	08:37 (WEA02)	18:40	14	08:41 (B013)	16:40	20	08:58 (B083)	16:13	11	09:30 (B253)
	16:37	15	09:46 (B253)	17:31	46	09:10 (WEA03)	18:21	29	08:01 (WEA02)	20:14	50	08:15 (WEA01)	21:03	34	06:49 (B152)	21:41		21:38			06:02		07:33 (WEA01)	06:52		08:23 (WEA02)	07:41			07:35		08:38 (B083)	08:19		09:19 (B253)
14	08:25		09:31 (B253)	07:42		08:21 (B178)	06:43		07:31 (WEA02)	06:33		07:22 (B153)	05:35		06:15 (B087)	05:05		05:19			20:53	45	08:18 (WEA01)	19:46	18	08:41 (WEA02)	18:37			16:38	21	08:59 (B083)	16:13	11	09:30 (B253)
	16:38	15	09:46 (B253)	17:33	48	09:10 (WEA03)	18:23	31	08:02 (WEA02)	20:15	54	08:16 (WEA01)	21:05	34	06:50 (B152)	21:41		21:37			06:04		07:32 (WEA01)	06:53		08:20 (WEA02)	07:42			07:37		08:38 (B083)	08:20		09:20 (B253)
15	08:24		09:32 (B253)	07:40		08:21 (B178)	06:41		07:30 (WEA02)	06:31		07:20 (B153)	05:33		06:15 (B087)	05:04		05:20			20:51	46	08:18 (WEA01)	19:44	23	08:43 (WEA02)	18:35			16:37	21	08:59 (B083)	16:13	11	09:31 (B253)
	16:40	14	09:46 (B253)	17:35	49	09:10 (WEA03)	18:25	33	08:03 (WEA02)	20:17	56	08:16 (WEA01)	21:06	33	06:50 (B152)	21:42		21:36			06:05		07:32 (WEA01)	06:55		08:18 (WEA02)	07:44			07:39		08:38 (B083)	08:21		09:21 (B253)
16	08:23		09:33 (B253)	07:38		08:21 (B178)	06:39		07:28 (WEA02)	06:28		07:17 (B153)	05:31		06:16 (B087)	05:04		05:22			20:49	47	08:19 (WEA01)	19:41	27	08:45 (WEA02)	18:33			16:35	21	08:59 (B083)	16:13	10	09:31 (B253)
	16:42	13	09:46 (B253)	17:36	49	09:10 (WEA03)	18:26	35	08:03 (WEA02)	20:19	58	08:15 (WEA01)	21:08	32	06:51 (B152)	21:42		21:35			06:07		07:31 (WEA01)	06:56		07:51 (B124)	07:46			07:40		08:39 (B083)	08:22		09:21 (B253)
17	08:22		09:33 (B253)	07:36		08:21 (B178)	06:36		07:27 (WEA02)	06:26		07:16 (B153)	05:30		06:15 (B087)	05:04		05:23	06:49 (B152)	06:08	20:47	48	08:19 (WEA01)	19:39	38	08:46 (WEA02)	18:31			16:34	21	09:00 (B083)	16:13	9	09:30 (B253)
	16:43	12	09:45 (B253)	17:38	47	09:10 (WEA03)	18:28	37	08:04 (WEA02)	20:20	60	08:16 (WEA01)	21:09	31	06:50 (B152)	21:43		21:34	4	06:53 (B152)	20:45	53	08:20 (WEA01)	19:37	44	08:46 (WEA02)	18:29	4	09:27 (WEA03)	16:32	21	08:59 (B083)	16:13	8	09:30 (B253)
18	08:21		09:10 (B083)	07:35		08:22 (B178)	06:34		07:04 (B124)	06:24		07:16 (B153)	05:28		06:17 (B087)	05:04		05:24			06:47 (B152)	06:10		07:24 (B153)	07:00		07:47 (B124)	07:49		09:17 (WEA03)	07:44		08:39 (B083)	08:24		09:23 (B253)
	16:45	17	09:45 (B253)	17:40	46	09:10 (WEA03)	18:30	47	08:04 (WEA02)	20:22	60	08:16 (WEA01)	21:11	28	06:50 (B152)	21:43		21:33	8	06:55 (B152)	20:43	56	08:20 (WEA01)	19:34	49	08:47 (WEA02)	18:27	14	09:31 (WEA03)	16:31	20	08:59 (B083)	16:13	8	09:31 (B253)
19	08:20		09:08 (B083)	07:33		08:22 (B178)	06:32		07:01 (B124)	06:22		07:15 (B153)	05:27		06:18 (B087)	05:04		05:25			06:46 (B152)	06:11		07:23 (B153)	07:01		07:45 (B124)	07:51		09:14 (WEA03)	07:45		08:39 (B083)	08:25		09:24 (B253)
	16:46	19	09:44 (B253)	17:42	44	09:09 (WEA03)	18:31	51	08:03 (WEA02)	20:24	61	08:16 (WEA01)	21:12	27	06:51 (B152)	21:44		21:32	10	06:56 (B152)	20:41	57	08:20 (WEA01)	19:32	53	08:47 (WEA02)	18:24	20	09:34 (WEA03)	16:30	20	08:59 (B083)	16:14	7	09:31 (B253)
20	08:19		09:08 (B083)	07:31		08:24 (B178)	06:29		07:00 (B124)	06:20		07:15 (B153)	05:26		06:19 (B087)	05:04		05:27			06:46 (B152)	06:13		07:21 (B153)	07:03		07:44 (B124)	07:53		09:13 (WEA03)	07:47		08:40 (B083)	08:25		09:24 (B253)
	16:48	18	09:43 (B253)	17:44	40	09:09 (WEA03)	18:33	56	08:04 (WEA02)	20:26	61	08:16 (WEA01)	21:14	23	06:50 (B152)	21:44		21:31	12	06:58 (B152)	20:39	59	08:20 (WEA01)	19:30	55	08:48 (WEA02)	18:22	23	09:36 (WEA03)	16:29	19	08:59 (B083)	16:14	7	09:31 (B253)
21	08:18		09:07 (B083)	07:29		08:27 (B178)	06:27		06:59 (B124)	06:18		07:15 (B153)	05:24		06:33 (B152)	05:04		05:28			06:45 (B152)	06:15		07:21 (B153)	07:04		07:44 (B124)	07:54		09:11 (WEA03)	07:49		08:41 (B083)	08:26		09:25 (B253)
	16:50	15	09:22 (B083)	17:46	32	09:08 (WEA03)	18:35	57	08:04 (WEA02)	20:27	60	08:15 (WEA01)	21:15	17	06:50 (B152)	21:44		21:30	14	06:59 (B152)	20:37	59	08:20 (WEA01)	19:27	57	08:49 (WEA02)	18:20	26	09:37 (WEA03)	16:27	18	08:59 (B083)	16:14	7	09:32 (B253)
22	08:17		09:07 (B083)	07:27		08:41 (WEA03)	06:25		06:58 (B124)	06:16		07:15 (B153)	05:23		06:33 (B152)	05:04		05:29			06:44 (B152)	06:16		07:19 (B153)	07:06		07:43 (B124)	07:56		09:10 (WEA03)	07:50		08:42 (B083)	08:27		09:26 (B253)
	16:51	17	09:24 (B083)	17:47	26	09:07 (WEA03)	18:37	58	08:03 (WEA02)	20:29	60	08:15 (WEA01)	21:17	16	06:49 (B152)	21:45		21:28	15	06:59 (B152)	20:35	61	08:20 (WEA01)	19:25	58	08:48 (WEA02)	18:18	28	09:38 (WEA03)	16:26	17	08:59 (B083)	16:15	7	09:33 (B253)
23	08:16		09:06 (B083)	07:24		08:42 (WEA03)	06:23		06:58 (B124)	06:14		07:15 (B153)	05:22		06:34 (B152)	05:05		05:30			06:43 (B152)	06:18		07:19 (B153)	07:08		07:44 (B124)	07:58		08:55 (B178)	07:52		08:43 (B083)	08:27		09:26 (B253)
	16:53	18	09:24 (B083)	17:49	23	09:05 (WEA03)	18:38	56	08:02 (WEA02)	20:31	60	08:15 (WEA01)	21:18	15	06:49 (B152)	21:45		21:27	17	07:00 (B152)	20:33	61	08:20 (WEA01)	19:23	56	08:48 (WEA02)	18:16	38	09:39 (WEA03)	16:25	14	08:57 (B083)	16:15	7	09:33 (B253)
24	08:15		09:06 (B083)	07:22		08:43 (WEA03)	06:20		06:58 (B124)	06:11		07:15 (B153)	05:20		06:35 (B152)	05:05		05:32			06:43 (B152)	06:20		07:18 (B153)	07:09		07:43 (B124)	08:00		08:52 (B178)	07:54		08:44 (B083)	08:28		09:26 (B253)
	16:55	19	09:25 (B083)	17:51	20	09:03 (WEA03)	18:40	56	08:02 (WEA02)	20:32	59	08:14 (WEA01)	21:20	14	06:49 (B152)	21:45		21:26	17	07:00 (B152)	20:31	61	08:19 (WEA01)	19:20	56	08:47 (WEA02)	18:14	43	09:39 (WEA03)	16:24	19	09:20 (B253)	16:16	7	09:33 (B253)
25	08:14		09:06 (B083)	07:20		08:45 (WEA03)	06:18		06:58 (B124)	06:09		07:16 (B153)	05:19		06:36 (B152)	05:05		05:33			06:30 (B087)	06:21		07:19 (B153)	07:11		07:44 (B124)	08:01		08:51 (B178)	07:55		08:46 (B083)	08:28		09:27 (B253)
	16:56	20	09:26 (B083)	17:53	15	09:00 (WEA03)	18:42	54	08:01 (WEA02)	20:34	58	08:14 (WEA01)	21:21	12	06:48 (B152)	21:45		21:25	23	07:01 (B152)	20:28	60	08:19 (WEA01)	19:18	54	08:47 (WEA02)	18:12	45	09:39 (WEA03)	16:23	19	09:22 (B253)	16:16	7	09:34 (B253)
26	08:13		09:05 (B083)	07:18		08:49 (WEA03)	07:16		07:58 (B124)	06:07		07:17 (B153)	05:18		06:37 (B152)	05:05		05:35			06:28 (B087)	06:23		07:18 (B153)	07:13		07:45 (B124)	08:03		08:51 (B178)	07:57		08:49 (B083)	08:28		09:27 (B253)
	16:58	21	09:26 (B083)	17:55	7	08:56 (WEA03)	19:43	52	09:00 (WEA02)	20:36	56	08:13 (WEA01)	21:22	10	06:47 (B152)	21:45		21:23	27	07:01 (B152)	20:26	60	08:18 (WEA01)	19:16	52	08:47 (WEA02)	18:10	48	09:40 (WEA03)	16:22	16	09:24 (B253)	16:17	7	09:34 (B253)
27	08:11		09:06 (B083)	07:16			07:13		07:59 (B124)	06:05		07:19 (B153)	05:17		06:38 (B152)	05:06		05:36			06:27 (B087)	06:24		07:19 (B153)	07:14		07:46 (B124)	08:05		08:50 (B178)	07:58		09:12 (B253)	08:29		09:27 (B253)
	17:00	21	09:27 (B083)	17:56			19:45	48	08:59 (WEA02)	20:37	53	08:12 (WEA01)	21:24	8	06:46 (B152)	21:45		21:22	29	07:01 (B152)	20:24	59	08:18 (WEA01)	19:14	47	08:46 (WEA02)	18:08	49	09:40 (WEA03)	16:21	12	09:24 (B253)	16:18	8	09:35 (B253)
28	08:10		09:06 (B083)	07:14			07:11		08:00 (B124)	06:03		07:23 (WEA01)	05:16		06:40 (B152)	05:06		05:37			06:27 (B087)	06:26		07:19 (B153)	07:16		08:09 (WEA02)	08:07		08:50 (B178)	08:00		09:12 (B253)	08:29		09:27 (B253)
	17:02	21	09:27 (B083)	17:58			19:47	43	08:58 (WEA02)	20:39	49	08:12 (WEA01)	21:25	4	06:44 (B152)	21:45		21:20	30	07:01 (B152)	20:22	58	08:17 (WEA01)	19:11	36	08:45 (WEA02)	18:06	49	09:40 (WEA03)	16:20	13	09:25 (B253)	16:18	8	09:35 (B253)
29	08:09		09:06 (B083)				07:09		08:02 (B124)	06:01		07:23 (WEA01)	05:15			05:07		05:39			06:26 (B087)	06:28		07:20 (B153)	07:17		08:09 (WEA02)	08:08		07:51 (B178)	08:02		09:12 (B253)	08:29		09:29 (B253)
	17:03	21	09:27 (B083)				19:48	34	08:55 (WEA02)	20:41	48	08:11 (WEA01)	21:26			21:45		21:19	31	07:01 (B152)	20:20	57	08:17 (WEA01)	19:09	35	08:44 (WEA02)	17:04	48	08:40 (WEA03)	16:19	14	09:26 (B253)	16:19	9	09:36 (B253)
30	08:07		09:06 (B083)				07:07		08:28 (WEA02)	05:59		07:24 (WEA01)	05:14			05:07		05:40			06:25 (B087)	06:29		07:21 (B153)	07:19		08:10 (WEA02)	07:10		07:51 (B178)	08:03		09:12 (B253)	08:29		09:27 (B253)
	17:05	21	09:27 (B083)				19:50	26	08:54 (WEA02)	20:42	47	08:11 (WEA01)	21:27			21:45		21:17	33	07:00 (B152)	20:18	55	08:16 (WEA01)	19:07	33	08:43 (WEA02)	17:02	48	08:40 (WEA03)	16:18	14	09:26 (B253)	16:20	10	09:37 (B253)
31	08:06		09:06 (B083)				07:04		08:30 (WEA02)				05:13					05:42		06:25 (B087)	06:31		07:25 (B223)				07:12		07:52 (B178)				08:29		09:27 (B253)
	17:07	20	09:26 (B083)				19:52	22	08:52 (WEA02)				21:28					21:16	35	07:01 (B152)	20:15	50	08:15 (WEA01)				17:00	45	08:40 (WEA03)				16:21	11	09:38 (B253)
Sonnenscheinstunden	259			277			366			414			483			497		501			454			382			333			268			245		
astr.max.mögl.Beschattung		503			832			1082			1383			904					305			1606			1176			845			651			324	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43					0.39			0.40			0.32			0.29			0.23			0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95					0.95			0.95			0.95			0.95			0.95			0.95	
Reduktion Windrichtung		0.55			0.60			0.67			0.72			0.73					0.74			0.73			0.69			0.63			0.57			0.54	
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30					0.27			0.28			0.21			0.17			0.12			0.09	
Met.wahrsch.Beschattung		50			154			196			347			270					83			445			246			145			80			28	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO047 - Im Kirchenfelde 30, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar				Februar				März				April				Mai				Juni				Juli				August				September				Oktober				November				Dezember			
1	08:29			09:30 (B253)	08:04			08:50 (WEA03)	07:12			07:52 (B150)	07:02			07:51 (WEA01)	05:57			06:41 (B086)	05:12			05:08				05:43				06:30 (B087)	06:32			07:25 (B153)	07:21			08:15 (WEA02)	07:14			07:56 (B178)	08:04		
	16:22	14	09:44 (B253)	17:09	32	09:29 (B083)	18:00	20	08:15 (B013)	19:54	28	08:19 (WEA01)	20:44	32	08:11 (WEA01)	21:30			21:45								21:14	32	07:09 (B152)	20:13	62	08:27 (WEA01)	19:04	37	08:52 (WEA02)	16:58	46	08:45 (WEA03)	16:18	12	09:30 (B253)							
2	08:29		09:31 (B253)	08:03		08:48 (WEA03)	07:10		07:50 (B150)	07:00		07:49 (WEA01)	05:56		06:38 (B086)	05:11			05:09								05:45		06:30 (B087)	06:34		07:26 (B153)	07:22		08:15 (WEA02)	07:16		07:56 (B178)	08:06		09:17 (B253)							
	16:23	14	09:45 (B253)	17:11	32	09:27 (B083)	18:02	25	08:16 (B013)	19:55	32	08:21 (WEA01)	20:46	33	08:09 (WEA01)	21:31			21:44								21:13	35	07:09 (B152)	20:11	61	08:27 (WEA01)	19:02	35	08:50 (WEA02)	16:57	45	08:45 (WEA03)	16:17	13	09:30 (B253)							
3	08:29		09:31 (B253)	08:01		08:47 (WEA03)	07:08		07:49 (B150)	06:57		07:36 (B223)	05:54		06:37 (B086)	05:10			05:09								05:46		06:29 (B087)	06:36		07:27 (B153)	07:24		08:16 (WEA02)	07:17		07:56 (B178)	08:07		09:18 (B253)							
	16:24	15	09:46 (B253)	17:12	31	09:25 (B083)	18:04	28	08:17 (B013)	19:57	46	08:23 (WEA01)	20:47	30	08:06 (WEA01)	21:32			21:44								21:11	37	07:09 (B152)	20:09	59	08:26 (WEA01)	19:00	34	08:50 (WEA02)	16:55	43	08:44 (WEA03)	16:16	13	09:31 (B253)							
4	08:29		09:32 (B253)	08:00		08:47 (WEA03)	07:05		07:49 (B150)	06:55		07:34 (B223)	05:52		06:24 (B087)	05:10			05:10								05:48		06:29 (B087)	06:37		07:28 (B223)	07:26		08:16 (WEA02)	07:19		07:58 (B178)	08:09		09:17 (B253)							
	16:25	15	09:47 (B253)	17:14	25	09:12 (WEA03)	18:05	28	08:17 (B013)	19:59	51	08:25 (WEA01)	20:49	31	08:02 (WEA01)	21:33			21:44								21:09	38	07:08 (B152)	20:06	57	08:25 (WEA01)	18:57	33	08:49 (WEA02)	16:53	39	08:44 (WEA03)	16:16	15	09:32 (B253)							
5	08:29		09:32 (B253)	07:58		08:46 (WEA03)	07:03		07:49 (B150)	06:53		07:32 (B223)	05:50		06:23 (B087)	05:09			05:11								05:49		06:29 (B087)	06:39		07:28 (B223)	07:27		08:17 (WEA02)	07:21		08:13 (WEA03)	08:10		09:18 (B253)							
	16:26	14	09:46 (B253)	17:16	26	09:12 (WEA03)	18:07	28	08:17 (B013)	20:00	53	08:25 (WEA01)	20:51	27	06:54 (B152)	21:34			21:43								21:08	38	07:08 (B152)	20:04	57	08:25 (WEA01)	18:55	30	08:47 (WEA02)	16:51	31	08:44 (WEA03)	16:15	15	09:33 (B253)							
6	08:29		09:33 (B253)	07:56		08:45 (WEA03)	07:01		07:48 (B150)	06:51		07:32 (B223)	05:48		06:21 (B087)	05:08			05:12								05:51		06:29 (B087)	06:40		07:27 (B223)	07:29		08:18 (WEA02)	07:23		08:14 (WEA03)	08:11		09:18 (B253)							
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	17:07	28	09:29 (B083)			19:52	22	08:17 (WEA01)					21:28				21:16	30	07:09 (B152)	20:15	63	08:28 (WEA01)				17:00	47	08:45 (WEA03)					16:21	13	09:43 (B253)							
Sonnenscheinstunden	259				277				366				414				483				497	501			454				382				333				268				245			
astr.max.m0g|.Beschattung		524				791				1092				1562				576				137				1390				1344				818				745				419			
Red.Sonnenscheinwahrsch.		0.19				0.32				0.28				0.36				0.43				0.39				0.40				0.32				0.29				0.23				0.17			
Reduktion Betriebsdauer		0.95				0.95				0.95				0.95				0.95				0.95				0.95				0.95				0.95				0.95				0.95			
Reduktion Windrichtung		0.55				0.60				0.67				0.72				0.73				0.73				0.72				0.70				0.63				0.57				0.54			
Gesamte Reduktion		0.10				0.18				0.18				0.25				0.30				0.27				0.28				0.21				0.17				0.12				0.09			
Met.wahrsch.Beschattung		51				145				196				389				172				37				383				284				141				92				37			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO048 - Im Kirchenfelde 30, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		09:29 (B253)	08:04		08:54 (WEA03)	07:12		07:02			05:57		07:31 (WEA01)	05:12		05:08		05:43		06:26 (B087)	06:32		07:25 (B153)	07:21		08:12 (WEA02)	07:14		07:54 (B178)	08:04		09:15 (B253)
	16:22	13	09:42 (B253)	17:09	22	09:28 (B083)	18:00		19:54			20:44	41	08:12 (WEA01)	21:30		21:45		21:14	35	07:03 (B152)	20:13	54	08:19 (WEA01)	19:04	34	08:46 (WEA02)	16:58	46	08:43 (WEA03)	16:18	14	09:29 (B253)
2	08:29		09:29 (B253)	08:03		08:49 (WEA03)	07:10		07:50 (B150)	07:00		07:55 (WEA01)	05:56		07:31 (WEA01)	05:11		05:09		05:45		06:27 (B087)	06:34		07:26 (B223)	07:22		08:12 (WEA02)	07:16		07:56 (B178)	08:06		09:15 (B253)
	16:23	14	09:43 (B253)	17:11	29	09:27 (B083)	18:02	15	08:10 (B013)	19:55	8	08:03 (WEA01)	20:46	39	08:10 (WEA01)	21:31		21:44		21:13	36	07:03 (B152)	20:11	53	08:19 (WEA01)	19:02	33	08:45 (WEA02)	16:57	41	08:42 (WEA03)	16:17	14	09:29 (B253)
3	08:29		09:30 (B253)	08:01		08:47 (WEA03)	07:08		07:48 (B150)	06:57		07:49 (WEA01)	05:54		06:37 (B086)	05:10		05:09		05:46		06:26 (B087)	06:36		07:25 (B223)	07:24		08:14 (WEA02)	07:17		07:57 (B178)	08:07		09:15 (B253)
	16:24	14	09:44 (B253)	17:12	30	09:25 (B083)	18:04	22	08:12 (B013)	19:57	20	08:09 (WEA01)	20:47	40	08:09 (WEA01)	21:32		21:44		21:11	35	07:02 (B152)	20:09	52	08:17 (WEA01)	19:00	29	08:43 (WEA02)	16:55	36	08:41 (WEA03)	16:16	15	09:30 (B253)
4	08:29		09:30 (B253)	08:00		08:46 (WEA03)	07:05		07:47 (B150)	06:55		07:35 (B223)	05:52		06:34 (B086)	05:10		05:10		05:48		06:26 (B087)	06:37		07:25 (B223)	07:26		08:15 (WEA02)	07:19		08:11 (WEA03)	08:09		09:15 (B253)
	16:25	14	09:44 (B253)	17:14	30	09:24 (B083)	18:05	26	08:13 (B013)	19:59	31	08:12 (WEA01)	20:49	43	08:07 (WEA01)	21:33		21:44		21:09	35	07:01 (B152)	20:06	52	08:17 (WEA01)	18:57	29	08:44 (B013)	16:53	30	08:41 (WEA03)	16:16	15	09:30 (B253)
5	08:29		09:30 (B253)	07:58		08:44 (WEA03)	07:03		07:46 (B150)	06:53		07:31 (B223)	05:50		06:33 (B086)	05:09		05:11		05:49		06:27 (B087)	06:39		07:25 (B223)	07:27		08:16 (WEA02)	07:21		08:12 (WEA03)	08:10		09:16 (B253)
	16:26	14	09:44 (B253)	17:16	24	09:08 (WEA03)	18:07	28	08:14 (B013)	20:00	42	08:13 (WEA01)	20:51	43	08:06 (WEA01)	21:34		21:43		21:08	43	08:05 (WEA01)	20:04	51	08:16 (WEA01)	18:55	30	08:46 (B013)	16:51	28	08:40 (WEA03)	16:15	15	09:31 (B253)
6	08:29		09:31 (B253)	07:56		08:43 (WEA03)	07:01		07:45 (B150)	06:51		07:30 (B223)	05:48		06:21 (B087)	05:08		05:12		05:51		06:27 (B087)	06:40		07:24 (B223)	07:29		08:18 (WEA02)	07:23		08:13 (WEA03)	08:11		09:16 (B253)
	16:28	14	09:45 (B253)	17:18	26	09:09 (WEA03)	18:09	28	08:13 (B013)	20:02	45	08:15 (WEA01)	20:52	47	08:04 (WEA01)	21:35		21:43		21:06	48	08:08 (WEA01)	20:02	50	08:14 (WEA01)	18:53	29	08:47 (B013)	16:49	26	08:39 (WEA03)	16:15	15	09:31 (B253)
7	08:28		09:31 (B253)	07:55		08:42 (WEA03)	06:59		07:45 (B150)	06:48		07:29 (B223)	05:46		06:19 (B087)	05:08		05:12		05:52		06:29 (B087)	06:42		07:25 (B223)	07:31		08:22 (WEA02)	07:24		08:14 (WEA03)	08:13		09:17 (B253)
	16:29	14	09:45 (B253)	17:20	28	09:10 (WEA03)	18:11	28	08:13 (B013)	20:04	48	08:17 (WEA01)	20:54	47	08:02 (WEA01)	21:36		21:42		21:04	48	08:11 (WEA01)	20:00	47	08:12 (WEA01)	18:51	26	08:48 (B013)	16:48	24	08:38 (WEA03)	16:14	15	09:32 (B253)
8	08:28		09:32 (B253)	07:53		08:42 (WEA03)	06:57		07:46 (WEA02)	06:46		07:28 (B223)	05:45		06:18 (B087)	05:07		05:13		05:54		06:30 (B087)	06:44		07:25 (B223)	07:32		08:21 (B150)	07:26		08:15 (WEA03)	08:14		09:18 (B253)
	16:30	14	09:46 (B253)	17:22	29	09:11 (WEA03)	18:12	26	08:12 (B013)	20:05	50	08:18 (WEA01)	20:55	49	08:00 (WEA01)	21:37		21:42		21:02	48	08:13 (WEA01)	19:57	45	08:10 (WEA01)	18:48	28	08:49 (B013)	16:46	29	08:53 (B083)	16:14	14	09:32 (B253)
9	08:28		09:32 (B253)	07:51		08:42 (WEA03)	06:54		07:41 (WEA02)	06:44		07:28 (B223)	05:43		06:17 (B087)	05:06		05:14		05:56		06:43 (B086)	06:45		07:27 (B223)	07:34		08:20 (B150)	07:28		08:17 (WEA03)	08:15		09:18 (B253)
	16:31	14	09:46 (B253)	17:24	30	09:12 (WEA03)	18:14	29	08:10 (B013)	20:07	51	08:19 (WEA01)	20:57	44	07:55 (WEA01)	21:38		21:41		21:00	42	08:15 (WEA01)	19:55	40	08:08 (WEA01)	18:46	28	08:48 (B013)	16:44	31	08:56 (B083)	16:14	14	09:32 (B253)
10	08:27		09:32 (B253)	07:49		08:26 (B178)	06:52		07:39 (WEA02)	06:42		07:27 (B223)	05:41		06:17 (B087)	05:06		05:15		05:57		06:43 (B086)	06:47		07:40 (WEA01)	07:36		08:20 (B150)	07:30		08:19 (WEA03)	08:16		09:18 (B253)
	16:33	14	09:46 (B253)	17:25	40	09:12 (WEA03)	18:16	30	08:09 (B013)	20:09	52	08:19 (WEA01)	20:59	34	06:52 (B152)	21:38		21:40		20:59	43	08:16 (WEA01)	19:53	24	08:04 (WEA01)	18:44	28	08:48 (B013)	16:43	30	08:57 (B083)	16:13	14	09:32 (B253)
11	08:27		09:33 (B253)	07:48		08:25 (B178)	06:50		07:37 (WEA02)	06:39		07:27 (B223)	05:39		06:16 (B087)	05:06		05:16		05:59		06:46 (B086)	06:48		07:44 (WEA01)	07:37		08:21 (B150)	07:32		08:22 (WEA03)	08:17		09:20 (B253)
	16:34	14	09:47 (B253)	17:27	44	09:13 (WEA03)	18:18	29	08:06 (B013)	20:10	53	08:20 (WEA01)	21:00	36	06:52 (B152)	21:39		21:40		20:57	41	08:18 (WEA01)	19:51	16	08:00 (WEA01)	18:42	26	08:47 (B013)	16:41	25	08:58 (B083)	16:13	13	09:33 (B253)
12	08:26		09:33 (B253)	07:46		08:24 (B178)	06:48		07:36 (WEA02)	06:37		07:27 (B223)	05:38		06:16 (B087)	05:05		05:17		06:00		07:40 (WEA01)	06:50		07:39			08:22 (B150)	07:33		08:41 (B083)	08:18		09:20 (B253)
	16:36	14	09:47 (B253)	17:29	47	09:13 (WEA03)	18:19	30	08:06 (WEA02)	20:12	53	08:20 (WEA01)	21:02	36	06:52 (B152)	21:40		21:39		20:55	39	08:19 (WEA01)	19:48		07:40		22	08:46 (B013)	16:40	18	08:59 (B083)	16:13	13	09:33 (B253)
13	08:25		09:34 (B253)	07:44		08:23 (B178)	06:45		07:33 (WEA02)	06:35		07:24 (B153)	05:36		06:16 (B087)	05:05		05:18		06:02		07:39 (WEA01)	06:52		08:34 (WEA02)	07:41		08:23 (B150)	07:35		08:41 (B083)	08:19		09:21 (B253)
	16:37	13	09:47 (B253)	17:31	48	09:13 (WEA03)	18:21	33	08:06 (WEA02)	20:14	57	08:21 (WEA01)	21:03	36	06:53 (B152)	21:41		21:38		20:53	41	08:20 (WEA01)	19:46	2	08:36 (WEA02)	18:37	16	08:44 (B013)	16:38	19	09:00 (B083)	16:13	13	09:34 (B253)
14	08:25		09:34 (B253)	07:42		08:23 (B178)	06:43		07:33 (WEA02)	06:33		07:22 (B153)	05:35		06:17 (B087)	05:05		05:19		06:04		07:38 (WEA01)	06:53		08:27 (WEA02)	07:42		08:38 (B013)	07:37		08:41 (B083)	08:20		09:21 (B253)
	16:38	13	09:47 (B253)	17:33	48	09:13 (WEA03)	18:23	34	08:07 (WEA02)	20:15	59	08:21 (WEA01)	21:05	34	06:54 (B152)	21:41		21:37		20:51	42	08:20 (WEA01)	19:44	15	08:42 (WEA02)	18:35	2	08:40 (B013)	16:37	20	09:01 (B083)	16:13	13	09:34 (B253)
15	08:24		09:35 (B253)	07:40		08:23 (B178)	06:41		07:32 (WEA02)	06:31		07:21 (B153)	05:33		06:17 (B087)	05:04		05:20		06:05		07:37 (WEA01)	06:55		08:24 (WEA02)	07:44			07:39		08:41 (B083)	08:21		09:22 (B253)
	16:40	12	09:47 (B253)	17:35	49	09:13 (WEA03)	18:25	35	08:07 (WEA02)	20:17	60	08:21 (WEA01)	21:06	32	06:53 (B152)	21:42		21:36		20:49	45	08:22 (WEA01)	19:41	21	08:45 (WEA02)	18:33			16:35	20	09:01 (B083)	16:13	12	09:34 (B253)
16	08:23		09:13 (B083)	07:38		08:23 (B178)	06:39		07:30 (WEA02)	06:28		07:19 (B153)	05:31		06:18 (B087)	05:04		05:22		06:07		07:36 (WEA01)	06:56		08:22 (WEA02)	07:46			07:40		08:41 (B083)	08:22		09:22 (B253)
	16:42	14	09:47 (B253)	17:36	48	09:13 (WEA03)	18:26	37	08:07 (WEA02)	20:19	61	08:20 (WEA01)	21:08	31	06:54 (B152)	21:42		21:35		20:47	46	08:22 (WEA01)	19:39	25	08:47 (WEA02)	18:31			16:34	21	09:02 (B083)	16:14	12	09:34 (B253)
17	08:22		09:10 (B083)	07:36		08:23 (B178)	06:36		07:06 (B124)	06:26		07:18 (B153)	05:30		06:18 (B087)	05:04		05:23		06:08		07:36 (WEA01)	06:58		07:52 (B124)	07:48			07:42		08:40 (B083)	08:23		09:23 (B253)
	16:43	18	09:46 (B253)	17:38	46	09:12 (WEA03)	18:28	47	08:07 (WEA02)	20:20	62	08:20 (WEA01)	21:09	29	06:53 (B152)	21:43		21:34		20:45	47	08:23 (WEA01)	19:37	37	08:48 (WEA02)	18:29			16:32	21	09:01 (B083)	16:13	11	09:34 (B253)
18	08:21		09:09 (B083)	07:35		08:24 (B178)	06:34		07:04 (B124)	06:24		07:18 (B153)	05:28		06:19 (B087)	05:04		05:24		06:10		07:31 (B153)	07:00		07:50 (B124)	07:49			07:44		08:41 (B083)	08:24		09:23 (B253)
	16:45	18	09:45 (B253)	17:40	44	09:12 (WEA03)	18:30	52	08:08 (WEA02)	20:22	62	08:20 (WEA01)	21:11	27	06:53 (B152)	21:43		21:33		20:43	52	08:23 (WEA01)	19:34	44	08:49 (WEA02)	18:27			16:31	20	09:01 (B083)	16:13	12	09:35 (B253)
19	08:20		09:09 (B083)	07:33		08:26 (B178)	06:32		07:02 (B124)	06:22		07:18 (B153)	05:27		06:21 (B087)	05:04		05:25		06:11		07:28 (B153)	07:01		07:48 (B124)	07:51		09:20 (WEA03)	07:45		08:41 (B083)	08:25		09:24 (B253)
	16:46	14	09:23 (B083)	17:42	39	09:11 (WEA03)	18:31	56	08:07 (WEA02)	20:24	62	08:20 (WEA01)	21:12	23	06:53 (B152)	21:44		21:32		20:41	56	08:24 (WEA01)	19:32	49	08:49 (WEA02)	18:24	13	09:33 (WEA03)	16:30	21	09:02 (B083)	16:14	11	09:35 (B253)
20	08:19		09:08 (B083)	07:31		08:28 (B178)	06:29		07:01 (B124)	06:20		07:17 (B153)	05:26		06:36 (B152)	05:04		05:27	06:51 (B152)	06:13		07:25 (B153)	07:03		07:47 (B124)	07:53		09:18 (WEA03)	07:47		08:42 (B083)	08:25		09:24 (B253)
	16:48	16	09:24 (B083)	17:44	32	09:10 (WEA03)	18:33	57	08:07 (WEA02)	20:26	63	08:20 (WEA01)	21:14	16	06:52 (B152)	21:44		21:31	7 06:58 (B152)	20:39		08:23 (WEA01)	19:30	52	08:50 (WEA02)	18:22	18	09:36 (WEA03)	16:29	20	09:02 (B083)	16:14	11	09:35 (B253)
21	08:18		09:08 (B083)	07:29		08:44 (WEA03)	06:27		07:01 (B124)	06:18		07:18 (B153)	05:24		06:36 (B152)	05:04		05:28	06:49 (B152)	06:15		07:24 (B153)	07:04		07:47 (B124)	07:54		09:16 (WEA03)	07:49		08:43 (B083)	08:26		09:25 (B253)
	16:50	17	09:25 (B083)	17:46	25	09:09 (WEA03)	18:35	57	08:07 (WEA02)	20:27	61	08:19 (WEA01)	21:15	16	06:52 (B152)	21:44		21:30	11 07:00 (B152)	20:37	60	08:24 (WEA01)	19:27	54	08:51 (WEA02)	18:20	22	09:38 (WEA03)	16:27	19	09:02 (B083)	16:14	11	09:36 (B253)
22	08:17		09:08 (B083)	07:27		08:45 (WEA03)	06:25		07:00 (B124)	06:16		07:18 (B153)	05:23		06:37 (B152)	05:04		05:29	06:48 (B152)	06:16		07:23 (B153)	07:06		07:45 (B124)	07:56		09:14 (WEA03)	07:50		08:44 (B083)	08:27		09:26 (B253)
	16:51	18	09:26 (B083)	17:47	23	09:08 (WEA03)	18:37	56	08:05 (WEA02)	20:29	61	08:19 (WEA01)	21:17	14	06:51 (B152)	21:45		21:28	13 07:01 (B152)	20:35	61	08:24 (WEA01)	19:25	57	08:51 (WEA02)	18:18	25	09:39 (WEA03)	16:26	18	09:02 (B083)	16:15	11	09:37 (B253)
23	08:16		09:07 (B083)	07:24		08:47 (WEA03)	06:23		07:00 (B124)	06:14		07:18 (B153)	05:22		06:38 (B152)	05:05		05:30	06:47 (B152)	06:18		07:22 (B153)	07:08		07:45 (B124)	07:58		09:00 (B178)	07:52		08:44 (B083)	08:27		09:26 (B253)
	16:53	20	09:27 (B083)	17:49	19	09:06 (WEA03)	18:38	56	08:05 (WEA02)	20:31	60	08:18 (WEA01)	21:18	13	06:51 (B152)	21:45		21:27	14 07:01 (B152)	20:33	62	08:24 (WEA01)	19:23	58	08:51 (WEA02)	18:16	29	09:40 (WEA03)	16:25	16	09:00 (B083)	16:15	11	09:37 (B253)
24	08:15		09:07 (B083)	07:22		08:48 (WEA03)	06:20		07:00 (B124)	06:11		07:19 (B153)	05:20		06:39 (B152)	05:05		05:32	06:46 (B152)	06:20		07:21 (B153)	07:09		07:45 (B124)	08:00		08:56 (B178)	07:54		08:45 (B083)	08:28		09:26 (B253)
	16:55	20	09:27 (B083)	17:51	14	09:02 (WEA03)	18:40	54	08:04 (WEA02)	20:32	59	08:18 (WEA01)	21:20	11	06:50 (B152)	21:45		21:26	16 07:02 (B152)	20:31	62	08:23 (WEA01)	19:20	56	08:50 (WEA02)	18:14	38	09:40 (WEA03)	16:24	15	09:00 (B083)	16:16	11	09:37 (B253)
25	08:14		09:08 (B083)	07:20		08:54 (WEA03)	06:18		07:01 (B124)	06:09		07:20 (B153)	05:19		06:41 (B152)	05:05		05:33	06:47 (B152)	06:21		07:21 (B153)	07:11		07:45 (B124)	08:01		08:54 (B178)	07:55		08:47 (B083)	08:28		09:27 (B253)
	16:56	20	09:28 (B083)	17:53	2	08:56 (WEA03)	18:42	51	08:03 (WEA02)	20:34	57	08:17 (WEA01)	21:21	7	06:48 (B152)	21:45		21:25	16 07:03 (B152)	20:28	63	08:24 (WEA01)	19:18	56	08:50 (WEA02)	18:12	42	09:41 (WEA03)	16:23	17	09:22 (B253)	16:16	11	09:38 (B253)
26	08:13		09:07 (B083)	07:18			07:16		08:01 (B124)	06:07		07:23 (B153)	05:18			05:05		05:35	06:31 (B087)	06:23		07:21 (B153)	07:13		07:46 (B124)	08:03		08:53 (B178)	07:57		08:48 (B083)	08:28		09:27 (B253)
	16:58	21	09:28 (B083)	17:55			19:43	47	09:01 (WEA02)	20:36	53	08:16 (WEA01)	21:22			21:45		21:23	22 07:03 (B152)	20:26	62	08:23 (WEA01)	19:16	54	08:50 (WEA02)	18:10	46	09:42 (WEA03)	16:22	18	09:24 (B253)	16:17	11	09:38 (B253)
27	08:11		09:08 (B083)	07:16			07:13		08:02 (B124)	06:05		07:28 (B153)	05:17			05:06		05:36	06:29 (B087)	06:24		07:21 (B153)	07:14		07:46 (B124)	08:05		08:53 (B178)	07:58		08:50 (B083)	08:29		09:27 (B253)
	17:00	21	09:29 (B083)	17:56			19:45	42	09:00 (WEA02)	20:37	47	08:15 (WEA01)	21:24			21:45		21:22	27 07:03 (B152)	20:24	62	08:23 (WEA01)	19:14	52	08:49 (WEA02)	18:08	47	09:42 (WEA03)	16:21	17	09:25 (B253)	16:18	12	09:39 (B253)
28	08:10		09:08 (B083)	07:14			07:11		08:05 (B124)	06:03		07:28 (WEA01)	05:16			05:06		05:37	06:29 (B087)	06:26		07:21 (B153)	07:16		07:48 (B124)	08:07		08:52 (B178)	08:00		09:15 (B253)	08:29		09:28 (B253)
	17:02	21	09:29 (B083)	17:58			19:47	34	08:59 (WEA02)	20:39	46	08:14 (WEA01)	21:25			21:45		21:20	29 07:04 (B152)	20:22	61	08:22 (WEA01)	19:11	47	08:49 (WEA02)	18:06	48	09:42 (WEA03)	16:20	12	09:27 (B253)	16:18	11	09:39 (B253)
29	08:09		09:09 (B083)				07:09		08:32 (WEA02)	06:01		07:29 (WEA01)	05:15			05:07		05:39	06:28 (B087)	06:28		07:21 (B153)	07:17		08:11 (WEA02)	07:08		07:52 (B178)	08:02		09:15 (B253)	08:29		09:28 (B253)
	17:03	20	09:29 (B083)				19:48	24	08:56 (WEA02)	20:41	44	08:13 (WEA01)	21:26			21:45		21:19	31 07:04 (B152)	20:20	61	08:22 (WEA01)	19:09	37	08:48 (WEA02)	17:04	49	08:43 (WEA03)	16:19	13	09:28 (B253)	16:19	12	09:40 (B253)
30	08:07		09:09 (B083)				07:07		08:34 (WEA02)	05:59		07:30 (WEA01)	05:14			05:07		05:40	06:27 (B087)	06:29		07:22 (B153)	07:19		08:12 (WEA02)	07:10		07:53 (B178)	08:03		09:15 (B253)	08:29		09:28 (B253)
	17:05	20	09:29 (B083)				19:50	20	08:54 (WEA02)	20:42	43	08:13 (WEA01)	21:27			21:45		21:17	31 07:03 (B152)	20:18	59	08:21 (WEA01)	19:07	35	08:47 (WEA02)	17:02	48	08:43 (WEA03)	16:18	13	09:28 (B253)	16:20	12	09:40 (B253)
31	08:06		09:09 (B083)				07:04		08:38 (WEA02)				05:13					05:42	06:27 (B087)	06:31		07:23 (B153)				07:12		07:53 (B178)				08:29		09:28 (B253)
	17:07	19	09:28 (B083)				19:52	12	08:50 (WEA02)				21:28					21:16	34 07:04 (B152)	20:15	58	08:21 (WEA01)				17:00	48	08:43 (WEA03)				16:21	13	09:41 (B253)
Sonnenscheinstunden	259			277			366			414			483			497		501		454			382			333			268			245		
astr.max.mögl.Beschattung		502			816			1095			1470			788					251			1551			1235			833			684			392	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43					0.39			0.40			0.32			0.29			0.23			0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95					0.95			0.95			0.95			0.95			0.95			0.95	
Reduktion Windrichtung		0.55			0.60			0.67			0.72			0.73					0.74			0.73			0.69			0.63			0.57			0.54	
Gesamte Reduktion		0.10			0.18			0.18			0.25			0.30					0.27			0.28			0.21			0.17			0.12			0.09	
Met.wahrsch.Beschattung		49			150			197			368			235					68			429			259			143			84			34	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO049 - Im Kirchenfelde 32, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar				Februar				März				April				Mai				Juni			
1 | 08:29		09:34 (B253)	08:04					08:51 (WEA03)	07:12			08:06 (B013)	07:02			07:41 (B223)	05:57			06:41 (B086)	05:12		
| 16:22	14	09:48 (B253)	17:09	33				09:29 (B083)	18:00			08:22 (B013)	19:54	48		08:33 (WEA01)	20:44	11		06:52 (B086)	21:30		
2 | 08:29		09:35 (B253)	08:03					08:50 (WEA03)	07:10			08:06 (B013)	07:00			07:39 (B223)	05:56			06:40 (B086)	05:11		
| 16:23	14	09:49 (B253)	17:11	26				09:16 (WEA03)	18:02	16		08:22 (B013)	19:55	55		08:34 (WEA01)	20:46	19		06:59 (B152)	21:31		
3 | 08:29		09:35 (B253)	08:01					08:49 (WEA03)	07:08			07:58 (WEA02)	06:57			07:37 (B223)	05:54			06:26 (B087)	05:10		
| 16:24	15	09:50 (B253)	17:12	27				09:16 (WEA03)	18:04	24		08:22 (B013)	19:57	58		08:35 (WEA01)	20:47	30		07:01 (B152)	21:32		
4 | 08:29		09:36 (B253)	08:00					08:49 (WEA03)	07:05			07:53 (WEA02)	06:55			07:37 (B223)	05:52			06:24 (B087)	05:10		
| 16:25	14	09:50 (B253)	17:14	29				09:18 (WEA03)	18:05	28		08:21 (B013)	19:59	59		08:36 (WEA01)	20:49	34		07:01 (B152)	21:33		
5 | 08:29		09:36 (B253)	07:58					08:48 (WEA03)	07:03			07:51 (WEA02)	06:53			07:35 (B223)	05:50			06:24 (B087)	05:09		
| 16:26	14	09:50 (B253)	17:16	30				09:18 (WEA03)	18:07	29		08:20 (B013)	20:00	60		08:35 (WEA01)	20:51	36		07:03 (B152)	21:34		
6 | 08:29		09:37 (B253)	07:56					08:48 (WEA03)	07:01			07:48 (WEA02)	06:51			07:35 (B223)	05:48			06:23 (B087)	05:08		
| 16:28	14	09:51 (B253)	17:18	31				09:19 (WEA03)	18:09	30		08:18 (B013)	20:02	61		08:36 (WEA01)	20:52	38		07:03 (B152)	21:35		
7 | 08:28		09:37 (B253)	07:55					08:31 (B178)	06:59			07:47 (WEA02)	06:48			07:35 (B223)	05:46			06:22 (B087)	05:08		
| 16:29	14	09:51 (B253)	17:20	41				09:19 (WEA03)	18:11	28		08:15 (WEA02)	20:04	61		08:36 (WEA01)	20:54	39		07:03 (B152)	21:36		
8 | 08:28		09:38 (B253)	07:53					08:31 (B178)	06:57			07:45 (WEA02)	06:46			07:33 (B223)	05:45			06:22 (B087)	05:07		
| 16:30	13	09:51 (B253)	17:22	43				09:20 (WEA03)	18:12	32		08:17 (WEA02)	20:05	62		08:37 (WEA01)	20:55	39		07:04 (B152)	21:37		
9 | 08:28		09:38 (B253)	07:51					08:30 (B178)	06:54			07:43 (WEA02)	06:44			07:34 (B153)	05:43			06:22 (B087)	05:06		
| 16:31	13	09:51 (B253)	17:23	45				09:20 (WEA03)	18:14	34		08:17 (WEA02)	20:07	63		08:37 (WEA01)	20:57	39		07:04 (B152)	21:38		
10 | 08:27		09:39 (B253)	07:49					08:29 (B178)	06:52			07:43 (WEA02)	06:42			07:31 (B153)	05:41			06:23 (B087)	05:06		
| 16:33	12	09:51 (B253)	17:25	47				09:20 (WEA03)	18:16	34		08:17 (WEA02)	20:09	65		08:36 (WEA01)	20:59	36		07:04 (B152)	21:38		
11 | 08:27		09:41 (B253)	07:48					08:29 (B178)	06:50			07:42 (WEA02)	06:39			07:30 (B153)	05:39			06:22 (B087)	05:06		
| 16:34	10	09:51 (B253)	17:27	47				09:20 (WEA03)	18:18	36		08:18 (WEA02)	20:10	66		08:36 (WEA01)	21:00	34		07:03 (B152)	21:39	2	06:10 (B014)
12 | 08:26		09:15 (B083)	07:46					08:29 (B178)	06:48			07:42 (WEA02)	06:37			07:29 (B153)	05:38			06:22 (B087)	05:05		
| 16:36	17	09:51 (B253)	17:29	47				09:20 (WEA03)	18:19	37		08:19 (WEA02)	20:12	67		08:36 (WEA01)	21:02	31		07:03 (B152)	21:40	7	06:13 (B014)
13 | 08:25		09:14 (B083)	07:44					08:29 (B178)	06:45			07:17 (B124)	06:35			07:29 (B153)	05:36			06:24 (B087)	05:05		
| 16:37	17	09:50 (B253)	17:31	46				09:19 (WEA03)	18:21	42		08:18 (WEA02)	20:14	66		08:35 (WEA01)	21:03	28		07:03 (B152)	21:41	10	06:15 (B014)
14 | 08:25		09:13 (B083)	07:42					08:29 (B178)	06:43			07:13 (B124)	06:33			07:29 (B153)	05:35			06:25 (B087)	05:05		
| 16:38	15	09:48 (B253)	17:33	44				09:19 (WEA03)	18:23	50		08:18 (WEA02)	20:15	66		08:35 (WEA01)	21:05	24		07:02 (B152)	21:41	11	06:16 (B014)
15 | 08:24		09:13 (B083)	07:40					08:30 (B178)	06:41			07:12 (B124)	06:31			07:29 (B153)	05:33			06:26 (B087)	05:04		
| 16:40	14	09:27 (B083)	17:35	42				09:18 (WEA03)	18:25	52		08:18 (WEA02)	20:17	66		08:35 (WEA01)	21:06	20		07:01 (B152)	21:42	13	06:17 (B014)
16 | 08:23		09:12 (B083)	07:38					08:31 (B178)	06:39			07:10 (B124)	06:28			07:28 (B153)	05:31			06:49 (B152)	05:04		
| 16:42	16	09:28 (B083)	17:36	37				09:17 (WEA03)	18:26	55		08:17 (WEA02)	20:19	65		08:33 (WEA01)	21:08	11		07:00 (B152)	21:42	14	06:18 (B014)
17 | 08:22		09:12 (B083)	07:36					08:33 (B178)	06:36			07:09 (B124)	06:26			07:28 (B153)	05:30			06:50 (B152)	05:04		
| 16:43	17	09:29 (B083)	17:38	31				09:16 (WEA03)	18:28	55		08:17 (WEA02)	20:20	64		08:32 (WEA01)	21:09	8		06:58 (B152)	21:43	15	06:19 (B014)
18 | 08:21		09:12 (B083)	07:35					08:52 (WEA03)	06:34			07:09 (B124)	06:24			07:29 (B153)	05:28				05:04		06:20 (B014)
| 16:45	18	09:30 (B083)	17:40	23				09:15 (WEA03)	18:30	55		08:16 (WEA02)	20:22	63		08:32 (WEA01)	21:11				21:43	15	06:19 (B014)
19 | 08:20		09:12 (B083)	07:33					08:54 (WEA03)	06:32			07:07 (B124)	06:22			07:30 (B153)	05:27				05:04		06:04 (B014)
| 16:46	19	09:31 (B083)	17:42	19				09:13 (WEA03)	18:31	56		08:15 (WEA02)	20:24	61		08:31 (WEA01)	21:12				21:44	16	06:20 (B014)
20 | 08:19		09:12 (B083)	07:31					08:56 (WEA03)	06:29			07:08 (B124)	06:20			07:31 (B153)	05:26				05:04		06:04 (B014)
| 16:48	19	09:31 (B083)	17:44	15				09:11 (WEA03)	18:33	53		08:14 (WEA02)	20:26	57		08:30 (WEA01)	21:14				21:44	16	06:20 (B014)
21 | 08:18		09:12 (B083)	07:29					09:00 (WEA03)	06:27			07:08 (B124)	06:18			07:34 (B153)	05:24				05:04		06:04 (B014)
| 16:50	20	09:32 (B083)	17:46	7				09:07 (WEA03)	18:35	50		08:13 (WEA02)	20:27	49		08:29 (WEA01)	21:15				21:44	16	06:20 (B014)
22 | 08:17		09:12 (B083)	07:27						06:25			07:08 (B124)	06:16			07:45 (WEA01)	05:23				05:04		06:04 (B014)
| 16:51	21	09:33 (B083)	17:47						18:37	46		08:11 (WEA02)	20:29	43		08:28 (WEA01)	21:17				21:45	16	06:20 (B014)
23 | 08:16		09:12 (B083)	07:24						06:23			07:09 (B124)	06:14			07:46 (WEA01)	05:22				05:05		06:04 (B014)
| 16:53	21	09:33 (B083)	17:49						18:38	41		08:09 (WEA02)	20:31	40		08:26 (WEA01)	21:18				21:45	16	06:20 (B014)
24 | 08:15		09:13 (B083)	07:22						06:20			07:11 (B124)	06:11			07:47 (WEA01)	05:20				05:05		06:05 (B014)
| 16:55	20	09:33 (B083)	17:51						18:40	34		08:08 (WEA02)	20:32	38		08:25 (WEA01)	21:20				21:45	16	06:21 (B014)
25 | 08:14		09:13 (B083)	07:20					08:14 (B013)	06:18			07:15 (B124)	06:09			07:48 (WEA01)	05:19				05:05		06:05 (B014)
| 16:56	21	09:34 (B083)	17:53	2				08:16 (B013)	18:42	21		08:05 (WEA02)	20:34	35		08:23 (WEA01)	21:21				21:45	16	06:21 (B014)
26 | 08:13		09:13 (B083)	07:18					08:10 (B013)	07:16			08:48 (WEA02)	06:07			07:49 (WEA01)	05:18				05:05		06:05 (B014)
| 16:58	20	09:33 (B083)	17:55	10				08:20 (B013)	19:43	13		09:01 (WEA02)	20:36	32		08:21 (WEA01)	21:22				21:45	15	06:20 (B014)
27 | 08:11		09:14 (B083)	07:16					08:09 (B013)	07:13			08:06 (WEA01)	06:05			07:50 (WEA01)	05:17				05:06		06:06 (B014)
| 17:00	19	09:33 (B083)	17:56	12				08:21 (B013)	19:45	18		08:24 (WEA01)	20:37	29		08:19 (WEA01)	21:24				21:45	15	06:21 (B014)
28 | 08:10		08:58 (WEA03)	07:14					08:08 (B013)	07:11			08:02 (WEA01)	06:03			07:52 (WEA01)	05:16				05:06		06:06 (B014)
| 17:02	27	09:33 (B083)	17:58	14				08:22 (B013)	19:47	25		08:27 (WEA01)	20:39	25		08:17 (WEA01)	21:25				21:45	14	06:20 (B014)
29 | 08:09		08:56 (WEA03)							07:09			07:59 (WEA01)	06:01			06:45 (B086)	05:15				05:07		06:07 (B014)
| 17:03	31	09:33 (B083)							19:48	30		08:29 (WEA01)	20:41	23		08:14 (WEA01)	21:26				21:45	13	06:20 (B014)
30 | 08:07		08:53 (WEA03)							07:07			07:57 (WEA01)	05:59			06:43 (B086)	05:14				05:07		06:08 (B014)
| 17:05	34	09:32 (B083)							19:50	34		08:31 (WEA01)	20:42	19		08:10 (WEA01)	21:27				21:45	11	06:19 (B014)
31 | 08:06		08:52 (WEA03)							07:04			07:55 (WEA01)					05:13						
| 17:07	34	09:30 (B083)							19:52	38		08:33 (WEA01)					21:28						
Sonnenscheinstunden	259			277				366				414				483				497			
astr.max.mögl.Beschattung	567			748				1112				1566				477				267			
Red.Sonnenscheinwahrsch.	0.19			0.32				0.28				0.36				0.43				0.34			
Reduktion Betriebsdauer	0.95			0.95				0.95				0.95				0.95				0.95			
Reduktion Windrichtung	0.55			0.59				0.67				0.71				0.73				0.74			
Gesamte Reduktion	0.10			0.18				0.18				0.25				0.30				0.24			
Met.wahrsch.Beschattung	56			137				201				387				142				64			

Juli				August				September				Oktober				November				Dezember			
| 05:08		06:09 (B014)	05:43			06:34 (B087)	06:32			07:28 (B153)	07:21			07:53 (B124)	07:14			07:58 (B178)	08:04			08:56 (B083)
| 21:45	10	06:19 (B014)	21:14	28		07:13 (B152)	20:13	67		08:35 (WEA01)	19:04	49		08:58 (WEA02)	16:58	48		08:50 (WEA03)	16:18	17		09:32 (B253)
| 05:09		06:10 (B014)	05:45			06:34 (B087)	06:34			07:29 (B153)	07:22			07:56 (B124)	07:16			07:59 (B178)	08:06			08:58 (B083)
| 21:44	7	06:17 (B014)	21:13	31		07:14 (B152)	20:11	66		08:35 (WEA01)	19:02	42		08:57 (WEA02)	16:57	48		08:50 (WEA03)	16:17	15		09:33 (B253)
| 05:09		06:13 (B014)	05:46			06:33 (B087)	06:36			07:29 (B153)	07:24			08:20 (WEA02)	07:17			07:58 (B178)	08:07			09:23 (B253)
| 21:44	2	06:15 (B014)	21:11	34		07:14 (B152)	20:09	65		08:34 (WEA01)	19:00	37		08:57 (WEA02)	16:55	46		08:49 (WEA03)	16:16	11		09:34 (B253)
| 05:10			05:48			06:32 (B087)	06:37			07:30 (B153)	07:26			08:20 (WEA02)	07:19			07:59 (B178)	08:09			09:22 (B253)
| 21:44			21:09	36		07:13 (B152)	20:06	64		08:34 (WEA01)	18:57	36		08:56 (WEA02)	16:53	45		08:49 (WEA03)	16:16	12		09:34 (B253)
| 05:11			05:49			06:32 (B087)	06:39			07:32 (B153)	07:27			08:20 (WEA02)	07:21			08:00 (B178)	08:10			09:23 (B253)
| 21:43			21:08	39		07:14 (B152)	20:04	62		08:34 (WEA01)	18:55	35		08:55 (WEA02)	16:51	42		08:49 (WEA03)	16:15	13		09:36 (B253)
| 05:12			05:51			06:32 (B087)	06:40			07:31 (B223)	07:29			08:20 (WEA02)	07:23			08:03 (B178)	08:11			09:23 (B253)
| 21:42			21:04	40		07:14 (B152)	20:00	61		08:32 (WEA01)	18:51	32		08:53 (WEA02)	16:48	30		08:48 (WEA03)	16:14	13		09:37 (B253)
| 05:13			05:54			06:32 (B087)	06:44			07:30 (B223)	07:32			08:23 (WEA02)	07:26			08:19 (WEA03)	08:14			09:24 (B253)
| 21:42			21:02	39		07:13 (B152)	19:57	61		08:31 (WEA01)	18:48	29		08:52 (WEA02)	16:46	29		08:48 (WEA03)	16:14	14		09:38 (B253)
| 05:14			05:56			06:33 (B087)	06:45			07:30 (B223)	07:34			08:23 (WEA02)	07:28			08:20 (WEA03)	08:15			09:24 (B253)
| 21:41			21:00	37		07:12 (B152)	19:55	60		08:30 (WEA01)	18:46	30		08:53 (B013)	16:44	27		08:47 (WEA03)	16:14	14		09:38 (B253)
| 05:15			05:57			06:33 (B087)	06:47			07:30 (B223)	07:36			08:25 (WEA02)	07:30			08:21 (WEA03)	08:16			09:24 (B253)
| 21:40			20:59	34		07:11 (B152)	19:53	59		08:29 (WEA01)	18:44	29		08:54 (B013)	16:43	26		08:47 (WEA03)	16:13	14		09:38 (B253)
| 05:16			05:59			06:35 (B087)	06:48			07:31 (B223)	07:37			08:27 (WEA02)	07:32			08:22 (WEA03)	08:17			09:25 (B253)
| 21:40			20:57	30		07:10 (B152)	19:51	57		08:28 (WEA01)	18:42	28		08:55 (B013)	16:41	30		08:58 (WEA03)	16:13	14		09:39 (B253)
| 05:17			06:00			06:38 (B087)	06:50			07:31 (B223)	07:39			08:31 (WEA02)	07:33			08:23 (WEA03)	08:18			09:25 (B253)
| 21:39			20:55	22		07:08 (B152)	19:48	54		08:26 (WEA01)	18:40	25		08:56 (B013)	16:40	33		09:01 (B083)	16:13	15		09:40 (B253)
| 05:18			06:02			06:40 (B086)	06:52			07:34 (B223)	07:41			08:39 (B013)	07:35			08:25 (WEA03)	08:19			09:26 (B253)
| 21:38			20:53	12		07:01 (B086)	19:46	46		08:25 (WEA01)	18:37	16		08:55 (B013)	16:38	33		09:03 (B083)	16:13	14		09:40 (B253)
| 05:19			06:04			06:50 (B086)	06:53			07:46 (WEA01)	07:42			08:40 (B013)	07:37			08:27 (WEA03)	08:20			09:26 (B253)
| 21:37			20:51	17		08:16 (WEA01)	19:44	36		08:22 (WEA01)	18:35	15		08:55 (B013)	16:37	32		09:04 (B083)	16:13	15		09:41 (B253)
| 05:20			06:05			06:52 (B086)	06:55			07:48 (WEA01)	07:44			08:40 (B013)	07:39			08:29 (WEA03)	08:21			09:27 (B253)
| 21:36			20:49	22		08:21 (WEA01)	19:41	33		08:21 (WEA01)	18:33	14		08:54 (B013)	16:35	28		09:05 (B083)	16:13	14		09:41 (B253)
| 05:22			06:07			08:00 (WEA01)	06:56			07:50 (WEA01)	07:46			08:41 (B013)	07:40			08:47 (B083)	08:22			09:26 (B253)
| 21:35			20:47	24		08:24 (WEA01)	19:39	29		08:19 (WEA01)	18:31	13		08:54 (B013)	16:34	19		09:06 (B083)	16:13	15		09:41 (B253)
| 05:23			06:08			07:58 (WEA01)	06:58			07:52 (WEA01)	07:48			08:42 (B013)	07:42			08:46 (B083)	08:23			09:27 (B253)
| 21:34			20:45	28		08:26 (WEA01)	19:37	23		08:15 (WEA01)	18:29	10		08:52 (B013)	16:32	20		09:06 (B083)	16:13	14		09:41 (B253)
| 05:24			06:10			07:56 (WEA01)	07:00			07:56 (WEA01)	07:49			08:44 (B013)	07:44			08:46 (B083)	08:24			09:28 (B253)
| 21:33			20:43	31		08:27 (WEA01)	19:34	15		08:11 (WEA01)	18:27	5		08:49 (B013)	16:31	20		09:06 (B083)	16:13	14		09:42 (B253)
| 05:25			06:11			07:55 (WEA01)	07:01			08:35 (WEA02)	07:51				07:45			08:46 (B083)	08:25			09:28 (B253)
| 21:32			20:41	34		08:29 (WEA01)	19:32	14		08:49 (WEA02)	18:24				16:30	21		09:07 (B083)	16:14	15		09:43 (B253)
| 05:27			06:13			07:53 (WEA01)	07:03			08:00 (B124)	07:53				07:47			08:47 (B083)	08:25			09:28 (B253)
| 21:31			20:39	37		08:30 (WEA01)	19:30	25		08:52 (WEA02)	18:22				16:29	20		09:07 (B083)	16:14	14		09:42 (B253)
| 05:28			06:15			07:52 (WEA01)	07:04			07:57 (B124)	07:54				07:49			08:47 (B083)	08:26			09:29 (B253)
| 21:30			20:37	40		08:32 (WEA01)	19:27	36		08:55 (WEA02)	18:20				16:27	21		09:08 (B083)	16:14	14		09:43 (B253)
| 05:29			06:16			07:50 (WEA01)	07:06			07:54 (B124)	07:56			09:32 (WEA03)	07:50			08:46 (B083)	08:27			09:30 (B253)
| 21:28			20:35	42		08:32 (WEA01)	19:25	42		08:55 (WEA02)	18:18	3		09:35 (WEA03)	16:26	20		09:08 (B083)	16:15	14		09:44 (B253)
| 05:30			06:18			07:50 (WEA01)	07:08			07:53 (B124)	07:58			09:27 (WEA03)	07:52			08:48 (B083)	08:27			09:30 (B253)
| 21:27			20:33	43		08:33 (WEA01)	19:23	48		08:57 (WEA02)	18:16	14		09:41 (WEA03)	16:25	19		09:07 (B083)	16:15	14		09:44 (B253)
| 05:32			06:20			07:36 (B153)	07:09			07:52 (B124)	08:00			09:24 (WEA03)	07:54			08:48 (B083)	08:28			09:30 (B253)
| 21:26			20:31	54		08:33 (WEA01)	19:20	51		08:57 (WEA02)	18:14	18		09:42 (WEA03)	16:24	20		09:08 (B083)	16:16	14		09:44 (B253)
| 05:33			06:21			07:34 (B153)	07:11			07:51 (B124)	08:01			09:22 (WEA03)	07:55			08:49 (B083)	08:28			09:31 (B253)
| 21:25			20:28	59		08:34 (WEA01)	19:18	53		08:58 (WEA02)	18:12	22		09:44 (WEA03)	16:23	19		09:08 (B083)	16:16	14		09:45 (B253)
| 05:35			06:23			07:32 (B153)	07:13			07:51 (B124)	08:03			09:04 (B178)	07:57			08:50 (B083)	08:28			09:31 (B253)
| 21:23			20:26	62		08:34 (WEA01)	19:16	54		08:58 (WEA02)	18:10	29		09:46 (WEA03)	16:22	18		09:08 (B083)	16:17	15		09:46 (B253)
| 05:36			06:24			07:31 (B153)	07:14			07:50 (B124)	08:05			09:01 (B178)	07:58			08:51 (B083)	08:29			09:32 (B253)
| 21:22			20:24	64		08:35 (WEA01)	19:14	55		08:58 (WEA02)	18:08	37		09:47 (WEA03)	16:21	16		09:07 (B083)	16:18	14		09:46 (B253)
| 05:37		07:01 (B152)	06:26			07:30 (B153)	07:16			07:51 (B124)	08:07			09:00 (B178)	08:00			08:52 (B083)	08:29			09:47 (B253)
| 21:20	8	07:09 (B152)	20:22	65		08:35 (WEA01)	19:11	55		08:58 (WEA02)	18:06	41		09:48 (WEA03)	16:20	15		09:07 (B083)	16:18	14		09:46 (B253)
| 06:39		06:59 (B152)	06:28			07:30 (B153)	07:17			07:51 (B124)	07:08			07:59 (B178)	08:02			08:53 (B083)	08:29			09:32 (B253)
| 21:19	11	07:10 (B152)	20:20	65		08:35 (WEA01)	19:09	54		08:58 (WEA02)	17:04	44		08:48 (WEA03)	16:19	14		09:07 (B083)	16:19	15		09:47 (B253)
| 05:40		06:37 (B087)	06:29			07:29 (B153)	07:19			07:52 (B124)	07:10			07:58 (B178)	08:03			08:54 (B083)	08:29			09:34 (B253)
| 21:17	18	07:11 (B152)	20:18	66		08:35 (WEA01)	19:07	52		08:58 (WEA02)	17:02	46		08:49 (WEA03)	16:18	18		09:30 (B253)	16:20	14		09:48 (B253)
| 05:42		06:35 (B087)	06:31			07:29 (B153)					07:12			07:58 (B178)					08:29			09:33 (B253)
| 21:16	24	07:12 (B152)	20:15	66		08:35 (WEA01)					17:00	47		08:49 (WEA03)					16:14	15		09:48 (B253)
501			454				382				333				268				245			
80			1240				1459				780				813				437			
0.39			0.40				0.32				0.29				0.23				0.17			
0.95			0.95				0.95				0.95				0.95				0.95			
0.73			0.72				0.70				0.63				0.57				0.54			
0.27			0.27				0.21				0.17				0.12				0.09			
22			341				309				135				100				38			

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)	

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO050 - Im Kirchenfelde 34, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			09:36 (B253)	08:04		08:52 (WEA03)	07:12		08:09 (B013)	07:02		07:41 (B223)	05:57		06:32 (B087)	05:12			05:08		06:08 (B014)	05:43		06:38 (B087)	06:32			07:31 (B153)	07:21		07:54 (B124)	07:14		08:00 (B178)	08:04		08:56 (B083)
	16:22	14		09:50 (B253)	17:09	26	09:18 (WEA03)	18:00	16	08:25 (B013)	19:54	58	08:40 (WEA01)	20:44	25	07:06 (B152)	21:30			21:45	21	06:29 (B014)	21:14	19	07:14 (B152)	20:13	68	08:39 (WEA01)	19:04	52	09:01 (WEA02)	16:58	47	08:51 (WEA03)	16:18	15	09:31 (B253)
2	08:29			09:36 (B253)	08:03		08:51 (WEA03)	07:10		07:58 (WEA02)	07:00		07:40 (B223)	05:56		06:28 (B087)	05:11			05:09		06:08 (B014)	05:45		06:37 (B087)	06:34			07:32 (B153)	07:22		07:55 (B124)	07:16		08:00 (B178)	08:06		08:57 (B083)
	16:23	14		09:50 (B253)	17:11	28	09:19 (WEA03)	18:02	26	08:24 (B013)	19:55	61	08:41 (WEA01)	20:46	34	07:07 (B152)	21:31			21:44	20	06:28 (B014)	21:13	25	07:16 (B152)	20:11	67	08:39 (WEA01)	19:02	48	09:00 (WEA02)	16:57	48	08:52 (WEA03)	16:17	17	09:33 (B253)
3	08:29			09:37 (B253)	08:01		08:51 (WEA03)	07:08		07:56 (WEA02)	06:57		07:39 (B223)	05:54		06:27 (B087)	05:10			05:09		06:09 (B014)	05:46		06:36 (B087)	06:36			07:31 (B153)	07:24		07:57 (B124)	07:17		08:00 (B178)	08:07		08:59 (B083)
	16:24	14		09:51 (B253)	17:12	28	09:19 (WEA03)	18:04	29	08:24 (B013)	19:57	63	08:42 (WEA01)	20:47	36	07:07 (B152)	21:32			21:44	19	06:28 (B014)	21:11	27	07:16 (B152)	20:09	68	08:39 (WEA01)	19:00	43	09:00 (WEA02)	16:55	47	08:51 (WEA03)	16:16	17	09:35 (B253)
4	08:29			09:38 (B253)	08:00		08:51 (WEA03)	07:05		07:53 (WEA02)	06:55		07:39 (B223)	05:52		06:25 (B087)	05:10			05:10		06:10 (B014)	05:48		06:35 (B087)	06:37			07:32 (B153)	07:26		08:00 (B178)	08:09		08:00 (B178)	08:08		09:02 (B083)
	16:25	14		09:52 (B253)	17:14	30	09:21 (WEA03)	18:05	30	08:23 (B013)	19:59	63	08:42 (WEA01)	20:49	39	07:07 (B152)	21:33			21:44	18	06:28 (B014)	21:09	30	07:17 (B152)	20:06	67	08:39 (WEA01)	18:57	37	09:00 (WEA02)	16:53	46	08:51 (WEA03)	16:16	12	09:35 (B253)
5	08:29			09:38 (B253)	07:58		08:50 (WEA03)	07:03		07:51 (WEA02)	06:53		07:38 (B223)	05:50		06:25 (B087)	05:09		06:11 (B014)	05:11		06:11 (B014)	05:49		06:35 (B087)	06:39			07:33 (B153)	07:27		08:22 (WEA02)	07:21		08:01 (B178)	08:10		09:25 (B253)
	16:26	13		09:51 (B253)	17:16	31	09:21 (WEA03)	18:07	30	08:21 (B013)	20:00	64	08:42 (WEA01)	20:51	41	07:08 (B152)	21:34	3	06:14 (B014)	21:43	17	06:28 (B014)	21:08	35	07:17 (B152)	20:04	66	08:39 (WEA01)	18:55	37	08:59 (WEA02)	16:51	44	08:51 (WEA03)	16:15	12	09:37 (B253)
6	08:29			09:39 (B253)	07:56		08:33 (B178)	07:01		07:49 (WEA02)	06:51		07:38 (B223)	05:48		06:25 (B087)	05:08		06:08 (B014)	05:12		06:12 (B014)	05:51		06:34 (B087)	06:40			07:33 (B153)	07:29		08:23 (WEA02)	07:23		08:03 (B178)	08:11		09:25 (B253)
	16:28	13		09:52 (B253)	17:18	40	09:21 (WEA03)	18:09	30	08:19 (WEA02)	20:02	64	08:42 (WEA01)	20:52	41	07:08 (B152)	21:35	9	06:17 (B014)	21:43	14	06:26 (B014)	21:06	38	07:17 (B152)	20:02	65	08:38 (WEA01)	18:53	35	08:58 (WEA02)	16:49	40	08:51 (WEA03)	16:15	12	09:37 (B253)
7	08:28			09:39 (B253)	07:55		08:32 (B178)	06:59		07:48 (WEA02)	06:48		07:38 (B223)	05:46		06:24 (B087)	05:08		06:07 (B014)	05:12		06:13 (B014)	05:52		06:34 (B087)	06:42			07:34 (B223)	07:31		08:23 (WEA02)	07:24		08:05 (B178)	08:13		09:26 (B253)
	16:29	13		09:52 (B253)	17:20	42	09:21 (WEA03)	18:11	33	08:21 (WEA02)	20:04	64	08:42 (WEA01)	20:54	40	07:08 (B152)	21:36	12	06:19 (B014)	21:42	12	06:25 (B014)	21:04	41	07:18 (B152)	20:00	64	08:38 (WEA01)	18:51	34	08:57 (WEA02)	16:48	36	08:51 (WEA03)	16:14	12	09:38 (B253)
8	08:28			09:41 (B253)	07:53		08:32 (B178)	06:57		07:47 (WEA02)	06:46		07:36 (B153)	05:45		06:25 (B087)	05:07		06:06 (B014)	05:13		06:15 (B014)	05:54		06:34 (B087)	06:44			07:33 (B223)	07:32		08:24 (WEA02)	07:26		08:21 (WEA03)	08:14		09:26 (B253)
	16:30	11		09:52 (B253)	17:22	45	09:22 (WEA03)	18:12	34	08:21 (WEA02)	20:05	66	08:42 (WEA01)	20:55	39	07:08 (B152)	21:37	14	06:20 (B014)	21:42	9	06:24 (B014)	21:02	40	07:17 (B152)	19:57	64	08:37 (WEA01)	18:48	33	08:57 (WEA02)	16:46	30	08:51 (WEA03)	16:14	13	09:39 (B253)
9	08:28			09:41 (B253)	07:51		08:31 (B178)	06:54		07:46 (WEA02)	06:44		07:35 (B153)	05:43		06:24 (B087)	05:06		06:05 (B014)	05:14		06:18 (B014)	05:56		06:35 (B087)	06:45			07:33 (B223)	07:34		08:24 (WEA02)	07:28		08:21 (WEA03)	08:15		09:26 (B253)
	16:31	11		09:52 (B253)	17:23	47	09:22 (WEA03)	18:14	35	08:21 (WEA02)	20:07	67	08:42 (WEA01)	20:57	36	07:07 (B152)	21:38	17	06:22 (B014)	21:41	3	06:21 (B014)	21:00	40	07:18 (B152)	19:55	64	08:37 (WEA01)	18:46	31	08:55 (WEA02)	16:44	29	08:50 (WEA03)	16:14	13	09:39 (B253)
10	08:27			09:17 (B083)	07:49		08:31 (B178)	06:52		07:45 (WEA02)	06:42		07:33 (B153)	05:41		06:25 (B087)	05:06		06:05 (B014)	05:15			05:57		06:34 (B087)	06:47			07:32 (B223)	07:36		08:25 (WEA02)	07:30		08:22 (WEA03)	08:16		09:26 (B253)
	16:33	14		09:51 (B253)	17:25	47	09:22 (WEA03)	18:16	37	08:22 (WEA02)	20:09	68	08:41 (WEA01)	20:59	30	07:07 (B152)	21:38	18	06:23 (B014)	21:40			20:59	40	07:17 (B152)	19:53	63	08:35 (WEA01)	18:44	30	08:55 (B013)	16:43	28	08:50 (WEA03)	16:13	14	09:40 (B253)
11	08:27			09:16 (B083)	07:48		08:31 (B178)	06:50		07:45 (WEA02)	06:39		07:33 (B153)	05:39		06:26 (B087)	05:06		06:04 (B014)	05:16			05:59		06:36 (B087)	06:48			07:33 (B223)	07:37		08:27 (WEA02)	07:32		08:23 (WEA03)	08:17		09:27 (B253)
	16:34	17		09:52 (B253)	17:27	47	09:22 (WEA03)	18:18	37	08:22 (WEA02)	20:10	67	08:40 (WEA01)	21:00	27	07:06 (B152)	21:39	19	06:23 (B014)	21:40			20:57	38	07:17 (B152)	19:51	62	08:35 (WEA01)	18:42	30	08:57 (B013)	16:41	26	08:49 (WEA03)	16:13	14	09:41 (B253)
12	08:26			09:15 (B083)	07:46		08:31 (B178)	06:48		07:19 (B124)	06:37		07:33 (B153)	05:38		06:26 (B087)	05:05		06:04 (B014)	05:17			06:00		06:36 (B087)	06:50			07:32 (B223)	07:39		08:29 (WEA02)	07:33		08:24 (WEA03)	08:18		09:27 (B253)
	16:36	17		09:51 (B253)	17:29	45	09:21 (WEA03)	18:19	44	08:22 (WEA02)	20:12	67	08:40 (WEA01)	21:02	25	07:05 (B152)	21:40	20	06:24 (B014)	21:39			20:55	35	07:15 (B152)	19:48	61	08:33 (WEA01)	18:40	29	08:58 (B013)	16:40	31	09:00 (B083)	16:13	14	09:41 (B253)
13	08:25			09:14 (B083)	07:44		08:31 (B178)	06:45		07:16 (B124)	06:35		07:32 (B153)	05:36		06:28 (B087)	05:05		06:04 (B014)	05:18			06:02		06:39 (B087)	06:52			07:34 (B223)	07:41		08:31 (WEA02)	07:35		08:25 (WEA03)	08:19		09:28 (B253)
	16:37	13		09:27 (B083)	17:31	44	09:21 (WEA03)	18:21	48	08:21 (WEA02)	20:14	67	08:39 (WEA01)	21:03	20	07:04 (B152)	21:41	21	06:25 (B014)	21:38			20:53	28	07:14 (B152)	19:46	57	08:33 (WEA01)	18:37	26	08:57 (B013)	16:38	34	09:03 (B083)	16:13	14	09:42 (B253)
14	08:25			09:14 (B083)	07:42		08:32 (B178)	06:43		07:14 (B124)	06:33		07:33 (B153)	05:35		06:32 (B087)	05:05		06:04 (B014)	05:19			06:04		06:51 (B086)	06:53			07:35 (B223)	07:42		08:36 (WEA02)	07:37		08:27 (WEA03)	08:20		09:28 (B253)
	16:38	14		09:28 (B083)	17:33	41	09:20 (WEA03)	18:23	52	08:21 (WEA02)	20:15	66	08:39 (WEA01)	21:05	10	07:03 (B152)	21:41	22	06:26 (B014)	21:37			20:51	21	07:12 (B152)	19:44	51	08:31 (WEA01)	18:35	20	08:58 (B013)	16:37	34	09:05 (B083)	16:13	14	09:42 (B253)
15	08:24			09:13 (B083)	07:40		08:33 (B178)	06:41		07:13 (B124)	06:31		07:33 (B153)	05:33		06:57 (B152)	05:04		06:04 (B014)	05:20			06:05		06:52 (B086)	06:55			07:49 (WEA01)	07:44		08:42 (B013)	07:39		08:28 (WEA03)	08:21		09:28 (B253)
	16:40	16		09:29 (B083)	17:35	36	09:19 (WEA03)	18:25	54	08:21 (WEA02)	20:17	65	08:38 (WEA01)	21:06	2	06:59 (B152)	21:42	22	06:26 (B014)	21:36			20:49	12	07:08 (B152)	19:41	41	08:30 (WEA01)	18:33	16	08:58 (B013)	16:35	34	09:06 (B083)	16:13	15	09:43 (B253)
16	08:23			09:13 (B083)	07:38		08:35 (B178)	06:39		07:11 (B124)	06:28		07:32 (B153)	05:31			05:04		06:04 (B014)	05:22			06:07		06:53 (B086)	06:56			07:50 (WEA01)	07:46		08:43 (B013)	07:40		08:31 (WEA03)	08:22		09:28 (B253)
	16:42	17		09:30 (B083)	17:36	30	09:18 (WEA03)	18:26	56	08:20 (WEA02)	20:19	64	08:36 (WEA01)	21:08			21:42	23	06:27 (B014)	21:35			20:47	8	07:01 (B086)	19:39	38	08:28 (WEA01)	18:31	14	08:57 (B013)	16:34	30	09:07 (B083)	16:13	14	09:42 (B253)
17	08:22			09:13 (B083)	07:36		08:55 (WEA03)	06:36		07:11 (B124)	06:26		07:33 (B153)	05:30			05:04		06:04 (B014)	05:23			06:08			06:58			07:51 (WEA01)	07:48		08:43 (B013)	07:42		08:33 (WEA03)	08:23		09:29 (B253)
	16:43	18		09:31 (B083)	17:38	22	09:17 (WEA03)	18:28	54	08:19 (WEA02)	20:20	60	08:35 (WEA01)	21:09			21:43	23	06:27 (B014)	21:34			20:45			19:37	35	08:26 (WEA01)	18:29	14	08:57 (B013)	16:32	26	09:07 (B083)	16:13	14	09:43 (B253)
18	08:21			09:13 (B083)	07:35		08:57 (WEA03)	06:34		07:11 (B124)	06:24		07:35 (B153)	05:28			05:04		06:04 (B014)	05:24			06:10		08:09 (WEA01)	07:00			07:53 (WEA01)	07:49		08:43 (B013)	07:44		08:48 (B083)	08:24		09:29 (B253)
	16:45	19		09:32 (B083)	17:40	18	09:15 (WEA03)	18:30	53	08:18 (WEA02)	20:22	56	08:34 (WEA01)	21:11			21:43	24	06:28 (B014)	21:33			20:43	15	08:24 (WEA01)	19:34	31	08:24 (WEA01)	18:27	12	08:55 (B013)	16:31	20	09:08 (B083)	16:13	15	09:44 (B253)
19	08:20			09:13 (B083)	07:33		08:59 (WEA03)	06:32		07:10 (B124)	06:22		07:38 (B153)	05:27			05:04		06:04 (B014)	05:25			06:11		08:06 (WEA01)	07:01			07:55 (WEA01)	07:51		08:45 (B013)	07:45		08:48 (B083)	08:25		09:30 (B253)
	16:46	20		09:33 (B083)	17:42	13	09:12 (WEA03)	18:31	51	08:16 (WEA02)	20:24	47	08:33 (WEA01)	21:12			21:44	24	06:28 (B014)	21:32			20:41	22	08:28 (WEA01)	19:32	26	08:21 (WEA01)	18:24	8	08:53 (B013)	16:30	20	09:08 (B083)	16:14	14	09:44 (B253)
20	08:19			09:13 (B083)	07:31		09:05 (WEA03)	06:29		07:11 (B124)	06:20		07:52 (WEA01)	05:26			05:04		06:04 (B014)	05:27			06:13		08:03 (WEA01)	07:03			07:58 (WEA01)	07:53			07:47		08:49 (B083)	08:25		09:30 (B253)
	16:48	20		09:33 (B083)	17:44	2	09:07 (WEA03)	18:33	47	08:15 (WEA02)	20:26	40	08:32 (WEA01)	21:14			21:44	24	06:28 (B014)	21:31			20:39	26	08:29 (WEA01)	19:30	23	08:47 (WEA02)	18:22			16:29	20	09:09 (B083)	16:14	14	09:44 (B253)
21	08:18			09:14 (B083)	07:29			06:27		07:11 (B124)	06:18		07:53 (WEA01)	05:24			05:04		06:04 (B014)	05:28			06:15		08:01 (WEA01)	07:04			08:03 (WEA01)	07:54			07:49		08:49 (B083)	08:26		09:31 (B253)
	16:50	20		09:34 (B083)	17:46			18:35	45	08:14 (WEA02)	20:27	37	08:30 (WEA01)	21:15			21:44	24	06:28 (B014)	21:30			20:37	31	08:32 (WEA01)	19:27	24	08:53 (WEA02)	18:20			16:27	20	09:09 (B083)	16:14	14	09:45 (B253)
22	08:17			09:14 (B083)	07:27			06:25		07:12 (B124)	06:16		07:54 (WEA01)	05:23			05:04		06:04 (B014)	05:29			06:16		07:59 (WEA01)	07:06			07:59 (B124)	07:56			07:50		08:49 (B083)	08:27		09:32 (B253)
	16:51	21		09:35 (B083)	17:47			18:37	37	08:11 (WEA02)	20:29	35	08:29 (WEA01)	21:17			21:45	24	06:28 (B014)	21:28			20:35	34	08:33 (WEA01)	19:25	31	08:55 (WEA02)	18:18			16:26	21	09:10 (B083)	16:15	14	09:46 (B253)
23	08:16			09:14 (B083)	07:24			06:23		07:14 (B124)	06:14		07:55 (WEA01)	05:22			05:05		06:04 (B014)	05:30			06:18		07:58 (WEA01)	07:08			07:57 (B124)	07:58			07:52		08:49 (B083)	08:27		09:32 (B253)
	16:53	20		09:34 (B083)	17:49			18:38	29	08:09 (WEA02)	20:31	32	08:27 (WEA01)	21:18			21:45	24	06:28 (B014)	21:27			20:33	36	08:34 (WEA01)	19:23	39	08:57 (WEA02)	18:16			16:25	20	09:09 (B083)	16:15	14	09:46 (B253)
24	08:15			09:14 (B083)	07:22		08:14 (B013)	06:20		07:15 (WEA01)	06:11		07:57 (WEA01)	05:20			05:05		06:05 (B014)	05:32			06:20		07:56 (WEA01)	07:09			07:55 (B124)	08:00		09:29 (WEA03)	07:54		08:50 (B083)	08:28		09:32 (B253)
	16:55	21		09:35 (B083)	17:51	7	08:21 (B013)	18:40	26	08:06 (WEA02)	20:32	28	08:25 (WEA01)	21:20			21:45	24	06:29 (B014)	21:26			20:31	39	08:35 (WEA01)	19:20	44	08:58 (WEA02)	18:14	12	09:41 (WEA03)	16:24	20	09:10 (B083)	16:16	14	09:46 (B253)
25	08:14			09:15 (B083)	07:20		08:12 (B013)	06:18		07:10 (WEA01)	06:09		07:59 (WEA01)	05:19			05:05		06:05 (B014)	05:33			06:21		07:55 (WEA01)	07:11			07:54 (B124)	08:01		09:27 (WEA03)	07:55		08:51 (B083)	08:28		09:33 (B253)
	16:56	20		09:35 (B083)	17:53	11	08:23 (B013)	18:42	22	07:32 (WEA01)	20:34	23	08:22 (WEA01)	21:21			21:45	24	06:29 (B014)	21:25			20:28	41	08:36 (WEA01)	19:18	48	08:59 (WEA02)	18:12	17	09:44 (WEA03)	16:23	19	09:10 (B083)	16:16	14	09:47 (B253)
26	08:13			09:15 (B083)	07:18		08:11 (B013)	07:16		08:06 (WEA01)	06:07		08:01 (WEA01)	05:18			05:05		06:05 (B014)	05:35			06:23		07:39 (B153)	07:13			07:54 (B124)	08:03		09:25 (WEA03)	07:57		08:52 (B083)	08:28		09:33 (B253)
	16:58	19		09:34 (B083)	17:55	13	08:24 (B013)	19:43	28	08:34 (WEA01)	20:36	18	08:19 (WEA01)	21:22			21:45	24	06:29 (B014)	21:23			20:26	53	08:37 (WEA01)	19:16	51	09:00 (WEA02)	18:10	21	09:46 (WEA03)	16:22	18	09:10 (B083)	16:17	14	09:47 (B253)
27	08:11			08:59 (WEA03)	07:16		08:10 (B013)	07:13		08:04 (WEA01)	06:05		08:06 (WEA01)	05:17			05:06		06:06 (B014)	05:36			06:24		07:37 (B153)	07:14			07:53 (B124)	08:05		09:05 (B178)	07:58		08:52 (B083)	08:29		09:33 (B253)
	17:00	30		09:35 (B083)	17:56	15	08:25 (B013)	19:45	32	08:36 (WEA01)	20:37	7	08:13 (WEA01)	21:24			21:45	23	06:29 (B014)	21:22			20:24	58	08:38 (WEA01)	19:14	53	09:00 (WEA02)	18:08	29	09:47 (WEA03)	16:21	17	09:09 (B083)	16:18	15	09:48 (B253)
28	08:10			08:57 (WEA03)	07:14		08:10 (B013)	07:11		08:02 (WEA01)	06:03		06:46 (B086)	05:16			05:06		06:06 (B014)	05:37			06:26		07:35 (B153)	07:16			07:53 (B124)	08:06		09:03 (B178)	08:00		08:53 (B083)	08:29		09:34 (B253)
	17:02	32		09:34 (B083)	17:58	15	08:25 (B013)	19:47	36	08:38 (WEA01)	20:39	7	06:53 (B086)	21:25			21:45	23	06:29 (B014)	21:20			20:22	63	08:38 (WEA01)	19:11	55	09:01 (WEA02)	18:06	37	09:49 (WEA03)	16:20	16	09:09 (B083)	16:18	14	09:48 (B253)
29	08:09			08:56 (WEA03)				07:09		08:00 (WEA01)	06:01		06:44 (B086)	05:15			05:07		06:07 (B014)	05:39			06:28		07:34 (B153)	07:17			07:52 (B124)	07:08		08:02 (B178)	08:02		08:54 (B083)	08:29		09:34 (B253)
	17:03	33		09:33 (B083)				19:48	38	08:38 (WEA01)	20:41	10	06:54 (B086)	21:26			21:45	22	06:29 (B014)	21:19			20:20	65	08:39 (WEA01)	19:09	55	09:00 (WEA02)	17:04	40	08:50 (WEA03)	16:19	15	09:09 (B083)	16:19	14	09:48 (B253)
30	08:07			08:54 (WEA03)				07:07		07:58 (WEA01)	05:59		06:44 (B086)	05:14			05:07		06:07 (B014)	05:40			06:29		07:33 (B153)	07:19			07:53 (B124)	07:10		08:01 (B178)	08:03		08:55 (B083)	08:29		09:35 (B253)
	17:05	35		09:32 (B083)				19:50	42	08:40 (WEA01)	20:42	20	07:04 (B152)	21:27			21:45	22	06:29 (B014)	21:17			20:18	65	08:38 (WEA01)	19:07	54	09:01 (WEA02)	17:02	43	08:50 (WEA03)	16:18	13	09:08 (B083)	16:20	15	09:50 (B253)
31	08:06			08:53 (WEA03)				07:04		07:44 (B223)				05:13						05:42		07:05 (B152)	06:31			07:32 (B153)						08:00 (B178)				08:29		09:35 (B253)
	17:07	32		09:30 (B083)				19:52	53	08:41 (WEA01)				21:28						21:16	8	07:13 (B152)	20:15	67	08:39 (WEA01)							17:00	45	08:51 (WEA03)				16:21	14	09:49 (B253)
Sonnenscheinstunden		259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		585			723			1184			1454			445			529			141			1092			1535			793			849			435		
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung		0.55			0.59			0.67			0.71			0.73			0.74			0.74			0.72			0.70			0.63			0.57			0.54		
Gesamte Reduktion		0.10			0.18			0.18			0.25			0.30			0.24			0.27			0.27			0.21			0.17			0.12			0.09		
Met.wahrsch.Beschattung		58			132			214			357			133			126			39			299			325			138			104			38		

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO051 - Kirchborchener Str. 28, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1 | 08:29			| 08:04			| 07:12			07:47 (B178) | 07:02			07:30 (B124) | 05:58			06:41 (WEA01) | 05:12			06:05 (B152) | 05:08			06:10 (B152) | 05:43			06:41 (WEA01) | 06:32			07:31 (WEA02) | 07:21			08:30 (WEA03) | 07:14			08:01 (B083) | 08:04			08:45 (B082)		
| 16:22			| 17:09			| 18:00		30	08:17 (WEA03) | 19:54		27	08:02 (WEA02) | 20:44		25	07:06 (WEA01) | 21:30		48	07:11 (WEA01) | 21:45		39	07:11 (WEA01) | 21:14		43	07:24 (WEA01) | 20:13		34	08:05 (WEA02) | 19:04		25	08:55 (WEA03) | 16:58		25	08:32 (B253) | 16:18		11	08:56 (B082)		
2 | 08:29		09:03 (B082) | 08:03		08:53 (B253) | 07:10			07:46 (B178) | 07:00			07:27 (B124) | 05:56			06:39 (WEA01) | 05:11			06:05 (B152) | 05:09			06:09 (B152) | 05:45			06:42 (WEA01) | 06:34			07:27 (B124) | 07:22			08:28 (WEA03) | 07:16			08:02 (B083) | 08:06			08:44 (B082)		
| 16:23	2	09:05 (B082) | 17:11	6	08:59 (B253) | 18:02	32	08:18 (WEA03) | 19:55	35	08:03 (WEA02) | 20:46	28	07:07 (WEA01) | 21:31	47	07:11 (WEA01) | 21:44	40	07:11 (WEA01) | 21:13	42	07:24 (WEA01) | 20:11	39	08:06 (WEA02) | 19:02	27	08:55 (WEA03) | 16:57	26	08:34 (B253) | 16:17	12	08:56 (B082)		
3 | 08:29		09:03 (B082) | 08:01		08:51 (B253) | 07:08			07:46 (B178) | 06:57			07:26 (B124) | 05:54			06:38 (WEA01) | 05:10			06:04 (B152) | 05:09			06:10 (B152) | 05:46			06:42 (WEA01) | 06:36			07:24 (B124) | 07:24			08:27 (WEA03) | 07:17			08:04 (B083) | 08:07			08:45 (B082)		
| 16:24	4	09:07 (B082) | 17:13	10	09:01 (B253) | 18:04	33	08:19 (WEA03) | 19:57	39	08:05 (WEA02) | 20:47	30	07:08 (WEA01) | 21:32	47	07:10 (WEA01) | 21:44	41	07:12 (WEA01) | 21:11	41	07:23 (WEA01) | 20:09	41	08:05 (WEA02) | 19:00	29	08:56 (WEA03) | 16:55	22	08:33 (B253) | 16:16	11	08:56 (B082)		
4 | 08:29		09:03 (B082) | 08:00		08:51 (B253) | 07:05			07:46 (B178) | 06:55			07:25 (B124) | 05:52			06:36 (WEA01) | 05:10			06:05 (B152) | 05:10			06:10 (B152) | 05:48			06:42 (WEA01) | 06:37			07:22 (B124) | 07:26			08:26 (WEA03) | 07:19			08:19 (B253) | 08:09			08:46 (B082)		
| 16:25	6	09:09 (B082) | 17:14	12	09:03 (B253) | 18:05	34	08:20 (WEA03) | 19:59	41	08:06 (WEA02) | 20:49	33	07:09 (WEA01) | 21:33	46	07:10 (WEA01) | 21:44	41	07:13 (WEA01) | 21:09	41	07:23 (WEA01) | 20:06	43	08:05 (WEA02) | 18:57	30	08:56 (WEA03) | 16:53	15	08:34 (B253) | 16:16	10	08:56 (B082)		
5 | 08:29		09:02 (B082) | 07:58		08:50 (B253) | 07:03			07:47 (B178) | 06:53			07:24 (B124) | 05:50			06:36 (WEA01) | 05:09			06:04 (B152) | 05:11			06:11 (B152) | 05:49			06:43 (WEA01) | 06:39			07:21 (B124) | 07:27			08:25 (WEA03) | 07:21			08:19 (B253) | 08:10			08:47 (B082)		
| 16:26	7	09:09 (B082) | 17:16	14	09:04 (B253) | 18:07	33	08:20 (WEA03) | 20:00	42	08:06 (WEA02) | 20:51	35	07:11 (WEA01) | 21:34	46	07:09 (WEA01) | 21:43	42	07:14 (WEA01) | 21:08	40	07:23 (WEA01) | 20:04	44	08:05 (WEA02) | 18:55	31	08:56 (WEA03) | 16:51	15	08:34 (B253) | 16:15	10	08:57 (B082)		
6 | 08:29		09:02 (B082) | 07:56		08:49 (B253) | 07:01			07:47 (B178) | 06:51			07:24 (B124) | 05:48			06:35 (WEA01) | 05:08			06:04 (B152) | 05:12			06:10 (B152) | 05:51			06:43 (WEA01) | 06:40			07:20 (B124) | 07:29			08:25 (WEA03) | 07:23			08:19 (B253) | 08:11			08:47 (B082)		
| 16:28	8	09:10 (B082) | 17:18	15	09:04 (B253) | 18:09	33	08:20 (WEA03) | 20:02	43	08:07 (WEA02) | 20:52	36	07:11 (WEA01) | 21:35	46	07:09 (WEA01) | 21:43	43	07:14 (WEA01) | 21:06	39	07:22 (WEA01) | 20:02	44	08:04 (WEA02) | 18:53	31	08:56 (WEA03) | 16:49	15	08:34 (B253) | 16:15	10	08:57 (B082)		
7 | 08:28		09:02 (B082) | 07:55		08:49 (B253) | 06:59			07:48 (WEA03) | 06:48			07:24 (B124) | 05:46			06:33 (WEA01) | 05:08			06:05 (B152) | 05:12			06:11 (B152) | 05:53			06:44 (WEA01) | 06:42			07:20 (B124) | 07:31			08:24 (WEA03) | 07:24			08:20 (B253) | 08:13			08:48 (B082)		
| 16:29	9	09:11 (B082) | 17:20	15	09:04 (B253) | 18:11	32	08:20 (WEA03) | 20:04	43	08:07 (WEA02) | 20:54	38	07:11 (WEA01) | 21:36	45	07:09 (WEA01) | 21:42	45	07:15 (WEA01) | 21:04	38	07:22 (WEA01) | 20:00	43	08:03 (WEA02) | 18:51	32	08:56 (WEA03) | 16:48	14	08:34 (B253) | 16:14	9	08:57 (B082)		
8 | 08:28		09:02 (B082) | 07:53		08:50 (B253) | 06:57			07:48 (WEA03) | 06:46			07:24 (B124) | 05:45			06:33 (WEA01) | 05:07			06:05 (B152) | 05:13			06:11 (B152) | 05:54			06:44 (WEA01) | 06:44			07:19 (B124) | 07:32			08:24 (WEA03) | 07:26			08:20 (B253) | 08:14			08:49 (B082)		
| 16:30	10	09:12 (B082) | 17:22	15	09:05 (B253) | 18:12	32	08:20 (WEA03) | 20:05	44	08:08 (WEA02) | 20:55	39	07:12 (WEA01) | 21:37	43	07:09 (WEA01) | 21:42	46	07:16 (WEA01) | 21:02	36	07:20 (WEA01) | 19:57	43	08:02 (WEA02) | 18:48	32	08:56 (WEA03) | 16:46	13	08:33 (B253) | 16:14	8	08:57 (B082)		
9 | 08:28		09:02 (B082) | 07:51		08:36 (B083) | 06:54			07:48 (WEA03) | 06:44			07:25 (B124) | 05:43			06:32 (WEA01) | 05:06			06:05 (B152) | 05:14			06:11 (B152) | 05:56			06:45 (WEA01) | 06:45			07:19 (B124) | 07:34			08:22 (B178) | 07:28			08:21 (B253) | 08:15			08:50 (B082)		
| 16:31	10	09:12 (B082) | 17:24	21	09:05 (B253) | 18:14	31	08:19 (WEA03) | 20:07	43	08:08 (WEA02) | 20:57	40	07:12 (WEA01) | 21:38	42	07:08 (WEA01) | 21:41	46	07:16 (WEA01) | 21:00	35	07:20 (WEA01) | 19:55	42	08:01 (WEA02) | 18:46	33	08:55 (WEA03) | 16:44	12	08:33 (B253) | 16:14	7	08:57 (B082)		
10 | 08:27		09:02 (B082) | 07:49		08:33 (B083) | 06:52			07:48 (WEA03) | 06:42			07:25 (B124) | 05:41			06:33 (WEA01) | 05:06			06:05 (B152) | 05:15			06:12 (B152) | 05:57			06:45 (WEA01) | 06:47			07:19 (B124) | 07:36			08:21 (B178) | 07:30			08:23 (B253) | 08:16			08:51 (B082)		
| 16:33	11	09:13 (B082) | 17:25	25	09:04 (B253) | 18:16	31	08:19 (WEA03) | 20:09	42	08:07 (WEA02) | 20:59	40	07:13 (WEA01) | 21:38	41	07:08 (WEA01) | 21:40	46	07:17 (WEA01) | 20:59	34	07:19 (WEA01) | 19:53	40	07:59 (WEA02) | 18:44	34	08:55 (WEA03) | 16:43	8	08:31 (B253) | 16:13	5	08:56 (B082)		
11 | 08:27		09:03 (B082) | 07:48		08:32 (B083) | 06:50			07:48 (WEA03) | 06:39			07:26 (B124) | 05:39			06:32 (WEA01) | 05:06			06:05 (B152) | 05:16			06:12 (B152) | 05:59			06:47 (WEA01) | 06:48			07:20 (B124) | 07:37			08:21 (B178) | 07:32			08:26 (B253) | 08:17			08:53 (B082)		
| 16:34	11	09:14 (B082) | 17:27	26	09:03 (B253) | 18:18	30	08:18 (WEA03) | 20:10	41	08:07 (WEA02) | 21:00	41	07:13 (WEA01) | 21:39	40	07:07 (WEA01) | 21:40	47	07:18 (WEA01) | 20:57	31	07:18 (WEA01) | 19:51	38	07:58 (WEA02) | 18:42	33	08:54 (WEA03) | 16:41	2	08:28 (B253) | 16:13	4	08:57 (B082)		
12 | 08:26		09:03 (B082) | 07:46		08:30 (B083) | 06:48			07:49 (WEA03) | 06:37			07:32 (WEA02) | 05:38			06:31 (WEA01) | 05:05			06:06 (B152) | 05:17			06:13 (B152) | 06:00			06:47 (WEA01) | 06:50			07:20 (B124) | 07:39			08:21 (B178) | 07:33			08:18					
| 16:36	11	09:14 (B082) | 17:29	26	09:02 (B253) | 18:19	29	08:18 (WEA03) | 20:12	34	08:06 (WEA02) | 21:02	42	07:13 (WEA01) | 21:40	40	07:07 (WEA01) | 21:39	48	07:19 (WEA01) | 20:55	29	07:16 (WEA01) | 19:48	33	07:55 (WEA02) | 18:40	32	08:53 (WEA03) | 16:40			| 16:13					
13 | 08:25		09:03 (B082) | 07:44		08:30 (B083) | 06:46			07:49 (WEA03) | 06:35			07:32 (WEA02) | 05:36			06:31 (WEA01) | 05:05			06:06 (B152) | 05:18			06:13 (B152) | 06:02			06:49 (WEA01) | 06:52			07:23 (B124) | 07:41			08:20 (B178) | 07:35			08:19					
| 16:37	11	09:14 (B082) | 17:31	20	08:58 (B253) | 18:21	27	08:16 (WEA03) | 20:14	34	08:06 (WEA02) | 21:03	43	07:14 (WEA01) | 21:41	39	07:07 (WEA01) | 21:38	48	07:19 (WEA01) | 20:53	26	07:15 (WEA01) | 19:46	22	07:53 (WEA02) | 18:37	32	08:52 (WEA03) | 16:38			| 16:13					
14 | 08:25		09:03 (B082) | 07:42		08:29 (B083) | 06:43			07:50 (WEA03) | 06:33			07:33 (WEA02) | 05:35			06:31 (WEA01) | 05:05			06:06 (B152) | 05:19			06:14 (B152) | 06:04			06:50 (WEA01) | 06:53			07:40 (WEA02) | 07:42			08:20 (B178) | 07:37			08:20					
| 16:39	11	09:14 (B082) | 17:33	20	08:49 (B083) | 18:23	25	08:15 (WEA03) | 20:15	33	08:06 (WEA02) | 21:05	43	07:14 (WEA01) | 21:41	38	07:07 (WEA01) | 21:37	48	07:20 (WEA01) | 20:51	22	07:12 (WEA01) | 19:44	16	08:05 (B013) | 18:35	30	08:50 (WEA03) | 16:37			| 16:13					
15 | 08:24		09:04 (B082) | 07:40		08:29 (B083) | 06:41			07:51 (WEA03) | 06:31			07:33 (WEA02) | 05:33			06:31 (WEA01) | 05:04			06:07 (B152) | 05:20			06:14 (B152) | 06:05			06:53 (WEA01) | 06:55			07:56 (B013) | 07:44			08:21 (B178) | 07:39			08:21					
| 16:40	11	09:15 (B082) | 17:35	20	08:49 (B083) | 18:25	22	08:13 (WEA03) | 20:17	32	08:05 (WEA02) | 21:06	43	07:14 (WEA01) | 21:42	36	07:07 (WEA01) | 21:36	47	07:20 (WEA01) | 20:49	17	07:10 (WEA01) | 19:41	11	08:07 (B013) | 18:33	28	08:49 (WEA03) | 16:35			| 16:13					
16 | 08:23		09:05 (B082) | 07:38		08:28 (B083) | 06:39			07:52 (WEA03) | 06:28			07:32 (WEA02) | 05:31			06:31 (WEA01) | 05:04			06:07 (B152) | 05:22			06:15 (B152) | 06:07			06:57 (WEA01) | 06:56			07:55 (B013) | 07:46			08:23 (B178) | 07:40			08:22					
| 16:42	9	09:14 (B082) | 17:36	21	08:49 (B083) | 18:26	18	08:10 (WEA03) | 20:19	31	08:03 (WEA02) | 21:08	43	07:14 (WEA01) | 21:42	37	07:07 (WEA01) | 21:35	48	07:21 (WEA01) | 20:47	15	07:12 (B223) | 19:39	13	08:08 (B013) | 18:31	24	08:47 (WEA03) | 16:34			| 16:13					
17 | 08:22		09:05 (B082) | 07:36		08:28 (B083) | 06:36			07:55 (WEA03) | 06:26			07:33 (WEA02) | 05:30			06:30 (WEA01) | 05:04			06:08 (B152) | 05:23			06:16 (B152) | 06:08			07:03 (B223) | 06:58			07:53 (B013) | 07:48			08:33 (WEA03) | 07:42			08:23					
| 16:43	9	09:14 (B082) | 17:38	21	08:49 (B083) | 18:28	12	08:07 (WEA03) | 20:20	29	08:02 (WEA02) | 21:09	43	07:13 (WEA01) | 21:43	36	07:07 (WEA01) | 21:34	46	07:21 (WEA01) | 20:45	11	07:14 (B223) | 19:37	15	08:08 (B013) | 18:29	11	08:44 (WEA03) | 16:32			| 16:13					
18 | 08:21		09:07 (B082) | 07:35		08:29 (B083) | 06:34			06:24			07:00 (B223) | 05:28			06:31 (WEA01) | 05:04			06:08 (B152) | 05:24			06:18 (B152) | 06:10			07:02 (B223) | 07:00			07:53 (B013) | 07:49			07:44					
| 16:45	7	09:14 (B082) | 17:40	20	08:49 (B083) | 18:30			20:22	33	08:01 (WEA02) | 21:11	43	07:14 (WEA01) | 21:43	35	07:07 (WEA01) | 21:33	43	07:21 (WEA01) | 20:43	13	07:15 (B223) | 19:34	15	08:08 (B013) | 18:27			| 16:31			| 16:13					
19 | 08:20		09:09 (B082) | 07:33		08:29 (B083) | 06:32			06:22			06:58 (B223) | 05:27			06:31 (WEA01) | 05:04			06:08 (B152) | 05:25			06:42 (WEA01) | 06:12			07:01 (B223) | 07:01			07:53 (B013) | 07:51			07:45					
| 16:46	4	09:13 (B082) | 17:42	19	08:48 (B083) | 18:31			20:24	34	07:59 (WEA02) | 21:12	43	07:14 (WEA01) | 21:44	35	07:07 (WEA01) | 21:32	40	07:22 (WEA01) | 20:41	15	07:16 (B223) | 19:32	14	08:07 (B013) | 18:24			| 16:30			| 16:14					
20 | 08:19			| 07:31		08:30 (B083) | 06:29			06:20			06:57 (B223) | 05:26			06:32 (WEA01) | 05:04			06:08 (B152) | 05:27			06:43 (WEA01) | 06:13			07:00 (B223) | 07:03			07:53 (B013) | 07:53		09:07 (B083)	07:47			08:25					
| 16:48			| 17:44	18	08:48 (B083) | 18:33			20:26	33	07:57 (WEA02) | 21:14	42	07:14 (WEA01) | 21:44	34	07:07 (WEA01) | 21:31	40	07:23 (WEA01) | 20:39	15	07:15 (B223) | 19:30	13	08:06 (B013) | 18:22	5	09:12 (B083)	16:29		| 16:14					
21 | 08:18			| 07:29		08:31 (B083) | 06:27			06:18			06:56 (B223) | 05:24			06:31 (WEA01) | 05:04			06:08 (B152) | 05:28			06:42 (WEA01) | 06:15			07:00 (B223) | 07:05			07:54 (B013) | 07:54		09:03 (B083)	07:49			08:26					
| 16:50			| 17:46	16	08:47 (B083) | 18:35			20:27	31	07:55 (WEA02) | 21:15	42	07:13 (WEA01) | 21:44	34	07:07 (WEA01) | 21:30	41	07:23 (WEA01) | 20:37	16	07:16 (B223) | 19:27	11	08:05 (B013) | 18:20	12	09:15 (B083)	16:27		| 16:14					
22 | 08:17			| 07:27		08:32 (B083) | 06:25			06:16			06:55 (B223) | 05:23			06:31 (WEA01) | 05:04			06:08 (B152) | 05:29			06:42 (WEA01) | 06:16			06:59 (B223) | 07:06			07:55 (B013) | 07:56		09:02 (B083)	07:50			08:27					
| 16:51			| 17:47	13	08:45 (B083) | 18:37			20:29	25	07:51 (WEA02) | 21:17	42	07:13 (WEA01) | 21:45	34	07:07 (WEA01) | 21:28	41	07:23 (WEA01) | 20:35	22	07:54 (WEA02) | 19:25	8	08:03 (B013) | 18:18	15	09:17 (B083)	16:26		| 16:15					
23 | 08:16			| 07:24		08:35 (B083) | 06:23		07:09 (B013)	06:14			06:55 (B223) | 05:22			06:32 (WEA01) | 05:05			06:08 (B152) | 05:31			06:42 (WEA01) | 06:18			07:00 (B223) | 07:08			07:58		09:01 (B083)	07:52			08:27					
| 16:53			| 17:49	7	08:42 (B083) | 18:38	8	07:17 (B013)	20:31	15	07:10 (B223) | 21:18	41	07:13 (WEA01) | 21:45	34	07:07 (WEA01) | 21:27	41	07:23 (WEA01) | 20:33	30	07:59 (WEA02) | 19:23			| 18:16	17	09:18 (B083)	16:25		| 16:15					
24 | 08:15			| 07:22			06:20		07:07 (B013)	06:11			06:54 (B223) | 05:20			06:32 (WEA01) | 05:05			06:09 (B152) | 05:32			06:42 (WEA01) | 06:20			07:00 (B223) | 07:09					08:00	08:59 (B083) | 07:54			08:28					
| 16:55			| 17:51			| 18:40	12	07:19 (B013)	20:32	16	07:10 (B223) | 21:20	41	07:13 (WEA01) | 21:45	34	07:08 (WEA01) | 21:26	42	07:24 (WEA01) | 20:31	32	08:00 (WEA02) | 19:21			| 18:14	19	09:18 (B083)	16:24		| 16:16					
25 | 08:14			| 07:20			06:18		07:07 (B013)	06:09			06:54 (B223) | 05:19			06:33 (WEA01) | 05:05			06:09 (B152) | 05:33			06:42 (WEA01) | 06:21			07:01 (B223) | 07:11					08:01	08:58 (B083) | 07:55		08:45 (B082)	08:28					
| 16:56			| 17:53			| 18:42	13	07:20 (B013)	20:34	15	07:09 (B223) | 21:21	40	07:13 (WEA01) | 21:45	35	07:08 (WEA01) | 21:25	42	07:24 (WEA01) | 20:28	35	08:02 (WEA02) | 19:18			| 18:12	20	09:18 (B083)	16:23	6	08:51 (B082)	16:16					
26 | 08:13			| 07:18		08:01 (WEA03) | 07:16		08:05 (B013)	06:07			06:55 (B223) | 05:18			06:33 (WEA01) | 05:06			06:09 (B152) | 05:35			06:41 (WEA01) | 06:23			07:02 (B223) | 07:13					08:03	08:58 (B083) | 07:57		08:45 (B082)	08:28					
| 16:58			| 17:55	10	08:11 (WEA03) | 19:43	14	08:19 (B013)	20:36	13	07:08 (B223) | 21:22	40	07:13 (WEA01) | 21:45	35	07:08 (WEA01) | 21:23	43	07:24 (WEA01) | 20:26	34	08:03 (WEA02) | 19:16			| 18:10	21	09:19 (B083)	16:22	8	08:53 (B082)	16:17					
27 | 08:11			| 07:16		07:51 (B178) | 07:13		08:05 (B013)	06:05			06:55 (B223) | 05:17			06:09 (B152) | 05:06			06:09 (B152) | 05:36			06:41 (WEA01) | 06:24			07:36 (WEA02) | 07:14					08:05	08:58 (B083) | 07:58		08:44 (B082)	08:29					
| 17:00			| 17:56	23	08:14 (WEA03) | 19:45	14	08:19 (B013)	20:37	11	07:07 (B223) | 21:24	43	07:12 (WEA01) | 21:45	36	07:09 (WEA01) | 21:22	43	07:24 (WEA01) | 20:24	28	08:04 (WEA02) | 19:14			| 18:08	21	09:19 (B083)	16:21	9	08:53 (B082)	16:18					
28 | 08:10			| 07:14		07:49 (B178) | 07:11		08:05 (B013)	06:03			06:57 (B223) | 05:16			06:07 (B152) | 05:06			06:09 (B152) | 05:37			06:42 (WEA01) | 06:26			07:35 (WEA02) | 07:16			08:36 (WEA03) | 08:07		08:58 (B083)	09:00			08:44 (B082)	08:29					
| 17:02			| 17:58	27	08:16 (WEA03) | 19:47	14	08:19 (B013)	20:39	8	07:05 (B223) | 21:25	46	07:12 (WEA01) | 21:45	37	07:09 (WEA01) | 21:20	43	07:25 (WEA01) | 20:22	29	08:04 (WEA02) | 19:11	14	08:50 (WEA03) | 18:06	21	09:19 (B083)	16:20	10	08:54 (B082)	16:18					
29 | 08:09						| 07:09		08:05 (B013)	06:01			06:46 (WEA01) | 05:15			06:06 (B152) | 05:07			06:10 (B152) | 05:39			06:41 (WEA01) | 06:28			07:34 (WEA02) | 07:17			08:33 (WEA03) | 07:08		07:58 (B083)	08:02			08:44 (B082)	08:29					
| 17:03						| 19:48	13	08:18 (B013)	20:41	15	07:01 (WEA01) | 21:26	48	07:12 (WEA01) | 21:45	36	07:10 (WEA01) | 21:19	43	07:24 (WEA01) | 20:29	31	08:05 (WEA02) | 19:09	18	08:51 (WEA03) | 17:04	21	09:19 (B083)	16:19	11	08:55 (B082)	16:19					
30 | 08:07						| 07:07		08:06 (B013)	05:59			06:44 (WEA01) | 05:14			06:05 (B152) | 05:07			06:09 (B152) | 05:40			06:41 (WEA01) | 06:29			07:33 (WEA02) | 07:19			08:31 (WEA03) | 07:10		07:59 (B083)	08:03			08:44 (B082)	08:29					
| 17:05						| 19:50	10	08:16 (B013)	20:42	20	07:04 (WEA01) | 21:27	47	07:11 (WEA01) | 21:45	38	07:10 (WEA01) | 21:17	43	07:24 (WEA01) | 20:18	32	08:05 (WEA02) | 19:07	22	08:53 (WEA03) | 17:02	19	09:18 (B083)	16:18	11	08:55 (B082)	16:20					
31 | 08:06						| 07:04		07:48 (WEA02) |				05:13			06:05 (B152) |						05:42			06:42 (WEA01) | 06:31			07:32 (WEA02) |			07:12			08:00 (B083) |			08:29					
| 17:07						| 19:52	17	08:14 (B013) |				21:28	48	07:11 (WEA01) |				21:16	42	07:24 (WEA01)	20:15	34	08:06 (WEA02) |			17:00	25	08:31 (B253) |			16:21					
Sonnenscheinstunden	259			277			366		414			483			497			501			454		382			333			268			245				
astr.max.mögl.Beschattung		151			440			599			902			1248			1174			1348			906			676			710			222			97	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95	
Reduktion Windrichtung		0.55			0.61			0.66			0.72			0.73			0.74			0.73			0.73			0.71			0.64			0.58			0.55	
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.22			0.18			0.13			0.09	
Met.wahrsch.Beschattung		15			83			107			226			373			277			366			252			146			125			28			9	

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO052 - Kirchborchener Str. 52, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember
1	08:29		08:04		08:45 (WEA03)	07:12	07:54 (WEA02)	07:02	07:54 (B153)	05:57	06:47 (B014)	05:12	06:08 (B050)	05:08	06:16 (B050)	05:43	06:43 (B014)	06:32	07:22 (B152)	07:21	08:05 (WEA01)	07:14	08:12 (WEA03)	08:05
	16:22		17:09	17	09:02 (WEA03)	18:00	08:17 (WEA02)	19:54	08:43 (WEA01)	20:44	06:52 (B014)	21:30	06:29 (B050)	21:45	21:14 (B172)	21:14	07:14 (B014)	20:13	07:34 (B152)	19:04	08:51 (WEA02)	16:58	08:37 (WEA03)	16:18
2	08:29		08:03		08:44 (WEA03)	07:10	07:53 (WEA02)	07:00	07:54 (B153)	05:56	06:43 (B014)	05:11	06:08 (B050)	05:09	06:15 (B050)	05:45	06:44 (B014)	06:34	07:24 (B152)	07:22	08:07 (WEA01)	07:16	08:12 (WEA03)	08:06
	16:23		17:11	19	09:03 (WEA03)	18:02	08:18 (WEA02)	19:55	08:40 (WEA01)	20:46	06:56 (B014)	21:31	06:29 (B050)	21:44	21:13 (B172)	21:13	07:14 (B014)	20:11	07:32 (B152)	19:02	08:52 (WEA02)	16:57	08:37 (WEA03)	16:17
3	08:29		08:01		08:43 (WEA03)	07:08	07:52 (WEA02)	06:57	07:55 (B153)	05:54	06:40 (B014)	05:10	06:08 (B050)	05:09	06:16 (B050)	05:46	06:44 (B014)	06:36		07:24	08:30 (WEA02)	07:17	08:12 (WEA03)	08:07
	16:24		17:13	21	09:04 (WEA03)	18:04	08:19 (WEA02)	19:57	08:38 (WEA01)	20:47	06:58 (B014)	21:32	06:29 (B050)	21:44	21:13 (B172)	21:11	07:13 (B014)	20:09		19:00	08:53 (WEA02)	16:55	08:38 (WEA03)	16:16
4	08:29		08:00		08:43 (WEA03)	07:05	07:51 (WEA02)	06:55	07:57 (B153)	05:52	06:38 (B014)	05:10	06:09 (B050)	05:10	06:16 (B050)	05:48	06:44 (B014)	06:37		07:26	08:29 (WEA02)	07:19	08:11 (WEA03)	08:09
	16:25		17:14	23	09:06 (WEA03)	18:05	08:20 (WEA02)	19:59	08:34 (WEA01)	20:49	06:59 (B014)	21:33	06:29 (B050)	21:44	21:13 (B172)	21:09	07:13 (B014)	20:07		18:57	08:54 (WEA02)	16:53	08:37 (WEA03)	16:16
5	08:29		07:58		08:42 (WEA03)	07:03	07:51 (WEA02)	06:53		05:50	06:38 (B014)	05:09	06:09 (B050)	05:11	06:16 (B050)	05:49	06:44 (B014)	06:39		07:27	08:28 (WEA02)	07:21	08:11 (WEA03)	08:10
	16:26		17:16	24	09:06 (WEA03)	18:07	08:20 (WEA02)	20:00		20:51	07:01 (B014)	21:34	06:29 (B050)	21:43	21:13 (B172)	21:08	07:13 (B014)	20:04		18:55	08:55 (WEA02)	16:51	08:37 (WEA03)	16:15
6	08:29		07:56		08:42 (WEA03)	07:01	07:50 (WEA02)	06:51		05:48	06:36 (B014)	05:08	06:09 (B050)	05:12	06:15 (B050)	05:51	06:44 (B014)	06:40		07:29	08:27 (WEA02)	07:23	08:11 (WEA03)	08:11
	16:28		17:18	25	09:07 (WEA03)	18:09	08:19 (WEA02)	20:02		20:52	07:01 (B014)	21:35	06:29 (B050)	21:43	21:12 (B172)	21:06	07:12 (B014)	20:02		18:53	08:55 (WEA02)	16:49	08:37 (WEA03)	16:15
7	08:28		07:55		08:41 (WEA03)	06:59	07:50 (WEA02)	06:48		05:46	06:35 (B014)	05:08	06:09 (B050)	05:12	06:15 (B050)	05:52	06:45 (B014)	06:42		07:31	08:26 (WEA02)	07:24	08:12 (WEA03)	08:13
	16:29		17:20	26	09:07 (WEA03)	18:11	08:19 (WEA02)	20:04		20:54	07:01 (B014)	21:36	06:29 (B050)	21:42	06:35 (B050)	21:04	07:12 (B014)	20:00		18:51	08:55 (WEA02)	16:48	08:36 (WEA03)	16:14
8	08:28		07:53		08:42 (WEA03)	06:57	07:50 (WEA02)	06:46		05:45	06:35 (B014)	05:07	06:09 (B050)	05:13	06:16 (B050)	05:54	06:46 (B014)	06:44		07:32	08:26 (WEA02)	07:26	08:13 (WEA03)	08:14
	16:30		17:22	26	09:08 (WEA03)	18:12	08:19 (WEA02)	20:05		20:55	07:03 (B014)	21:37	06:29 (B050)	21:41	06:35 (B050)	21:02	07:11 (B014)	19:57		18:48	08:55 (WEA02)	16:46	08:36 (WEA03)	16:14
9	08:28		07:51		08:42 (WEA03)	06:54	07:50 (WEA02)	06:44		05:43	06:34 (B014)	05:06	06:10 (B050)	05:14	06:16 (B050)	05:56	06:47 (B014)	06:45	08:21 (WEA01)	07:34	08:25 (WEA02)	07:28	08:13 (WEA03)	08:15
	16:31		17:24	26	09:08 (WEA03)	18:14	08:18 (WEA02)	20:07		20:57	07:03 (B014)	21:38	06:29 (B050)	21:40	21:07 (B172)	21:41	07:10 (B014)	19:55	3 08:24 (WEA01)	18:46	08:54 (WEA02)	16:44	08:35 (WEA03)	16:14
10	08:27		07:49		08:42 (WEA03)	06:52	07:50 (WEA02)	06:42		05:41	06:34 (B014)	05:06	06:11 (B050)	05:15	06:16 (B050)	05:57	06:47 (B014)	06:47	07:49 (B153)	07:36	08:25 (WEA02)	07:30	08:14 (WEA03)	08:16
	16:33		17:25	26	09:08 (WEA03)	18:16	08:17 (WEA02)	20:09		20:59	07:03 (B014)	21:38	21:08 (B172)	21:40	06:36 (B050)	20:59	07:08 (B014)	19:53	25 08:29 (WEA01)	18:44	08:54 (WEA02)	16:43	08:35 (WEA03)	16:13
11	08:27		07:48		08:42 (WEA03)	06:50	07:51 (WEA02)	06:39	07:27 (B152)	05:39	06:34 (B014)	05:06	06:11 (B050)	05:16	06:16 (B050)	05:59	06:49 (B014)	06:48	07:48 (B153)	07:37	08:26 (WEA02)	07:32	08:16 (WEA03)	08:17
	16:34		17:27	25	09:07 (WEA03)	18:18	08:16 (WEA02)	20:10	5 07:32 (B152)	21:00	07:03 (B014)	21:39	21:08 (B172)	21:40	21:37 (B050)	20:57	18 07:07 (B014)	19:51	32 08:32 (WEA01)	18:42	08:54 (WEA02)	16:41	18 08:34 (WEA03)	16:13
12	08:26		07:46		08:43 (WEA03)	06:48	07:52 (WEA02)	06:37	07:24 (B152)	05:38	06:33 (B014)	05:05	06:11 (B050)	05:17	06:16 (B050)	06:00	06:50 (B014)	06:50	07:46 (B153)	07:39	08:26 (WEA02)	07:33	08:17 (WEA03)	08:18
	16:36		17:29	24	09:07 (WEA03)	18:19	08:15 (WEA02)	20:12	10 07:34 (B152)	21:02	07:03 (B014)	21:40	21:09 (B172)	21:39	21:37 (B050)	20:55	15 07:05 (B014)	19:48	38 08:33 (WEA01)	18:40	08:53 (WEA02)	16:40	16 08:33 (WEA03)	16:13
13	08:25		07:44		08:43 (WEA03)	06:45	07:28 (WEA01)	06:35	07:23 (B152)	05:36	06:33 (B014)	05:05	06:12 (B050)	05:18	06:16 (B050)	06:02	06:54 (B014)	06:52	07:45 (B153)	07:41	08:26 (WEA02)	07:35	08:19 (WEA03)	08:19
	16:37		17:31	23	09:06 (WEA03)	18:21	08:13 (WEA02)	20:14	12 07:35 (B152)	21:03	07:03 (B014)	21:41	21:10 (B172)	21:38	21:36 (B050)	20:53	8 07:02 (B014)	19:46	44 08:35 (WEA01)	18:37	08:52 (WEA02)	16:38	12 08:31 (WEA03)	16:13
14	08:25		07:42		08:44 (WEA03)	06:43	07:25 (WEA01)	06:33	07:22 (B152)	05:35	06:34 (B014)	05:05	06:12 (B050)	05:19	06:16 (B050)	06:04		06:53	07:44 (B153)	07:42	08:27 (WEA02)	07:37	08:23 (WEA03)	08:20
	16:39		17:33	21	09:05 (WEA03)	18:23	08:11 (WEA02)	20:15	14 07:36 (B152)	21:05	07:04 (B014)	21:41	21:11 (B172)	21:37	29 07:02 (B014)	20:51		19:44	46 08:35 (WEA01)	18:35	24 08:51 (WEA02)	16:37	5 08:28 (WEA03)	16:13
15	08:24		07:40		08:45 (WEA03)	06:41	07:23 (WEA01)	06:31	07:22 (B152)	05:33	06:33 (B014)	05:04	06:13 (B050)	05:20	06:16 (B050)	06:05		06:55	07:44 (B153)	07:44	08:28 (WEA02)	07:39		08:21
	16:40		17:35	19	09:04 (WEA03)	18:25	08:08 (WEA02)	20:17	14 07:36 (B152)	21:06	07:03 (B014)	21:42	21:12 (B172)	21:36	33 07:04 (B014)	20:49		19:41	48 08:36 (WEA01)	18:33	24 08:52 (B013)	16:35		16:13
16	08:23		07:38		08:46 (WEA03)	06:39	07:21 (WEA01)	06:28	07:20 (B152)	05:31	06:34 (B014)	05:04	06:13 (B050)	05:22	06:16 (B050)	06:07	06:59 (B087)	06:56	07:44 (B223)	07:46	08:29 (WEA02)	07:40		08:22
	16:42		17:36	17	09:03 (WEA03)	18:26	08:04 (WEA02)	20:19	15 07:35 (B152)	21:08	07:03 (B014)	21:42	21:12 (B172)	21:35	36 07:05 (B014)	20:47	2 07:01 (B087)	19:39	49 08:37 (WEA01)	18:31	24 08:53 (B013)	16:34		16:13
17	08:22		07:36		08:48 (WEA03)	06:36	07:19 (WEA01)	06:26	07:21 (B152)	05:30	06:16 (B050)	05:04	06:14 (B050)	05:23	06:16 (B050)	06:08	06:57 (B087)	06:58	07:43 (B223)	07:48	08:32 (WEA02)	07:42		08:23
	16:43		17:38	13	09:01 (WEA03)	18:28	31 07:50 (WEA01)	20:20	13 07:34 (B152)	21:09	32 07:03 (B014)	21:43	17 21:13 (B172)	21:34	37 07:06 (B014)	20:45	8 07:05 (B087)	19:37	51 08:37 (WEA01)	18:29	22 08:54 (B013)	16:32		16:13
18	08:21		07:35		08:53 (WEA03)	06:34	07:18 (WEA01)	06:24	07:21 (B152)	05:28	06:12 (B050)	05:04	06:14 (B050)	05:24	06:16 (B050)	06:10	06:55 (B087)	07:00	07:43 (B223)	07:49	08:35 (WEA02)	07:44		08:24
	16:45		17:40	3	08:56 (WEA03)	18:30	33 07:51 (WEA01)	20:22	13 07:34 (B152)	21:11	38 07:03 (B014)	21:43	17 21:13 (B172)	21:33	39 07:07 (B014)	20:43	10 07:05 (B087)	19:34	50 08:38 (WEA01)	18:27	18 08:53 (B013)	16:31		16:13
19	08:20		07:33			06:32	07:17 (WEA01)	06:22	06:53 (B087)	05:27	06:11 (B050)	05:04	06:14 (B050)	05:25	06:16 (B050)	06:12	06:54 (B087)	07:01	07:42 (B223)	07:51	08:41 (B013)	07:45		08:25
	16:46		17:42			18:31	33 07:50 (WEA01)	20:24	14 07:32 (B152)	21:12	41 07:03 (B014)	21:44	17 21:13 (B172)	21:32	41 07:08 (B014)	20:41	12 07:06 (B087)	19:32	50 08:37 (WEA01)	18:24	12 08:53 (B013)	16:30		16:14
20	08:19		07:31			06:29	07:16 (WEA01)	06:20	06:50 (B087)	05:26	06:10 (B050)	05:04	06:15 (B050)	05:27	06:17 (B050)	06:13	06:53 (B087)	07:03	07:42 (B223)	07:53	08:41 (B013)	07:47		08:25
	16:48		17:44			18:33	35 07:51 (WEA01)	20:26	16 07:30 (B152)	21:14	43 07:03 (B014)	21:44	17 21:14 (B172)	21:31	43 07:10 (B014)	20:39	13 07:06 (B087)	19:30	50 08:37 (WEA01)	18:22	11 08:52 (B013)	16:29		16:14
21	08:18		07:29		08:15 (B013)	06:27	07:15 (WEA01)	06:18	06:49 (B087)	05:24	06:09 (B050)	05:04	06:15 (B050)	05:28	06:18 (B050)	06:15	06:53 (B087)	07:05	07:44 (B223)	07:54	08:43 (B013)	07:49		08:26
	16:50		17:46	3	08:18 (B013)	18:35	36 07:51 (WEA01)	20:27	11 07:00 (B087)	21:15	42 07:01 (B014)	21:44	17 21:14 (B172)	21:30	42 07:10 (B014)	20:37	13 07:06 (B087)	19:27	47 08:37 (WEA01)	18:20	8 08:51 (B013)	16:27		16:14
22	08:17		07:27		08:12 (B013)	06:25	07:15 (WEA01)	06:16	06:48 (B087)	05:23	06:08 (B050)	05:04	06:15 (B050)	05:29	06:18 (B050)	06:16	06:52 (B087)	07:06	07:45 (B223)	07:56	08:45 (B013)	07:50		08:27
	16:51		17:47	9	08:21 (B013)	18:37	37 07:52 (WEA01)	20:29	13 07:01 (B087)	21:17	44 07:01 (B014)	21:45	17 21:14 (B172)	21:29	44 07:11 (B014)	20:35	13 07:05 (B087)	19:25	42 08:36 (WEA01)	18:18	4 08:49 (B013)	16:26		16:15
23	08:16		07:24		08:11 (B013)	06:23	06:58 (B223)	06:14	06:47 (B087)	05:22	06:08 (B050)	05:05	06:15 (B050)	05:30	06:18 (B050)	06:18	06:53 (B087)	07:08	08:00 (WEA01)	07:58		07:52		08:27
	16:53		17:49	11	08:22 (B013)	18:38	45 07:51 (WEA01)	20:31	14 07:01 (B087)	21:18	44 07:01 (B014)	21:45	17 21:14 (B172)	21:27	43 07:11 (B014)	20:33	12 07:05 (B087)	19:23	36 08:36 (WEA01)	18:16		16:25		16:15
24	08:15		07:22		08:10 (B013)	06:20	06:57 (B223)	06:11	06:47 (B087)	05:20	06:08 (B050)	05:05	06:16 (B050)	05:32	06:19 (B050)	06:20	06:53 (B087)	07:09	07:59 (WEA01)	08:00		07:54		08:28
	16:55		17:51	12	08:22 (B013)	18:40	48 07:51 (WEA01)	20:32	13 07:00 (B087)	21:20	42 07:00 (B014)	21:45	17 21:15 (B172)	21:26	42 07:11 (B014)	20:31	15 07:33 (B152)	19:21	36 08:35 (WEA01)	18:14		16:24		16:16
25	08:14		07:20		08:05 (WEA02)	06:18	06:56 (B223)	06:09	06:47 (B087)	05:19	06:07 (B050)	05:05	06:15 (B050)	05:33	06:20 (B050)	06:21	06:55 (B087)	07:11	08:00 (WEA01)	08:01		07:55		08:28
	16:56		17:53	16	08:22 (B013)	18:42	50 07:51 (WEA01)	20:34	13 07:00 (B087)	21:21	43 07:00 (B014)	21:45	17 21:14 (B172)	21:25	43 07:13 (B014)	20:29	16 07:35 (B152)	19:18	35 08:35 (WEA01)	18:12		16:23		16:16
26	08:13		07:18		08:00 (WEA02)	07:16	07:54 (B223)	06:07	06:48 (B087)	05:18	06:07 (B050)	05:05	06:15 (B050)	05:35	06:21 (B050)	06:23	07:24 (B152)	07:13	08:00 (WEA01)	08:03	09:19 (WEA03)	07:57		08:28
	16:58		17:55	22	08:22 (B013)	19:43	50 08:49 (WEA01)	20:36	11 06:59 (B087)	21:22	41 06:59 (B014)	21:45	17 21:14 (B172)	21:23	41 07:13 (B014)	20:26	12 07:36 (B152)	19:16	34 08:34 (WEA01)	18:10	10 09:29 (WEA03)	16:22		16:17
27	08:11		07:16		07:57 (WEA02)	07:13	07:54 (B223)	06:05	06:49 (B087)	05:17	06:07 (B050)	05:06	06:16 (B050)	05:36	06:22 (B050)	06:24	07:24 (B152)	07:14	08:00 (WEA01)	08:05		07:59		08:29
	17:00		17:56	24	08:21 (B013)	19:45	51 08:49 (WEA01)	20:37	9 06:58 (B087)	21:24	39 06:58 (B014)	21:45	17 21:15 (B172)	21:22	39 07:13 (B014)	20:24	13 07:37 (B152)	19:14	32 08:32 (WEA01)	18:08	16 09:32 (WEA03)	16:21		16:18
28	08:10		07:14		07:56 (WEA02)	07:11	07:54 (B223)	06:03	06:50 (B087)	05:16	06:07 (B050)	05:06	06:15 (B050)	05:37	06:26 (B050)	06:26	07:22 (B152)	07:16	08:01 (WEA01)	08:07		09:15 (WEA03)	08:00		08:29
	17:02		17:58	24	08:20 (B013)	19:47	50 08:48 (WEA01)	20:39	5 06:55 (B087)	21:25	37 06:57 (B014)	21:45	18 21:14 (B172)	21:20	33 07:14 (B014)	20:22	15 07:37 (B152)	19:11	30 08:31 (WEA01)	18:06	18 09:33 (WEA03)	16:20		16:18
29	08:09					07:09	07:54 (B223)	06:01		05:15	06:07 (B050)	05:07			06:44 (B050)	06:28	07:22 (B152)	07:17	08:02 (WEA01)	08:07	08:14 (WEA03)	08:02		08:29
	17:03					19:48	49 08:47 (WEA01)	20:41		21:26	36 06:56 (B014)	21:45	18 21:14 (B172)	21:19	30 07:14 (B014)	20:20	15 07:37 (B152)	19:09	27 08:29 (WEA01)	17:04	21 08:35 (WEA03)	16:19		16:19
30	08:07					07:07	07:54 (B153)	05:59		05:14	06:07 (B050)	05:07	06:15 (B050)	05:40	06:43 (B014)	06:29	07:22 (B152)	07:19	08:03 (WEA01)	07:10	08:13 (WEA03)	08:03		08:29
	17:05	9				19:50	48 08:46 (WEA01)	20:42		21:27	34 06:55 (B014)	21:45	19 21:14 (B172)	21:17	30 07:13 (B014)	20:18	14 07:36 (B152)	19:07	35 08:48 (WEA02)	17:02	23 08:36 (WEA03)	16:18		16:20
31	08:06					07:04	07:54 (B153)			05:13	06:07 (B050)			05:42	06:44 (B014)	06:31	07:22 (B152)			07:12	08:12 (WEA03)			08:29
	17:07	14				19:52	46 08:45 (WEA01)			21:28	29 06:53 (B014)			21:16	30 07:14 (B014)	20:15	14 07:36 (B152)			17:00	24 08:36 (WEA03)			16:21
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333		268			245
astr.max.m0g/l.Beschattung	23		499		1100		342		980		557		933		510		860		631		295			
Red.Sonnenscheinwahrsch.	0.19		0.32		0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		0.23			
Reduktion Betriebsdauer	0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95			
Reduktion Windrichtung	0.59		0.61		0.68		0.71		0.74		0.73		0.74		0.73		0.69		0.64		0.59			
Gesamte Reduktion	0.11		0.19		0.18		0.25		0.30		0.23		0.27		0.28		0.21		0.18		0.13			
Met.wahrsch.Beschattung	2		93		200		85		294		131		254		142		180		111		38			

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)	

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO053 - Kirchborchener Str. 54, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember	
1	08:29			08:04			07:12			07:02			05:57			05:12			05:08			05:43			06:32			07:21			07:14			08:05	
	16:22			17:09	23	09:13 (WEA03)	18:00	29	08:28 (WEA02)	19:54	7	08:13 (B153)	20:44	21	07:08 (B014)	21:30	23	21:00 (B172)	21:45	12	06:36 (B050)	21:14	30	06:51 (B014)	20:13	14	07:43 (B152)	19:04	33	08:42 (WEA01)	16:58	21	08:42 (WEA03)	16:18	
2	08:29			08:03		08:49 (WEA03)	07:10		07:59 (WEA02)	07:00			05:56		06:45 (B014)	05:11		06:14 (B050)	05:09		06:23 (B050)	05:45		06:52 (B014)	06:34		07:29 (B152)	07:22		08:09 (WEA01)	07:16		08:20 (WEA03)	08:06	
	16:23			17:11	24	09:13 (WEA03)	18:02	29	08:28 (WEA02)	19:55			20:46	24	07:09 (B014)	21:31	23	21:01 (B172)	21:44	13	06:36 (B050)	21:13	30	07:22 (B014)	20:11	14	07:43 (B152)	19:02	31	08:40 (WEA01)	16:57	23	08:43 (WEA03)	16:17	
3	08:29			08:01		08:48 (WEA03)	07:08		07:59 (WEA02)	06:57			05:54		06:44 (B014)	05:10		06:14 (B050)	05:09		06:23 (B050)	05:46		06:51 (B014)	06:36		07:29 (B152)	07:24		08:10 (WEA01)	07:17		08:20 (WEA03)	08:07	
	16:24			17:13	25	09:13 (WEA03)	18:04	29	08:28 (WEA02)	19:57			20:47	26	07:10 (B014)	21:32	23	21:02 (B172)	21:44	14	06:37 (B050)	21:11	31	07:22 (B014)	20:09	13	07:42 (B152)	19:00	38	08:54 (WEA02)	16:55	24	08:44 (WEA03)	16:16	
4	08:29			08:00		08:49 (WEA03)	07:05		07:59 (WEA02)	06:55			05:52		06:43 (B014)	05:10		06:15 (B050)	05:10		06:23 (B050)	05:48		06:51 (B014)	06:37		07:29 (B152)	07:26		08:12 (WEA01)	07:19		08:19 (WEA03)	08:09	
	16:25			17:14	25	09:14 (WEA03)	18:05	29	08:28 (WEA02)	19:59			20:49	27	07:10 (B014)	21:33	22	21:03 (B172)	21:44	15	06:38 (B050)	21:09	30	07:21 (B014)	20:07	12	07:41 (B152)	18:57	41	08:58 (WEA02)	16:53	24	08:43 (WEA03)	16:16	
5	08:29			07:58		08:49 (WEA03)	07:03		07:59 (WEA02)	06:53			05:50		06:43 (B014)	05:09		06:15 (B050)	05:11		06:23 (B050)	05:49		06:51 (B014)	06:39		07:31 (B152)	07:27		08:14 (WEA01)	07:21		08:18 (WEA03)	08:10	
	16:26			17:16	25	09:14 (WEA03)	18:07	29	08:28 (WEA02)	20:00			20:51	28	07:11 (B014)	21:34	22	21:04 (B172)	21:43	16	06:39 (B050)	21:08	31	07:22 (B014)	20:04	9	07:40 (B152)	18:55	41	09:00 (WEA02)	16:51	26	08:44 (WEA03)	16:15	
6	08:29			07:56		08:48 (WEA03)	07:01		07:59 (WEA02)	06:51			05:48		06:42 (B014)	05:08		06:15 (B050)	05:12		06:22 (B050)	05:51		06:51 (B014)	06:40		07:33 (B152)	07:29		08:16 (WEA01)	07:23		08:18 (WEA03)	08:11	
	16:28			17:18	26	09:14 (WEA03)	18:09	28	08:27 (WEA02)	20:02			20:52	29	07:11 (B014)	21:35	18	06:33 (B050)	21:43	17	06:39 (B050)	21:06	30	07:21 (B014)	20:02	3	07:36 (B152)	18:53	38	09:00 (WEA02)	16:49	26	08:44 (WEA03)	16:15	
7	08:28			07:55		08:48 (WEA03)	06:59		07:59 (WEA02)	06:48			05:46		06:41 (B014)	05:08		06:16 (B050)	05:12		06:22 (B050)	05:52		06:51 (B014)	06:42			07:31		08:21 (WEA01)	07:24		08:18 (WEA03)	08:13	
	16:29			17:20	26	09:14 (WEA03)	18:11	27	08:26 (WEA02)	20:04			20:54	30	07:11 (B014)	21:36	17	06:33 (B050)	21:42	17	06:39 (B050)	21:04	30	07:21 (B014)	20:00			18:51	30	09:01 (WEA02)	16:48	26	08:44 (WEA03)	16:14	
8	08:28			07:53		08:50 (WEA03)	06:57		07:45 (WEA01)	06:46		07:35 (B152)	05:45		06:41 (B014)	05:07		06:16 (B050)	05:13		06:22 (B050)	05:54		06:51 (B014)	06:44			07:32		08:36 (WEA02)	07:26		08:19 (WEA03)	08:14	
	16:30			17:22	25	09:15 (WEA03)	18:12	30	08:25 (WEA02)	20:05	7	07:42 (B152)	20:55	31	07:12 (B014)	21:37	17	06:33 (B050)	21:42	18	06:40 (B050)	21:02	30	07:21 (B014)	19:57			18:48	26	09:02 (WEA02)	16:46	25	08:44 (WEA03)	16:14	
9	08:28			07:51		08:50 (WEA03)	06:54		07:39 (WEA01)	06:44		07:33 (B152)	05:43		06:41 (B014)	05:06		06:17 (B050)	05:14		06:22 (B050)	05:56		06:52 (B014)	06:45			07:34		08:34 (WEA02)	07:28		08:19 (WEA03)	08:15	
	16:31			17:24	24	09:14 (WEA03)	18:14	38	08:23 (WEA02)	20:07	11	07:44 (B152)	20:57	31	07:12 (B014)	21:38	16	06:33 (B050)	21:41	22	21:11 (B172)	21:00	29	07:21 (B014)	19:55			18:46	28	09:02 (WEA02)	16:44	25	08:44 (WEA03)	16:14	
10	08:27			07:49		08:50 (WEA03)	06:52		07:36 (WEA01)	06:42		07:31 (B152)	05:41		06:41 (B014)	05:06		06:18 (B050)	05:15		06:22 (B050)	05:57		06:52 (B014)	06:47			07:36		08:34 (WEA02)	07:30		08:20 (WEA03)	08:16	
	16:33			17:25	23	09:13 (WEA03)	18:16	41	08:22 (WEA02)	20:09	13	07:44 (B152)	20:59	31	07:12 (B014)	21:38	15	06:33 (B050)	21:40	22	21:10 (B172)	20:59	27	07:19 (B014)	19:53			18:44	28	09:02 (WEA02)	16:43	24	08:44 (WEA03)	16:13	
11	08:27			07:48		08:51 (WEA03)	06:50		07:34 (WEA01)	06:39		07:30 (B152)	05:39		06:41 (B014)	05:06		06:18 (B050)	05:16		06:22 (B050)	05:59		06:53 (B014)	06:48			07:37		08:33 (WEA02)	07:32		08:20 (WEA03)	08:17	
	16:34			17:27	22	09:13 (WEA03)	18:18	41	08:20 (WEA02)	20:10	14	07:44 (B152)	21:00	31	07:12 (B014)	21:39	14	06:32 (B050)	21:40	23	21:10 (B172)	20:57	26	07:19 (B014)	19:51			18:42	29	09:02 (WEA02)	16:41	24	08:44 (WEA03)	16:13	
12	08:26			07:46		08:52 (WEA03)	06:48		07:32 (WEA01)	06:37		07:30 (B152)	05:38		06:40 (B014)	05:05		06:19 (B050)	05:17		06:22 (B050)	06:00		06:53 (B014)	06:50			07:39		08:33 (WEA02)	07:33		08:21 (WEA03)	08:18	
	16:36			17:29	20	09:12 (WEA03)	18:19	38	08:16 (WEA02)	20:12	14	07:44 (B152)	21:02	31	07:11 (B014)	21:40	13	06:32 (B050)	21:39	23	21:09 (B172)	20:55	25	07:18 (B014)	19:48			18:40	29	09:02 (WEA02)	16:40	22	08:43 (WEA03)	16:13	
13	08:25			07:44		08:53 (WEA03)	06:45		07:30 (WEA01)	06:35		07:30 (B152)	05:36		06:41 (B014)	05:05		06:20 (B050)	05:18		06:22 (B050)	06:02		06:55 (B014)	06:52		07:56 (B153)	07:41		08:32 (WEA02)	07:35		08:22 (WEA03)	08:19	
	16:37			17:31	17	09:10 (WEA03)	18:21	31	08:01 (WEA01)	20:14	14	07:44 (B152)	21:03	30	07:11 (B014)	21:41	12	06:32 (B050)	21:38	23	21:08 (B172)	20:53	22	07:17 (B014)	19:46	9	08:05 (B153)	18:37	29	09:01 (WEA02)	16:38	21	08:43 (WEA03)	16:13	
14	08:25			07:42		08:55 (WEA03)	06:43		07:29 (WEA01)	06:33		07:30 (B152)	05:35		06:42 (B014)	05:05		06:21 (B050)	05:19		06:22 (B050)	06:04		06:55 (B014)	06:53		07:54 (B153)	07:42		08:33 (WEA02)	07:37		08:23 (WEA03)	08:20	
	16:39			17:33	13	09:08 (WEA03)	18:23	33	08:02 (WEA01)	20:15	14	07:44 (B152)	21:05	29	07:11 (B014)	21:41	11	06:32 (B050)	21:37	23	21:08 (B172)	20:51	20	07:15 (B014)	19:44	26	08:37 (WEA01)	18:35	28	09:01 (WEA02)	16:37	19	08:42 (WEA03)	16:13	
15	08:24			07:40		08:59 (WEA03)	06:41		07:29 (WEA01)	06:31		07:30 (B152)	05:33		06:18 (B050)	05:04		06:21 (B050)	05:20		06:22 (B050)	06:05		06:57 (B014)	06:55		07:53 (B153)	07:44		08:33 (WEA02)	07:39		08:24 (WEA03)	08:21	
	16:40		5	17:35	5	09:04 (WEA03)	18:25	34	08:03 (WEA01)	20:17	13	07:43 (B152)	21:06	38	07:10 (B014)	21:42	11	06:32 (B050)	21:36	22	21:07 (B172)	20:49	17	07:14 (B014)	19:41	33	08:40 (WEA01)	18:33	28	09:01 (WEA02)	16:35	17	08:41 (WEA03)	16:13	
16	08:23			07:38			06:39		07:27 (WEA01)	06:28		07:30 (B152)	05:31		06:17 (B050)	05:04		06:22 (B050)	05:22		06:22 (B050)	06:07		06:59 (B014)	06:56		07:52 (B153)	07:46		08:34 (WEA02)	07:40		08:26 (WEA03)	08:22	
	16:42			17:36			18:26	35	08:02 (WEA01)	20:19	11	07:41 (B152)	21:08	40	07:10 (B014)	21:42	10	06:32 (B050)	21:35	21	06:43 (B050)	20:47	11	07:10 (B014)	19:39	40	08:43 (WEA01)	18:31	26	09:00 (WEA02)	16:34	14	08:40 (WEA03)	16:13	
17	08:22			07:36			06:36		07:27 (WEA01)	06:26		06:58 (B087)	05:30		06:15 (B050)	05:04		06:23 (B050)	05:23		06:22 (B050)	06:08			06:58		07:50 (B223)	07:48		08:34 (WEA02)	07:42		08:28 (WEA03)	08:23	
	16:43			17:38			18:28	36	08:03 (WEA01)	20:20	9	07:38 (B152)	21:09	42	07:09 (B014)	21:43	9	06:32 (B050)	21:34	21	06:43 (B050)	20:45			19:37	44	08:43 (WEA01)	18:29	25	08:59 (WEA02)	16:32	9	08:37 (WEA03)	16:13	
18	08:21			07:35		08:22 (B013)	06:34		07:26 (WEA01)	06:24		06:55 (B087)	05:28		06:14 (B050)	05:04		06:23 (B050)	05:24		06:22 (B050)	06:10		07:04 (B087)	07:00		07:49 (B223)	07:49		08:35 (WEA02)	07:44			08:24	
	16:45			17:40	4	08:26 (B013)	18:30	37	08:03 (WEA01)	20:22	9	07:04 (B087)	21:11	43	07:09 (B014)	21:43	9	06:32 (B050)	21:33	21	06:43 (B050)	20:43	2	07:06 (B087)	19:34	48	08:45 (WEA01)	18:27	23	08:58 (B013)	16:31			16:13	
19	08:20			07:33		08:20 (B013)	06:32		07:25 (WEA01)	06:22		06:54 (B087)	05:27		06:14 (B050)	05:04		06:24 (B050)	05:25		06:21 (B050)	06:12		07:01 (B087)	07:01		07:48 (B223)	07:51		08:36 (WEA02)	07:45			08:25	
	16:46			17:42	8	08:28 (B013)	18:31	37	08:02 (WEA01)	20:24	11	07:05 (B087)	21:12	43	07:09 (B014)	21:44	8	06:32 (B050)	21:32	29	07:09 (B014)	20:41	8	07:09 (B087)	19:32	50	08:45 (WEA01)	18:24	24	09:00 (B013)	16:30			16:14	
20	08:19			07:31		08:19 (B013)	06:29		07:08 (B223)	06:20		06:53 (B087)	05:26		06:14 (B050)	05:04		06:24 (B050)	05:27		06:22 (B050)	06:13		06:59 (B087)	07:03		07:48 (B223)	07:53		08:38 (WEA02)	07:47			08:25	
	16:48			17:44	10	08:29 (B013)	18:33	40	08:02 (WEA01)	20:26	13	07:06 (B087)	21:14	42	07:08 (B014)	21:44	8	06:32 (B050)	21:31	33	07:12 (B014)	20:39	10	07:09 (B087)	19:30	51	08:46 (WEA01)	18:22	22	09:00 (B013)	16:29			16:14	
21	08:18			07:29		08:18 (B013)	06:27		07:04 (B223)	06:18		06:53 (B087)	05:24		06:13 (B050)	05:04		06:24 (B050)	05:28		06:22 (B050)	06:15		06:58 (B087)	07:05		07:48 (B223)	07:54		08:41 (WEA02)	07:49			08:26	
	16:50			17:46	12	08:30 (B013)	18:35	47	08:02 (WEA01)	20:27	13	07:06 (B087)	21:15	42	07:07 (B014)	21:44	8	06:32 (B050)	21:30	37	07:14 (B014)	20:37	13	07:11 (B087)	19:27	51	08:47 (WEA01)	18:20	20	09:01 (B013)	16:27			16:14	
22	08:17			07:27		08:11 (WEA02)	06:25		07:03 (B223)	06:16		06:52 (B087)	05:23		06:12 (B050)	05:04		06:24 (B050)	05:29		06:22 (B050)	06:16		06:57 (B087)	07:06		07:47 (B223)	07:56		08:48 (B013)	07:50			08:27	
	16:51			17:47	19	08:30 (B013)	18:37	49	08:02 (WEA01)	20:29	14	07:06 (B087)	21:17	41	07:06 (B014)	21:45	8	06:32 (B050)	21:29	40	07:15 (B014)	20:35	13	07:10 (B087)	19:25	50	08:46 (WEA01)	18:18	12	09:00 (B013)	16:26			16:15	
23	08:16			07:24		08:08 (WEA02)	06:23		07:01 (B223)	06:14		06:52 (B087)	05:22		06:12 (B050)	05:05		06:24 (B050)	05:30		06:22 (B050)	06:18		06:57 (B087)	07:08		07:48 (B223)	07:58		08:49 (B013)	07:52			08:27	
	16:53			17:49	22	08:30 (B013)	18:38	50	08:00 (WEA01)	20:31	13	07:05 (B087)	21:18	40	07:05 (B014)	21:45	8	06:32 (B050)	21:27	41	07:16 (B014)	20:33	14	07:11 (B087)	19:23	49	08:47 (WEA01)	18:16	11	09:00 (B013)	16:25			16:15	
24	08:15			07:22		08:05 (WEA02)	06:20		07:01 (B223)	06:11		06:53 (B087)	05:20		06:12 (B050)	05:05		06:25 (B050)	05:32		06:23 (B050)	06:20		06:57 (B087)	07:09		07:48 (B223)	08:00		08:49 (B013)	07:54			08:28	
	16:55			17:51	23	08:28 (B013)	18:40	52	08:00 (WEA01)	20:32	11	07:04 (B087)	21:20	37	07:04 (B014)	21:45	8	06:33 (B050)	21:26	42	07:17 (B014)	20:31	13	07:10 (B087)	19:21	46	08:46 (WEA01)	18:14	9	08:58 (B013)	16:24			16:16	
25	08:14			07:20		08:03 (WEA02)	06:18		07:01 (B223)	06:09		06:54 (B087)	05:19		06:12 (B050)	05:05		06:25 (B050)	05:33		06:24 (B050)	06:21		06:57 (B087)	07:11		08:09 (WEA01)	08:01		08:51 (B013)	07:55			08:28	
	16:56			17:53	24	08:27 (B013)	18:42	51	07:59 (WEA01)	20:34	9	07:03 (B087)	21:21	33	07:02 (B014)	21:45	8	06:33 (B050)	21:25	42	07:18 (B014)	20:29	12	07:09 (B087)	19:18	37	08:46 (WEA01)	18:12	5	08:56 (B013)	16:23			16:16	
26	08:13		08:56 (WEA03)	07:18		08:02 (WEA02)	07:16		08:00 (B223)	06:07		06:56 (B087)	05:18		06:12 (B050)	05:05		06:24 (B050)	05:35		06:24 (B050)	06:23		06:57 (B087)	07:13		08:09 (WEA01)	08:03						07:57	
	16:58	7	09:03 (WEA03)	17:55	25	08:27 (WEA02)	19:43	50	08:57 (WEA01)	20:36	5	07:01 (B087)	21:22	29	07:00 (B014)	21:45	9	06:33 (B050)	21:23	43	07:19 (B014)	20:26	11	07:08 (B087)	19:16	37	08:46 (WEA01)	18:10						16:22	
27	08:11		08:54 (WEA03)	07:16		08:01 (WEA02)	07:13		08:01 (B223)	06:05			05:17		06:13 (B050)	05:06		06:25 (B050)	05:36		06:24 (B050)	06:24		06:59 (B087)	07:14		08:08 (WEA01)	08:05						07:59	
	17:00	12	09:06 (WEA03)	17:56	27	08:28 (WEA02)	19:45	47	08:56 (WEA01)	20:37			21:24	21	06:34 (B050)	21:45	9	06:34 (B050)	21:22	43	07:19 (B014)	20:24	7	07:06 (B087)	19:14	37	08:45 (WEA02)	18:08						16:21	
28	08:10		08:52 (WEA03)	07:14		08:01 (WEA02)	07:11		08:02 (B223)	06:03		06:53 (B014)	05:16		06:13 (B050)	05:06		06:24 (B050)	05:37		06:26 (B050)	06:26		07:33 (B152)	07:16		08:08 (WEA01)	08:07						08:00	
	17:02	16	09:08 (WEA03)	17:58	27	08:28 (WEA02)	19:47	43	08:54 (WEA01)	20:39	9	07:02 (B014)	21:25	21	06:34 (B050)	21:45	10	06:34 (B050)	21:20	42	07:20 (B014)	20:22	9	07:42 (B152)	19:11	37	08:45 (WEA01)	18:06						16:20	
29	08:09		08:52 (WEA03)				07:09		08:02 (B153)	06:01		06:50 (B014)	05:15		06:13 (B050)	05:07		06:24 (B050)	05:39		06:27 (B050)	06:28		07:32 (B152)	07:17		08:08 (WEA01)	07:08		08:26 (WEA03)	08:02			08:29	
	17:03	18	09:10 (WEA03)				19:48	38	08:52 (WEA01)	20:41	14	07:04 (B014)	21:26	21	06:34 (B050)	21:45	11	06:35 (B050)	21:19	41	07:21 (B014)	20:20	11	07:43 (B152)	19:09	35	08:43 (WEA01)	17:04	11	08:37 (WEA03)	16:19			16:19	
30	08:07		08:50 (WEA03)				07:07		08:03 (B153)	05:59		06:48 (B014)	05:14		06:13 (B050)	05:07		06:24 (B050)	05:40		06:28 (B050)	06:29		07:30 (B152)	07:19		08:08 (WEA01)	07:10		08:24 (WEA03)	08:03			08:29	
	17:05	21	09:11 (WEA03)				19:50	31	08:49 (WEA01)	20:42	19	07:07 (B014)	21:27	22	20:58 (B172)	21:45	11	06:35 (B050)	21:17	38	07:21 (B014)	20:18	13	07:43 (B152)	19:07	35	08:43 (WEA02)	17:02	15	08:39 (WEA03)	16:18			16:20	
31	08:06		08:49 (WEA03)				07:04		08:04 (B153)				05:13		06:13 (B050)				05:42		06:52 (B014)	06:31		07:30 (B152)				07:12		08:22 (WEA03)				08:29	
	17:07	22	09:11 (WEA03)				19:52	23	08:46 (WEA01)				21:28	23	20:59 (B172)				21:16	30	07:22 (B014)	20:15	14	07:44 (B152)				17:00	19	08:41 (WEA03)				16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245	
astr.max.m0gl.Beschattung		96			524			1152			267			977			391			844			569			780			699			370		
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23		
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung		0.58			0.61			0.67			0.73			0.73			0.74			0.74			0.73			0.68			0.65			0.58		
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			0.13		
Met.wahrsch.Beschattung		10			98			207			67			292			93			229			158			161			124			46		

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

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

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO054 - Kirchborchener Str. 56, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			07:12			07:02			05:57			05:12			05:08			05:43			07:21			07:14			08:05					
	16:22			17:09	23	08:50 (WEA03)	09:13 (WEA03)	18:00	28	08:01 (WEA02)	19:54		20:44	27	06:49 (B014)	21:30	19	06:21 (B050)	21:45			21:14	39	06:31 (B050)	20:13	13	07:33 (B152)	19:04	34	08:11 (WEA01)	16:58	20	08:22 (WEA03)	18:17				
2	08:29			08:03		08:49 (WEA03)	07:10			08:01 (WEA02)	07:00		05:56		06:48 (B014)	05:11		06:21 (B050)	05:09			05:45		06:34 (B050)	06:34		07:33 (B152)	07:22		08:11 (WEA01)	07:16		08:21 (WEA03)	08:06				
	16:23			17:11	24	09:13 (WEA03)	18:02	28	08:29 (WEA02)	19:55		20:46	28	07:16 (B014)	21:31	19	21:01 (B172)	21:44			21:13	35	07:25 (B014)	20:11	14	07:47 (B152)	19:02	32	08:43 (WEA01)	16:57	22	08:43 (WEA03)	16:17				
3	08:29			08:01		08:49 (WEA03)	07:08		08:01 (WEA02)	06:57		05:54		06:47 (B014)	05:10		06:21 (B050)	05:09			05:46		06:57 (B014)	06:36		07:32 (B152)	07:24		08:12 (WEA01)	07:17		08:21 (WEA03)	08:07				
	16:24			17:13	24	09:13 (WEA03)	18:04	28	08:29 (WEA02)	19:57		20:47	29	07:16 (B014)	21:32	19	21:02 (B172)	21:44			21:11	28	07:25 (B014)	20:09	14	07:46 (B152)	19:00	31	08:43 (WEA01)	16:55	22	08:43 (WEA03)	16:16				
4	08:29			08:00		08:49 (WEA03)	07:05		08:01 (WEA02)	06:55		05:52		06:46 (B014)	05:10		06:23 (B050)	05:10			05:48		06:56 (B014)	06:37		07:32 (B152)	07:26		08:13 (WEA01)	07:19		08:19 (WEA03)	08:09				
	16:25			17:14	25	09:14 (WEA03)	18:05	28	08:29 (WEA02)	19:59		20:49	30	07:16 (B014)	21:33	17	21:03 (B172)	21:44			21:09	29	07:25 (B014)	20:07	14	07:46 (B152)	18:57	37	08:55 (WEA02)	16:53	24	08:43 (WEA03)	16:16				
5	08:29			07:58		08:49 (WEA03)	07:03		08:02 (WEA02)	06:53		05:50		06:47 (B014)	05:09		06:23 (B050)	05:11			05:49		06:56 (B014)	06:39		07:33 (B152)	07:27		08:14 (WEA01)	07:21		08:19 (WEA03)	08:10				
	16:26			17:16	25	09:14 (WEA03)	18:07	27	08:29 (WEA02)	20:00		20:51	30	07:17 (B014)	21:34	17	21:04 (B172)	21:43			21:08	30	07:26 (B014)	20:04	13	07:46 (B152)	18:55	40	08:58 (WEA02)	16:51	24	08:43 (WEA03)	16:15				
6	08:29			07:56		08:49 (WEA03)	07:01		08:01 (WEA02)	06:51		07:39 (B152)	05:48		06:46 (B014)	05:08		06:24 (B050)	05:12			05:51		06:56 (B014)	06:40		07:32 (B152)	07:29		08:15 (WEA01)	07:23		08:19 (WEA03)	08:11				
	16:28			17:18	25	09:14 (WEA03)	18:09	26	08:27 (WEA02)	20:02	6	07:45 (B152)	20:52	30	07:16 (B014)	21:35	10	21:02 (B172)	21:43	4	06:37 (B050)	21:06	30	07:26 (B014)	20:02	12	07:44 (B152)	18:53	41	09:00 (WEA02)	16:49	25	08:44 (WEA03)	16:15				
7	08:28			07:55		08:49 (WEA03)	06:59		07:45 (WEA01)	06:48		07:37 (B152)	05:46		06:46 (B014)	05:08		06:26 (B050)	05:12			05:32 (B050)	05:52		06:56 (B014)	06:42		07:34 (B152)	07:31		08:17 (WEA01)	07:24		08:19 (WEA03)	08:13				
	16:29			17:20	25	09:14 (WEA03)	18:11	34	08:26 (WEA02)	20:04	10	07:47 (B152)	20:54	30	07:16 (B014)	21:36	7	06:33 (B050)	21:42	7	06:39 (B050)	21:04	30	07:26 (B014)	20:00	9	07:43 (B152)	18:51	40	09:01 (WEA02)	16:48	25	08:44 (WEA03)	16:14				
8	08:28			07:53		08:50 (WEA03)	06:57		07:41 (WEA01)	06:46		07:36 (B152)	05:45		06:46 (B014)	05:07		06:27 (B050)	05:13			06:31 (B050)	05:54		06:56 (B014)	06:44		07:36 (B152)	07:32		08:21 (WEA01)	07:26		08:19 (WEA03)	08:14				
	16:30			17:22	24	09:14 (WEA03)	18:12	40	08:25 (WEA02)	20:05	12	07:48 (B152)	20:55	30	07:16 (B014)	21:37	4	06:31 (B050)	21:42	10	21:09 (B172)	21:02	30	07:26 (B014)	19:57	3	07:39 (B152)	18:48	35	09:02 (WEA02)	16:46	25	08:44 (WEA03)	16:14				
9	08:28			07:51		08:51 (WEA03)	06:54		07:38 (WEA01)	06:44		07:35 (B152)	05:43		06:46 (B014)	05:06			05:14		06:30 (B050)	05:56		06:56 (B014)	06:45			07:34		08:36 (WEA02)	07:28		08:19 (WEA03)	08:15				
	16:31			17:24	23	09:14 (WEA03)	18:14	41	08:23 (WEA02)	20:07	14	07:49 (B152)	20:57	30	07:16 (B014)	21:38			21:41	17	21:11 (B172)	21:00	30	07:26 (B014)	19:55			18:46	26	09:02 (WEA02)	16:44	25	08:44 (WEA03)	16:14				
10	08:27			07:49		08:51 (WEA03)	06:52		07:36 (WEA01)	06:42		07:34 (B152)	05:41		06:47 (B014)	05:06			05:15		06:30 (B050)	05:57		06:56 (B014)	06:47			07:36		08:36 (WEA02)	07:30		08:20 (WEA03)	08:16				
	16:33			17:25	22	09:13 (WEA03)	18:16	40	08:20 (WEA02)	20:09	14	07:48 (B152)	20:59	29	07:16 (B014)	21:38			21:40	17	21:10 (B172)	20:59	29	07:25 (B014)	19:53			18:44	27	09:03 (WEA02)	16:43	24	08:44 (WEA03)	16:13				
11	08:27			07:48		08:52 (WEA03)	06:50		07:35 (WEA01)	06:39		07:34 (B152)	05:39		06:47 (B014)	05:06			05:16		06:29 (B050)	05:59		06:56 (B014)	06:48			07:37		08:35 (WEA02)	07:32		08:21 (WEA03)	08:17				
	16:34			17:27	20	09:12 (WEA03)	18:18	37	08:17 (WEA02)	20:10	14	07:48 (B152)	21:00	28	07:15 (B014)	21:39			21:40	19	21:10 (B172)	20:57	29	07:25 (B014)	19:51			18:42	28	09:03 (WEA02)	16:41	23	08:44 (WEA03)	16:13				
12	08:26			07:46		08:53 (WEA03)	06:48		07:34 (WEA01)	06:37		07:34 (B152)	05:38		06:23 (B050)	05:05			05:17		06:29 (B050)	06:00		06:56 (B014)	06:50			07:39		08:35 (WEA02)	07:33		08:21 (WEA03)	08:18				
	16:36			17:29	18	09:11 (WEA03)	18:19	31	08:05 (WEA01)	20:12	13	07:47 (B152)	21:02	35	07:14 (B014)	21:40			21:39	19	21:09 (B172)	20:55	28	07:24 (B014)	19:48			18:40	28	09:03 (WEA02)	16:40	22	08:43 (WEA03)	16:13				
13	08:25			07:44		08:55 (WEA03)	06:45		07:32 (WEA01)	06:35		07:35 (B152)	05:36		06:21 (B050)	05:05			05:18		06:29 (B050)	06:02		06:57 (B014)	06:52			07:41		08:34 (WEA02)	07:35		08:22 (WEA03)	08:19				
	16:37			17:31	14	09:09 (WEA03)	18:21	33	08:05 (WEA01)	20:14	11	07:46 (B152)	21:03	38	07:14 (B014)	21:41			21:38	19	21:08 (B172)	20:53	27	07:24 (B014)	19:46			18:37	29	09:03 (WEA02)	16:38	21	08:43 (WEA03)	16:13				
14	08:25			07:42		08:57 (WEA03)	06:43		07:31 (WEA01)	06:33		07:36 (B152)	05:35		06:20 (B050)	05:05			05:19		06:28 (B050)	06:04		06:57 (B014)	06:53		08:00 (B153)	07:42		08:34 (WEA02)	07:37		08:23 (WEA03)	08:20				
	16:39			17:33	10	09:07 (WEA03)	18:23	34	08:05 (WEA01)	20:15	9	07:45 (B152)	21:05	40	07:14 (B014)	21:41			21:37	22	21:08 (B172)	20:51	26	07:23 (B014)	19:44	5	08:05 (B153)	18:35	28	09:02 (WEA02)	16:37	19	08:42 (WEA03)	16:13				
15	08:24			07:40			06:41		07:31 (WEA01)	06:31		07:39 (B152)	05:33		06:19 (B050)	05:04			05:20		06:28 (B050)	06:05		06:58 (B014)	06:55		07:57 (B153)	07:44		08:34 (WEA02)	07:39		08:25 (WEA03)	08:21				
	16:40			17:35			18:25	35	08:06 (WEA01)	20:17	3	07:42 (B152)	21:06	40	07:13 (B014)	21:42			21:36	21	21:07 (B172)	20:49	24	07:22 (B014)	19:41	11	08:08 (B153)	18:33	28	09:02 (WEA02)	16:35	17	08:42 (WEA03)	16:13				
16	08:23			07:38			06:39		07:29 (WEA01)	06:28		07:00 (B087)	05:31		06:18 (B050)	05:04			05:22		06:27 (B050)	06:07		06:59 (B014)	06:56		07:56 (B153)	07:46		08:35 (WEA02)	07:40		08:26 (WEA03)	08:22				
	16:42			17:36			18:26	36	08:05 (WEA01)	20:19	6	07:06 (B087)	21:08	41	07:12 (B014)	21:42			21:35	21	21:06 (B172)	20:47	21	07:20 (B014)	19:39	25	08:39 (WEA01)	18:31	27	09:02 (WEA02)	16:34	15	08:41 (WEA03)	16:13				
17	08:22			07:36			06:36		07:29 (WEA01)	06:26		06:58 (B087)	05:30		06:17 (B050)	05:04			05:23		06:27 (B050)	06:08		07:00 (B014)	06:58		07:54 (B153)	07:48		08:35 (WEA02)	07:42		08:27 (WEA03)	08:23				
	16:43			17:38			18:28	36	08:05 (WEA01)	20:20	10	07:08 (B087)	21:09	40	07:11 (B014)	21:43			21:34	21	21:05 (B172)	20:45	19	07:19 (B014)	19:37	34	08:42 (WEA01)	18:29	26	09:01 (WEA02)	16:32	11	08:38 (WEA03)	16:13				
18	08:21			07:35		08:21 (B013)	06:34		07:29 (WEA01)	06:24		06:57 (B087)	05:28		06:17 (B050)	05:04			05:24		06:27 (B050)	06:10		07:02 (B014)	07:00		07:53 (B223)	07:49		08:35 (WEA02)	07:44		08:31 (WEA03)	08:24				
	16:45			17:40	7	08:28 (B013)	18:30	36	08:05 (WEA01)	20:22	12	07:09 (B087)	21:11	38	07:10 (B014)	21:43			21:33	20	06:47 (B050)	20:43	15	07:17 (B014)	19:34	40	08:44 (WEA01)	18:27	24	08:59 (WEA02)	16:31	4	08:35 (WEA03)	16:13				
19	08:20			07:33		08:20 (B013)	06:32		07:09 (B223)	06:22		06:56 (B087)	05:27		06:17 (B050)	05:04			05:25		06:26 (B050)	06:12		07:05 (B014)	07:01		07:51 (B223)	07:51		08:36 (WEA02)	07:45			08:25				
	16:46			17:42	10	08:30 (B013)	18:31	40	08:04 (WEA01)	20:24	13	07:09 (B087)	21:12	37	07:09 (B014)	21:44			21:32	21	06:47 (B050)	20:41	9	07:14 (B014)	19:32	45	08:45 (WEA01)	18:24	24	09:00 (B013)	16:30			16:14				
20	08:19			07:31		08:19 (B013)	06:29		07:07 (B223)	06:20		06:56 (B087)	05:26		06:17 (B050)	05:04			05:27		06:27 (B050)	06:13		07:04 (B087)	07:03		07:50 (B223)	07:53		08:38 (WEA02)	07:47			08:25				
	16:48			17:44	12	08:31 (B013)	18:33	45	08:04 (WEA01)	20:26	13	07:09 (B087)	21:14	33	07:07 (B014)	21:44			21:31	21	06:48 (B050)	20:39	6	07:10 (B087)	19:30	48	08:46 (WEA01)	18:22	23	09:01 (B013)	16:29			16:14				
21	08:18			07:29		08:14 (WEA02)	06:27		07:05 (B223)	06:18		06:56 (B087)	05:24		06:16 (B050)	05:04			05:28		06:27 (B050)	06:15		07:03 (B087)	07:05		07:50 (B223)	07:54		08:40 (WEA02)	07:49			08:26				
	16:50			17:46	17	08:31 (B013)	18:35	48	08:04 (WEA01)	20:27	12	07:08 (B087)	21:15	27	07:03 (B014)	21:44			21:30	21	06:48 (B050)	20:37	9	07:12 (B087)	19:27	49	08:47 (WEA01)	18:20	21	09:01 (B013)	16:27			16:14				
22	08:17			07:27		08:10 (WEA02)	06:25		07:05 (B223)	06:16		06:56 (B087)	05:23		06:16 (B050)	05:04			05:29		06:27 (B050)	06:16		07:01 (B087)	07:06		07:49 (B223)	07:56		08:43 (WEA02)	07:50			08:27				
	16:51			17:47	21	08:31 (B013)	18:37	50	08:03 (WEA01)	20:29	12	07:08 (B087)	21:17	22	06:38 (B050)	21:45			21:29	21	06:48 (B050)	20:35	11	07:12 (B087)	19:25	50	08:47 (WEA01)	18:18	19	09:02 (B013)	16:26			16:15				
23	08:16			07:24		08:08 (WEA02)	06:23		07:03 (B223)	06:14		06:57 (B087)	05:22		06:17 (B050)	05:05			05:30		06:27 (B050)	06:18		07:00 (B087)	07:08		07:49 (B223)	07:58		08:50 (B013)	07:52			08:27				
	16:53			17:49	23	08:31 (B013)	18:38	50	08:01 (WEA01)	20:31	10	07:07 (B087)	21:18	21	06:38 (B050)	21:45			21:27	21	06:48 (B050)	20:33	13	07:13 (B087)	19:23	50	08:48 (WEA01)	18:16	11	09:01 (B013)	16:25			16:15				
24	08:15			07:22		08:05 (WEA02)	06:20		07:03 (B223)	06:11		06:58 (B087)	05:20		06:17 (B050)	05:05			05:32		06:26 (B050)	06:20		06:59 (B087)	07:09		07:49 (B223)	08:00		08:49 (B013)	07:54			08:28				
	16:55			17:51	24	08:29 (B013)	18:40	49	08:00 (WEA01)	20:32	7	07:05 (B087)	21:20	21	06:38 (B050)	21:45			21:26	27	07:13 (B014)	20:31	13	07:12 (B087)	19:21	47	08:47 (WEA01)	18:14	11	09:00 (B013)	16:24			16:16				
25	08:14			07:20		08:04 (WEA02)	06:18		07:04 (B223)	06:09		07:00 (B014)	05:19		06:17 (B050)	05:05			05:33		06:27 (B050)	06:21		07:00 (B087)	07:11		07:51 (B223)	08:01		08:51 (B013)	07:55			08:28				
	16:56			17:53	24	08:28 (WEA02)	18:42	46	07:59 (WEA01)	20:34	5	07:05 (B014)	21:21	21	06:38 (B050)	21:45			21:25	32	07:17 (B014)	20:29	13	07:13 (B087)	19:18	45	08:48 (WEA01)	18:12	8	08:59 (B013)	16:23			16:16				
26	08:13		08:56 (WEA03)	07:18		08:03 (WEA02)	07:16		08:04 (B223)	06:07		06:56 (B014)	05:18		06:17 (B050)	05:05			05:35		06:27 (B050)	06:23		06:59 (B087)	07:13		07:54 (B223)	08:03		08:53 (B013)	07:57			08:28				
	16:58	8	09:04 (WEA03)	17:55	26	08:29 (WEA02)	19:43	43	08:57 (WEA01)	20:36	13	07:09 (B014)	21:22	21	06:38 (B050)	21:45			21:23	36	07:19 (B014)	20:26	13	07:12 (B087)	19:16	38	08:48 (WEA01)	18:10	3	08:56 (B013)	16:22			16:17				
27	08:11		08:54 (WEA03)	07:16		08:03 (WEA02)	07:13		08:05 (B223)	06:05		06:53 (B014)	05:17		06:18 (B050)	05:06			05:36		06:27 (B050)	06:24		07:00 (B087)	07:14		08:11 (WEA01)	08:05						07:59			08:29		
	17:00	13	09:07 (WEA03)	17:56	26	08:29 (WEA02)	19:45	38	08:55 (WEA01)	20:37	18	07:11 (B014)	21:24	20	06:38 (B050)	21:45			21:22	38	07:20 (B014)	20:24	11	07:11 (B087)	19:14	36	08:47 (WEA02)	18:08						16:21			08:18		
28	08:10		08:52 (WEA03)	07:14		08:02 (WEA02)	07:11		08:06 (B153)	06:03		06:52 (B014)	05:16		06:18 (B050)	05:06			05:37		06:28 (B050)	06:26		07:00 (B087)	07:16		08:11 (WEA01)	08:07						08:00			08:29		
	17:02	16	09:08 (WEA03)	17:58	28	08:30 (WEA02)	19:47	31	08:52 (WEA01)	20:39	21	07:13 (B014)	21:25	21	20:56 (B172)	21:45			21:20	41	07:22 (B014)	20:22	9	07:09 (B087)	19:11	36	08:47 (WEA01)	18:06						16:20			08:18		
29	08:09		08:52 (WEA03)				07:09		08:06 (B153)	06:01		06:50 (B014)	05:15		06:18 (B050)	05:07			05:39		06:28 (B050)	06:28		07:04 (B087)	07:17		08:10 (WEA01)	07:08		08:28 (WEA03)	08:02			08:29		
	17:03	18	09:10 (WEA03)				19:48	22	08:48 (WEA01)	20:41	23	07:13 (B014)	21:26	21	20:57 (B172)	21:45			21:19	41	07:22 (B014)	20:20	2	07:06 (B087)	19:09	36	08:46 (WEA01)	17:04	7	08:35 (WEA03)	16:19			16:19				
30	08:07		08:51 (WEA03)				07:07		08:08 (B153)	05:59		06:50 (B014)	05:14		06:19 (B050)	05:07			05:40		06:29 (B050)	06:29		07:37 (B152)	07:19		08:11 (WEA01)	07:10		08:25 (WEA03)	08:03			08:29		
	17:05	20	09:11 (WEA03)				19:50	9	08:17 (B153)	20:42	25	07:15 (B014)	21:27	21	20:58 (B172)	21:45			21:17	41	07:23 (B014)	20:18	7	07:44 (B152)	19:07	35	08:46 (WEA01)	17:02	13	08:38 (WEA03)	16:18			16:20				
31	08:06		08:50 (WEA03)				07:04						05:13		06:19 (B050)				05:42		06:30 (B050)	06:31		07:35 (B152)				07:12		08:23 (WEA03)				08:29				
	17:07	21	09:11 (WEA03)				19:52						21:29	22	20:59 (B172)				21:16	40	07:24 (B014)	20:15	11	07:46 (B152)				17:00	17	08:40 (WEA03)				16:21				
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		96			520			1069			306			901			112			618			626			722			718			368				
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23				
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95				
Reduktion Windrichtung		0.58			0.61			0.67			0.73			0.73			0.72			0.73			0.73			0.68			0.65			0.58				
Gesamte Reduktion		0.10			0.19			0.18			0.25			0.30			0.23			0.27			0.28			0.21			0.18			0.13				
Met.wahrsch.Beschattung		10			97			192			77			269			26			167			174			149			127			46				

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO055 - Kirchborchener Str. 58,Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November	Dezember
1	08:29		08:04		07:12		07:59 (WEA01)	07:02		08:00 (B152)	05:57	06:43 (B050)	05:12		05:08		21:13 (B143)	05:43	06:47 (B050)	06:32	07:11 (B087)	07:21	08:02 (B223)	07:14	08:05
	16:22		17:09		18:00	41	08:40 (WEA02)	19:54	13	08:13 (B152)	20:44	32	07:37 (B014)	21:30		21:45	1	21:14 (B143)	21:14	20	07:07 (B050)	20:13	14	07:25 (B087)	19:04	45	09:04 (WEA01)	16:58	16:18
2	08:29		08:03		07:10		07:59 (WEA01)	07:00		08:00 (B152)	05:56		06:41 (B050)	05:11		05:09			05:45		06:47 (B050)	06:34		07:12 (B087)	07:22		08:02 (B223)	07:16	08:06
	16:23		17:11		18:02	37	08:36 (WEA02)	19:55	11	08:11 (B152)	20:46	33	07:35 (B014)	21:31		21:44			21:13	21	07:08 (B050)	20:11	13	07:25 (B087)	19:02	45	09:04 (WEA01)	16:57	16:17
3	08:29		08:01		07:08		07:58 (WEA01)	06:57		08:02 (B152)	05:54		06:39 (B050)	05:10		05:09			05:46		06:47 (B050)	06:36		07:11 (B087)	07:24		08:04 (B223)	07:17	08:07
	16:24		17:13		18:04	34	08:32 (WEA01)	19:57	8	08:10 (B152)	20:47	32	07:33 (B014)	21:32		21:44			21:11	21	07:08 (B050)	20:09	12	07:23 (B087)	19:00	43	09:06 (WEA01)	16:55	16:16
4	08:29		08:00		07:05		07:58 (WEA01)	06:55			05:52		06:38 (B050)	05:10		05:10			05:48		06:46 (B050)	06:37		07:13 (B087)	07:26		08:36 (WEA01)	07:19	08:09
	16:25		17:14		18:05	34	08:32 (WEA01)	19:59			20:49	28	07:30 (B014)	21:33		21:44			21:09	22	07:08 (B050)	20:07	9	07:22 (B087)	18:57	31	09:07 (WEA01)	16:53	16:16
5	08:29		07:58		07:03		07:58 (WEA01)	06:53			05:50		06:38 (B050)	05:09		05:11			05:49		06:46 (B050)	06:39		07:15 (B087)	07:27		08:35 (WEA01)	07:21	08:10
	16:26		17:16		18:07	34	08:32 (WEA01)	20:00			20:51	20	06:58 (B050)	21:34		21:43			21:08	22	07:08 (B050)	20:04	5	07:20 (B087)	18:55	32	09:07 (WEA01)	16:51	16:15
6	08:29		07:56		07:01		07:57 (WEA01)	06:51			05:48		06:37 (B050)	05:08		05:12			05:51		06:46 (B050)	06:40			07:29		08:34 (WEA01)	07:23	08:11
	16:28		17:18		18:09	35	08:32 (WEA01)	20:02			20:52	21	06:58 (B050)	21:35		21:43			21:06	22	07:08 (B050)	20:02			18:53	33	09:07 (WEA01)	16:49	16:15
7	08:28		07:55		06:59		07:57 (WEA01)	06:48			05:46		06:36 (B050)	05:08		05:12			05:52		06:47 (B050)	06:42			07:31		08:33 (WEA01)	07:24	08:13
	16:29		17:20		18:11	34	08:31 (WEA01)	20:04			20:54	22	06:58 (B050)	21:36		21:42			21:04	21	07:08 (B050)	20:00			18:51	34	09:07 (WEA01)	16:48	16:14
8	08:28		07:53		06:57		07:57 (WEA01)	06:46			05:45		06:37 (B050)	05:07		05:13			05:54		06:46 (B050)	06:44			07:32		08:33 (WEA01)	07:26	08:14
	16:30		17:22		18:12	34	08:31 (WEA01)	20:05			20:55	22	06:59 (B050)	21:37		21:42			21:02	21	07:07 (B050)	19:57			18:48	35	09:08 (WEA01)	16:46	16:14
9	08:28		07:51		06:54		07:56 (WEA01)	06:44		07:17 (B087)	05:43		06:36 (B050)	05:06		05:14			05:56		06:47 (B050)	06:45			07:34		08:32 (WEA01)	07:28	08:15
	16:31		17:24		18:14	34	08:30 (WEA01)	20:07	7	07:24 (B087)	20:57	22	06:58 (B050)	21:38		21:41			21:00	20	07:07 (B050)	19:55			18:46	35	09:07 (WEA01)	16:44	16:14
10	08:27		07:49		06:52		07:57 (WEA01)	06:42		07:14 (B087)	05:41		06:37 (B050)	05:06		05:15			05:57		06:47 (B050)	06:47		07:57 (B152)	07:36		08:32 (WEA01)	07:30	08:16
	16:33		17:25		18:16	32	08:29 (WEA01)	20:09	11	07:25 (B087)	20:59	22	06:59 (B050)	21:38		21:40			20:59	28	07:39 (B014)	19:53	4	08:01 (B152)	18:44	35	09:07 (WEA01)	16:43	16:13
11	08:27		07:48		06:50		07:58 (WEA01)	06:39		07:13 (B087)	05:39		06:36 (B050)	05:06		05:16			05:59		06:49 (B050)	06:48		07:54 (B152)	07:37		08:32 (WEA01)	07:32	08:17
	16:34		17:27		18:18	31	08:29 (WEA01)	20:10	12	07:25 (B087)	21:00	22	06:58 (B050)	21:39		21:40			20:57	30	07:42 (B014)	19:51	10	08:04 (B152)	18:42	34	09:06 (WEA01)	16:41	16:13
12	08:26		07:46		06:48		07:26 (B223)	06:37		07:13 (B087)	05:38		06:36 (B050)	05:05		05:17			06:00		06:49 (B050)	06:50		07:52 (B152)	07:39		08:33 (WEA01)	07:33	08:18
	16:36		17:29	8	08:39 (WEA02)	18:19	43	08:28 (WEA01)	20:12	13	07:26 (B087)	21:02	21	06:57 (B050)	21:40					20:55	33	07:43 (B014)	19:48	12	08:04 (B152)	18:40	33	09:06 (WEA01)	16:40	16:13
13	08:25		07:44		08:28 (WEA02)	06:45		07:23 (B223)	06:35		07:12 (B087)	05:36		06:37 (B050)	05:05		21:09 (B143)	05:18		06:02		06:51 (B050)	06:52		07:51 (B152)	07:41		08:32 (WEA01)	07:35	08:19
	16:37		17:31	14	08:42 (WEA02)	18:21	46	08:26 (WEA01)	20:14	23	07:35 (B014)	21:03	21	20:36 (B142)	21:41	1	21:10 (B143)	21:38		20:53	32	07:45 (B014)	19:46	14	08:05 (B152)	18:37	36	09:08 (WEA02)	16:38	16:13
14	08:25		07:42		08:26 (WEA02)	06:43		07:22 (B223)	06:33		07:13 (B087)	05:35		06:38 (B050)	05:05		21:10 (B143)	05:19		06:04		06:54 (B050)	06:53		07:50 (B152)	07:42		08:33 (WEA01)	07:37	08:20
	16:38		17:33	18	08:44 (WEA02)	18:23	46	08:24 (WEA01)	20:15	25	07:38 (B014)	21:05	21	20:38 (B172)	21:41	1	21:11 (B143)	21:37		20:51	28	07:46 (B014)	19:44	14	08:04 (B152)	18:35	40	09:13 (WEA02)	16:37	16:13
15	08:24		07:40		08:25 (WEA02)	06:41		07:22 (B223)	06:31		07:13 (B087)	05:33		06:38 (B050)	05:04		21:10 (B143)	05:20		06:05		07:22 (B014)	06:55		07:50 (B152)	07:44		08:33 (WEA01)	07:39	08:21
	16:40		17:35	20	08:45 (WEA02)	18:25	42	08:22 (WEA01)	20:17	27	07:40 (B014)	21:06	22	20:39 (B172)	21:42	2	21:12 (B143)	21:36		20:49	25	07:47 (B014)	19:41	14	08:04 (B152)	18:33	42	09:15 (WEA02)	16:35	16:13
16	08:23		07:38		08:24 (WEA02)	06:39		07:21 (B223)	06:28		07:13 (B087)	05:31		06:39 (B050)	05:04		21:10 (B143)	05:22		06:07		07:20 (B014)	06:56		07:51 (B152)	07:46		08:35 (WEA01)	07:40	08:22
	16:42		17:36	22	08:46 (WEA02)	18:26	37	08:18 (WEA01)	20:19	27	07:40 (B014)	21:08	21	20:41 (B172)	21:42	2	21:12 (B143)	21:35		20:47	27	07:47 (B014)	19:39	13	08:04 (B152)	18:31	42	09:17 (WEA02)	16:34	16:13
17	08:22		07:36		08:23 (WEA02)	06:36		07:21 (B223)	06:26		07:16 (B087)	05:30		06:39 (B050)	05:04		21:10 (B143)	05:23		06:08		07:20 (B014)	06:58		07:51 (B152)	07:48		08:36 (WEA01)	07:42	08:23
	16:43		17:38	24	08:47 (WEA02)	18:28	25	08:12 (WEA01)	20:20	25	07:41 (B014)	21:09	20	20:41 (B172)	21:43	3	21:13 (B143)	21:34		20:45	28	07:48 (B014)	19:37	11	08:02 (B152)	18:29	42	09:18 (WEA02)	16:32	16:13
18	08:21		07:35		08:22 (WEA02)	06:34		07:22 (B223)	06:24		07:15 (B014)	05:28		06:41 (B050)	05:04		21:11 (B143)	05:24		06:10		07:19 (B014)	07:00		07:52 (B152)	07:49		08:36 (WEA01)	07:44	08:24
	16:45		17:40	26	08:48 (WEA02)	18:30	21	07:43 (B153)	20:22	27	07:42 (B014)	21:11	19	20:43 (B172)	21:43	2	21:13 (B143)	21:33		20:43	29	07:48 (B014)	19:34	9	08:01 (B152)	18:27	42	09:18 (WEA02)	16:31	16:13
19	08:20		07:33		08:22 (WEA02)	06:32		07:22 (B223)	06:22		07:14 (B014)	05:27		06:43 (B050)	05:04		21:11 (B143)	05:25		06:12		07:19 (B014)	07:01		07:55 (B152)	07:51		08:39 (WEA01)	07:45	08:25
	16:46		17:42	26	08:48 (WEA02)	18:31	19	07:41 (B153)	20:24	28	07:42 (B014)	21:12	15	20:45 (B172)	21:44	2	21:13 (B143)	21:32		20:41	29	07:48 (B014)	19:32	1	07:56 (B152)	18:24	39	09:18 (WEA02)	16:30	16:14
20	08:19		07:31		08:21 (WEA02)	06:29		07:24 (B223)	06:20		07:14 (B014)	05:26		20:38 (B172)	21:44	2	21:11 (B143)	05:27		06:13		07:18 (B014)	07:03			07:53		08:42 (WEA01)	07:47	08:25
	16:48		17:44	28	08:49 (WEA02)	18:33	16	07:40 (B153)	20:26	29	07:43 (B014)	21:14	6	20:44 (B172)	21:44	3	21:14 (B143)	21:31		20:39	30	07:48 (B014)	19:30			18:22	37	09:19 (WEA02)	16:29	16:14
21	08:18		07:29		08:21 (WEA02)	06:27		07:32 (B153)	06:18		07:13 (B014)	05:24			05:04		21:11 (B143)	05:28		06:15		07:18 (B014)	07:05			07:54		08:52 (WEA02)	07:49	08:26
	16:50		17:46	28	08:49 (WEA02)	18:35	5	07:37 (B153)	20:27	30	07:43 (B014)	21:15			21:44	3	21:14 (B143)	21:30		20:37	30	07:48 (B014)	19:27			18:20	27	09:19 (WEA02)	16:27	16:14
22	08:17		07:27		08:21 (WEA02)	06:25			06:16		07:13 (B014)	05:23			05:04		21:11 (B143)	05:29		06:16		07:17 (B014)	07:06			07:56		08:52 (WEA02)	07:50	08:27
	16:51		17:47	28	08:49 (WEA02)	18:37			20:29	30	07:43 (B014)	21:17			21:45	3	21:14 (B143)	21:29		20:35	31	07:48 (B014)	19:25			18:18	27	09:19 (WEA02)	16:26	16:15
23	08:16		07:24		08:13 (WEA01)	06:23			06:14		07:12 (B014)	05:22			05:05		21:11 (B143)	05:30		06:18		07:18 (B014)	07:08			07:58		08:52 (WEA02)	07:52	08:27
	16:53		17:49	34	08:48 (WEA02)	18:38			20:31	31	07:43 (B014)	21:18			21:45	3	21:14 (B143)	21:27		20:33	30	07:48 (B014)	19:23			18:16	27	09:19 (WEA02)	16:25	16:15
24	08:15		07:22		08:08 (WEA01)	06:20			06:11		07:12 (B014)	05:20			05:05		21:12 (B143)	05:32		06:20		07:17 (B014)	07:09		08:15 (B153)	08:00		08:51 (WEA02)	07:54	08:28
	16:55		17:51	39	08:47 (WEA02)	18:40			20:32	30	07:42 (B014)	21:20			21:45	3	21:15 (B143)	21:26		20:31	30	07:47 (B014)	19:21	7	08:22 (B153)	18:14	27	09:18 (WEA02)	16:24	16:16
25	08:14		07:20		08:05 (WEA01)	06:18			06:09		07:12 (B014)	05:19			05:05		21:12 (B143)	05:33	20:49 (B172)	06:21		07:18 (B014)	07:11		08:07 (B223)	08:01		08:52 (WEA02)	07:55	08:28
	16:56		17:53	41	08:46 (WEA02)	18:42			20:34	30	07:42 (B014)	21:21			21:45	2	21:14 (B143)	21:25	6 20:55 (B172)	20:29	28	07:46 (B014)	19:18	17	08:24 (B153)	18:12	26	09:18 (WEA02)	16:23	16:16
26	08:13		07:18		08:04 (WEA01)	07:16		08:06 (B152)	06:07		07:12 (B014)	05:18			05:05		21:12 (B143)	05:35	06:53 (B050)	06:23		07:18 (B014)	07:13		08:05 (B223)	08:03		08:52 (WEA02)	07:57	08:28
	16:58		17:55	42	08:46 (WEA02)	19:43	4	08:10 (B152)	20:36	29	07:41 (B014)	21:22			21:45	2	21:14 (B143)	21:23	15 20:55 (B172)	20:26	27	07:45 (B014)	19:16	20	08:25 (B153)	18:10	25	09:17 (WEA02)	16:22	16:17
27	08:11		07:16		08:02 (WEA01)	07:13		08:03 (B152)	06:05		07:12 (B014)	05:17			05:06		21:12 (B143)	05:36	06:51 (B050)	06:24		07:19 (B014)	07:14		08:03 (B223)	08:05		08:53 (WEA02)	07:59	08:29
	17:00		17:56	43	08:45 (WEA02)	19:45	10	08:13 (B152)	20:37	29	07:41 (B014)	21:24			21:45	3	21:15 (B143)	21:22	18 20:53 (B172)	20:24	25	07:44 (B014)	19:14	22	08:25 (B153)	18:08	23	09:16 (WEA02)	16:21	16:18
28	08:10		07:14		08:01 (WEA01)	07:11		08:02 (B152)	06:03		07:13 (B014)	05:16			05:06		21:12 (B143)	05:37	06:51 (B050)	06:26		07:16 (B087)	07:16		08:03 (B223)	08:07		08:54 (WEA02)	08:00	08:29
	17:02		17:58	42	08:43 (WEA02)	19:47	12	08:14 (B152)	20:39	27	07:40 (B014)	21:25			21:45	2	21:14 (B143)	21:20	20 20:53 (B172)	20:22	27	07:43 (B014)	19:11	27	08:55 (WEA01)	18:06	21	09:15 (WEA02)	16:20	16:18
29	08:09					07:09		08:00 (B152)	06:01		07:13 (B014)	05:15			05:07		21:13 (B143)	05:39	06:49 (B050)	06:28		07:14 (B087)	07:17		08:02 (B223)	07:09		07:55 (WEA02)	08:02	08:29
	17:03					19:48	14	08:14 (B152)	20:41	26	07:39 (B014)	21:26			21:45	1	21:14 (B143)	21:19	22 20:51 (B172)	20:20	27	07:41 (B014)	19:09	37	08:59 (WEA01)	17:04	19	08:14 (WEA02)	16:19	16:19
30	08:07					07:07		08:00 (B152)	05:59		07:15 (B014)	05:14			05:07		21:13 (B143)	05:40	06:48 (B050)	06:29		07:13 (B087)	07:19		08:02 (B223)	07:10		07:57 (WEA02)	08:03	08:29
	17:05					19:50	14	08:14 (B152)	20:42	23	07:38 (B014)	21:27			21:45	1	21:14 (B143)	21:17	21 20:49 (B172)	20:18	26	07:39 (B014)	19:07	42	09:02 (WEA01)	17:02	15	08:12 (WEA02)	16:18	16:20
31	08:06					07:04		08:00 (B152)				05:13							05:42	06:48 (B050)	06:31		07:12 (B087)				07:12		07:59 (WEA02)		08:29
	17:07					19:52	14	08:14 (B152)				21:29							21:16	21 20:48 (B172)	20:15	25	07:37 (B014)				17:00	11	08:10 (WEA02)		16:21
Sonnenscheinstunden	259		277		366			414			483		497		501				454			382			333			268	245
astr.max.mögl.Beschattung		483				748			571			442		39		124				815			327			1003			
Red.Sonnenscheinwahrsch.		0.32				0.28			0.36			0.43		0.34		0.39				0.40			0.32			0.29			
Reduktion Betriebsdauer		0.95				0.95			0.95			0.95		0.95		0.95				0.95			0.95			0.95			
Reduktion Windrichtung		0.63				0.66			0.73			0.72		0.60		0.70				0.73			0.69			0.64			
Gesamte Reduktion		0.19				0.18			0.25			0.29		0.19		0.26				0.28			0.21			0.18			
Met.wahrsch.Beschattung		94				133			144			130		7		32				227			68			176			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO056 - Kirchborchener Str. 60, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		07:12		08:00 (WEA01)		07:02		08:03 (B152)		05:57		06:42 (B050)		05:12		05:08		21:13 (B143)		05:43		06:51 (B050)		06:32		07:13 (B087)		07:21		08:03 (B223)		07:14		08:01 (WEA02)		08:05	
	16:22		17:09		18:00	37	08:37 (WEA02)		19:54	10	08:13 (B152)		20:44	30	07:35 (B014)		21:30		21:45	1	21:14 (B143)		21:14	18	20:46 (B172)		20:13	27	07:40 (B014)		19:04	40	09:02 (WEA01)		16:58	9	08:10 (WEA02)		16:18	
2	08:29		08:03		07:10		07:59 (WEA01)		07:00		08:05 (B152)		05:56		06:41 (B050)		05:11		05:09		21:12 (B143)		05:45		06:51 (B050)		06:34		07:13 (B087)		07:22		08:02 (B223)		07:16				08:06	
	16:23		17:11		18:02	33	08:32 (WEA01)		19:55	5	08:10 (B152)		20:46	22	07:30 (B014)		21:31		21:44	1	21:13 (B143)		21:13	18	07:09 (B050)		20:11	25	07:38 (B014)		19:02	44	09:03 (WEA01)		16:57				16:17	
3	08:29		08:01		07:08		07:59 (WEA01)		06:57				05:54		06:40 (B050)		05:10		05:09				05:46		06:50 (B050)		06:36		07:12 (B087)		07:24		08:04 (B223)		07:17				08:07	
	16:24		17:13		18:04	34	08:33 (WEA01)		19:57				20:47	20	07:00 (B050)		21:32		21:44				21:11	19	07:09 (B050)		20:09	13	07:25 (B087)		19:00	43	09:04 (WEA01)		16:55				16:16	
4	08:29		08:00		07:05		07:59 (WEA01)		06:55				05:52		06:39 (B050)		05:10		05:10				05:48		06:49 (B050)		06:37		07:13 (B087)		07:26		08:06 (B223)		07:19				08:09	
	16:25		17:14		18:05	34	08:33 (WEA01)		19:59				20:49	21	07:00 (B050)		21:33		21:44				21:09	20	07:09 (B050)		20:07	12	07:25 (B087)		18:57	40	09:06 (WEA01)		16:53				16:16	
5	08:29		07:58		07:03		07:59 (WEA01)		06:53				05:50		06:40 (B050)		05:09		05:11				05:49		06:49 (B050)		06:39		07:14 (B087)		07:27		08:37 (WEA01)		07:21				08:10	
	16:26		17:16		18:07	34	08:33 (WEA01)		20:00				20:51	21	07:01 (B050)		21:34		21:43				21:08	21	07:10 (B050)		20:04	10	07:24 (B087)		18:55	30	09:07 (WEA01)		16:51				16:15	
6	08:29		07:56		07:01		07:58 (WEA01)		06:51				05:48		06:39 (B050)		05:08		05:12				05:51		06:48 (B050)		06:40		07:15 (B087)		07:29		08:35 (WEA01)		07:23				08:11	
	16:28		17:18		18:09	34	08:32 (WEA01)		20:02				20:52	22	07:01 (B050)		21:35		21:43				21:06	22	07:10 (B050)		20:02	6	07:21 (B087)		18:53	32	09:07 (WEA01)		16:49				16:15	
7	08:28		07:55		06:59		07:58 (WEA01)		06:48				05:46		06:38 (B050)		05:08		05:12				05:52		06:49 (B050)		06:42				07:31		08:35 (WEA01)		07:24				08:13	
	16:29		17:20		18:11	33	08:31 (WEA01)		20:04				20:54	22	07:00 (B050)		21:36		21:42				21:04	21	07:10 (B050)		20:00				18:51	32	09:07 (WEA01)		16:48				16:14	
8	08:28		07:53		06:57		07:59 (WEA01)		06:46		07:18 (B087)		05:45		06:39 (B050)		05:07		05:13				05:54		06:48 (B050)		06:44				07:32		08:34 (WEA01)		07:26				08:14	
	16:30		17:22		18:12	32	08:31 (WEA01)		20:05	8	07:26 (B087)		20:55	22	07:01 (B050)		21:37		21:42				21:02	22	07:10 (B050)		19:57				18:48	34	09:08 (WEA01)		16:46				16:14	
9	08:28		07:51		06:54		07:58 (WEA01)		06:44		07:16 (B087)		05:43		06:39 (B050)		05:06		05:14				05:56		06:49 (B050)		06:45				07:34		08:33 (WEA01)		07:28				08:15	
	16:31		17:24		18:14	31	08:29 (WEA01)		20:07	11	07:27 (B087)		20:57	21	07:00 (B050)		21:38		21:41				21:00	21	07:10 (B050)		19:55				18:46	34	09:07 (WEA01)		16:44				16:14	
10	08:27		07:49		06:52		07:59 (WEA01)		06:42		07:15 (B087)		05:41		06:40 (B050)		05:06		05:15				05:57		06:49 (B050)		06:47				07:36		08:33 (WEA01)		07:30				08:16	
	16:33		17:25		18:16	30	08:29 (WEA01)		20:09	12	07:27 (B087)		20:59	20	07:00 (B050)		21:38		21:40				20:59	20	07:09 (B050)		19:53				18:44	34	09:07 (WEA01)		16:43				16:13	
11	08:27		07:48		06:50		07:28 (B223)		06:39		07:14 (B087)		05:39		06:40 (B050)		05:06		05:16				05:59		06:49 (B050)		06:48				07:37		08:33 (WEA01)		07:32				08:17	
	16:34		17:27	5	08:38 (WEA02)		08:28 (WEA01)		20:10	20	07:36 (B014)		21:00	19	06:59 (B050)		21:39		21:40				20:57	20	07:09 (B050)		19:51				18:42	34	09:07 (WEA01)		16:41				16:13	
12	08:26		07:46		08:29 (WEA02)		06:48		07:26 (B223)		06:37		07:14 (B087)		05:38		06:40 (B050)		05:05				06:00		06:49 (B050)		06:50		07:39		07:56 (B152)		08:33 (WEA01)		07:33				08:18	
	16:36		17:29	13	08:42 (WEA02)		18:19	43	08:26 (WEA01)		20:12	26	07:40 (B014)		21:02	18	06:58 (B050)		21:40				20:55	19	07:08 (B050)		19:48	7	08:03 (B152)		18:40	34	09:07 (WEA01)		16:40				16:13	
13	08:25		07:44		08:27 (WEA02)		06:45		07:23 (B223)		06:35		07:14 (B087)		05:36		06:41 (B050)		05:05		21:09 (B143)		06:02		06:51 (B050)		06:52		07:54 (B152)		07:41		08:32 (WEA01)		07:35				08:19	
	16:37		17:31	17	08:44 (WEA02)		18:21	44	08:24 (WEA01)		20:14	28	07:42 (B014)		21:03	18	20:38 (B172)		21:41	1	21:10 (B143)		20:53	27	07:42 (B014)		19:46	11	08:05 (B152)		18:37	34	09:06 (WEA01)		16:38				16:13	
14	08:25		07:42		08:25 (WEA02)		06:43		07:23 (B223)		06:33		07:15 (B087)		05:35		06:42 (B050)		05:05		21:09 (B143)		06:04		06:51 (B050)		06:53		07:52 (B152)		07:42		08:33 (WEA01)		07:37				08:20	
	16:38		17:33	20	08:45 (WEA02)		18:23	40	08:22 (WEA01)		20:15	28	07:43 (B014)		21:05	18	20:38 (B172)		21:41	2	21:11 (B143)		20:51	31	07:44 (B014)		19:44	13	08:05 (B152)		18:35	36	09:09 (WEA02)		16:37				16:13	
15	08:24		07:40		08:24 (WEA02)		06:41		07:23 (B223)		06:31		07:16 (B087)		05:33		06:43 (B050)		05:04		21:09 (B143)		06:05		06:53 (B050)		06:55		07:52 (B152)		07:44		08:33 (WEA01)		07:39				08:21	
	16:40		17:35	22	08:46 (WEA02)		18:25	34	08:18 (WEA01)		20:17	28	07:44 (B014)		21:06	16	20:39 (B172)		21:42	3	21:12 (B143)		20:49	30	07:46 (B014)		19:41	14	08:06 (B152)		18:33	40	09:13 (WEA02)		16:35				16:13	
16	08:23		07:38		08:23 (WEA02)		06:39		07:22 (B223)		06:28		07:18 (B014)		05:31		06:45 (B050)		05:04		21:10 (B143)		06:07		06:56 (B050)		06:56		07:52 (B152)		07:46		08:34 (WEA01)		07:40				08:22	
	16:42		17:36	24	08:47 (WEA02)		18:26	22	07:44 (B153)		20:19	26	07:44 (B014)		21:08	15	20:41 (B172)		21:42	2	21:12 (B143)		20:47	26	07:47 (B014)		19:39	14	08:06 (B152)		18:31	41	09:15 (WEA02)		16:34				16:13	
17	08:22		07:36		08:23 (WEA02)		06:36		07:22 (B223)		06:26		07:17 (B014)		05:30		20:35 (B172)		05:04		21:10 (B143)		06:08		07:24 (B014)		06:58		07:51 (B152)		07:48		08:35 (WEA01)		07:42				08:23	
	16:43		17:38	25	08:48 (WEA02)		18:28	22	07:44 (B153)		20:20	28	07:45 (B014)		21:09	6	20:41 (B172)		21:43	3	21:13 (B143)		20:45	24	07:48 (B014)		19:37	14	08:05 (B152)		18:29	42	09:17 (WEA02)		16:32				16:13	
18	08:21		07:35		08:22 (WEA02)		06:34		07:24 (B223)		06:24		07:16 (B014)		05:28		20:36 (B172)		05:04		21:10 (B143)		06:10		07:23 (B014)		07:00		07:52 (B152)		07:49		08:35 (WEA01)		07:44				08:24	
	16:45		17:40	26	08:48 (WEA02)		18:30	19	07:43 (B153)		20:22	29	07:45 (B014)		21:11	7	20:43 (B172)		21:43	3	21:13 (B143)		20:43	25	07:48 (B014)		19:34	12	08:04 (B152)		18:27	42	09:17 (WEA02)		16:31				16:13	
19	08:20		07:33		08:22 (WEA02)		06:32		07:25 (B223)		06:22		07:16 (B014)		05:27		20:38 (B172)		05:04		21:10 (B143)		06:12		07:22 (B014)		07:01		07:52 (B152)		07:51		08:37 (WEA01)		07:45				08:25	
	16:46		17:42	27	08:49 (WEA02)		18:31	16	07:41 (B153)		20:24	29	07:45 (B014)		21:12	6	20:44 (B172)		21:44	3	21:13 (B143)		20:41	27	07:49 (B014)		19:32	10	08:02 (B152)		18:24	41	09:18 (WEA02)		16:30				16:14	
20	08:19		07:31		08:22 (WEA02)		06:29		07:34 (B153)		06:20		07:16 (B014)		05:26				05:04		21:10 (B143)		06:13		07:21 (B014)		07:03		07:54 (B152)		07:53		08:39 (WEA01)		07:47				08:25	
	16:48		17:44	27	08:49 (WEA02)		18:33	3	07:37 (B153)		20:26	29	07:45 (B014)		21:14				21:44	4	21:14 (B143)		20:39	28	07:49 (B014)		19:30	6	08:00 (B152)		18:22	39	09:18 (WEA02)		16:29				16:14	
21	08:18		07:29		08:22 (WEA02)		06:27				06:18		07:15 (B014)		05:24				05:04		21:10 (B143)		06:15		07:21 (B014)		07:05				07:54		08:42 (WEA01)		07:49				08:26	
	16:50		17:46	27	08:49 (WEA02)		18:35				20:27	30	07:45 (B014)		21:15				21:44	4	21:14 (B143)		20:37	29	07:50 (B014)		19:27				18:20	37	09:19 (WEA02)		16:27				16:14	
22	08:17		07:27		08:13 (WEA01)		06:25				06:16		07:15 (B014)		05:23				05:04		21:10 (B143)		06:16		07:20 (B014)		07:06				07:56		08:52 (WEA02)		07:50				08:27	
	16:51		17:47	35	08:48 (WEA02)		18:37				20:29	30	07:45 (B014)		21:17				21:45	4	21:14 (B143)		20:35	29	07:49 (B014)		19:25				18:18	27	09:19 (WEA02)		16:26				16:15	
23	08:16		07:24		08:09 (WEA01)		06:23				06:14		07:15 (B014)		05:22				05:05		21:10 (B143)		06:18		07:20 (B014)		07:08				07:58		08:52 (WEA02)		07:52				08:27	
	16:53		17:49	39	08:48 (WEA02)		18:38				20:31	29	07:44 (B014)		21:18				21:45	4	21:14 (B143)		20:33	30	07:50 (B014)		19:23				18:16	27	09:19 (WEA02)		16:25				16:15	
24	08:15		07:22		08:06 (WEA01)		06:20				06:11		07:15 (B014)		05:20				05:05		21:11 (B143)		06:32		07:19 (B014)		07:09				08:00		08:51 (WEA02)		07:54				08:28	
	16:55		17:51	41	08:47 (WEA02)		18:40				20:32	29	07:44 (B014)		21:20				21:45	4	21:15 (B143)		20:31	30	07:49 (B014)		19:21				18:14	27	09:18 (WEA02)		16:24				16:16	
25	08:14		07:20		08:04 (WEA01)		06:18		07:07 (B152)		06:09		07:15 (B014)		05:19				05:05		21:11 (B143)		05:33		06:21		07:20 (B014)		07:11		08:17 (B153)		08:01		08:52 (WEA02)		07:55				08:28	
	16:56		17:53	42	08:46 (WEA02)		18:42	7	07:14 (B152)		20:34	28	07:43 (B014)		21:21				21:45	3	21:14 (B143)		21:25		20:29	29	07:49 (B014)		19:18	5	08:22 (B153)		18:12	26	09:18 (WEA02)		16:23				16:16	
26	08:13		07:18		08:03 (WEA01)		07:16		08:04 (B152)		06:07		07:16 (B014)		05:18				05:05		21:11 (B143)		05:35		20:48 (B172)		06:23		07:19 (B014)		07:13		08:08 (B223)		08:03		08:52 (WEA02)		07:57				08:28	
	16:58		17:55	42	08:45 (WEA02)		19:43	11	08:15 (B152)		20:36	26	07:42 (B014)		21:22				21:45	3	21:14 (B143)		21:23	6	20:54 (B172)		20:26	29	07:48 (B014)		19:16	17	08:25 (B153)		18:10	26	09:18 (WEA02)		16:22				16:17	
27	08:11		07:16		08:02 (WEA01)		07:13		08:03 (B152)		06:05		07:16 (B014)		05:17				05:06		21:12 (B143)		05:36		20:46 (B172)		06:24		07:20 (B014)		07:14		08:25 (B223)		08:05		08:53 (WEA02)		07:59				08:29	
	17:00		17:56	41	08:43 (WEA02)		19:45	13	08:16 (B152)		20:37	25	07:41 (B014)		21:24				21:45	3	21:15 (B143)		21:22	7	20:53 (B172)		20:24	28	07:48 (B014)		19:14	20	08:25 (B153)		18:08	24	09:17 (WEA02)		16:21				16:18	
28	08:10		07:14		08:01 (WEA01)		07:11		08:03 (B152)		06:03		07:17 (B014)		05:16				05:06		21:12 (B143)		05:37		20:46 (B172)		06:26		07:19 (B014)		07:16		08:04 (B223)		08:07		08:54 (WEA02)		08:00				08:29	
	17:02		17:58	40	08:41 (WEA02)		19:47	13	08:16 (B152)		20:39	23	07:40 (B014)		21:25				21:45	2	21:14 (B143)		21:20	7	20:53 (B172)		20:22	27	07:46 (B014)		19:11	22	08:26 (B153)		18:06	22	09:16 (WEA02)		16:20				16:18	
29	08:09						07:09		08:01 (B152)		06:01		06:46 (B050)		05:15				05:07		21:12 (B143)		05:39		06:55 (B050)		06:28		07:18 (B087)		07:17		08:03 (B223)		07:09		07:55 (WEA02)		08:02				08:29	
	17:03						19:48	14	08:15 (B152)		20:41	29	07:38 (B014)		21:26				21:45	2	21:14 (B143)		21:19	15	20:51 (B172)		20:20	28	07:46 (B014)		19:09	22	08:25 (B153)		17:04	20	08:15 (WEA02)		16:19				16:19	
30	08:07						07:07		08:02 (B152)		05:59		06:44 (B050)		05:14				05:07		21:12 (B143)		05:40		06:53 (B050)		06:29		07:15 (B087)		07:19		08:03 (B223)		07:10		07:56 (WEA02)		08:03				08:29	
	17:05						19:50	13	08:15 (B152)		20:42	31	07:37 (B014)		21:27				21:45	2	21:14 (B143)		21:17	16	20:49 (B172)		20:18	29	07:44 (B014)		19:07	33	08:58 (WEA01)		17:02	18	08:14 (WEA02)		16:18				16:20	
31	08:06						07:04		08:02 (B152)						05:13								05:42		06:53 (B050)		06:31		07:14 (B087)						07:12		07:58 (WEA02)				08:29	
	17:07						19:52	12	08:14 (B152)						21:29								21:16	17	20:48 (B172)		20:15	29	07:43 (B014)						17:00	14	08:12 (WEA02)				16:21	
Sonnenscheinstunden	259		277		366		414		483				497						501				454				382				333				268				245	
astr.max.mögl.Beschattung			513			698				597				344				52		70				776				313				1014				9				
Red.Sonnenscheinwahrsch.			0.32			0.28				0.36				0.43				0.34		0.39				0.40				0.32				0.29				0.23				
Reduktion Betriebsdauer			0.95			0.95				0.95				0.95				0.95		0.95				0.95				0.95				0.95				0.95				
Reduktion Windrichtung			0.63			0.66				0.73				0.72				0.60		0.68				0.73				0.70				0.64				0.62				
Gesamte Reduktion			0.19			0.18				0.25				0.29				0.19		0.25				0.28				0.21				0.18				0.13				
Met.wahrsch.Beschattung			100			124				150				101				10		18				216				66				178				1				

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: Dörenhagen GB Schattenrezeptor: IO057 - Kirchborchener Str. 60a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			07:12		07:59 (WEA01)	07:02			05:57		06:44 (B050)	05:12			05:08			05:43		06:59 (B050)	06:32		07:22 (B014)	07:21		08:03 (B223)	07:14		08:00 (WEA02)	08:05		
	16:22			17:09			18:00	31	08:30 (WEA01)	19:54			20:44	19	07:03 (B050)	21:30			21:45			21:14	7	20:46 (B172)	20:13	23	07:45 (B014)	19:04	33	08:57 (WEA01)	16:58	8	08:08 (WEA02)	16:18		
2	08:29			08:03			07:10		07:59 (WEA01)	07:00			05:56		06:43 (B050)	05:11			05:09			05:45		06:58 (B050)	06:34		07:24 (B014)	07:22		08:02 (B223)	07:16			08:06		
	16:23			17:11			18:02	32	08:31 (WEA01)	19:55			20:46	20	07:03 (B050)	21:31			21:44			21:13	10	07:08 (B050)	20:11	20	07:44 (B014)	19:02	39	08:59 (WEA01)	16:57			16:17		
3	08:29			08:01			07:08		07:58 (WEA01)	06:57			05:54		06:42 (B050)	05:10			05:09			05:46		06:56 (B050)	06:36		07:25 (B014)	07:24		08:03 (B223)	07:17			08:07		
	16:24			17:13			18:04	33	08:31 (WEA01)	19:57			20:47	21	07:03 (B050)	21:32			21:44			21:11	13	07:09 (B050)	20:09	16	07:41 (B014)	19:00	42	09:02 (WEA01)	16:55			16:16		
4	08:29			08:00			07:05		07:58 (WEA01)	06:55			05:52		06:42 (B050)	05:10			05:10			05:48		06:54 (B050)	06:37		07:27 (B014)	07:26		08:05 (B223)	07:19			08:09		
	16:25			17:14			18:05	33	08:31 (WEA01)	19:59			20:49	21	07:03 (B050)	21:33			21:44			21:09	16	07:10 (B050)	20:07	12	07:39 (B014)	18:57	42	09:03 (WEA01)	16:53			16:16		
5	08:29			07:58			07:03		07:58 (WEA01)	06:53			05:50		06:42 (B050)	05:09			05:11			05:49		06:54 (B050)	06:39			07:27		08:14 (B153)	07:21			08:10		
	16:26			17:16			18:07	33	08:31 (WEA01)	20:00			20:51	21	07:03 (B050)	21:34			21:43			21:08	17	07:11 (B050)	20:04			18:55	33	09:04 (WEA01)	16:51			16:15		
6	08:29			07:56			07:01		07:58 (WEA01)	06:51			05:48		06:42 (B050)	05:08			05:12			05:51		06:53 (B050)	06:40			07:29		08:35 (WEA01)	07:23			08:11		
	16:28			17:18			18:09	32	08:30 (WEA01)	20:02			20:52	21	07:03 (B050)	21:35			21:43			21:06	18	07:11 (B050)	20:02			18:53	29	09:04 (WEA01)	16:49			16:15		
7	08:28			07:55			06:59		07:58 (WEA01)	06:48			05:46		06:42 (B050)	05:08			05:12			05:52		06:52 (B050)	06:42			07:31		08:35 (WEA01)	07:24			08:13		
	16:29			17:20			18:11	32	08:30 (WEA01)	20:04			20:54	20	07:02 (B050)	21:36			21:42			21:04	20	07:12 (B050)	20:00			18:51	30	09:05 (WEA01)	16:48			16:14		
8	08:28			07:53			06:57		07:59 (WEA01)	06:46			05:45		06:43 (B050)	05:07			05:13			05:54		06:52 (B050)	06:44			07:32		08:34 (WEA01)	07:26			08:14		
	16:30			17:22			18:12	30	08:29 (WEA01)	20:05			20:55	19	07:02 (B050)	21:37			21:42			21:02	20	07:12 (B050)	19:57			18:48	32	09:06 (WEA01)	16:46			16:14		
9	08:28			07:51			06:54		07:58 (WEA01)	06:44		07:33 (B014)	05:43		06:43 (B050)	05:06			05:14			05:56		06:52 (B050)	06:45			07:34		08:33 (WEA01)	07:28			08:15		
	16:31			17:24			18:14	29	08:27 (WEA01)	20:07	6	07:39 (B014)	20:57	18	07:01 (B050)	21:38			21:41			21:00	21	07:13 (B050)	19:55			18:46	32	09:05 (WEA01)	16:44			16:14		
10	08:27			07:49			06:52		07:36 (B153)	06:42		07:28 (B014)	05:41		06:45 (B050)	05:06			05:15			05:57		06:51 (B050)	06:47			07:36		08:33 (WEA01)	07:30			08:16		
	16:33			17:25			18:16	33	08:26 (WEA01)	20:09	14	07:42 (B014)	20:59	16	07:01 (B050)	21:38			21:40			20:59	21	07:12 (B050)	19:53			18:44	32	09:05 (WEA01)	16:43			16:13		
11	08:27			07:48		08:32 (WEA02)	06:50		07:27 (B223)	06:39		07:26 (B014)	05:39		06:45 (B050)	05:06			05:16			05:59		06:52 (B050)	06:48			07:37		08:32 (WEA01)	07:32			08:17		
	16:34		4	17:27		08:36 (WEA02)	18:18	42	08:25 (WEA01)	20:10	18	07:44 (B014)	21:00	14	06:59 (B050)	21:39			21:40			20:57	21	07:13 (B050)	19:51			18:42	33	09:05 (WEA01)	16:41			16:13		
12	08:26			07:46		08:28 (WEA02)	06:48		07:25 (B223)	06:37		07:24 (B014)	05:38		06:46 (B050)	05:05			05:17			06:00		06:51 (B050)	06:50			07:39		08:33 (WEA01)	07:33			08:18		
	16:36		12	17:29		08:40 (WEA02)	18:19	42	08:24 (WEA01)	20:12	22	07:46 (B014)	21:02	11	06:57 (B050)	21:40			21:39			20:55	21	07:12 (B050)	19:48			18:40	32	09:05 (WEA01)	16:40			16:13		
13	08:25			07:44		08:26 (WEA02)	06:45		07:24 (B223)	06:35		07:23 (B014)	05:36		06:49 (B050)	05:05			05:18			06:02		06:52 (B050)	06:52		07:59 (B152)	07:41		08:32 (WEA01)	07:35			08:19		
	16:37		16	17:31		08:42 (WEA02)	18:21	38	08:20 (WEA01)	20:14	24	07:47 (B014)	21:03	7	20:38 (B172)	21:41			21:38			20:53	20	07:12 (B050)	19:46	3	08:02 (B152)	18:37	32	09:04 (WEA01)	16:38			16:13		
14	08:25			07:42		08:24 (WEA02)	06:43		07:23 (B223)	06:33		07:22 (B014)	05:35		20:35 (B172)	05:05			05:19			06:04		06:52 (B050)	06:53		07:55 (B152)	07:42		08:32 (WEA01)	07:37			08:20		
	16:38		20	17:33		08:44 (WEA02)	18:23	33	08:17 (WEA01)	20:15	25	07:47 (B014)	21:05	3	20:38 (B172)	21:41			21:37			20:51	19	07:11 (B050)	19:44	9	08:04 (B152)	18:35	32	09:04 (WEA01)	16:37			16:13		
15	08:24			07:40		08:23 (WEA02)	06:41		07:23 (B223)	06:31		07:21 (B014)	05:33		20:35 (B172)	05:04		21:11 (B143)	05:20			06:05		06:53 (B050)	06:55		07:54 (B152)	07:44		08:33 (WEA01)	07:39			08:21		
	16:40		22	17:35		08:45 (WEA02)	18:25	22	07:45 (B153)	20:17	27	07:48 (B014)	21:06	4	20:39 (B172)	21:42	1	21:12 (B143)	21:36			20:49	17	07:10 (B050)	19:41	12	08:06 (B152)	18:33	37	09:10 (WEA02)	16:35			16:13		
16	08:23			07:38		08:22 (WEA02)	06:39		07:23 (B223)	06:28		07:19 (B014)	05:31		20:35 (B172)	05:04		21:11 (B143)	05:22			06:07		06:53 (B050)	06:56		07:53 (B152)	07:46		08:33 (WEA01)	07:40			08:22		
	16:42		24	17:36		08:46 (WEA02)	18:26	21	07:44 (B153)	20:19	28	07:47 (B014)	21:08	6	20:41 (B172)	21:42	1	21:12 (B143)	21:35			20:47	26	07:43 (B014)	19:39	13	08:06 (B152)	18:31	40	09:13 (WEA02)	16:34			16:13		
17	08:22			07:36		08:22 (WEA02)	06:36		07:24 (B223)	06:26		07:19 (B014)	05:30		20:35 (B172)	05:04		21:11 (B143)	05:23			06:08		06:55 (B050)	06:58		07:52 (B152)	07:48		08:34 (WEA01)	07:42			08:23		
	16:43		24	17:38		08:46 (WEA02)	18:28	19	07:43 (B153)	20:20	28	07:47 (B014)	21:09	6	20:41 (B172)	21:43	2	21:13 (B143)	21:34			20:45	28	07:46 (B014)	19:37	14	08:06 (B152)	18:29	41	09:15 (WEA02)	16:32			16:13		
18	08:21			07:35		08:21 (WEA02)	06:34		07:25 (B223)	06:24		07:18 (B014)	05:28		20:36 (B172)	05:04		21:11 (B143)	05:24			06:10		06:57 (B050)	07:00		07:52 (B152)	07:49		08:34 (WEA01)	07:44			08:24		
	16:45		26	17:40		08:47 (WEA02)	18:30	17	07:42 (B153)	20:22	29	07:47 (B014)	21:11	7	20:43 (B172)	21:43	2	21:13 (B143)	21:33			20:43	26	07:47 (B014)	19:34	14	08:06 (B152)	18:27	41	09:15 (WEA02)	16:31			16:13		
19	08:20			07:33		08:21 (WEA02)	06:32		07:34 (B153)	06:22		07:18 (B014)	05:27		20:37 (B172)	05:04		21:12 (B143)	05:25			06:12		07:27 (B014)	07:01		07:52 (B152)	07:51		08:36 (WEA01)	07:45			08:25		
	16:46		26	17:42		08:47 (WEA02)	18:31	4	07:38 (B153)	20:24	29	07:47 (B014)	21:12	8	20:45 (B172)	21:44	1	21:13 (B143)	21:32			20:41	22	07:49 (B014)	19:32	12	08:04 (B152)	18:24	40	09:16 (WEA02)	16:30			16:14		
20	08:19			07:31		08:21 (WEA02)	06:29			06:20		07:18 (B014)	05:26		20:38 (B172)	05:04		21:12 (B143)	05:27			06:13		07:25 (B014)	07:03		07:53 (B152)	07:53		08:38 (WEA01)	07:47			08:25		
	16:48		26	17:44		08:47 (WEA02)	18:33			20:26	29	07:47 (B014)	21:14	6	20:44 (B172)	21:44	2	21:14 (B143)	21:31			20:39	24	07:49 (B014)	19:30	10	08:03 (B152)	18:22	39	09:17 (WEA02)	16:29			16:14		
21	08:18			07:29		08:21 (WEA02)	06:27			06:18		07:18 (B014)	05:24		05:04		21:12 (B143)	05:28			06:15		07:25 (B014)	07:05		07:55 (B152)	07:54		08:40 (WEA01)	07:49			08:26		
	16:50		26	17:46		08:47 (WEA02)	18:35			20:27	28	07:46 (B014)	21:15		21:44	2	21:14 (B143)	21:30			20:37	25	07:50 (B014)	19:27	7	08:02 (B152)	18:20	37	09:17 (WEA02)	16:27			16:14		
22	08:17			07:27		08:11 (WEA01)	06:25			06:16		07:18 (B014)	05:23		05:04		21:12 (B143)	05:29			06:16		07:23 (B014)	07:06			07:56		08:51 (WEA02)	07:50			08:27		
	16:51		36	17:47		08:47 (WEA02)	18:37			20:29	28	07:46 (B014)	21:17		21:45	2	21:14 (B143)	21:29			20:35	27	07:50 (B014)	19:25			18:18	26	09:17 (WEA02)	16:26			16:15		
23	08:16			07:24		08:08 (WEA01)	06:23			06:14		07:19 (B014)	05:22		05:05		21:12 (B143)	05:30			06:18		07:23 (B014)	07:08			07:58		08:51 (WEA02)	07:52			08:27		
	16:53		38	17:49		08:46 (WEA02)	18:38			20:31	26	07:45 (B014)	21:18		21:45	2	21:14 (B143)	21:27			20:33	28	07:51 (B014)	19:23			18:16	27	09:18 (WEA02)	16:25			16:15		
24	08:15			07:22		08:05 (WEA01)	06:20		07:08 (B152)	06:11		07:19 (B014)	05:20		05:05		21:13 (B143)	05:32			06:20		07:22 (B014)	07:09			08:00		08:50 (WEA02)	07:54			08:28		
	16:55		40	17:51		08:45 (WEA02)	18:40	8	07:16 (B152)	20:32	25	07:44 (B014)	21:20		21:45	2	21:15 (B143)	21:26			20:31	28	07:50 (B014)	19:21			18:14	27	09:17 (WEA02)	16:24			16:16		
25	08:14			07:20		08:03 (WEA01)	06:18		07:06 (B152)	06:09		07:20 (B014)	05:19		05:05		21:13 (B143)	05:33	20:48 (B172)	06:21			07:22 (B014)	07:11			08:01		08:51 (WEA02)	07:55			08:28		
	16:56		41	17:53		08:44 (WEA02)	18:42	11	07:17 (B152)	20:34	22	07:42 (B014)	21:21		21:45	1	21:14 (B143)	21:25	6	20:54 (B172)	20:29	29	07:51 (B014)	19:18			18:12	25	09:16 (WEA02)	16:23			16:16		
26	08:13			07:18		08:02 (WEA01)	07:16		08:04 (B152)	06:07		06:52 (B050)	05:18		05:05		21:12 (B143)	05:35	20:47 (B172)	06:23			07:21 (B014)	07:13		08:17 (B153)	08:03		08:51 (WEA02)	07:57			08:28		
	16:58		41	17:55		08:43 (WEA02)	19:43	13	08:17 (B152)	20:36	23	07:41 (B014)	21:22		21:45	2	21:14 (B143)	21:23	8	20:55 (B172)	20:26	29	07:50 (B014)	19:16	5	08:22 (B153)	18:10	25	09:16 (WEA02)	16:22			16:17		
27	08:11			07:16		08:01 (WEA01)	07:13		08:04 (B152)	06:05		06:48 (B050)	05:17		05:06		21:13 (B143)	05:36	20:46 (B172)	06:24			07:21 (B014)	07:14		08:07 (B223)	08:05		08:52 (WEA02)	07:59			08:29		
	17:00		40	17:56		08:41 (WEA02)	19:45	13	08:17 (B152)	20:37	28	07:39 (B014)	21:24		21:45	2	21:15 (B143)	21:22	7	20:53 (B172)	20:24	29	07:50 (B014)	19:14	17	08:24 (B153)	18:08	23	09:15 (WEA02)	16:21			16:18		
28	08:10			07:14		08:00 (WEA01)	07:11		08:04 (B152)	06:03		06:46 (B050)	05:16		05:06		21:13 (B143)	05:37	20:46 (B172)	06:26			07:21 (B014)	07:16		08:05 (B223)	08:07		08:52 (WEA02)	08:00			08:29		
	17:02		39	17:58		08:39 (WEA02)	19:47	13	08:17 (B152)	20:39	27	07:37 (B014)	21:25		21:45	1	21:14 (B143)	21:20	7	20:53 (B172)	20:22	28	07:49 (B014)	19:11	20	08:25 (B153)	18:06	23	09:15 (WEA02)	16:20			16:18		
29	08:09						07:09		08:03 (B152)	06:01		06:45 (B050)	05:15		05:07		21:14 (B143)	05:39	20:45 (B172)	06:28			07:21 (B014)	07:17		08:03 (B223)	07:09		07:54 (WEA02)	08:02			08:29		
	17:03						19:48	13	08:16 (B152)	20:41	20	07:32 (B014)	21:26		21:45	1	21:15 (B143)	21:19	6	20:51 (B172)	20:20	28	07:49 (B014)	19:09	22	08:25 (B153)	17:04	20	08:14 (WEA02)	16:19			16:19		
30	08:07						07:07		08:04 (B152)	05:59		06:45 (B050)	05:14		05:07			05:40	20:45 (B172)	06:29			07:21 (B014)	07:19		08:03 (B223)	07:10		07:55 (WEA02)	08:03			08:29		
	17:05						19:50	11	08:15 (B152)	20:42	18	07:03 (B050)	21:27		21:45			21:17	4	20:49 (B172)	20:18	27	07:48 (B014)	19:07	22	08:25 (B153)	17:02	18	08:13 (WEA02)	16:18			16:20		
31	08:06						07:04		08:05 (B152)				05:13						05:42	20:45 (B172)	06:31			07:22 (B014)				07:12		07:57 (WEA02)				08:29		
	17:07						19:52	8	08:13 (B152)				21:29						21:16	3	20:48 (B172)	20:15	25	07:47 (B014)				17:00	14	08:11 (WEA02)				16:21		
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		501						646			524			268			24			41			690			251			976			8				
Red.Sonnenscheinwahrsch.			0.32					0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			
Reduktion Betriebsdauer			0.95					0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung			0.63					0.66			0.73			0.71			0.59			0.64			0.73			0.70			0.64			0.62			
Gesamte Reduktion			0.19					0.18			0.25			0.29			0.19			0.23			0.28			0.21			0.18			0.13			
Met.wahrsch.Beschattung			97					115			132			78			5			10			192			53			171			1			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO058 - Kirchborchener Str. 62, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		08:04			07:12		07:59 (WEA01)	07:02			05:57		06:46 (B050)	05:12			05:08			05:43		20:45 (B172)	06:32		07:23 (B014)	07:21		08:04 (B223)	07:14		07:58 (WEA02)	08:05		
	16:22		17:09			18:00	31	08:30 (WEA01)	19:54			20:44	20	07:06 (B050)	21:30			21:45			21:14	1	20:46 (B172)	20:13	26	07:49 (B014)	19:04	22	08:26 (B153)	16:58	10	08:08 (WEA02)	16:18		
2	08:29		08:03			07:10		07:58 (WEA01)	07:00			05:56		06:45 (B050)	05:11			05:09			05:45			06:34		07:24 (B014)	07:22		08:03 (B223)	07:16			08:06		
	16:23		17:11			18:02	32	08:30 (WEA01)	19:55			20:46	21	07:06 (B050)	21:31			21:44			21:13			20:11	24	07:48 (B014)	19:02	31	08:55 (WEA01)	16:57			16:17		
3	08:29		08:01			07:08		07:58 (WEA01)	06:57			05:54		06:45 (B050)	05:10			05:09			05:46			06:36		07:24 (B014)	07:24		08:03 (B223)	07:17			08:07		
	16:24		17:13			18:04	32	08:30 (WEA01)	19:57			20:47	21	07:06 (B050)	21:32			21:44			21:11			20:09	22	07:46 (B014)	19:00	37	08:58 (WEA01)	16:55			16:16		
4	08:29		08:00			07:05		07:58 (WEA01)	06:55			05:52		06:45 (B050)	05:10			05:10			05:48		07:03 (B050)	06:37		07:25 (B014)	07:26		08:04 (B223)	07:19			08:09		
	16:25		17:14			18:05	32	08:30 (WEA01)	19:59			20:49	20	07:05 (B050)	21:33			21:44			21:09	4	07:07 (B050)	20:07	20	07:45 (B014)	18:58	39	09:00 (WEA01)	16:53			16:16		
5	08:29		07:58			07:03		07:59 (WEA01)	06:53			05:50		06:46 (B050)	05:09			05:11			05:49		07:00 (B050)	06:39		07:27 (B014)	07:27		08:06 (B223)	07:21			08:10		
	16:26		17:16			18:07	31	08:30 (WEA01)	20:00			20:51	19	07:05 (B050)	21:34			21:43			21:08	10	07:10 (B050)	20:04	16	07:43 (B014)	18:55	40	09:02 (WEA01)	16:51			16:15		
6	08:29		07:56			07:01		07:58 (WEA01)	06:51			05:48		06:46 (B050)	05:08			05:12			05:51		06:58 (B050)	06:40		07:29 (B014)	07:29		08:14 (B153)	07:23			08:11		
	16:28		17:18			18:09	31	08:29 (WEA01)	20:02			20:52	18	07:04 (B050)	21:35			21:43			21:06	13	07:11 (B050)	20:02	11	07:40 (B014)	18:53	30	09:02 (WEA01)	16:49			16:15		
7	08:28		07:55			06:59		07:58 (WEA01)	06:48		07:36 (B014)	05:46		06:47 (B050)	05:08			05:12			05:52		06:57 (B050)	06:42			07:31		08:35 (WEA01)	07:24			08:13		
	16:29		17:20			18:11	30	08:28 (WEA01)	20:04	5	07:41 (B014)	20:54	16	07:03 (B050)	21:36			21:42			21:04	16	07:13 (B050)	20:00			18:51	28	09:03 (WEA01)	16:48			16:14		
8	08:28		07:53			06:57		07:59 (WEA01)	06:46		07:31 (B014)	05:45		06:48 (B050)	05:07			05:13			05:54		06:56 (B050)	06:44			07:32		08:35 (WEA01)	07:26			08:14		
	16:30		17:22			18:12	28	08:27 (WEA01)	20:05	14	07:45 (B014)	20:55	14	07:02 (B050)	21:37			21:42			21:02	17	07:13 (B050)	19:57			18:48	29	09:04 (WEA01)	16:46			16:14		
9	08:28		07:51			06:54		07:37 (B153)	06:44		07:29 (B014)	05:43		06:49 (B050)	05:06			05:14			05:56		06:56 (B050)	06:45			07:34		08:33 (WEA01)	07:28			08:15		
	16:31		17:24			18:14	30	08:25 (WEA01)	20:07	18	07:47 (B014)	20:57	11	07:00 (B050)	21:38			21:41			21:00	18	07:14 (B050)	19:55			18:46	31	09:04 (WEA01)	16:44			16:14		
10	08:27		07:49			06:52		07:28 (B223)	06:42		07:26 (B014)	05:41		06:53 (B050)	05:06			05:15			05:57		06:54 (B050)	06:47			07:36		08:33 (WEA01)	07:30			08:16		
	16:33		17:25			18:16	40	08:24 (WEA01)	20:09	22	07:48 (B014)	20:59	5	06:58 (B050)	21:38			21:40			20:59	20	07:14 (B050)	19:53			18:44	31	09:04 (WEA01)	16:43			16:13		
11	08:27		07:48		08:29 (WEA02)	06:50		07:26 (B223)	06:39		07:25 (B014)	05:39			05:06			05:16			05:59		06:55 (B050)	06:48			07:37		08:32 (WEA01)	07:32			08:17		
	16:34		17:27	8	08:37 (WEA02)	18:18	40	08:22 (WEA01)	20:10	24	07:49 (B014)	21:00			21:39			21:40			20:57	20	07:15 (B050)	19:51			18:42	32	09:04 (WEA01)	16:41			16:13		
12	08:26		07:46		08:26 (WEA02)	06:48		07:25 (B223)	06:37		07:24 (B014)	05:38			05:05			05:17			06:00		06:54 (B050)	06:50			07:39		08:32 (WEA01)	07:33			08:18		
	16:36		17:29	14	08:40 (WEA02)	18:19	37	08:20 (WEA01)	20:12	25	07:49 (B014)	21:02			21:40			21:39			20:55	20	07:14 (B050)	19:48			18:40	32	09:04 (WEA01)	16:40			16:13		
13	08:25		07:44		08:25 (WEA02)	06:45		07:24 (B223)	06:35		07:23 (B014)	05:36		20:35 (B172)	05:05			05:18			06:02		06:54 (B050)	06:52			07:41		08:32 (WEA01)	07:35			08:19		
	16:37		17:31	17	08:42 (WEA02)	18:21	30	08:15 (WEA01)	20:14	27	07:50 (B014)	21:03	1	20:36 (B172)	21:41			21:38			20:53	21	07:15 (B050)	19:46			18:37	31	09:03 (WEA01)	16:38			16:13		
14	08:25		07:42		08:23 (WEA02)	06:43		07:24 (B223)	06:33		07:23 (B014)	05:35		20:35 (B172)	05:05			05:19			06:04		06:54 (B050)	06:53			07:42		08:32 (WEA01)	07:37			08:20		
	16:38		17:33	20	08:43 (WEA02)	18:23	22	07:46 (B153)	20:15	27	07:50 (B014)	21:05	3	20:38 (B172)	21:41			21:37			20:51	20	07:14 (B050)	19:44			18:35	31	09:03 (WEA01)	16:37			16:13		
15	08:24		07:40		08:22 (WEA02)	06:41		07:24 (B223)	06:31		07:22 (B014)	05:33		20:34 (B172)	05:04			05:20			06:05		06:54 (B050)	06:55		07:58 (B152)	07:44		08:32 (WEA01)	07:39			08:21		
	16:40		17:35	22	08:44 (WEA02)	18:25	21	07:45 (B153)	20:17	28	07:50 (B014)	21:06	5	20:39 (B172)	21:42			21:36			20:49	20	07:14 (B050)	19:41	6	08:04 (B152)	18:33	34	09:06 (WEA02)	16:35			16:13		
16	08:23		07:38		08:21 (WEA02)	06:39		07:24 (B223)	06:28		07:21 (B014)	05:31		20:35 (B172)	05:04			05:22			06:07		06:54 (B050)	06:56		07:56 (B152)	07:46		08:33 (WEA01)	07:40			08:22		
	16:42		17:36	24	08:45 (WEA02)	18:26	20	07:44 (B153)	20:19	28	07:49 (B014)	21:08	6	20:41 (B172)	21:42			21:35			20:47	19	07:13 (B050)	19:39	10	08:06 (B152)	18:31	38	09:11 (WEA02)	16:34			16:13		
17	08:22		07:36		08:21 (WEA02)	06:36		07:25 (B223)	06:26		07:21 (B014)	05:30		20:35 (B172)	05:04			05:23			06:08		06:55 (B050)	06:58		07:54 (B152)	07:48		08:33 (WEA01)	07:42			08:23		
	16:43		17:38	24	08:45 (WEA02)	18:28	17	07:42 (B153)	20:20	28	07:49 (B014)	21:09	6	20:41 (B172)	21:43			21:34			20:45	17	07:12 (B050)	19:37	12	08:06 (B152)	18:29	40	09:13 (WEA02)	16:32			16:13		
18	08:21		07:35		08:21 (WEA02)	06:34		07:36 (B153)	06:24		07:21 (B014)	05:28		20:35 (B172)	05:04			05:24			06:10		06:55 (B050)	07:00		07:54 (B152)	07:49		08:33 (WEA01)	07:44			08:24		
	16:45		17:40	25	08:46 (WEA02)	18:30	3	07:39 (B153)	20:22	28	07:49 (B014)	21:11	8	20:43 (B172)	21:43			21:33			20:43	16	07:11 (B050)	19:34	13	08:07 (B152)	18:27	40	09:13 (WEA02)	16:31			16:13		
19	08:20		07:33		08:20 (WEA02)	06:32			06:22		07:21 (B014)	05:27		20:36 (B172)	05:04			05:25			06:12		06:57 (B050)	07:01		07:53 (B152)	07:51		08:35 (WEA01)	07:45			08:25		
	16:46		17:42	26	08:46 (WEA02)	18:31			20:24	27	07:48 (B014)	21:12	9	20:45 (B172)	21:44			21:32			20:41	25	07:46 (B014)	19:32	13	08:06 (B152)	18:24	39	09:14 (WEA02)	16:30			16:14		
20	08:19		07:31		08:20 (WEA02)	06:29			06:20		07:22 (B014)	05:26		20:38 (B172)	05:04		21:13 (B143)	05:27			06:13		06:59 (B050)	07:03		07:53 (B152)	07:53		08:36 (WEA01)	07:47			08:25		
	16:48		17:44	26	08:46 (WEA02)	18:33			20:26	25	07:47 (B014)	21:14	7	20:45 (B172)	21:44	1	21:14 (B143)	21:31			20:39	24	07:47 (B014)	19:30	12	08:05 (B152)	18:22	39	09:15 (WEA02)	16:29			16:14		
21	08:18		07:29		08:12 (WEA01)	06:27			06:18		07:22 (B014)	05:24		20:39 (B172)	05:04		21:13 (B143)	05:28			06:15		07:30 (B014)	07:05		07:54 (B152)	07:54		08:38 (WEA01)	07:49			08:26		
	16:50		17:46	34	08:46 (WEA02)	18:35			20:27	24	07:46 (B014)	21:15	3	20:42 (B172)	21:44	1	21:14 (B143)	21:30			20:37	19	07:49 (B014)	19:27	11	08:05 (B152)	18:20	38	09:16 (WEA02)	16:27			16:14		
22	08:17		07:27		08:08 (WEA01)	06:25		07:12 (B152)	06:16		07:23 (B014)	05:23			05:04		21:13 (B143)	05:29			06:16		07:28 (B014)	07:06		07:54 (B152)	07:56		08:41 (WEA01)	07:50			08:27		
	16:51		17:47	37	08:45 (WEA02)	18:37	3	07:15 (B152)	20:29	22	07:45 (B014)	21:17			21:45	1	21:14 (B143)	21:29			20:35	22	07:50 (B014)	19:25	8	08:02 (B152)	18:18	35	09:16 (WEA02)	16:26			16:15		
23	08:16		07:24		08:06 (WEA01)	06:23		07:08 (B152)	06:14		07:24 (B014)	05:22			05:05		21:13 (B143)	05:30			06:18		07:27 (B014)	07:08			07:58		08:51 (WEA02)	07:52			08:27		
	16:53		17:49	39	08:45 (WEA02)	18:38	9	07:17 (B152)	20:31	20	07:44 (B014)	21:18			21:45	1	21:14 (B143)	21:27			20:33	24	07:51 (B014)	19:23			18:16	25	09:16 (WEA02)	16:25			16:15		
24	08:15		07:22		08:03 (WEA01)	06:20		07:07 (B152)	06:11		06:54 (B050)	05:20			05:05		21:14 (B143)	05:32	20:49 (B172)	06:20		07:25 (B014)	07:09			08:00		08:50 (WEA02)	07:54			08:28		
	16:55		17:51	40	08:43 (WEA02)	18:40	11	07:18 (B152)	20:32	23	07:42 (B014)	21:20			21:45	1	21:15 (B143)	21:26	3	20:52 (B172)	20:31	26	07:51 (B014)	19:21			18:14	25	09:15 (WEA02)	16:24			16:16		
25	08:14		07:20		08:02 (WEA01)	06:18		07:06 (B152)	06:09		06:51 (B050)	05:19			05:05			05:33	20:48 (B172)	06:21		07:25 (B014)	07:11			08:01		08:50 (WEA02)	07:55			08:28		
	16:56		17:53	40	08:42 (WEA02)	18:42	13	07:19 (B152)	20:34	24	07:40 (B014)	21:21			21:45			21:25	7	20:55 (B172)	20:29	27	07:52 (B014)	19:18			18:12	25	09:15 (WEA02)	16:23			16:16		
26	08:13		07:18		08:01 (WEA01)	07:16		08:05 (B152)	06:07		06:49 (B050)	05:18			05:05			05:35	20:47 (B172)	06:23		07:24 (B014)	07:13			08:03		08:50 (WEA02)	07:57			08:28		
	16:58		17:55	40	08:41 (WEA02)	19:43	13	08:18 (B152)	20:36	21	07:36 (B014)	21:22			21:45			21:23	8	20:55 (B172)	20:26	27	07:51 (B014)	19:16			18:10	25	09:15 (WEA02)	16:22			16:17		
27	08:11		07:16		08:00 (WEA01)	07:13		08:05 (B152)	06:05		06:48 (B050)	05:17			05:06		21:14 (B143)	05:36		20:46 (B172)	06:24		07:24 (B014)	07:14		08:11 (B223)	08:05		08:51 (WEA02)	07:59			08:29		
	17:00		17:56	39	08:39 (WEA02)	19:45	13	08:18 (B152)	20:37	17	07:05 (B050)	21:24			21:45	1	21:15 (B143)	21:22	7	20:53 (B172)	20:24	28	07:52 (B014)	19:14	5	08:21 (B153)	18:08	24	09:15 (WEA02)	16:21			16:18		
28	08:10		07:14		08:00 (WEA01)	07:11		08:06 (B152)	06:03		06:47 (B050)	05:16			05:06			05:37	20:46 (B172)	06:26		07:23 (B014)	07:16		08:07 (B223)	08:07		08:52 (WEA02)	08:00			08:29		
	17:02		17:58	35	08:35 (WEA02)	19:47	11	08:17 (B152)	20:39	18	07:05 (B050)	21:25			21:45			21:20	7	20:53 (B172)	20:22	28	07:51 (B014)	19:11	17	08:24 (B153)	18:06	22	09:14 (WEA02)	16:20			16:18		
29	08:09					07:09		08:06 (B152)	06:01		06:46 (B050)	05:15			05:07			05:39		20:45 (B172)	06:28		07:23 (B014)	07:17		08:05 (B223)	07:09		07:53 (B402)	08:02			08:29		
	17:03					19:48	9	08:15 (B152)	20:41	19	07:05 (B050)	21:26			21:45			21:19	6	20:51 (B172)	20:20	28	07:51 (B014)	19:09	19	08:24 (B153)	17:04	20	08:13 (WEA02)	16:19			16:19		
30	08:07					07:07		08:08 (B152)	05:59		06:46 (B050)	05:14			05:07			05:40		20:45 (B172)	06:29		07:23 (B014)	07:19		08:04 (B223)	07:10		07:54 (WEA02)	08:03			08:29		
	17:05					19:50	5	08:13 (B152)	20:42	20	07:06 (B050)	21:27			21:45			21:17	4	20:49 (B172)	20:18	27	07:50 (B014)	19:07	21	08:25 (B153)	17:02	18	08:12 (WEA02)	16:18			16:20		
31	08:06					07:04						05:13						05:42		20:45 (B172)	06:31		07:23 (B014)				07:12		07:55 (WEA02)				08:29		
	17:07					19:52						21:29						21:16	3	20:48 (B172)	20:15	27	07:50 (B014)				17:00	15	08:10 (WEA02)				16:21		
Sonnenscheinstunden	259			277		366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung			510				594			534			213			6			45			584			266			946			10				
Red.Sonnenscheinwahrsch.			0.32				0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23				
Reduktion Betriebsdauer			0.95				0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95				
Reduktion Windrichtung			0.63				0.66			0.73			0.71			0.59			0.64			0.73			0.70			0.64			0.62				
Gesamte Reduktion			0.19				0.18			0.25			0.29			0.19			0.23			0.28			0.21			0.18			0.13				
Met.wahrsch.Beschattung			99				106			134			61			1			11			162			57			166			1				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO059 - Kirchborchener Str. 64, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			07:12		08:04 (WEA01)	07:02			05:57		06:53 (B050)	05:12			05:08		21:09 (B143)	05:43		20:40 (B172)	06:32		07:28 (B014)	07:21		08:09 (B223)	07:14		07:57 (WEA02)	08:05		
	16:22			17:09			18:00	30	08:34 (WEA01)	19:54			20:44	18	07:11 (B050)	21:30			21:45	5	21:14 (B143)	21:14	6	20:46 (B172)	20:13	28	07:56 (B014)	19:04	18	08:27 (B153)	16:58	19	08:16 (WEA02)	16:18			
2	08:29			08:03			07:10		08:04 (WEA01)	07:00			05:56		06:53 (B050)	05:11			05:09		21:09 (B143)	05:45		20:40 (B172)	06:34		07:29 (B014)	07:22		08:07 (B223)	07:16		07:58 (WEA02)	08:06		
	16:23			17:11			18:02	30	08:34 (WEA01)	19:55			20:46	17	07:10 (B050)	21:31			21:44	4	21:13 (B143)	21:13	5	20:45 (B172)	20:11	27	07:56 (B014)	19:02	21	08:28 (B153)	16:57	17	08:15 (WEA02)	16:17			
3	08:29			08:01			07:08		08:04 (WEA01)	06:57		07:42 (B014)	05:54		06:54 (B050)	05:10			05:09		21:10 (B143)	05:46		20:39 (B172)	06:36		07:28 (B014)	07:24		08:07 (B223)	07:17		08:00 (WEA02)	08:07		
	16:24			17:13			18:04	30	08:34 (WEA01)	19:57	8	07:50 (B014)	20:47	14	07:08 (B050)	21:32			21:44	3	21:13 (B143)	21:11	5	20:44 (B172)	20:09	27	07:55 (B014)	19:00	22	08:29 (B153)	16:55	14	08:14 (WEA02)	16:16			
4	08:29			08:00			07:05		08:05 (WEA01)	06:55		07:39 (B014)	05:52		06:55 (B050)	05:10			05:10		21:10 (B143)	05:48		20:39 (B172)	06:37		07:28 (B014)	07:26		08:07 (B223)	07:19		08:01 (WEA02)	08:09		
	16:25			17:14			18:05	28	08:33 (WEA01)	19:59	14	07:53 (B014)	20:49	11	07:06 (B050)	21:33			21:44	3	21:13 (B143)	21:09	3	20:42 (B172)	20:07	27	07:55 (B014)	18:58	22	08:29 (B153)	16:53	9	08:10 (WEA02)	16:16			
5	08:29			07:58			07:03		08:06 (WEA01)	06:53		07:36 (B014)	05:50		06:58 (B050)	05:09			05:11		21:11 (B143)	05:49		20:40 (B172)	06:39		07:29 (B014)	07:27		08:07 (B223)	07:21						
	16:26			17:16			18:07	26	08:32 (WEA01)	20:00	18	07:54 (B014)	20:51	6	07:04 (B050)	21:34			21:43	2	21:13 (B143)	21:08	1	20:41 (B172)	20:04	26	07:55 (B014)	18:55	22	08:29 (B153)	16:51			16:15			
6	08:29			07:56			07:01		07:43 (B153)	06:51		07:34 (B014)	05:48			05:08			05:12		21:10 (B143)	05:51			06:40		07:29 (B014)	07:29		08:07 (B223)	07:23			08:11		
	16:28			17:18			18:09	27	08:30 (WEA01)	20:02	22	07:56 (B014)	20:52			21:35			21:43	2	21:12 (B143)	21:06			20:02	24	07:53 (B014)	18:53	31	08:59 (WEA01)	16:49			16:15		
7	08:28			07:55			06:59		07:35 (B223)	06:48		07:33 (B014)	05:46			05:08		21:05 (B143)	05:12		21:11 (B143)	05:52			06:42		07:30 (B014)	07:31		08:08 (B223)	07:24			08:13		
	16:29			17:20			18:11	32	08:29 (WEA01)	20:04	24	07:57 (B014)	20:54			21:36	1	21:06 (B143)	21:42	1	21:12 (B143)	21:04			20:00	22	07:52 (B014)	18:51	36	09:03 (WEA01)	16:48			16:14		
8	08:28			07:53		08:34 (WEA02)	06:57		07:32 (B223)	06:46		07:32 (B014)	05:45			05:07		21:04 (B143)	05:13			05:54			06:44		07:30 (B014)	07:32		08:11 (B223)	07:26			08:14		
	16:30			17:22	6	08:40 (WEA02)	18:12	37	08:27 (WEA01)	20:05	25	07:57 (B014)	20:55			21:37	2	21:06 (B143)	21:42			21:02			19:57	20	07:50 (B014)	18:48	33	09:05 (WEA01)	16:46			16:14		
9	08:28			07:51		08:31 (WEA02)	06:54		07:30 (B223)	06:44		07:31 (B014)	05:43		20:29 (B172)	05:06		21:05 (B143)	05:14			05:56		07:09 (B050)	06:45		07:32 (B014)	07:34		08:18 (B153)	07:28			08:15		
	16:31			17:24	12	08:43 (WEA02)	18:14	31	08:22 (WEA01)	20:07	27	07:58 (B014)	20:57	1	20:30 (B172)	21:38	2	21:07 (B143)	21:41			21:00	4	07:13 (B050)	19:55	17	07:49 (B014)	18:46	28	09:05 (WEA01)	16:44			16:14		
10	08:27			07:49		08:29 (WEA02)	06:52		07:29 (B223)	06:42		07:30 (B014)	05:41		20:30 (B172)	05:06		21:05 (B143)	05:15			05:57		07:05 (B050)	06:47		07:33 (B014)	07:36		08:40 (WEA01)	07:30			08:16		
	16:33			17:25	16	08:45 (WEA02)	18:16	22	07:51 (B153)	20:09	27	07:57 (B014)	20:59	2	20:32 (B172)	21:38	3	21:08 (B143)	21:40			20:59	10	07:15 (B050)	19:53	13	07:46 (B014)	18:44	26	09:06 (WEA01)	16:43			16:13		
11	08:27			07:48		08:27 (WEA02)	06:50		07:29 (B223)	06:39		07:30 (B014)	05:39		20:29 (B172)	05:06		21:05 (B143)	05:16			05:59		07:04 (B050)	06:48			07:37		08:39 (WEA01)	07:32			08:17		
	16:34			17:27	19	08:46 (WEA02)	18:18	22	07:51 (B153)	20:10	27	07:57 (B014)	21:00	4	20:33 (B172)	21:39	3	21:08 (B143)	21:40			20:57	13	07:17 (B050)	19:51			18:42	28	09:07 (WEA01)	16:41			16:13		
12	08:26			07:46		08:26 (WEA02)	06:48		07:29 (B223)	06:37		07:29 (B014)	05:38		20:29 (B172)	05:05		21:05 (B143)	05:17			06:00		07:02 (B050)	06:50			07:39		08:39 (WEA01)	07:33			08:18		
	16:36			17:29	21	08:47 (WEA02)	18:19	22	07:51 (B153)	20:12	28	07:57 (B014)	21:02	5	20:34 (B172)	21:40	4	21:09 (B143)	21:39			20:55	16	07:18 (B050)	19:48			18:40	29	09:08 (WEA01)	16:40			16:13		
13	08:25			07:44		08:25 (WEA02)	06:45		07:28 (B223)	06:35		07:29 (B014)	05:36		20:30 (B172)	05:05		21:05 (B143)	05:18			06:02		07:02 (B050)	06:52			07:41		08:37 (WEA01)	07:35			08:20		
	16:37			17:31	23	08:48 (WEA02)	18:21	21	07:49 (B153)	20:14	28	07:57 (B014)	21:03	6	20:36 (B172)	21:41	5	21:10 (B143)	21:38			20:53	17	07:19 (B050)	19:46			18:37	30	09:07 (WEA01)	16:38			16:13		
14	08:25			07:42		08:25 (WEA02)	06:43		07:29 (B223)	06:33		07:30 (B014)	05:35		20:31 (B172)	05:05		21:06 (B143)	05:19			06:04		07:00 (B050)	06:53			07:42		08:37 (WEA01)	07:37			08:20		
	16:38			17:33	23	08:48 (WEA02)	18:23	18	07:47 (B153)	20:15	26	07:56 (B014)	21:05	7	20:38 (B172)	21:41	5	21:11 (B143)	21:37			20:51	19	07:19 (B050)	19:44			18:35	31	09:08 (WEA01)	16:37			16:13		
15	08:24			07:40		08:24 (WEA02)	06:41		07:31 (B223)	06:31		07:30 (B014)	05:33		20:31 (B172)	05:04		21:06 (B143)	05:20			06:05		07:00 (B050)	06:55			07:44		08:37 (WEA01)	07:39			08:21		
	16:40			17:35	25	08:49 (WEA02)	18:25	6	07:37 (B223)	20:17	26	07:56 (B014)	21:06	8	20:39 (B172)	21:42	6	21:12 (B143)	21:36			20:49	20	07:20 (B050)	19:41			18:33	31	09:08 (WEA01)	16:35			16:13		
16	08:23			07:38		08:24 (WEA02)	06:39			06:28		07:29 (B014)	05:31		20:33 (B172)	05:04		21:06 (B143)	05:22			06:07		06:59 (B050)	06:56			07:46		08:37 (WEA01)	07:40			08:22		
	16:42			17:36	25	08:49 (WEA02)	18:26			20:19	25	07:54 (B014)	21:08	6	20:39 (B172)	21:42	6	21:12 (B143)	21:35			20:47	21	07:20 (B050)	19:39			18:31	31	09:08 (WEA01)	16:34			16:13		
17	08:22			07:36		08:24 (WEA02)	06:36			06:26		07:30 (B014)	05:30			05:04		21:07 (B143)	05:23			06:08		06:59 (B050)	06:58			07:48		08:37 (WEA01)	07:42			08:23		
	16:43			17:38	25	08:49 (WEA02)	18:28			20:20	23	07:53 (B014)	21:10			21:43	6	21:13 (B143)	21:34			20:45	21	07:20 (B050)	19:37			18:29	31	09:08 (WEA01)	16:32			16:13		
18	08:21			07:35		08:15 (WEA01)	06:34			06:24		07:31 (B014)	05:28			05:04		21:07 (B143)	05:24			06:10		06:59 (B050)	07:00			07:49		08:36 (WEA01)	07:44			08:24		
	16:45			17:40	34	08:49 (WEA02)	18:30			20:22	20	07:51 (B014)	21:11			21:43	6	21:13 (B143)	21:33			20:43	20	07:19 (B050)	19:34			18:27	34	09:10 (WEA02)	16:31			16:13		
19	08:20			07:33		08:12 (WEA01)	06:32		07:16 (B152)	06:22		07:32 (B014)	05:27			05:04		21:07 (B143)	05:25			06:12		06:59 (B050)	07:01		08:01 (B152)	07:51		08:37 (WEA01)	07:45			08:25		
	16:46			17:42	37	08:49 (WEA02)	18:31	7	07:23 (B152)	20:24	18	07:50 (B014)	21:12			21:44	6	21:13 (B143)	21:32			20:41	20	07:19 (B050)	19:32	7	08:08 (B152)	18:24	37	09:14 (WEA02)	16:30			16:14		
20	08:19			07:31		08:10 (WEA01)	06:29		07:14 (B152)	06:20		07:01 (B050)	05:26			05:04		21:07 (B143)	05:27			06:13		06:59 (B050)	07:03		07:59 (B152)	07:53		08:37 (WEA01)	07:47			08:25		
	16:48			17:44	38	08:48 (WEA02)	18:33	10	07:24 (B152)	20:26	18	07:47 (B014)	21:14			21:44	7	21:14 (B143)	21:31			20:39	19	07:18 (B050)	19:30	11	08:10 (B152)	18:22	39	09:16 (WEA02)	16:29			16:14		
21	08:18			07:29		08:09 (WEA01)	06:27		07:13 (B152)	06:18		06:58 (B050)	05:24			05:04		21:07 (B143)	05:28			06:15		07:00 (B050)	07:05		07:59 (B152)	07:54		08:38 (WEA01)	07:49			08:26		
	16:50			17:46	39	08:48 (WEA02)	18:35	12	07:25 (B152)	20:27	18	07:44 (B014)	21:15			21:44	7	21:14 (B143)	21:30			20:37	18	07:18 (B050)	19:27	12	08:11 (B152)	18:20	39	09:17 (WEA02)	16:27			16:14		
22	08:17			07:27		08:08 (WEA01)	06:25		07:13 (B152)	06:16		06:56 (B050)	05:23			05:04		21:07 (B143)	05:29			06:16		07:00 (B050)	07:06		07:57 (B152)	07:56		08:39 (WEA01)	07:50			08:27		
	16:51			17:47	39	08:47 (WEA02)	18:37	13	07:26 (B152)	20:29	15	07:11 (B050)	21:17			21:45	7	21:14 (B143)	21:29			20:35	16	07:16 (B050)	19:25	13	08:10 (B152)	18:18	39	09:18 (WEA02)	16:26			16:15		
23	08:16			07:25		08:07 (WEA01)	06:23		07:12 (B152)	06:14		06:55 (B050)	05:22			05:05		21:07 (B143)	05:30			06:18		07:02 (B050)	07:08		07:57 (B152)	07:58		08:40 (WEA01)	07:52			08:27		
	16:53			17:49	38	08:45 (WEA02)	18:38	12	07:24 (B152)	20:31	17	07:12 (B050)	21:18			21:45	7	21:14 (B143)	21:27			20:33	13	07:15 (B050)	19:23	13	08:10 (B152)	18:16	39	09:19 (WEA02)	16:25			16:15		
24	08:15			07:22		08:05 (WEA01)	06:20		07:12 (B152)	06:11		06:54 (B050)	05:20			05:05		21:08 (B143)	05:32			06:20		07:03 (B050)	07:09		07:57 (B152)	08:00		08:41 (WEA01)	07:54			08:28		
	16:55			17:51	38	08:43 (WEA02)	18:40	12	07:24 (B152)	20:32	18	07:12 (B050)	21:20			21:45	7	21:15 (B143)	21:26			20:31	20	07:50 (B014)	19:21	12	08:09 (B152)	18:14	37	09:18 (WEA02)	16:24			16:16		
25	08:14			07:20		08:05 (WEA01)	06:18		07:13 (B152)	06:09		06:53 (B050)	05:19			05:05		21:08 (B143)	05:33			06:21		07:37 (B014)	07:11		07:58 (B152)	08:01		08:43 (WEA01)	07:55			08:28		
	16:56			17:53	35	08:40 (WEA02)	18:42	10	07:23 (B152)	20:34	19	07:12 (B050)	21:21			21:45	6	21:14 (B143)	21:25			20:29	16	07:53 (B014)	19:18	10	08:08 (B152)	18:12	36	09:19 (WEA02)	16:23			16:16		
26	08:13			07:18		08:05 (WEA01)	07:16		08:14 (B152)	06:07		06:52 (B050)	05:18			05:05		21:08 (B143)	05:35			06:23		07:34 (B014)	07:13		08:00 (B152)	08:03		08:48 (WEA01)	07:57			08:28		
	16:58			17:55	30	08:35 (WEA01)	19:43	6	08:20 (B152)	20:36	21	07:13 (B050)	21:22			21:45	6	21:14 (B143)	21:23			20:26	20	07:54 (B014)	19:16	6	08:06 (B152)	18:10	30	09:19 (WEA02)	16:22			16:17		
27	08:11			07:16		08:04 (WEA01)	07:13			06:05		06:52 (B050)	05:17			05:06		21:09 (B143)	05:36			06:24		07:33 (B014)	07:14			08:05		08:54 (WEA02)	07:59			08:29		
	17:00			17:56	32	08:36 (WEA01)	19:45			20:37	20	07:12 (B050)	21:24			21:45	6	21:15 (B143)	21:22			20:24	22	07:55 (B014)	19:14			18:08	25	09:19 (WEA02)	16:21			16:18		
28	08:10			07:14		08:04 (WEA01)	07:11			06:03		06:52 (B050)	05:16			05:06		21:08 (B143)	05:37			06:26		07:32 (B014)	07:16			08:07		08:54 (WEA02)	08:00			08:29		
	17:02			17:58	32	08:36 (WEA01)	19:47			20:39	20	07:12 (B050)	21:25			21:45	6	21:14 (B143)	21:20			20:22	23	07:55 (B014)	19:11			18:06	25	09:19 (WEA02)	16:20			16:18		
29	08:09						07:09			06:01		06:52 (B050)	05:15			05:07		21:09 (B143)	05:39		20:43 (B172)	06:28		07:31 (B014)	07:17			07:09		07:54 (WEA02)	08:02			08:29		
	17:03						19:48			20:41	20	07:12 (B050)	21:26			21:45	6	21:15 (B143)	21:19	6	20:49 (B172)	20:20	25	07:56 (B014)	19:09			17:04	24	08:18 (WEA02)	16:19			16:19		
30	08:07						07:07			05:59		06:53 (B050)	05:14			05:07		21:09 (B143)	05:40		20:41 (B172)	06:29		07:30 (B014)	07:19		08:11 (B223)	07:10		07:55 (WEA02)	08:03			08:29		
	17:05						19:50			20:42	19	07:12 (B050)	21:27			21:45	5	21:14 (B143)	21:17	8	20:49 (B172)	20:18	26	07:56 (B014)	19:07	9	08:24 (B153)	17:02	23	08:18 (WEA02)	16:18			16:20		
31	08:06						07:04						05:13						05:42		20:41 (B172)	06:31		07:29 (B014)				07:12		07:56 (WEA02)				08:29		
	17:07						19:52						21:29						21:16	7	20:48 (B172)	20:15	27	07:56 (B014)				17:00	21	08:17 (WEA02)				16:21		
Sonnenscheinstunden	259			277			366			414			483			497			502			454			382			333			268			245		
astr.max.mögl.Beschattung			587			464			591			105			125			41			446			324			918			59					
Red.Sonnenscheinwahrsch.			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23					
Reduktion Betriebsdauer			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung			0.63			0.66			0.73			0.70			0.60			0.62			0.72			0.71			0.64			0.62					
Gesamte Reduktion			0.19			0.18			0.25			0.28			0.19			0.23			0.28			0.22			0.18			0.13					
Met.wahrsch.Beschattung			114			82			148			30			24			9			123			70			161			8					

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)	

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO060 - Kirchborchener Str. 66, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember	
1	08:29			08:04			07:12		08:07 (WEA01)	07:02		07:47 (B014)	05:57		06:58 (B050)	05:12			05:08		21:06 (B143)	05:43		20:39 (B172)	06:32		07:32 (B014)	07:21		08:14 (B223)	07:14		07:58 (WEA02)	08:05		
	16:22			17:09			18:00	29	08:36 (WEA01)	19:54	7	07:54 (B014)	20:44	14	07:12 (B050)	21:30			21:45	8	21:14 (B143)	21:14	7	20:46 (B172)	20:13	26	07:58 (B014)	19:04	4	08:18 (B223)	16:58	22	08:20 (WEA02)	16:18		
2	08:29			08:03			07:10		08:08 (WEA01)	07:00		07:42 (B014)	05:56		06:59 (B050)	05:11			05:09		21:06 (B143)	05:45		20:38 (B172)	06:34		07:32 (B014)	07:22		08:11 (B223)	07:16		07:58 (WEA02)	08:06		
	16:23			17:11			18:02	28	08:36 (WEA01)	19:55	15	07:57 (B014)	20:46	11	07:10 (B050)	21:31			21:44	7	21:13 (B143)	21:13	7	20:45 (B172)	20:11	27	07:59 (B014)	19:02	15	08:27 (B153)	16:57	21	08:19 (WEA02)	16:17		
3	08:29			08:01			07:08		08:09 (WEA01)	06:57		07:40 (B014)	05:54		07:02 (B050)	05:10		21:01 (B143)	05:09		21:06 (B143)	05:46		20:37 (B172)	06:36		07:31 (B014)	07:24		08:09 (B223)	07:17		08:00 (WEA02)	08:07		
	16:24			17:13			18:04	26	08:35 (WEA01)	19:57	19	07:59 (B014)	20:47	4	07:06 (B050)	21:32	1	21:02 (B143)	21:44	7	21:13 (B143)	21:11	7	20:44 (B172)	20:09	27	07:58 (B014)	19:00	21	08:30 (B153)	16:55	18	08:18 (WEA02)	16:16		
4	08:29			08:00			07:05		08:10 (WEA01)	06:55		07:38 (B014)	05:52			05:10		21:01 (B143)	05:10		21:07 (B143)	05:48		20:36 (B172)	06:37		07:31 (B014)	07:26		08:09 (B223)	07:19		08:00 (WEA02)	08:09		
	16:25			17:14			18:05	24	08:34 (WEA01)	19:59	22	08:00 (B014)	20:49			21:33	2	21:03 (B143)	21:44	6	21:13 (B143)	21:09	6	20:42 (B172)	20:07	28	07:59 (B014)	18:58	22	08:31 (B153)	16:53	16	08:16 (WEA02)	16:16		
5	08:29			07:58			07:03		07:44 (B153)	06:53		07:36 (B014)	05:50			05:09		21:01 (B143)	05:11		21:07 (B143)	05:49		20:36 (B172)	06:39		07:31 (B014)	07:27		08:09 (B223)	07:21		08:02 (WEA02)	08:10		
	16:26			17:16			18:07	29	08:32 (WEA01)	20:00	24	08:00 (B014)	20:51			21:34	3	21:04 (B143)	21:43	6	21:13 (B143)	21:08	5	20:41 (B172)	20:04	28	07:59 (B014)	18:55	22	08:31 (B153)	16:51	12	08:14 (WEA02)	16:15		
6	08:29			07:56			07:01		07:36 (B223)	06:51		07:35 (B014)	05:48			05:08		21:01 (B143)	05:12		21:07 (B143)	05:51		20:36 (B172)	06:40		07:31 (B014)	07:29		08:08 (B223)	07:23		08:05 (WEA02)	08:11		
	16:28			17:18			18:09	33	08:30 (WEA01)	20:02	26	08:01 (B014)	20:52			21:35	3	21:04 (B143)	21:43	5	21:12 (B143)	21:06	2	20:38 (B172)	20:02	26	07:57 (B014)	18:53	22	08:30 (B153)	16:49	6	08:11 (WEA02)	16:15		
7	08:28			07:55		08:33 (WEA02)	06:59		07:33 (B223)	06:48		07:35 (B014)	05:46		20:26 (B172)	05:08		21:01 (B143)	05:12		21:07 (B143)	05:52		20:36 (B172)	06:42		07:31 (B014)	07:31		08:08 (B223)	07:24			08:13		
	16:29			17:20	10	08:43 (WEA02)	18:11	33	08:27 (WEA01)	20:04	26	08:01 (B014)	20:54	1	20:27 (B172)	21:36	5	21:06 (B143)	21:42	5	21:12 (B143)	21:04	1	20:37 (B172)	20:00	26	07:57 (B014)	18:51	22	08:30 (B153)	16:48			16:14		
8	08:28			07:53		08:32 (WEA02)	06:57		07:32 (B223)	06:46		07:34 (B014)	05:45		20:26 (B172)	05:07		21:01 (B143)	05:13		21:08 (B143)	05:54			06:44		07:31 (B014)	07:32		08:09 (B223)	07:26			08:14		
	16:30			17:22	14	08:46 (WEA02)	18:12	22	07:54 (B153)	20:05	27	08:01 (B014)	20:55	3	20:29 (B172)	21:37	5	21:06 (B143)	21:42	3	21:11 (B143)	21:02			19:57	25	07:56 (B014)	18:48	33	09:03 (WEA01)	16:46			16:14		
9	08:28			07:51		08:30 (WEA02)	06:54		07:31 (B223)	06:44		07:34 (B014)	05:43		20:26 (B172)	05:06		21:01 (B143)	05:14		21:08 (B143)	05:56			06:45		07:32 (B014)	07:34		08:11 (B223)	07:28			08:15		
	16:31			17:24	18	08:48 (WEA02)	18:14	22	07:52 (B153)	20:07	28	08:02 (B014)	20:57	4	20:30 (B172)	21:38	6	21:07 (B143)	21:41	3	21:11 (B143)	21:00			19:55	23	07:55 (B014)	18:46	34	09:05 (WEA01)	16:44			16:14		
10	08:27			07:49		08:29 (WEA02)	06:52		07:31 (B223)	06:42		07:33 (B014)	05:41		20:27 (B172)	05:06		21:02 (B143)	05:15		21:08 (B143)	05:57			06:47		07:32 (B014)	07:36		08:18 (B153)	07:30			08:16		
	16:33			17:25	20	08:49 (WEA02)	18:16	22	07:53 (B153)	20:09	27	08:00 (B014)	20:59	5	20:32 (B172)	21:38	6	21:08 (B143)	21:40	2	21:10 (B143)	20:59			19:53	21	07:53 (B014)	18:44	30	09:07 (WEA01)	16:43			16:13		
11	08:27			07:48		08:28 (WEA02)	06:50		07:31 (B223)	06:39		07:33 (B014)	05:39		20:27 (B172)	05:06		21:01 (B143)	05:16		21:09 (B143)	05:59		07:13 (B050)	06:48		07:34 (B014)	07:37		08:44 (WEA01)	07:32			08:17		
	16:34			17:27	22	08:50 (WEA02)	18:18	22	07:53 (B153)	20:10	27	08:00 (B014)	21:00	6	20:33 (B172)	21:39	7	21:08 (B143)	21:40	1	21:10 (B143)	20:57	1	07:14 (B050)	19:51	17	07:51 (B014)	18:42	24	09:08 (WEA01)	16:41			16:13		
12	08:26			07:46		08:27 (WEA02)	06:48		07:32 (B223)	06:37		07:33 (B014)	05:38		20:27 (B172)	05:05		21:02 (B143)	05:17			06:00		07:08 (B050)	06:50		07:35 (B014)	07:39		08:43 (WEA01)	07:33			08:18		
	16:36			17:29	23	08:50 (WEA02)	18:19	20	07:52 (B153)	20:12	27	08:00 (B014)	21:02	7	20:34 (B172)	21:40	7	21:09 (B143)	21:39			20:55	10	07:18 (B050)	19:48	13	07:48 (B014)	18:40	26	09:09 (WEA01)	16:40			16:13		
13	08:25			07:44		08:27 (WEA02)	06:45		07:32 (B223)	06:35		07:33 (B014)	05:36		20:28 (B172)	05:05		21:02 (B143)	05:18			06:02		07:06 (B050)	06:52		07:41 (B014)	07:41		08:41 (WEA01)	07:35			08:20		
	16:37			17:31	24	08:51 (WEA02)	18:21	15	07:48 (B153)	20:14	26	07:59 (B014)	21:03	8	20:36 (B172)	21:41	8	21:10 (B143)	21:38			20:53	14	07:20 (B050)	19:46	1	07:42 (B014)	18:37	28	09:09 (WEA01)	16:38			16:13		
14	08:25			07:42		08:27 (WEA02)	06:43		07:35 (B223)	06:33		07:34 (B014)	05:35		20:31 (B172)	05:05		21:03 (B143)	05:19			06:04		07:05 (B050)	06:53			07:42		08:41 (WEA01)	07:37			08:20		
	16:38			17:33	24	08:51 (WEA02)	18:23	3	07:38 (B223)	20:15	24	07:58 (B014)	21:05	4	20:35 (B172)	21:41	8	21:11 (B143)	21:37			20:51	15	07:20 (B050)	19:44			18:35	29	09:10 (WEA01)	16:37			16:13		
15	08:24			07:40		08:26 (WEA02)	06:41			06:31		07:35 (B014)	05:33			05:04		21:03 (B143)	05:20			06:05		07:04 (B050)	06:55			07:44		08:40 (WEA01)	07:39			08:21		
	16:40			17:35	25	08:51 (WEA02)	18:25			20:17	22	07:57 (B014)	21:06			21:42	9	21:12 (B143)	21:36			20:49	18	07:22 (B050)	19:41			18:33	30	09:10 (WEA01)	16:35			16:13		
16	08:23			07:38		08:18 (WEA01)	06:39			06:28		07:35 (B014)	05:31			05:04		21:04 (B143)	05:22			06:07		07:03 (B050)	06:56			07:46		08:40 (WEA01)	07:40			08:22		
	16:42			17:36	33	08:51 (WEA02)	18:26			20:19	20	07:55 (B014)	21:08			21:42	8	21:12 (B143)	21:35			20:47	19	07:22 (B050)	19:39			18:31	30	09:10 (WEA01)	16:34			16:13		
17	08:22			07:36		08:15 (WEA01)	06:36		07:20 (B152)	06:26		07:36 (B014)	05:30			05:04		21:04 (B143)	05:23			06:08		07:03 (B050)	06:58			07:48		08:40 (WEA01)	07:42			08:23		
	16:43			17:38	36	08:51 (WEA02)	18:28	6	07:26 (B152)	20:20	17	07:53 (B014)	21:10			21:43	9	21:13 (B143)	21:34			20:45	19	07:22 (B050)	19:37			18:29	31	09:11 (WEA01)	16:32			16:13		
18	08:21			07:35		08:13 (WEA01)	06:34		07:18 (B152)	06:24		07:06 (B050)	05:28			05:04		21:04 (B143)	05:24			06:10		07:02 (B050)	07:00			07:49		08:39 (WEA01)	07:44			08:24		
	16:45			17:40	38	08:51 (WEA02)	18:30	10	07:28 (B152)	20:22	14	07:50 (B014)	21:11			21:43	9	21:13 (B143)	21:33			20:43	20	07:22 (B050)	19:34			18:27	31	09:10 (WEA01)	16:31			16:13		
19	08:20			07:33		08:12 (WEA01)	06:32		07:16 (B152)	06:22		07:01 (B050)	05:27			05:04		21:04 (B143)	05:25			06:12		07:02 (B050)	07:01			07:51		08:39 (WEA01)	07:45			08:25		
	16:46			17:42	38	08:50 (WEA02)	18:31	12	07:28 (B152)	20:24	11	07:12 (B050)	21:12			21:44	9	21:13 (B143)	21:32			20:41	20	07:22 (B050)	19:32			18:24	30	09:09 (WEA01)	16:30			16:14		
20	08:19			07:31		08:11 (WEA01)	06:29		07:16 (B152)	06:20		06:59 (B050)	05:26			05:04		21:05 (B143)	05:27			06:13		07:01 (B050)	07:03			07:53		08:39 (WEA01)	07:47			08:25		
	16:48			17:44	38	08:49 (WEA02)	18:33	12	07:28 (B152)	20:26	15	07:14 (B050)	21:14			21:44	9	21:14 (B143)	21:31			20:39	21	07:22 (B050)	19:30			18:22	35	09:14 (WEA02)	16:29			16:14		
21	08:18			07:29		08:10 (WEA01)	06:27		07:15 (B152)	06:18		06:58 (B050)	05:24			05:04		21:05 (B143)	05:28			06:15		07:02 (B050)	07:05		08:03 (B152)	07:54		08:40 (WEA01)	07:49			08:26		
	16:50			17:46	38	08:48 (WEA02)	18:35	13	07:28 (B152)	20:27	17	07:15 (B050)	21:15			21:44	9	21:14 (B143)	21:30			20:37	19	07:21 (B050)	19:27	9	08:12 (B152)	18:20	37	09:17 (WEA02)	16:27			16:14		
22	08:17			07:27		08:09 (WEA01)	06:25		07:16 (B152)	06:16		06:57 (B050)	05:23			05:04		21:05 (B143)	05:29			06:16		07:01 (B050)	07:06		08:01 (B152)	07:56		08:40 (WEA01)	07:51			08:27		
	16:51			17:47	38	08:47 (WEA02)	18:37	12	07:28 (B152)	20:29	18	07:15 (B050)	21:17			21:45	9	21:14 (B143)	21:29			20:35	19	07:20 (B050)	19:25	11	08:12 (B152)	18:18	38	09:18 (WEA02)	16:26			16:15		
23	08:16			07:25		08:09 (WEA01)	06:23		07:16 (B152)	06:14		06:56 (B050)	05:22			05:05		21:05 (B143)	05:30			06:18		07:02 (B050)	07:08		08:00 (B152)	07:58		08:41 (WEA01)	07:52			08:27		
	16:53			17:49	36	08:45 (WEA02)	18:38	10	07:26 (B152)	20:31	20	07:16 (B050)	21:18			21:45	9	21:14 (B143)	21:27			20:33	18	07:20 (B050)	19:23	13	08:13 (B152)	18:16	39	09:20 (WEA02)	16:25			16:15		
24	08:15			07:22		08:08 (WEA01)	06:20		07:17 (B152)	06:11		06:56 (B050)	05:20			05:05		21:06 (B143)	05:32			06:20		07:03 (B050)	07:09		07:59 (B152)	08:00		08:41 (WEA01)	07:54			08:28		
	16:55			17:51	30	08:38 (WEA01)	18:40	8	07:25 (B152)	20:32	20	07:16 (B050)	21:20			21:45	9	21:15 (B143)	21:26			20:31	15	07:18 (B050)	19:21	13	08:12 (B152)	18:14	38	09:19 (WEA02)	16:24			16:16		
25	08:14			07:20		08:07 (WEA01)	06:18			06:09		06:55 (B050)	05:19			05:05		21:05 (B143)	05:33			06:21		07:04 (B050)	07:11		07:59 (B152)	08:01		08:42 (WEA01)	07:55			08:28		
	16:56			17:53	31	08:38 (WEA01)	18:42			20:34	21	07:16 (B050)	21:21			21:45	9	21:14 (B143)	21:25			20:29	13	07:17 (B050)	19:18	13	08:12 (B152)	18:12	38	09:20 (WEA02)	16:23			16:16		
26	08:13			07:18		08:07 (WEA01)	07:16			06:07		06:55 (B050)	05:18			05:05		21:05 (B143)	05:35			06:23		07:06 (B050)	07:13		08:00 (B152)	08:03		08:44 (WEA01)	07:57			08:28		
	16:58			17:55	31	08:38 (WEA01)	19:43			20:36	20	07:15 (B050)	21:22			21:45	9	21:14 (B143)	21:23			20:26	17	07:52 (B014)	19:16	11	08:11 (B152)	18:10	37	09:21 (WEA02)	16:22			16:17		
27	08:11			07:16		08:08 (WEA01)	07:13			06:05		06:55 (B050)	05:17			05:06		21:06 (B143)	05:36			06:24		07:44 (B014)	07:14		08:00 (B152)	08:05		08:46 (WEA01)	07:59			08:29		
	17:00			17:56	30	08:38 (WEA01)	19:45			20:37	20	07:15 (B050)	21:24			21:45	9	21:15 (B143)	21:22			20:24	15	07:55 (B014)	19:14	9	08:09 (B152)	18:08	35	09:21 (WEA02)	16:21			16:18		
28	08:10			07:14		08:08 (WEA01)	07:11			06:03		06:55 (B050)	05:16			05:06		21:06 (B143)	05:37			06:26		07:37 (B014)	07:16		08:02 (B152)	08:07		08:51 (WEA01)	08:00			08:29		
	17:02			17:58	30	08:38 (WEA01)	19:47			20:39	19	07:14 (B050)	21:25			21:45	8	21:14 (B143)	21:20			20:22	19	07:56 (B014)	19:11	5	08:07 (B152)	18:06	30	09:21 (WEA02)	16:20			16:18		
29	08:09						07:09			06:01		06:55 (B050)	05:15			05:07		21:06 (B143)	05:39			06:28		07:36 (B014)	07:17			07:09		07:56 (B014)	08:02			08:29		
	17:03						19:48			20:41	18	07:13 (B050)	21:26			21:45	9	21:15 (B143)	21:19			20:20	21	07:57 (B014)	19:09			17:04	25	08:21 (WEA02)	16:19			16:19		
30	08:07						07:07			06:59		06:57 (B050)	05:14			05:07		21:06 (B143)	05:40			06:29		07:34 (B014)	07:19			07:10		07:57 (WEA02)	08:03			08:29		
	17:05						19:50			20:42	16	07:13 (B050)	21:27			21:45	8	21:14 (B143)	21:17			20:18	24	07:58 (B014)	19:07			17:02	24	08:21 (WEA02)	16:18			16:20		
31	08:06						07:04						05:13						05:42		20:41 (B172)	06:31		07:34 (B014)						07:12		07:57 (WEA02)				08:29		
	17:07						19:52						21:29						21:16	4	20:45 (B172)	20:15	25	07:59 (B014)						17:00	23	08:20 (WEA02)				16:21		
Sonnenscheinstunden	259			277			366			414			483			497			502			454			382			333			268			245		
astr.max.mögl.Beschattung		627			411			613			67			202			57			397			372			883			95					
Red.Sonnenscheinwahrsch.		0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23					
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung		0.63			0.66			0.72			0.68			0.60			0.61			0.72			0.71			0.64			0.62					
Gesamte Reduktion		0.19			0.18			0.25			0.28			0.19			0.22			0.27			0.22			0.17			0.13					
Met.wahrsch.Beschattung		121			73			154			19			39			13			109			81			154			13					

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)	

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
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Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO061 - Kirchborchener Str. 68, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		08:04			07:12		08:11 (WEA01)	07:02		07:45 (B014)	05:57		07:04 (B050)	05:12		20:58 (B143)	05:08		21:04 (B143)	05:43			06:32		07:37 (B014)	07:21			07:14		07:59 (WEA02)	08:05		
	16:22		17:09			18:00	27	08:38 (WEA01)	19:54	17	08:02 (B014)	20:44	7	07:11 (B050)	21:30	2	21:00 (B143)	21:45	10	21:14 (B143)	21:14			20:13	23	08:00 (B014)	19:04			16:58	23	08:22 (WEA02)	16:18		
2	08:29		08:03			07:10		08:12 (WEA01)	07:00		07:42 (B014)	05:56			05:11		20:58 (B143)	05:09		21:04 (B143)	05:45		20:38 (B172)	06:34		07:36 (B014)	07:22		08:15 (B223)	07:16		08:00 (WEA02)	08:06		
	16:23		17:11			18:02	25	08:37 (WEA01)	19:55	21	08:03 (B014)	20:46			21:31	3	21:01 (B143)	21:44	9	21:13 (B143)	21:13	4	20:42 (B172)	20:11	25	08:01 (B014)	19:02	4	08:19 (B223)	16:57	22	08:22 (WEA02)	16:17		
3	08:29		08:01			07:08		08:13 (WEA01)	06:57		07:41 (B014)	05:54			05:10		20:57 (B143)	05:09		21:04 (B143)	05:46		20:36 (B172)	06:36		07:35 (B014)	07:24		08:13 (B223)	07:17		08:00 (WEA02)	08:07		
	16:24		17:13			18:04	23	08:36 (WEA01)	19:57	23	08:04 (B014)	20:47			21:32	5	21:02 (B143)	21:44	9	21:13 (B143)	21:11	8	20:44 (B172)	20:09	26	08:01 (B014)	19:00	12	08:28 (B153)	16:55	21	08:21 (WEA02)	16:16		
4	08:29		08:00			07:05		07:46 (B153)	06:55		07:40 (B014)	05:52			05:10		20:58 (B143)	05:10		21:04 (B143)	05:48		20:34 (B172)	06:37		07:34 (B014)	07:26		08:11 (B223)	07:19		08:00 (WEA02)	08:09		
	16:25		17:14			18:05	28	08:34 (WEA01)	19:59	25	08:05 (B014)	20:49			21:33	5	21:03 (B143)	21:44	9	21:13 (B143)	21:09	8	20:42 (B172)	20:07	27	08:01 (B014)	18:58	20	08:31 (B153)	16:53	19	08:19 (WEA02)	16:16		
5	08:29		07:58		08:39 (WEA02)	07:03		07:38 (B223)	06:53		07:38 (B014)	05:50			05:09		20:58 (B143)	05:11		21:05 (B143)	05:49		20:34 (B172)	06:39		07:34 (B014)	07:27		08:11 (B223)	07:21		08:02 (WEA02)	08:10		
	16:26		17:16	3	08:42 (WEA02)	18:07	31	08:32 (WEA01)	20:00	26	08:04 (B014)	20:51			21:34	6	21:04 (B143)	21:43	8	21:13 (B143)	21:08	7	20:41 (B172)	20:04	28	08:02 (B014)	18:55	22	08:33 (B153)	16:51	16	08:18 (WEA02)	16:15		
6	08:29		07:56		08:35 (WEA02)	07:01		07:35 (B223)	06:51		07:38 (B014)	05:48		20:23 (B172)	05:08		20:58 (B143)	05:12		21:04 (B143)	05:51		20:33 (B172)	06:40		07:33 (B014)	07:29		08:10 (B223)	07:23		08:04 (WEA02)	08:11		
	16:28		17:18	11	08:46 (WEA02)	18:09	27	08:26 (WEA01)	20:02	27	08:05 (B014)	20:52	3	20:26 (B172)	21:35	6	21:04 (B143)	21:43	8	21:12 (B143)	21:06	5	20:38 (B172)	20:02	28	08:01 (B014)	18:53	22	08:32 (B153)	16:49	13	08:17 (WEA02)	16:15		
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	16:29		17:20	15	08:48 (WEA02)	18:11	23	07:57 (B153)	20:04	28	08:05 (B014)	20:54	4	20:27 (B172)	21:36	8	21:06 (B143)	21:42	8	21:12 (B143)	21:04	4	20:37 (B172)	20:00	27	08:01 (B014)	18:51	23	08:33 (B153)	16:48	8	08:14 (WEA02)	16:14		
8	08:28		07:53		08:32 (WEA02)	06:57		07:34 (B223)	06:46		07:37 (B014)	05:45		20:24 (B172)	05:07		20:58 (B143)	05:13		21:05 (B143)	05:54		20:33 (B172)	06:44		07:33 (B014)	07:32		08:10 (B223)	07:26			08:14		
	16:30		17:22	18	08:50 (WEA02)	18:12	23	07:57 (B153)	20:05	28	08:05 (B014)	20:55	5	20:29 (B172)	21:37	8	21:06 (B143)	21:42	6	21:11 (B143)	21:02	2	20:35 (B172)	19:57	27	08:00 (B014)	18:48	23	08:33 (B153)	16:46			16:14		
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10	08:27		07:49		08:30 (WEA02)	06:52		07:33 (B223)	06:42		07:36 (B014)	05:41		20:25 (B172)	05:06		20:59 (B143)	05:15		21:05 (B143)	05:57			06:47		07:33 (B014)	07:36		08:12 (B223)	07:30			08:16		
	16:33		17:25	22	08:52 (WEA02)	18:16	22	07:55 (B153)	20:09	27	08:03 (B014)	20:59	7	20:32 (B172)	21:38	9	21:08 (B143)	21:40	5	21:10 (B143)	20:59			19:53	25	07:58 (B014)	18:44	32	09:06 (WEA01)	16:43			16:13		
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	16:34		17:27	23	08:52 (WEA02)	18:18	20	07:53 (B153)	20:10	25	08:02 (B014)	21:00	8	20:33 (B172)	21:39	9	21:08 (B143)	21:40	5	21:10 (B143)	20:57			19:51	22	07:57 (B014)	18:42	28	09:08 (WEA01)	16:41			16:13		
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	16:42		17:36	36	08:53 (WEA02)	18:26	8	07:30 (B152)	20:19	12	07:54 (B014)	21:08			21:42	10	21:12 (B143)	21:35			20:47	16	07:23 (B050)	19:39			18:31	29	09:12 (WEA01)	16:34			16:13		
17	08:22		07:36		08:15 (WEA01)	06:36		07:20 (B152)	06:26		07:06 (B050)	05:30			05:04		21:02 (B143)	05:23			06:08		07:06 (B050)	06:58			07:48			08:43 (WEA01)	07:42			08:23		
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	16:45		17:40	38	08:52 (WEA02)	18:30	13	07:32 (B152)	20:22	13	07:16 (B050)	21:11			21:43	11	21:13 (B143)	21:33			20:43	19	07:24 (B050)	19:34			18:27	31	09:12 (WEA01)	16:31			16:13		
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	16:46		17:42	38	08:51 (WEA02)	18:31	13	07:31 (B152)	20:24	16	07:18 (B050)	21:12			21:44	10	21:13 (B143)	21:32			20:41	20	07:25 (B050)	19:32			18:24	31	09:12 (WEA01)	16:30			16:14		
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	16:56		17:53	31	08:41 (WEA01)	18:42			20:34	20	07:18 (B050)	21:21			21:45	10	21:14 (B143)	21:25			20:29	17	07:22 (B050)	19:18	13	08:15 (B152)	18:12	38	09:21 (WEA02)	16:23			16:16		
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	17:03					19:48			20:41	14	07:14 (B050)	21:26			21:45	11	21:15 (B143)	21:19			20:20	15	07:57 (B014)	19:09	7	08:10 (B152)	17:04	32	08:23 (WEA02)	16:19			16:19		
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	17:05					19:50	3	07:55 (B014)	20:42	12	07:14 (B050)	21:27			21:45	10	21:14 (B143)	21:17			20:18	18	07:58 (B014)	19:07			17:02	25	08:23 (WEA02)	16:18			16:20		
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	17:07					19:52	13	08:00 (B014)				21:29	2	20:59 (B143)				21:16			20:15	21	08:00 (B014)				17:00	24	08:23 (WEA02)				16:21		
Sonnenscheinstunden	259			277			366			414			483			497			502			454			382			333			268			245		
astr.max.mögl.Beschattung			662					383			608			47			264			90			348			414			842			122			
Red.Sonnenscheinwahrsch.			0.32					0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			
Reduktion Betriebsdauer			0.95					0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung			0.62					0.66			0.72			0.66			0.61			0.61			0.72			0.71			0.63			0.61			
Gesamte Reduktion			0.19					0.18			0.25			0.27			0.20			0.22			0.27			0.22			0.17			0.13			
Met.wahrsch.Beschattung			127					68			152			13			52			20			95			89			147			16			

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)	

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO062 - Kirchborchener Str. 70, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember	
1	08:30	16:22		08:04	17:09		07:12	18:00	23	08:15 (WEA01)	08:38 (WEA01)	22	07:02	07:45 (B014)	07:51 (B153)	05:57	21:30	5	05:12	21:00 (B143)	20:55 (B143)	05:08	21:45	10	05:43	21:13 (B143)	21:03 (B143)	06:32	20:13	20	07:41 (B014)	08:01 (B014)	07:00	07:21	19:04	4	08:07 (B152)	08:11 (B152)	24	07:14	07:16		08:00 (WEA02)	08:24 (WEA02)	08:05	16:18
2	08:29	16:23		08:03	17:11		07:10	18:02	24	07:51 (B153)	08:37 (WEA01)	24	07:00	07:43 (B014)	08:07 (B014)	05:56	21:31	6	05:11	20:55 (B143)	21:01 (B143)	05:09	21:44	11	05:45	21:14	21:13 (B143)	06:34	20:11	22	07:40 (B014)	08:02 (B014)	07:00	07:22	19:02					07:16	16:57	23	08:01 (WEA02)	08:24 (WEA02)	08:06	16:17
3	08:29	16:24		08:01	17:13		07:08	18:04	26	07:48 (B153)	08:35 (WEA01)	26	06:57	07:42 (B014)	07:52 (B153)	05:54	21:32	7	05:10	20:55 (B143)	21:02 (B143)	05:09	21:44	11	05:46	21:13 (B143)	21:02 (B143)	06:36	20:09	23	07:39 (B014)	08:02 (B014)	07:00	07:24	19:00	3	08:17 (B223)	08:20 (B223)	1	07:17	16:55	23	08:01 (WEA02)	08:24 (WEA02)	08:07	16:16
4	08:29	16:25		08:00	17:14	5	08:40 (WEA02)	08:45 (WEA02)	28	07:05	08:32 (WEA01)	28	06:55	07:40 (B223)	07:59 (B153)	05:52	21:33	7	05:10	20:56 (B143)	21:03 (B143)	05:10	21:44	10	05:48	21:13 (B143)	21:03 (B143)	06:37	20:07	25	07:38 (B014)	08:03 (B014)	07:00	07:26	18:58	9	08:14 (B223)	08:23 (B223)	1	07:19	16:53	21	08:01 (WEA02)	08:22 (WEA02)	08:09	16:16
5	08:29	16:26		07:58	17:16	12	08:36 (WEA02)	08:48 (WEA02)	21	07:03	08:18 (B223)	21	06:53	07:40 (B014)	07:59 (B153)	05:50	21:34	8	05:09	20:56 (B143)	21:04 (B143)	05:11	21:43	10	05:49	21:13 (B143)	21:08 (B143)	06:39	20:04	26	07:38 (B014)	08:04 (B014)	07:00	07:27	18:55	20	08:13 (B223)	08:33 (B153)	19	07:21	16:51	19	08:02 (WEA02)	08:21 (WEA02)	08:10	16:15
6	08:29	16:28		07:56	17:18	16	08:34 (WEA02)	08:50 (WEA02)	23	07:01	08:09 (B223)	23	06:51	07:40 (B014)	07:59 (B153)	05:48	21:36	9	05:08	20:55 (B143)	21:04 (B143)	05:12	21:43	10	05:51	21:12 (B143)	21:06	06:40	20:02	27	07:36 (B014)	08:03 (B014)	07:00	07:28	18:53	22	08:11 (B223)	08:33 (B153)	17	07:24	16:49	17	08:03 (WEA02)	08:20 (WEA02)	08:11	16:15
7	08:28	16:29		07:55	17:20	18	08:33 (WEA02)	08:51 (WEA02)	24	06:59	07:59 (B153)	24	06:47	07:40 (B014)	08:00 (B014)	05:47	21:37	10	05:07	20:56 (B143)	21:05 (B143)	05:13	21:42	9	05:52	21:11 (B143)	21:07	06:42	20:00	28	07:36 (B014)	08:04 (B014)	07:00	07:29	18:51	23	08:10 (B223)	08:34 (B153)	14	07:26	16:48	14	08:04 (WEA02)	08:19 (WEA02)	08:13	16:14
8	08:28	16:30		07:53	17:22	20	08:33 (WEA02)	08:53 (WEA02)	23	06:57	07:58 (B153)	27	06:46	07:40 (B014)	08:00 (B014)	05:46	21:38	10	05:07	20:56 (B143)	21:06 (B143)	05:13	21:42	9	05:54	21:11 (B143)	21:08	06:44	19:57	27	07:36 (B014)	08:03 (B014)	07:00	07:31	18:48	24	08:11 (B223)	08:35 (B153)	8	07:26	16:46	8	08:03 (WEA02)	08:16 (WEA02)	08:14	16:14
9	08:28	16:31		07:51	17:24	22	08:32 (WEA02)	08:54 (WEA02)	22	06:54	07:56 (B153)	27	06:44	07:40 (B014)	08:00 (B014)	05:45	21:39	10	05:06	20:57 (B143)	21:07 (B143)	05:14	21:41	8	05:56	21:11 (B143)	21:02	06:46	19:55	27	07:36 (B014)	08:03 (B014)	07:00	07:32	18:46	23	08:10 (B223)	08:34 (B153)	14	07:26	16:44				08:15	16:14
10	08:27	16:33		07:49	17:25	23	08:31 (WEA02)	08:54 (WEA02)	20	06:52	07:55 (B153)	25	06:42	07:40 (B014)	08:00 (B014)	05:41	21:40	10	05:05	20:58 (B143)	21:08 (B143)	05:15	21:40	7	05:57	21:10 (B143)	21:03 (B143)	06:47	19:51	25	07:35 (B014)	08:01 (B014)	07:00	07:36	18:42	28	08:12 (B223)	08:36 (B153)	16	07:30	16:43				08:16	16:13
11	08:27	16:34		07:48	17:27	23	08:31 (WEA02)	08:54 (WEA02)	18	06:50	07:55 (B153)	25	06:39	07:40 (B014)	08:00 (B014)	05:39	21:41	10	05:04	20:57 (B143)	21:08 (B143)	05:16	21:40	7	05:59	21:10 (B143)	21:03 (B143)	06:48	19:46	26	07:36 (B014)	08:01 (B014)	07:00	07:37	18:44	21	08:13 (B223)	08:33 (B153)	16	07:32	16:43				08:17	16:13
12	08:26	16:36		07:46	17:29	25	08:30 (WEA02)	08:55 (WEA02)	16	06:48	07:59 (B223)	27	06:37	07:42 (B014)	08:00 (B014)	05:38	21:42	10	05:03	20:58 (B143)	21:09 (B143)	05:17	21:39	6	06:00	21:09 (B143)	21:03 (B143)	06:50	19:48	23	07:36 (B014)	08:02 (B014)	07:00	07:39	18:42	28	08:14 (B223)	08:33 (B153)	16	07:34	16:49	17	08:02 (WEA02)	08:20 (WEA02)	08:17	16:12
13	08:25	16:37		07:44	17:31	32	08:23 (WEA01)	08:55 (WEA02)	14	06:45	08:21 (B223)	32	06:35	07:43 (B014)	08:01 (B014)	05:36	21:43	10	05:02	20:59 (B143)	21:09 (B143)	05:18	21:38	5	06:02	21:08 (B143)	21:03 (B143)	06:52	19:46	21	07:37 (B014)	08:02 (B014)	07:00	07:41	18:37	26	08:23 (B153)	08:37 (B153)	20	07:35	16:48	14	08:01 (WEA02)	08:19 (WEA02)	08:18	16:11
14	08:25	16:39		07:42	17:33	35	08:20 (WEA01)	08:55 (WEA02)	18	06:43	08:23 (B223)	35	06:33	07:45 (B014)	08:01 (B014)	05:35	21:41	9	05:01	20:59 (B143)	21:09 (B143)	05:20	21:37	5	06:04	21:08 (B143)	21:03 (B143)	06:53	19:44	19	07:38 (B014)	08:01 (B014)	07:00	07:42	18:35	24	08:24 (B153)	08:39 (B153)	20	07:37	16:47	13	08:00 (WEA02)	08:18 (WEA02)	08:20	16:13
15	08:24	16:40		07:40	17:35	36	08:18 (WEA01)	08:54 (WEA02)	12	06:41	08:25 (B223)	36	06:31	07:46 (B014)	08:02 (B014)	05:33	21:42	9	05:00	21:00 (B143)	21:10 (B143)	05:21	21:36	4	06:05	21:07 (B143)	21:03 (B143)	06:55	19:41	15	07:39 (B014)	08:01 (B014)	07:00	07:44	18:33	26	08:47 (B153)	09:13 (WEA01)	1	07:39	16:45	12	07:59 (WEA02)	08:17 (WEA02)	08:21	16:12
16	08:23	16:42		07:38	17:36	37	08:17 (WEA01)	08:54 (WEA02)	12	06:39	08:26 (B223)	37	06:28	07:50 (B014)	08:03 (B014)	05:31	21:42	8	05:00	21:01 (B143)	21:09 (B143)	05:22	21:35	2	06:07	21:06 (B143)	21:04 (B143)	06:56	19:39	8	07:51 (B014)	08:01 (B014)	07:00	07:46	18:31	27	09:13 (WEA01)	09:13 (WEA01)	1	07:40	16:44	11	07:58 (WEA02)	08:16 (WEA02)	08:22	16:11
17	08:22	16:43		07:36	17:38	37	08:16 (WEA01)	08:53 (WEA02)	12	06:36	08:28 (B223)	37	06:26	07:50 (B014)	08:03 (B014)	05:30	21:43	8	05:00	21:01 (B143)	21:09 (B143)	05:23	21:34	1	06:08	21:05 (B143)	21:04 (B143)	06:58	19:37		07:11 (B050)	07:25 (B050)	07:00	07:48	18:29	28	08:46 (WEA01)	09:14 (WEA01)	1	07:42	16:42	10	07:57 (WEA02)	08:15 (WEA02)	08:23	16:10
18	08:21	16:45		07:35	17:40	37	08:15 (WEA01)	08:52 (WEA02)	12	06:34	08:28 (B223)	37	06:24	07:50 (B014)	08:03 (B014)	05:28	21:43	7	05:00	21:02 (B143)	21:09 (B143)	05:24	21:33		06:10	21:04 (B143)	21:05 (B143)	06:59	19:34		07:09 (B050)	07:25 (B050)	07:00	07:49	18:27	30	08:44 (WEA01)	09:14 (WEA01)	1	07:44	16:41	9	07:56 (WEA02)	08:14 (WEA02)	08:24	16:09
19	08:20	16:46		07:33	17:42	37	08:14 (WEA01)	08:51 (WEA02)	12	06:32	08:31 (B223)	37	06:22	07:50 (B014)	08:03 (B014)	05:27	21:44	7	05:00	21:02 (B143)	21:09 (B143)	05:25	21:33		06:12	20:43	16	07:25 (B050)	19:34		07:08 (B050)	07:26 (B050)	07:00	07:51	18:27	30	08:44 (WEA01)	09:14 (WEA01)	1	07:45	16:40	8	07:55 (WEA02)	08:13 (WEA02)	08:25	16:08
20	08:19	16:48		07:31	17:44	36	08:14 (WEA01)	08:50 (WEA02)	10	06:29	08:32 (B223)	36	06:20	07:50 (B014)	08:03 (B014)	05:26	21:44	7	05:00	21:02 (B143)	21:09 (B143)	05:27	21:31		06:13	20:39	19	07:26 (B050)	19:30		07:07 (B050)	07:26 (B050)	07:00	07:53	18:22	30	08:44 (WEA01)	09:14 (WEA01)	1	07:47	16:38	7	07:54 (WEA02)	08:12 (WEA02)	08:25	16:07
21	08:18	16:50		07:29	17:46	33	08:14 (WEA01)	08:47 (WEA02)	8	06:27	08:31 (B152)	33	06:18	07:50 (B014)	08:03 (B014)	05:24	21:45	7	05:00	21:02 (B143)	21:09 (B143)	05:28	21:30		06:15	20:37	20	07:27 (B050)	19:27		07:06 (B050)	07:26 (B050)	07:00	07:56	18:20	30	09:14 (WEA01)	09:14 (WEA01)	1	07:50	16:36	6	07:53 (WEA02)	08:11 (WEA02)	08:26	16:06
22	08:17	16:51		07:27	17:47	31	08:13 (WEA01)	08:44 (WEA02)	6	06:25	08:37 (B152)	31	06:16	07:50 (B014)	08:03 (B014)	05:23	21:45	7	05:00	21:02 (B143)	21:09 (B143)	05:29	21:29		06:16	20:35	20	07:26 (B050)	19:25		07:06 (B050)	07:26 (B050)	07:00	07:56	18:18	33	09:17 (WEA02)	09:17 (WEA02)	1	07:53	16:34	5	07:52 (WEA02)	08:10 (WEA02)	08:27	16:05
23	08:16	16:53		07:25	17:49	31	08:13 (WEA01)	08:44 (WEA01)	6	06:23	08:38 (B152)	31	06:14	07:51 (B050)	08:03 (B014)	05:22	21:45	7	05:00	21:02 (B143)	21:09 (B143)	05:30	21:28		06:18	20:33	21	07:27 (B050)	19:23		07:05 (B050)	07:26 (B050)	07:00	07:58	18:16	36	09:20 (WEA02)	09:20 (WEA02)	1	07:56	16:31	4	07:51 (WEA02)	08:09 (WEA02)	08:28	16:04
24	08:15	16:55		07:22	17:51	31	08:12 (WEA01)	08:43 (WEA01)	6	06:20	08:40 (B152)	31	06:11	07:51 (B050)	08:03 (B014)	05:20	21:45	7	05:00	21:02 (B143)	21:09 (B143)	05:32	21:26		06:20	20:31	20	07:26 (B050)	19:21	9	08:06 (B152)	08:15 (B152)	1	08:00	18:14	36	09:20 (WEA02)	09:20 (WEA02)	1	07:58	16:29	3	07:50 (WEA02)	08:08 (WEA02)	08:28	16:03
25	08:14	16:56		07:20	17:53	29	08:13 (WEA01)	08:42 (WEA01)	6	06:18	08:42 (B152)	29	06:09	07:51 (B050)	08:03 (B014)	05:19	21:45	7	05:00	21:03 (B143)	21:09 (B143)	05:33	21:24		06:21	20:29	19	07:25 (B050)	19:18	11	08:05 (B152)	08:01		08:01	18:12	38	09:22 (WEA02)	09:22 (WEA02)	1	08:00	16:27	2	07:49 (WEA02)	08:07 (WEA02)	08:29	16:02
26	08:13	16:58		07:18	17:55	29	08:13 (WEA01)	08:42 (WEA01)	6	06:16	08:43 (B152)	29	06:07	07:51 (B050)	08:03 (B014)	05:18	21:45	8	05:00	21:03 (B143)	21:09 (B143)	05:35	21:22		06:23	20:26	18	07:24 (B050)	19:16	12	08:17 (B152)	08:10	38	08:03	18:10	38	09:23 (WEA02)	09:23 (WEA02)	1	08:02	16:25	1	07:48 (WEA02)	08:06 (WEA02)	08:29	16:01
27	08:11	17:00		07:16	17:56	27	08:14 (WEA01)	08:41 (WEA01)	6	06:13	08:45 (B152)	27	06:05	07:51 (B050)	08:03 (B014)	05:17	21:45	8	05:00	21:03 (B143)	21:09 (B143)	05:36	21:22		06:24	20:24	16	07:27 (B050)	19:14	13	08:16 (B152)	08:08	37	08:03	18:08	37	09:23 (WEA02)	09:23 (WEA02)	1	08:05	16:23		07:47 (WEA02)	08:05 (WEA02)	08:29	15:59
28	08:10	17:02		07:14	17:58	25	08:15 (WEA01)	08:40 (WEA01)	6	06:11	08:47 (B152)	25	06:03	07:51 (B050)	08:03 (B014)	05:16	20:55 (B143)	1	05:00	21:03 (B143)	21:09 (B143)	05:37	21:20		06:26	20:22	13	07:21 (B050)	19:11	12	08:16 (B152)	08:06	36	08:04	18:06	36	09:24 (WEA02)	09:24 (WEA02)	1	08:07	16:20				08:29	15:58
29	08:09	17:03					07:09	19:48	10	07:51 (B014)	08:01 (B014)	10	06:01	07:51 (B050)	08:03 (B014)	05:15	20:55 (B143)	1	05:00	21:03 (B143)	21:09 (B143)	05:39	21:18		06:28	20:20	8	07:19 (B050)	19:09	11	08:14 (B152)	08:04	35	08:03	18:04	35	09:24 (WEA02)	09:24 (WEA02)	1	08:09	16:18				08:29	15:56
30	08:07	17:05					07:07	19:50	16	07:48 (B014)	08:04 (B014)	10	05:59	07:51 (B050)	08:04 (B014)	05:14	20:54 (B143)	1	05:00	21:02 (B143)	21:09 (B143)	05:40	21:17		06:29	20:18	11	07:46 (B014)	19:07	9	08:13 (B152)	08:03	35	08:04	18:02	32	09:24 (WEA02)	09:24 (WEA02)	1	08:10	16:16				08:29	15:54
31	08:06	17:07					07:04	19:52	19	07:47 (B014)	08:06 (B014)	10	05:57	07:52 (B050)	08:04 (B014)	05:13	20:54 (B143)	1	05:00	21:02 (B143)	21:09 (B143)	05:42	21:16		06:31	20:15	16	07:44 (B014)	19:00	7	08:00 (B014)	08:03	35	08:04	18:00	32	09:24 (WEA02)	09:24 (WEA02)	1	08:12	16:13				08:29	15:52
	Sonnenscheinstunden	259			277			366			414			483			497			502			454			382			333			268			245	
	astr.max.mögl.Beschattung		687			687			371			574			49			247			126			303			439			803			149			
	Red.Sonnenscheinwahrsch.		0.32			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23		
	Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
	Reduktion Windrichtung		0.62			0.62			0.67			0.72			0.64			0.61			0.61			0.72			0.71			0.63			0.61		
	Gesamte Reduktion		0.19			0.19			0.18			0.25			0.26			0.20			0.23			0.27			0.22			0.17			0.13		
	Met.wahrsch.Beschattung		132			132			67			144			13			48			28			83			95			140			20		

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: Dörenhagen GB Schattenrezeptor: IO063 - Kirchborchener Str. 72, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1 | 08:30 | 16:22	08:04 | 17:09	07:12 | 18:00 25	07:51 (B153) | 07:02 | 08:38 (WEA01) | 19:54 26	07:48 (B014) | 05:57 | 08:14 (B014) | 20:44 1	20:17 (B172) | 05:12 | 20:18 (B172) | 21:30 9	20:51 (B143) | 05:08 | 21:00 (B143) | 21:45	05:43 | 21:14	06:32 | 20:13	07:21 | 19:04 11	08:07 (B152) | 07:14 | 08:18 (B152) | 16:58 32	07:55 (WEA01) | 08:05 | 08:27 (WEA02) | 16:18
2 | 08:29 | 16:23	08:03 | 17:11 1	08:44 (WEA02) | 07:10 | 08:45 (WEA02) | 18:02 21	07:50 (B153) | 07:00 | 08:35 (WEA01) | 19:55 27	07:46 (B014) | 05:56 | 08:13 (B014) | 20:46 3	20:17 (B172) | 05:11 | 20:20 (B172) | 21:31 10	20:51 (B143) | 05:09 | 21:01 (B143) | 21:44	05:45 | 21:13	07:50 (B014) | 07:22 | 20:11 12	08:07 (B152) | 07:16 | 08:02 (B014) | 19:02 9	07:58 (WEA01) | 08:06 | 08:16 (B152) | 16:57 29	08:27 (WEA02) | 16:17
3 | 08:29 | 16:24	08:01 | 17:13 10	08:40 (WEA02) | 07:08 | 08:50 (WEA02) | 18:04 20	07:42 (B223) | 06:57 | 08:02 (B153) | 19:57 27	07:46 (B014) | 05:54 | 08:13 (B014) | 20:47 5	20:16 (B172) | 05:10 | 20:21 (B172) | 21:32 11	20:51 (B143) | 05:09 | 21:02 (B143) | 21:44 1	21:03 (B143) | 05:46 | 21:04 (B143) | 21:11	07:47 (B014) | 07:24 | 20:09 16	08:09 (B152) | 07:17 | 08:03 (B014) | 19:00 5	08:03 (WEA02) | 08:07 | 08:14 (B152) | 16:55 24	08:27 (WEA02) | 16:16
4 | 08:29 | 16:25	08:00 | 17:14 14	08:38 (WEA02) | 07:05 | 08:52 (WEA02) | 18:05 23	07:40 (B223) | 06:55 | 08:03 (B153) | 19:59 27	07:46 (B014) | 05:52 | 08:13 (B014) | 20:49 6	20:16 (B172) | 05:10 | 20:22 (B172) | 21:33 11	20:52 (B143) | 05:10 | 21:03 (B143) | 21:44 4	21:02 (B143) | 05:48 | 21:06 (B143) | 21:09	07:45 (B014) | 07:26 | 20:07 20	08:11 (B152) | 07:19 | 08:05 (B014) | 18:58	08:03 (WEA02) | 08:09 | 08:26 (WEA02) | 16:16
5 | 08:29 | 16:26	07:58 | 17:16 18	08:36 (WEA02) | 07:03 | 08:54 (WEA02) | 18:07 24	07:39 (B223) | 06:53 | 08:03 (B153) | 20:00 27	07:45 (B014) | 05:50 | 08:12 (B014) | 20:51 7	20:17 (B172) | 05:09 | 20:24 (B172) | 21:34 10	20:53 (B143) | 05:11 | 21:03 (B143) | 21:43 7	21:01 (B143) | 05:49 | 21:08 (B143) | 21:08	07:44 (B014) | 07:27 | 06:39 | 20:04 22	08:10 (B152) | 07:20 | 08:06 (B014) | 18:55 7	08:10 (B223) | 07:21 | 08:25 (B223) | 16:51 21	08:04 (WEA02) | 08:10 | 08:25 (WEA02) | 16:15
6 | 08:29 | 16:28	07:56 | 17:18 20	08:35 (WEA02) | 07:01 | 08:55 (WEA02) | 18:09 23	07:38 (B223) | 06:51 | 08:01 (B153) | 20:02 26	07:45 (B014) | 05:48 | 08:11 (B014) | 20:52 8	20:18 (B172) | 05:08 | 20:26 (B172) | 21:35 10	20:53 (B143) | 05:12 | 21:03 (B143) | 21:43 8	21:00 (B143) | 05:51 | 21:08 (B143) | 21:06	20:29 (B172)	06:40 | 20:02 24	07:42 (B014) | 07:29 | 08:06 (B014) | 18:53 13	08:15 (B223) | 07:23 | 08:32 (B153) | 16:49 21	08:04 (WEA02) | 08:11 | 08:25 (WEA02) | 16:15
7 | 08:28 | 16:29	07:55 | 17:20 21	08:34 (WEA02) | 06:59 | 08:55 (WEA02) | 18:11 23	07:38 (B223) | 06:48 | 08:01 (B153) | 20:04 25	07:46 (B014) | 05:46 | 08:11 (B014) | 20:54 7	20:19 (B172) | 05:08 | 20:26 (B172) | 21:36 9	20:54 (B143) | 05:12 | 21:03 (B143) | 21:42 9	21:00 (B143) | 05:52 | 21:09 (B143) | 21:04 7	20:29 (B172) | 20:36 (B172)	06:42 | 20:00 25	07:42 (B014) | 07:31 | 08:07 (B014) | 18:51 20	08:15 (B223) | 07:24 | 08:35 (B153) | 16:48 19	08:05 (WEA02) | 08:13 | 08:24 (WEA02) | 16:14
8 | 08:28 | 16:30	07:53 | 17:22 23	08:34 (WEA02) | 06:57 | 08:57 (WEA02) | 18:12 21	07:38 (B223) | 06:46 | 07:59 (B153) | 20:05 23	07:47 (B014) | 05:45 | 08:10 (B014) | 20:55	05:07 | 21:37 8	20:54 (B143) | 05:13 | 21:02 (B143) | 21:42 10	21:00 (B143) | 05:54 | 21:10 (B143) | 21:02 8	20:27 (B172) | 06:44 | 20:35 (B172) | 19:57 26	07:41 (B014) | 07:32 | 08:07 (B014) | 18:48 23	08:14 (B223) | 07:26 | 08:37 (B153) | 16:46 16	08:07 (WEA02) | 08:14 | 08:23 (WEA02) | 16:14
9 | 08:28 | 16:31	07:51 | 17:24 23	08:34 (WEA02) | 06:54 | 08:57 (WEA02) | 18:14 13	07:38 (B223) | 06:44 | 07:55 (B153) | 20:07 22	07:47 (B014) | 05:43 | 08:09 (B014) | 20:57	05:06 | 21:38 7	20:55 (B143) | 05:14 | 21:02 (B143) | 21:41 10	21:00 (B143) | 05:56 | 21:10 (B143) | 21:00 7	20:27 (B172) | 06:45 | 20:34 (B172) | 19:55 27	07:40 (B014) | 07:34 | 08:07 (B014) | 18:46 24	08:13 (B223) | 07:28 | 08:37 (B153) | 16:44 12	08:09 (WEA02) | 08:15 | 08:21 (WEA02) | 16:14
10 | 08:27 | 16:33	07:49 | 17:25 24	08:33 (WEA02) | 06:52 | 08:57 (WEA02) | 18:16 7	07:40 (B223) | 06:42 | 07:47 (B223) | 20:09 18	07:48 (B014) | 05:41 | 08:06 (B014) | 20:59	05:06 | 21:38 4	20:57 (B143) | 05:15 | 21:01 (B143) | 21:40 11	20:59 (B143) | 05:57 | 21:10 (B143) | 20:59 6	20:26 (B172) | 06:47 | 20:32 (B172) | 19:53 27	07:39 (B014) | 07:36 | 08:06 (B014) | 18:44 24	08:13 (B223) | 07:30 | 08:37 (B153) | 16:43 8	08:11 (WEA02) | 08:16 | 08:19 (WEA02) | 16:13
11 | 08:27 | 16:34	07:48 | 17:27 31	08:26 (WEA01) | 06:50 | 08:57 (WEA02) | 18:18	07:31 (B152) | 06:39 | 07:37 (B152) | 20:10 14	07:53 (B014) | 05:39 | 08:04 (B014) | 21:00	05:06 | 21:39 1	20:58 (B143) | 05:16 | 20:59 (B143) | 21:40 11	20:59 (B143) | 05:59 | 21:10 (B143) | 20:57 5	20:32 (B172) | 06:48 | 20:31 (B172) | 19:51 26	07:40 (B014) | 07:37 | 08:06 (B014) | 18:42 23	08:14 (B223) | 07:32 | 08:37 (B153) | 16:41	08:17
12 | 08:26 | 16:36	07:46 | 17:29 33	08:24 (WEA01) | 06:48 | 08:57 (WEA02) | 18:19 5	07:37 | 06:37 | 07:36 (B152) | 20:12 8	07:53 (B014) | 05:38 | 08:01 (B014) | 21:02	05:05 | 21:40	05:17 | 21:39 10	20:59 (B143) | 06:00 | 21:09 (B143) | 20:55 3	20:25 (B172) | 06:50 | 20:28 (B172) | 19:48 26	07:39 (B014) | 07:39 | 08:05 (B014) | 18:40 21	08:16 (B223) | 07:33 | 08:37 (B153) | 16:40	08:18 | 08:13
13 | 08:25 | 16:37	07:44 | 17:31 35	08:22 (WEA01) | 06:45 | 08:57 (WEA02) | 18:21 10	07:28 (B152) | 06:35 | 07:38 (B152) | 20:14 7	07:15 (B050) | 05:36 | 07:22 (B050) | 21:03	05:05 | 21:41	05:18 | 21:38 9	20:59 (B143) | 06:02 | 21:08 (B143) | 20:53 1	20:26 (B172) | 06:52 | 20:27 (B172) | 19:46 26	07:39 (B014) | 07:41 | 08:05 (B014) | 18:37 21	08:23 (B153) | 07:35 | 09:08 (WEA01) | 16:38	08:20 | 08:13
14 | 08:25 | 16:38	07:42 | 17:33 36	08:21 (WEA01) | 06:43 | 08:57 (WEA02) | 18:23 12	07:27 (B152) | 06:33 | 07:39 (B152) | 20:15 12	07:12 (B050) | 05:35 | 07:24 (B050) | 21:05	05:05 | 21:41	05:19 | 21:37 9	20:59 (B143) | 06:04 | 21:08 (B143) | 20:51	06:53 | 19:44 24	07:40 (B014) | 07:42 | 08:04 (B014) | 18:35 24	08:24 (B153) | 07:37 | 09:11 (WEA01) | 16:37	08:20 | 08:13
15 | 08:24 | 16:40	07:40 | 17:35 36	08:20 (WEA01) | 06:41 | 08:56 (WEA02) | 18:25 12	07:27 (B152) | 06:31 | 07:39 (B152) | 20:17 16	07:10 (B050) | 05:33 | 07:26 (B050) | 21:06	05:04 | 21:42	05:20 | 21:36 8	20:59 (B143) | 06:05 | 21:07 (B143) | 20:49	06:55 | 19:41 23	07:40 (B014) | 07:44 | 08:03 (B014) | 18:33 22	08:27 (B153) | 07:39 | 09:13 (WEA01) | 16:35	08:21 | 08:17
16 | 08:23 | 16:42	07:38 | 17:36 36	08:19 (WEA01) | 06:39 | 08:55 (WEA02) | 18:26 12	07:26 (B152) | 06:28 | 07:38 (B152) | 20:19 18	07:08 (B050) | 05:31 | 07:26 (B050) | 21:08	05:04 | 21:42	05:22 | 21:35 7	20:59 (B143) | 06:07 | 21:06 (B143) | 20:47	06:56 | 19:39 20	07:41 (B014) | 07:46 | 08:01 (B014) | 18:31 23	08:52 (WEA01) | 07:40 | 09:15 (WEA01) | 16:34	08:22 | 08:13
17 | 08:22 | 16:43	07:36 | 17:38 36	08:18 (WEA01) | 06:36 | 08:54 (WEA02) | 18:28 12	07:26 (B152) | 06:26 | 07:38 (B152) | 20:20 19	07:07 (B050) | 05:30 | 07:26 (B050) | 21:10	05:04 | 21:43	05:23 | 21:34 6	20:59 (B143) | 06:08 | 21:05 (B143) | 20:45	06:58 | 19:37 17	07:42 (B014) | 07:48 | 07:59 (B014) | 18:29 25	08:51 (WEA01) | 07:42 | 09:16 (WEA01) | 16:32	08:23 | 08:13
18 | 08:21 | 16:45	07:35 | 17:40 35	08:18 (WEA01) | 06:34 | 08:53 (WEA02) | 18:30 10	07:27 (B152) | 06:24 | 07:37 (B152) | 20:22 19	07:07 (B050) | 05:28 | 07:26 (B050) | 21:11	05:04 | 21:43	05:24 | 21:33 5	20:59 (B143) | 06:10 | 21:04 (B143) | 20:43 8	07:17 (B050) | 07:25 (B050)	07:00 | 19:34 12	07:44 (B014) | 07:56 (B014)	07:49 | 18:27 27	08:49 (WEA01) | 07:44 | 09:16 (WEA01) | 16:31	08:24 | 08:13
19 | 08:20 | 16:46	07:33 | 17:42 34	08:17 (WEA01) | 06:32 | 08:51 (WEA02) | 18:31 6	07:28 (B152) | 06:22 | 07:34 (B152) | 20:24 20	07:06 (B050) | 05:27 | 07:26 (B050) | 21:12	05:04 | 21:44	05:25 | 21:32 4	20:59 (B143) | 06:12 | 21:03 (B143) | 20:41 13	07:15 (B050) | 07:28 (B050)	07:01 | 19:32	07:51 | 18:24 27	08:49 (WEA01) | 07:45 | 09:16 (WEA01) | 16:30	08:25 | 08:14
20 | 08:19 | 16:48	07:31 | 17:44 30	08:17 (WEA01) | 06:29 | 08:47 (WEA01) | 18:33	06:20 | 20:26 20	07:06 (B050) | 05:26 | 07:26 (B050) | 21:14	05:04 | 21:44	05:27 | 21:31 2	21:00 (B143) | 06:13 | 21:02 (B143) | 20:39 15	07:13 (B050) | 07:28 (B050)	07:03 | 19:30	07:53 | 18:22 29	08:48 (WEA01) | 07:47 | 09:17 (WEA01) | 16:29	08:25 | 08:14
21 | 08:18 | 16:50	07:29 | 17:46 30	08:17 (WEA01) | 06:27 | 08:47 (WEA01) | 18:35	06:18 | 20:27 20	07:06 (B050) | 05:24 | 07:26 (B050) | 21:15	05:04 | 21:44	05:28 | 21:30 1	21:00 (B143) | 06:15 | 21:01 (B143) | 20:37 18	07:12 (B050) | 07:30 (B050)	07:05 | 19:27	07:54 | 18:20 29	08:48 (WEA01) | 07:49 | 09:17 (WEA01) | 16:27	08:26 | 08:14
22 | 08:17 | 16:51	07:27 | 17:47 30	08:17 (WEA01) | 06:25 | 08:47 (WEA01) | 18:37	06:16 | 20:29 19	07:06 (B050) | 05:23 | 07:25 (B050) | 21:17	05:04 | 21:45	05:29 | 21:29	06:16 | 20:35 19	07:11 (B050) | 07:30 (B050)	07:06 | 19:25	07:56 | 18:18 29	08:48 (WEA01) | 07:51 | 09:17 (WEA01) | 16:26	08:27 | 08:15
23 | 08:16 | 16:53	07:25 | 17:49 29	08:18 (WEA01) | 06:23 | 08:47 (WEA01) | 18:38	06:14 | 20:31 18	07:06 (B050) | 05:22 | 07:24 (B050) | 21:18	05:05 | 21:45	05:30 | 21:27	06:18 | 20:33 19	07:11 (B050) | 07:30 (B050)	07:08 | 19:23	07:58 | 18:16 29	08:48 (WEA01) | 07:52 | 09:17 (WEA01) | 16:25	08:27 | 08:15
24 | 08:15 | 16:55	07:22 | 17:51 28	08:17 (WEA01) | 06:20 | 08:45 (WEA01) | 18:40	06:11 | 20:32 16	07:07 (B050) | 05:20 | 07:23 (B050) | 21:20 1	20:50 (B143) | 05:05 | 20:51 (B143) | 21:45	05:32 | 21:26	06:20 | 20:31 20	07:10 (B050) | 07:30 (B050)	07:09 | 19:21	08:00 | 18:14 32	08:47 (WEA01) | 07:54 | 09:19 (WEA02) | 16:24	08:28 | 08:16
25 | 08:14 | 16:56	07:20 | 17:53 27	08:18 (WEA01) | 06:18 | 08:45 (WEA01) | 18:42	06:09 | 20:34 14	07:08 (B050) | 05:19 | 07:22 (B050) | 21:21 2	20:50 (B143) | 05:05 | 20:52 (B143) | 21:45	05:33 | 21:25	06:21 | 20:29 20	07:10 (B050) | 07:30 (B050)	07:11 | 19:18	08:01 | 18:12 35	08:47 (WEA01) | 07:55 | 09:22 (WEA02) | 16:23	08:28 | 08:16
26 | 08:13 | 16:58	07:18 | 17:55 25	08:19 (WEA01) | 07:16 | 08:44 (WEA01) | 19:43 4	08:00 (B014) | 06:07 | 08:04 (B014) | 20:36 10	07:10 (B050) | 05:18 | 07:20 (B050) | 21:22 4	20:50 (B143) | 05:05 | 20:54 (B143) | 21:45	05:35 | 21:23	06:23 | 20:26 20	07:09 (B050) | 07:29 (B050)	07:13 | 19:16 7	08:11 (B152) | 08:18 (B152)	08:03 | 18:10 36	08:48 (WEA01) | 07:57 | 09:24 (WEA02) | 16:22	08:28 | 08:17
27 | 08:11 | 17:00	07:16 | 17:56 23	08:20 (WEA01) | 07:13 | 08:43 (WEA01) | 19:45 14	07:55 (B014) | 06:05 | 08:09 (B014) | 20:37	05:17 | 21:24 5	20:50 (B143) | 05:06 | 20:55 (B143) | 21:45	05:36 | 21:22	06:24 | 20:24 19	07:10 (B050) | 07:29 (B050)	07:14 | 19:14 11	08:08 (B152) | 08:19 (B152)	08:05 | 18:08 37	08:48 (WEA01) | 07:59 | 09:25 (WEA02) | 16:21	08:29 | 08:18
28 | 08:10 | 17:02	07:14 | 17:58 20	08:21 (WEA01) | 07:11 | 08:41 (WEA01) | 19:47 18	07:53 (B014) | 06:03 | 08:11 (B014) | 20:39	05:16 | 21:25 6	20:50 (B143) | 05:06 | 20:56 (B143) | 21:45	05:37 | 21:20	06:26 | 20:22 19	07:09 (B050) | 07:28 (B050)	07:16 | 19:11 12	08:08 (B152) | 08:20 (B152)	08:07 | 18:06 37	08:49 (WEA01) | 08:00 | 09:26 (WEA02) | 16:20	08:29 | 08:18
29 | 08:09 | 17:03		07:09 | 19:48 21	07:50 (B014) | 06:01 | 08:11 (B014) | 20:41	05:15 | 21:26 7	20:50 (B143) | 05:07 | 20:57 (B143) | 21:45	05:39 | 21:19	06:28 | 20:20 17	07:10 (B050) | 07:27 (B050)	07:17 | 19:09 13	08:06 (B152) | 08:19 (B152)	07:09 | 17:04 36	07:50 (B014) | 08:02 | 08:26 (WEA02) | 16:19	08:29 | 08:19
30 | 08:07 | 17:05		07:07 | 19:50 23	07:49 (B014) | 05:59 | 08:12 (B014) | 20:42	05:14 | 21:27 8	20:50 (B143) | 05:07 | 20:58 (B143) | 21:45	05:40 | 21:17	06:29 | 20:18 14	07:11 (B050) | 07:25 (B050)	07:19 | 19:07 13	08:06 (B152) | 08:19 (B152)	07:10 | 17:02 36	07:51 (WEA01) | 08:03 | 08:27 (WEA02) | 16:18	08:29 | 08:20
31 | 08:06 | 17:07		07:04 | 19:52 25	07:48 (B014) | 08:13 (B014)	05:13 | 21:29 9	20:50 (B143) | 20:59 (B143)	05:42 | 21:16	06:31 | 20:15 10	07:13 (B050) | 07:23 (B050)		07:12 | 17:00 34	07:53 (WEA01) | 08:27 (WEA02)	08:29 | 08:21
Sonnenscheinstunden | 259	277	366	414	483	497	502	454	382	333	268	245
astr.max.mögl.Beschattung	708	384	498	79	90	132	268	429	749	205	
Red.Sonnenscheinwahrsch.	0.32	0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29	0.23	
Reduktion Betriebsdauer	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Reduktion Windrichtung	0.62	0.67	0.72	0.63	0.62	0.62	0.72	0.71	0.63	0.61	
Gesamte Reduktion	0.19	0.18	0.25	0.26	0.20	0.23	0.27	0.21	0.17	0.13	
Met.wahrsch.Beschattung	135	70	124	20	18	30	74	92	130	27	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO064 - Kirchborchener Str. 74, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:30		08:04		07:12		07:54 (B153)		07:02		07:54 (B014)		05:57		20:11 (B172)		05:12		20:48 (B143)		05:08		05:43		06:32		07:15 (B050)		07:21		08:12 (B152)		07:14		07:55 (WEA01)		08:05	
	16:22		17:09		18:00	13	08:07 (B153)		19:54	26	08:20 (B014)		20:44	7	20:18 (B172)		21:30	6	20:54 (B143)		21:45		21:14		20:13	17	07:32 (B050)		19:04	12	08:24 (B152)		16:58	24	08:19 (WEA01)		16:18	
2	08:29		08:03		07:10		07:53 (B153)		07:00		07:53 (B014)		05:56		20:11 (B172)		05:11		20:50 (B143)		05:09		05:45		06:34		07:16 (B050)		07:22		08:11 (B152)		07:16		07:56 (WEA01)		08:06	
	16:23		17:11		18:02	14	08:07 (B153)		19:55	26	08:19 (B014)		20:46	9	20:20 (B172)		21:31	2	20:52 (B143)		21:44		21:13		20:11	15	07:31 (B050)		19:02	12	08:23 (B152)		16:57	22	08:18 (WEA01)		16:17	
3	08:29		08:01		07:08		07:54 (B153)		06:57		07:54 (B014)		05:54		20:12 (B172)		05:10				05:09		05:46		06:36		07:16 (B050)		07:24		08:11 (B152)		07:17		07:58 (WEA01)		08:07	
	16:24		17:13		18:04	13	08:07 (B153)		19:57	24	08:18 (B014)		20:47	8	20:20 (B172)		21:32				21:44		21:11		20:09	13	07:29 (B050)		19:00	12	08:23 (B152)		16:55	18	08:16 (WEA01)		16:16	
4	08:29		08:00		07:05		07:54 (B153)		06:55		07:54 (B014)		05:52				05:10				05:10		05:48		06:37		07:19 (B050)		07:26		08:11 (B152)		07:19		07:59 (WEA01)		08:09	
	16:25		17:14		18:05	12	08:06 (B153)		19:59	24	08:18 (B014)		20:49				21:33				21:44		21:09		20:07	7	07:26 (B050)		18:58	12	08:23 (B152)		16:53	14	08:13 (WEA01)		16:16	
5	08:29		07:58		07:03		07:55 (B153)		06:53		07:54 (B014)		05:50				05:09				05:11		05:49		06:39				07:27		08:12 (B152)		07:21		08:02 (WEA01)		08:10	
	16:26		17:16		18:07	10	08:05 (B153)		20:00	21	08:15 (B014)		20:51				21:34				21:43		21:08		20:04				18:55	10	08:22 (B152)		16:51	9	08:11 (WEA01)		16:15	
6	08:29		07:56		07:01		07:57 (B153)		06:51		07:56 (B014)		05:48				05:08				05:12		05:51		06:40		07:55 (B014)		07:29		08:13 (B152)		07:23				08:11	
	16:28		17:18		18:09	5	08:02 (B153)		20:02	18	08:14 (B014)		20:52				21:35				21:43		21:06		20:02	11	08:06 (B014)		18:53	6	08:19 (B152)		16:49				16:15	
7	08:28		07:55		08:34 (WEA01)		06:59				07:58 (B014)		05:46				05:08				05:12		05:52		06:42		07:53 (B014)		07:31						07:24				08:13	
	16:29		17:20	5	08:39 (WEA01)		18:11				08:12 (B014)		20:54				21:36				21:42		21:04		20:00	16	08:09 (B014)		18:51						16:48				16:14	
8	08:28		07:53		08:31 (WEA01)		06:57				08:01 (B014)		05:45				05:07				05:13		05:54		06:44		07:50 (B014)		07:32						07:26				08:14	
	16:30		17:22	13	08:44 (WEA01)		18:12				08:08 (B014)		20:55				21:37				21:42		21:02		19:57	20	08:10 (B014)		18:48						16:46				16:14	
9	08:28		07:51		08:29 (WEA01)		06:54		07:36 (B152)		06:44						05:43				05:14		05:56		06:45		07:49 (B014)		07:34		08:32 (B153)		07:28				08:15	
	16:31		17:24	17	08:46 (WEA01)		18:14	6	07:42 (B152)		20:07						20:57				21:41		21:00		19:55	22	08:11 (B014)		18:46	5	08:37 (B153)		16:44				16:14	
10	08:27		07:50		08:27 (WEA01)		06:52		07:34 (B152)		06:42		07:20 (B050)		05:41		05:06				05:15		05:57		06:47		07:47 (B014)		07:36		08:30 (B153)		07:30				08:16	
	16:33		17:25	20	08:47 (WEA01)		18:16	10	07:44 (B152)		20:09	9	07:29 (B050)		20:59		21:38				21:40		20:59		19:53	24	08:11 (B014)		18:44	9	08:39 (B153)		16:43				16:13	
11	08:27		07:48		08:26 (WEA01)		06:50		07:33 (B152)		06:39		07:18 (B050)		05:39		05:06				05:16		05:59		06:48		07:47 (B014)		07:37		08:29 (B153)		07:32				08:17	
	16:34		17:27	23	08:49 (WEA01)		18:18	12	07:45 (B152)		20:10	13	07:31 (B050)		21:00		21:39				21:40		20:57	7	20:29 (B172)		19:51	25	08:12 (B014)		18:42	12	08:41 (B153)		16:41				16:13	
12	08:26		07:46		08:25 (WEA01)		06:48		07:33 (B152)		06:37		07:16 (B050)		05:38		05:05				05:17		20:58 (B143)		06:00		20:20 (B172)		06:50		07:46 (B014)		07:39		08:28 (B153)		07:33		08:18	
	16:36		17:29	24	08:49 (WEA01)		18:19	12	07:45 (B152)		20:12	17	07:33 (B050)		21:02		21:40				21:39	2	21:00 (B143)		20:55	8	20:28 (B172)		19:48	25	08:11 (B014)		18:40	13	08:41 (B153)		16:40				16:13	
13	08:25		07:44		08:24 (WEA01)		06:45		07:32 (B152)		06:35		07:15 (B050)		05:36		05:04				05:18		20:56 (B143)		06:02		20:19 (B172)		06:52		07:45 (B014)		07:41		08:27 (B153)		07:35		08:20	
	16:37		17:31	26	08:50 (WEA01)		18:21	12	07:44 (B152)		20:14	18	07:33 (B050)		21:03		21:41				21:38	6	21:02 (B143)		20:53	8	20:27 (B172)		19:46	27	08:12 (B014)		18:37	13	08:40 (B153)		16:38				16:13	
14	08:25		07:42		08:23 (WEA01)		06:43		07:33 (B152)		06:33		07:14 (B050)		05:35		05:05				05:19		20:55 (B143)		06:04		20:18 (B172)		06:53		07:45 (B014)		07:42		08:27 (B153)		07:37		08:20	
	16:38		17:33	28	08:51 (WEA01)		18:23	11	07:44 (B152)		20:15	20	07:34 (B050)		21:05		21:41				21:37	8	21:03 (B143)		20:51	7	20:25 (B172)		19:44	27	08:12 (B014)		18:35	13	08:40 (B153)		16:37				16:13	
15	08:24		07:40		08:23 (WEA01)		06:41		07:34 (B152)		06:31		07:14 (B050)		05:33		05:04				05:20		20:54 (B143)		06:05		20:18 (B172)		06:55		07:45 (B014)		07:44		08:27 (B153)		07:39		08:21	
	16:40		17:35	28	08:51 (WEA01)		18:25	9	07:43 (B152)		20:17	20	07:34 (B050)		21:06		21:42				21:36	10	21:04 (B143)		20:49	5	20:23 (B172)		19:41	26	08:11 (B014)		18:33	13	08:40 (B153)		16:35				16:13	
16	08:23		07:38		08:23 (WEA01)		06:39		07:35 (B152)		06:28		07:13 (B050)		05:31		05:04				05:22		20:54 (B143)		06:07		20:18 (B172)		06:56		07:45 (B014)		07:46		08:28 (B153)		07:40		08:22	
	16:42		17:36	28	08:51 (WEA01)		18:26	5	07:40 (B152)		20:19	20	07:33 (B050)		21:08		21:42				21:35	11	21:05 (B143)		20:47	3	20:21 (B172)		19:39	26	08:11 (B014)		18:31	18	09:12 (WEA01)		16:34				16:13	
17	08:22		07:36		08:22 (WEA01)		06:36				06:26		07:13 (B050)		05:30		05:04				05:23		20:53 (B143)		06:08		20:18 (B172)		06:58		07:44 (B014)		07:48		08:30 (B153)		07:42		08:23	
	16:43		17:38	30	08:52 (WEA01)		18:28				20:20	20	07:33 (B050)		21:10		21:43				21:34	12	21:05 (B143)		20:45	2	20:20 (B172)		19:37	25	08:09 (B014)		18:29	21	09:15 (WEA01)		16:32				16:13	
18	08:21		07:35		08:22 (WEA01)		06:34				06:24		07:13 (B050)		05:28		05:04				05:24		20:53 (B143)		06:10				07:00		07:45 (B014)		07:49		08:58 (WEA01)		07:44		08:24	
	16:45		17:40	30	08:52 (WEA01)		18:30				20:22	19	07:32 (B050)		21:11		21:43				21:33	11	21:04 (B143)		20:43				19:34	24	08:09 (B014)		18:27	19	09:17 (WEA01)		16:31				16:13	
19	08:20		07:33		08:23 (WEA01)		06:32				06:22		07:13 (B050)		05:27		20:43 (B143)		05:04		05:25		20:52 (B143)		06:12				07:01		07:45 (B014)		07:51		08:57 (WEA01)		07:45		08:25	
	16:46		17:42	28	08:51 (WEA01)		18:31				20:24	18	07:31 (B050)		21:12	2	20:45 (B143)		21:44		21:32	11	21:03 (B143)		20:41				19:32	22	08:07 (B014)		18:24	21	09:18 (WEA01)		16:30				16:14	
20	08:19		07:31		08:23 (WEA01)		06:29				06:20		07:14 (B050)		05:26		20:42 (B143)		05:04		05:27		20:53 (B143)		06:13				07:03		07:47 (B014)		07:53		08:55 (WEA01)		07:47		08:25	
	16:48		17:44	28	08:51 (WEA01)		18:33				20:26	16	07:30 (B050)		21:14	3	20:45 (B143)		21:44		21:31	9	21:02 (B143)		20:39				19:30	19	08:06 (B014)		18:22	24	09:19 (WEA01)		16:29				16:14	
21	08:18		07:29		08:23 (WEA01)		06:27				06:18		07:15 (B050)		05:24		20:42 (B143)		05:04		05:28		20:53 (B143)		06:15				07:05		07:48 (B014)		07:54		08:55 (WEA01)		07:49		08:26	
	16:50		17:46	28	08:51 (WEA01)		18:35				20:27	14	07:29 (B050)		21:15	5	20:47 (B143)		21:44		21:30	8	21:01 (B143)		20:37				19:27	16	08:04 (B014)		18:20	25	09:20 (WEA01)		16:27				16:14	
22	08:17		07:27		08:24 (WEA01)		06:25				06:16		07:16 (B050)		05:23		20:42 (B143)		05:04		05:29		20:53 (B143)		06:16		07:22 (B050)		07:06		07:50 (B014)		07:56		08:54 (WEA01)		07:51		08:27	
	16:51		17:47	26	08:50 (WEA01)		18:37				20:29	11	07:27 (B050)		21:17	6	20:48 (B143)		21:45		21:29	7	21:00 (B143)		20:35	9	07:31 (B050)		19:25	10	08:00 (B014)		18:18	27	09:21 (WEA01)		16:26				16:15	
23	08:16		07:25		08:25 (WEA01)		06:23		07:04 (B014)		06:14		07:20 (B050)		05:22		20:43 (B143)		05:05		05:30		20:52 (B143)		06:18		07:20 (B050)		07:08				07:58		08:53 (WEA01)		07:52		08:27	
	16:53		17:49	24	08:49 (WEA01)		18:38	11	07:15 (B014)		20:31	3	07:23 (B050)		21:18	7	20:50 (B143)		21:45		21:27	6	20:58 (B143)		20:33	13	07:33 (B050)		19:23				18:16	29	09:22 (WEA01)		16:25				16:15	
24	08:15		07:22		08:25 (WEA01)		06:20		07:01 (B014)		06:11				05:20		20:43 (B143)		05:05		05:32		20:52 (B143)		06:20		07:18 (B050)		07:09				08:00		08:52 (WEA01)		07:54		08:28	
	16:55		17:51	22	08:47 (WEA01)		18:40	17	07:18 (B014)		20:32				21:20	8	20:51 (B143)		21:45		21:26	5	20:57 (B143)		20:31	16	07:34 (B050)		19:21				18:14	29	09:21 (WEA01)		16:24				16:16	
25	08:14		07:20		08:26 (WEA01)		06:18		07:00 (B014)		06:09				05:19		20:43 (B143)		05:05		05:33		20:53 (B143)		06:21		07:17 (B050)		07:11				08:01		08:52 (WEA01)		07:55		08:28	
	16:56		17:53	20	08:46 (WEA01)		18:42	19	07:19 (B014)		20:34				21:21	9	20:52 (B143)		21:45		21:25	3	20:56 (B143)		20:29	18	07:35 (B050)		19:18				18:12	29	09:21 (WEA01)		16:23				16:16	
26	08:13		07:18		07:58 (B153)		07:16		07:57 (B014)		06:07				05:18		20:43 (B143)		05:05		05:35		20:54 (B143)		06:23		07:16 (B050)		07:13				08:03		08:52 (WEA01)		07:57		08:28	
	16:58		17:55	23	08:44 (WEA01)		19:43	23	08:20 (B014)		20:36				21:22	11	20:54 (B143)		21:45		21:23	1	20:55 (B143)		20:26	19	07:35 (B050)		19:16				18:10	29	09:21 (WEA01)		16:22				16:17	
27	08:11		07:16		07:56 (B153)		07:13		07:56 (B014)		06:05		20:11 (B172)		05:17		20:44 (B143)		05:06		05:36				06:24		07:16 (B050)		07:14				08:05		08:52 (WEA01)		07:59		08:29	
	17:00		17:56	18	08:40 (WEA01)		19:45	24	08:20 (B014)		20:37	1	20:12 (B172)		21:24	11	20:55 (B143)		21:45		21:22				20:24	19	07:35 (B050)		19:14				18:08	29	09:21 (WEA01)		16:21				16:18	
28	08:10		07:14		07:55 (B153)		07:11		07:56 (B014)		06:03		20:10 (B172)		05:16		20:44 (B143)		05:06		05:37				06:26		07:15 (B050)		07:16				08:07		08:52 (WEA01)		08:00		08:29	
	17:02		17:58	13	08:08 (B153)		19:47	25	08:21 (B014)		20:39	3	20:13 (B172)		21:25	12	20:56 (B143)		21:45		21:20				20:22	20	07:35 (B050)		19:11				18:06	29	09:21 (WEA01)		16:20				16:18	
29	08:09						07:09		07:54 (B014)		06:01		20:10 (B172)		05:15		20:45 (B143)		05:07		05:39				06:28		07:15 (B050)		07:17		08:15 (B152)		07:09		07:53 (WEA01)		08:02		08:29	
	17:03						19:48	26	08:20 (B014)		20:41	4	20:14 (B172)		21:26	11	20:56 (B143)		21:45		21:19				20:20	20	07:35 (B050)		19:09	6	08:21 (B152)		17:04	28	08:21 (WEA01)		16:19				16:19	
30	08:07						07:07		07:54 (B014)		05:59		20:11 (B172)		05:14		20:45 (B143)		05:07		05:40				06:29		07:14 (B050)		07:19		08:13 (B152)		07:10		07:53 (WEA01)		08:03		08:29	
	17:05						19:50	27	08:21 (B014)		20:42	6	20:17 (B172)		21:27	10	20:55 (B143)		21:45		21:17				20:18	20	07:34 (B050)		19:07	10	08:23 (B152)		17:02	27	08:20 (WEA01)		16:18				16:20	
31	08:06						07:04		07:54 (B014)						05:13		20:46 (B143)				05:42				06:31		07:15 (B050)						07:12		07:54 (WEA01)				08:29	
	17:07						19:52	27	08:21 (B014)						21:29	8	20:54 (B143)				21:16				20:15	18	07:33 (B050)						17:00	25	08:19 (WEA01)				16:21	
Sonnenscheinstunden	259		277		366		414		483		497		502		454		382		333		268		245	
astr.max.mögl.Beschattung		502				343		392		127		8		110		212		433		551		87		
Red.Sonnenscheinwahrsch.		0.32				0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		0.23		
Reduktion Betriebsdauer		0.95				0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		
Reduktion Windrichtung		0.62				0.69		0.72		0.63		0.62		0.62		0.72		0.71		0.63		0.62		
Gesamte Reduktion		0.19				0.18		0.25		0.26		0.20		0.23		0.27		0.21		0.17		0.13		
Met.wahrsch.Beschattung		96				63		97		33		2		25		58		93		95		12		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO065 - Kirchborchener Str. 82, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	08:42 (WEA01)	07:12	08:06 (B153)	07:02	08:13 (B014)	05:57	05:12	05:08	05:43	20:39 (B143)	06:32	07:24 (B050)	07:21	07:14	08:03 (WEA01)	08:05
	16:22	17:09	10	08:52 (WEA01)	18:00	6	08:12 (B153)	19:54	11	08:24 (B014)	20:44	21:30	21:45	21:14	7	20:46 (B143)	20:13	19	07:43 (B050)	19:04	16:58	28	08:31 (WEA01)	16:18
2	08:29	08:03	08:39 (WEA01)	07:10				07:00			05:56	05:11	05:09	05:45		20:39 (B143)	06:34		07:24 (B050)	07:22	07:16		08:03 (WEA01)	08:06
	16:23	17:11	15	08:54 (WEA01)	18:02			19:55			20:46	21:31	21:44	21:13	7	20:46 (B143)	20:11	19	07:43 (B050)	19:02	16:57	28	08:31 (WEA01)	16:17
3	08:29	08:01	08:38 (WEA01)	07:08	07:50 (B152)	06:57		05:54			05:10	05:09	05:46		20:39 (B143)	06:36		07:23 (B050)	07:24	07:17		08:03 (WEA01)	08:07
	16:24	17:12	18	08:56 (WEA01)	18:04	3	07:53 (B152)	19:57			20:47	21:32	21:44	21:11	5	20:44 (B143)	20:09	20	07:43 (B050)	19:00	16:55	28	08:31 (WEA01)	16:16
4	08:29	08:00	08:37 (WEA01)	07:05	07:47 (B152)	06:55	07:34 (B050)	05:52			05:10	05:10		05:48		20:39 (B143)	06:37		07:23 (B050)	07:26	07:19		08:03 (WEA01)	08:09
	16:25	17:14	21	08:58 (WEA01)	18:05	9	07:56 (B152)	19:59	7	07:41 (B050)	20:49	21:33	21:44	21:09	3	20:42 (B143)	20:07	20	07:43 (B050)	18:58	16:53	27	08:30 (WEA01)	16:16
5	08:29	07:58	08:36 (WEA01)	07:03	07:46 (B152)	06:53	07:30 (B050)	05:50			05:09	05:11		05:49		20:40 (B143)	06:39		07:23 (B050)	07:27	08:24 (B152)	07:21		08:03 (WEA01)	08:10
	16:26	17:16	22	08:58 (WEA01)	18:07	11	07:57 (B152)	20:00	13	07:43 (B050)	20:51	21:34	21:43	21:08	1	20:41 (B143)	20:04	20	07:43 (B050)	18:55	7	08:31 (B152)	16:51	27	08:30 (WEA01)	16:15
6	08:29	07:56	08:35 (WEA01)	07:01	07:44 (B152)	06:51		07:28 (B050)	05:48			05:08	05:12				06:40		07:23 (B050)	07:29		08:21 (B152)	07:23		08:04 (WEA01)	08:11
	16:28	17:18	24	08:59 (WEA01)	18:09	12	07:56 (B152)	20:02	16	07:44 (B050)	20:52	21:35	21:43	21:06			20:02	18	07:41 (B050)	18:53	11	08:32 (B152)	16:49	25	08:29 (WEA01)	16:15
7	08:28	07:55	08:34 (WEA01)	06:59	07:44 (B152)	06:48	07:27 (B050)	05:46				05:08	05:12	05:52			06:42		07:24 (B050)	07:31		08:21 (B152)	07:24		08:05 (WEA01)	08:13
	16:29	17:20	26	09:00 (WEA01)	18:11	13	07:57 (B152)	20:04	18	07:45 (B050)	20:54	21:36	21:42	21:04			20:00	17	07:41 (B050)	18:51	11	08:32 (B152)	16:48	24	08:29 (WEA01)	16:14
8	08:28	07:53	08:34 (WEA01)	06:57	07:45 (B152)	06:46	07:26 (B050)	05:45				05:07	05:13	05:54			06:44		07:24 (B050)	07:32		08:20 (B152)	07:26		08:06 (WEA01)	08:14
	16:30	17:22	27	09:01 (WEA01)	18:12	11	07:56 (B152)	20:05	20	07:46 (B050)	20:55	21:37	21:42	21:02			19:57	15	07:39 (B050)	18:48	13	08:33 (B152)	16:46	22	08:28 (WEA01)	16:14
9	08:28	07:51	08:34 (WEA01)	06:54	07:44 (B152)	06:44	07:26 (B050)	05:43				05:06	05:14	05:56			06:45		07:26 (B050)	07:34		08:19 (B152)	07:28		08:07 (WEA01)	08:15
	16:31	17:24	27	09:01 (WEA01)	18:14	11	07:55 (B152)	20:07	20	07:46 (B050)	20:57	21:38	21:41	21:00			19:55	11	07:37 (B050)	18:46	13	08:32 (B152)	16:44	20	08:27 (WEA01)	16:14
10	08:27	07:50	08:33 (WEA01)	06:52	07:46 (B152)	06:42	07:25 (B050)	05:41	20:30 (B143)			05:06	05:15	05:57			06:47		07:29 (B050)	07:36		08:20 (B152)	07:30		08:09 (WEA01)	08:16
	16:33	17:25	29	09:02 (WEA01)	18:16	7	07:53 (B152)	20:09	20	07:45 (B050)	20:59	2	20:32 (B143)	21:38	21:40	20:59			19:53	3	07:32 (B050)	18:44	11	08:31 (B152)	16:43	17	08:26 (WEA01)	16:13
11	08:27	07:48	08:33 (WEA01)	06:50	06:39		07:25 (B050)	05:39	20:29 (B143)			05:06	05:16	05:59			06:48			07:37		08:21 (B152)	07:32		08:11 (WEA01)	08:17
	16:34	17:27	29	09:02 (WEA01)	18:18		20:10	20	07:45 (B050)	21:00	4	20:33 (B143)	21:39	21:40	20:57			19:51		18:42	9	08:30 (B152)	16:41	13	08:24 (WEA01)	16:13
12	08:26	07:46	08:33 (WEA01)	06:48	06:37		07:25 (B050)	05:38	20:28 (B143)			05:05	05:17	06:00			06:50		08:08 (B014)	07:39		08:24 (B152)	07:33		08:15 (WEA01)	08:18
	16:36	17:29	29	09:02 (WEA01)	18:19		20:12	19	07:44 (B050)	21:02	6	20:34 (B143)	21:40	21:39	20:55			19:48	4	08:12 (B014)	18:40	3	08:27 (B152)	16:40	5	08:20 (WEA01)	16:13
13	08:25	07:44	08:33 (WEA01)	06:45	06:35		07:25 (B050)	05:36	20:29 (B143)			05:05	05:18	06:02			06:52		08:03 (B014)	07:41			07:35			08:20
	16:37	17:31	29	09:02 (WEA01)	18:21		20:14	19	07:44 (B050)	21:03	7	20:36 (B143)	21:41	21:38	20:53			19:46	14	08:17 (B014)	18:37			16:38			16:13
14	08:25	07:42	08:34 (WEA01)	06:43	06:33		07:26 (B050)	05:35	20:29 (B143)			05:05	05:19	06:04			06:53		08:01 (B014)	07:42		08:40 (B153)	07:37			08:21
	16:38	17:33	27	09:01 (WEA01)	18:23		20:15	17	07:43 (B050)	21:05	9	20:38 (B143)	21:41	21:37	20:51			19:44	18	08:19 (B014)	18:35	5	08:45 (B153)	16:37			16:13
15	08:24	07:40	08:34 (WEA01)	06:41	06:31		07:27 (B050)	05:33	20:29 (B143)			05:04	05:20	06:05			06:55		07:59 (B014)	07:44		08:38 (B153)	07:39			08:21
	16:40	17:35	27	09:01 (WEA01)	18:25		20:17	14	07:41 (B050)	21:06	10	20:39 (B143)	21:42	21:36	20:49			19:41	20	08:19 (B014)	18:33	9	08:47 (B153)	16:35			16:13
16	08:23	07:38	08:34 (WEA01)	06:39	06:28		07:28 (B050)	05:31	20:30 (B143)			05:04	05:22	06:07			06:56		07:58 (B014)	07:46		08:37 (B153)	07:40			08:22
	16:42	17:36	26	09:00 (WEA01)	18:26		20:19	10	07:38 (B050)	21:08	11	20:41 (B143)	21:42	21:35	20:47			19:39	23	08:21 (B014)	18:31	11	08:48 (B153)	16:34			16:13
17	08:22	07:36	08:35 (WEA01)	06:36	07:17 (B014)	06:26	07:32 (B050)	05:30	20:30 (B143)			05:04	05:23	06:08			06:58		07:56 (B014)	07:48		08:36 (B153)	07:42			08:23
	16:43	17:38	24	08:59 (WEA01)	18:28	12	07:29 (B014)	20:20	2	07:34 (B050)	21:10	11	20:41 (B143)	21:43	21:34	20:45			19:37	24	08:20 (B014)	18:29	13	08:49 (B153)	16:32			16:13
18	08:21	07:35	08:36 (WEA01)	06:34	07:14 (B014)	06:24		05:28	20:31 (B143)			05:04	05:24	06:10			07:00		07:56 (B014)	07:49		08:35 (B153)	07:44			08:24
	16:45	17:40	22	08:58 (WEA01)	18:30	18	07:32 (B014)	20:22			21:11	10	20:41 (B143)	21:43	21:33	20:43			19:34	25	08:21 (B014)	18:27	13	08:48 (B153)	16:31			16:13
19	08:20	07:33	08:38 (WEA01)	06:32	07:12 (B014)	06:22		05:27	20:33 (B143)			05:04	05:25	06:12		20:08 (B172)	07:01		07:54 (B014)	07:51		08:35 (B153)	07:45			08:25
	16:46	17:42	19	08:57 (WEA01)	18:31	20	07:32 (B014)	20:24			21:12	7	20:40 (B143)	21:44	21:32	20:41	6	20:14 (B172)	19:32	27	08:21 (B014)	18:24	13	08:48 (B153)	16:30			16:14
20	08:19	07:31	08:39 (WEA01)	06:29	07:11 (B014)	06:20	19:59 (B172)	05:26				05:04	05:27	06:13		20:06 (B172)	07:03		07:54 (B014)	07:53		08:35 (B153)	07:47			08:25
	16:48	17:44	16	08:55 (WEA01)	18:33	22	07:33 (B014)	20:26	2	20:01 (B172)	21:14			21:44	21:31	20:39	7	20:13 (B172)	19:30	27	08:21 (B014)	18:22	13	08:48 (B153)	16:29			16:14
21	08:18	07:29	08:08 (B153)	06:27	07:10 (B014)	06:18	19:59 (B172)	05:24				05:04	05:28	06:15		20:05 (B172)	07:05		07:54 (B014)	07:55		08:36 (B153)	07:49			08:26
	16:50	17:46	17	08:52 (WEA01)	18:35	24	07:34 (B014)	20:27	3	20:02 (B172)	21:15			21:44	21:30	20:37	7	20:12 (B172)	19:27	27	08:21 (B014)	18:20	11	08:47 (B153)	16:27			16:14
22	08:17	07:27	08:06 (B153)	06:25	07:09 (B014)	06:16	19:59 (B172)	05:23				05:04	05:29	06:16		20:03 (B172)	07:06		07:54 (B014)	07:56		08:38 (B153)	07:51			08:27
	16:51	17:47	10	08:16 (B153)	18:37	26	07:35 (B014)	20:29	5	20:04 (B172)	21:17			21:45	21:29	20:35	6	20:09 (B172)	19:25	26	08:20 (B014)	18:18	15	09:21 (WEA01)	16:26			16:15
23	08:16	07:25	08:05 (B153)	06:23	07:08 (B014)	06:14	19:59 (B172)	05:22				05:05	05:30	06:18		20:03 (B172)	07:08		07:54 (B014)	07:58		09:11 (WEA01)	07:52			08:27
	16:53	17:49	12	08:17 (B153)	18:38	26	07:34 (B014)	20:31	6	20:05 (B172)	21:18			21:45	21:27	20:33	5	20:08 (B172)	19:23	25	08:19 (B014)	18:16	14	09:25 (WEA01)	16:25			16:15
24	08:15	07:22	08:04 (B153)	06:20	07:08 (B014)	06:11	20:00 (B172)	05:20				05:05	05:32	06:20		20:03 (B172)	07:09		07:54 (B014)	08:00		09:08 (WEA01)	07:54			08:28
	16:55	17:51	13	08:17 (B153)	18:40	26	07:34 (B014)	20:32	7	20:07 (B172)	21:20			21:45	21:26	20:31	2	20:05 (B172)	19:21	24	08:18 (B014)	18:14	18	09:26 (WEA01)	16:24			16:16
25	08:14	07:20	08:03 (B153)	06:18	07:08 (B014)	06:09	20:01 (B172)	05:19				05:05	05:33	06:21			07:11		07:55 (B014)	08:01		09:06 (WEA01)	07:55			08:28
	16:56	17:53	14	08:17 (B153)	18:42	26	07:34 (B014)	20:34	8	20:09 (B142)	21:21			21:45	21:25	20:29			19:18	22	08:17 (B014)	18:12	21	09:27 (WEA01)	16:23			16:16
26	08:13	07:18	08:04 (B153)	07:16	08:07 (B014)	06:07		05:18				05:05	05:35		20:43 (B143)	06:23			07:13		07:56 (B014)	08:03		09:05 (WEA01)	07:57			08:28
	16:58	17:55	13	08:17 (B153)	19:43	26	08:33 (B014)	20:36				21:22	21:45	21:23	7	20:50 (B143)	20:26			19:16	20	08:16 (B014)	18:10	24	09:29 (WEA01)	16:22			16:17
27	08:11	07:16	08:04 (B153)	07:13	08:07 (B014)	06:05		05:17				05:06	05:36		20:41 (B143)	06:24			07:14		07:56 (B014)	08:05		09:04 (WEA01)	07:59			08:29
	17:00	17:56	12	08:16 (B153)	19:45	25	08:32 (B014)	20:37				21:24	21:45	21:22	10	20:51 (B143)	20:24			19:14	17	08:13 (B014)	18:08	26	09:30 (WEA01)	16:21			16:18
28	08:10	07:14	08:05 (B153)	07:11	08:08 (B014)	06:03		05:16				05:06	05:37		20:41 (B143)	06:26		07:31 (B050)	07:16		07:59 (B014)	08:07		09:04 (WEA01)	08:00			08:29
	17:02	17:58	10	08:15 (B153)	19:47	24	08:32 (B014)	20:39				21:25	21:45	21:20	11	20:52 (B143)	20:22	8	07:39 (B050)	19:11	12	08:11 (B014)	18:06	26	09:30 (WEA01)	16:20			16:18
29	08:09			07:09	08:08 (B014)	06:01		05:15				05:07	05:39		20:40 (B143)	06:28		07:29 (B050)	07:17				07:09		08:03 (WEA01)	08:02			08:29
	17:03			19:48	22	08:30 (B014)	20:41				21:26			21:45	21:19	11	20:51 (B143)	20:20	12	07:41 (B050)	19:09			17:04	28	08:31 (WEA01)	16:19			16:19
30	08:07			07:07	08:09 (B014)	05:59		05:14				05:07	05:40		20:39 (B143)	06:29		07:26 (B050)	07:19				07:10		08:03 (WEA01)	08:03			08:29
	17:05			19:50	20	08:29 (B014)	20:42				21:27			21:45	21:17	10	20:49 (B143)	20:18	16	07:42 (B050)	19:07			17:02	28	08:31 (WEA01)	16:18			16:20
31	08:06			07:04		08:11 (B014)		05:13					05:42		20:39 (B143)	06:31		07:25 (B050)					07:12		08:03 (WEA01)				08:29
	17:07			19:52	16	08:27 (B014)		05:29					05:16	9	20:48 (B143)	20:15	18	07:43 (B050)					17:00	28	08:31 (WEA01)				16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
astr.max.mögl.Beschattung		568	416	257	77	58	110	517	394	264	
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.39	0.40	0.32	0.29	0.23	
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Reduktion Windrichtung		0.61	0.68	0.72	0.64	0.64	0.69	0.70	0.63	0.60	
Gesamte Reduktion		0.19	0.18	0.25	0.26	0.24	0.26	0.21	0.17	0.13	
Met.wahrsch.Beschattung		107	77	64	20	14	29	110	68	34	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO066 - Kirchborchener Str. 82, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:30		08:04		07:12		08:01 (B153)		07:02		08:06 (B014)		05:57		05:12		05:08		05:43		20:43 (B143)		06:32		07:21 (B050)		07:21		08:00 (WEA01)	
	16:22		17:09		18:00	11	08:12 (B153)		19:54	19	08:25 (B014)		20:44		21:30		21:45		21:14	3	20:46 (B143)		20:13	20	07:41 (B050)		19:04		16:58	28	08:28 (WEA01)	
2	08:29		08:03		07:10		08:03 (B153)		07:00		08:07 (B014)		05:56		05:11		05:09		05:45		20:44 (B143)		06:34		07:21 (B050)		07:22		08:00 (WEA01)	
	16:23		17:11		18:02	7	08:10 (B153)		19:55	15	08:22 (B014)		20:46		21:31		21:44		21:13	1	20:45 (B143)		20:11	20	07:41 (B050)		19:02		16:57	28	08:28 (WEA01)	
3	08:29		08:01		06:57		08:10 (B014)		05:54		05:10		05:09		05:46		21:11		06:36		07:20 (B050)		07:24		08:22 (B152)		07:17		08:01 (WEA01)	
	16:24		17:12	10	08:39 (WEA01)		07:08		19:57	8	08:18 (B014)		20:47		21:32		21:44		21:11		20:09	20	07:40 (B050)		19:00	5	08:27 (B152)		16:55	26	08:27 (WEA01)	
4	08:29		08:00		08:49 (WEA01)		18:04		06:55		05:52		05:10		05:10		05:48		06:37		07:21 (B050)		07:26		08:20 (B152)		07:19		08:00 (WEA01)	
	16:25		17:14	15	08:36 (WEA01)		07:05		19:59		20:49		21:32		21:33		21:44		21:09		20:07	19	07:40 (B050)		18:58	9	08:29 (B152)		16:53	26	08:08 (WEA01)	
5	08:29		07:58		08:51 (WEA01)		18:05		05:52		05:09		05:11		05:49		21:09		06:39		07:21 (B050)		07:27		08:19 (B152)		07:21		08:16 (WEA01)	
	16:26		17:16	19	08:34 (WEA01)		07:03		07:32 (B050)		05:50		05:11		05:49		21:43		06:39		07:21 (B050)		07:27		08:19 (B152)		07:21		08:01 (WEA01)	
6	08:29		07:56		08:53 (WEA01)		18:07	7	07:52 (B152)		07:35 (B050)		20:51		21:34		21:43		21:08		20:04	18	07:39 (B050)		18:55	11	08:30 (B152)		16:51	24	08:10 (WEA01)	
	16:27		17:18	21	08:33 (WEA01)		07:01		07:42 (B152)		07:28 (B050)		05:48		05:12		05:12		05:51		06:40		07:21 (B050)		07:29		08:17 (B152)		07:23		08:25 (WEA01)	
	16:28		17:18	21	08:54 (WEA01)		18:09	10	07:52 (B152)		07:39 (B050)		20:52		21:35		21:43		21:06		20:02	16	07:37 (B050)		18:53	13	08:30 (B152)		16:49	22	08:24 (WEA01)	
7	08:28		07:55		08:32 (WEA01)		06:59		07:42 (B152)		07:26 (B050)		05:46		05:08		05:12		05:52		06:42		07:23 (B050)		07:31		08:17 (B152)		07:24		08:04 (WEA01)	
	16:29		17:20	23	08:55 (WEA01)		18:11	11	07:53 (B152)		07:41 (B050)		20:54		21:36		21:42		21:04		20:00	13	07:36 (B050)		18:51	13	08:30 (B152)		16:48	19	08:23 (WEA01)	
8	08:28		07:53		08:32 (WEA01)		06:57		07:41 (B152)		07:25 (B050)		05:45		05:07		05:13		05:54		06:44		07:24 (B050)		07:32		08:18 (B152)		07:26		08:05 (WEA01)	
	16:30		17:22	25	08:57 (WEA01)		18:12	13	07:54 (B152)		07:42 (B050)		20:55		21:37		21:42		21:02		19:57	9	07:33 (B050)		18:48	11	08:29 (B152)		16:46	17	08:22 (WEA01)	
9	08:28		07:51		08:31 (WEA01)		06:54		07:40 (B152)		07:24 (B050)		05:43		05:06		05:14		05:56		06:45				07:34		08:18 (B152)		07:28		08:07 (WEA01)	
	16:31		17:24	26	08:57 (WEA01)		18:14	13	07:53 (B152)		07:42 (B050)		20:57		21:38		21:41		21:00		19:55				18:46	9	08:27 (B152)		16:44	13	08:20 (WEA01)	
10	08:27		07:50		08:31 (WEA01)		06:52		07:41 (B152)		07:42 (B050)		05:41		05:06		05:15		05:57		06:47				07:36		08:19 (B152)		07:30		08:11 (WEA01)	
	16:33		17:25	27	08:58 (WEA01)		18:16	11	07:52 (B152)		07:42 (B050)		20:59		21:38		21:40		20:59		19:53				18:44	7	08:26 (B152)		16:43	6	08:17 (WEA01)	
11	08:27		07:48		08:30 (WEA01)		06:50		07:42 (B152)		06:39		05:39		05:06		05:16		05:59		06:48		08:02 (B014)		07:37				07:32			
	16:34		17:27	28	08:58 (WEA01)		18:18	9	07:51 (B152)		20:10	20	07:42 (B050)		21:00		21:39		21:40		20:57		19:51	11	08:13 (B014)		18:42		16:41			
12	08:26		07:46		08:30 (WEA01)		06:48		07:44 (B152)		06:37		07:22 (B050)		05:38		20:33 (B143)		05:05		05:17		06:00		06:50		07:59 (B014)		07:39			
	16:36		17:29	28	08:58 (WEA01)		18:19	5	07:49 (B152)		20:12	20	07:42 (B050)		21:02	1	20:34 (B143)		21:40		21:39		20:55		19:48	16	08:15 (B014)		18:40		16:40			
13	08:25		07:44		08:30 (WEA01)		06:45				06:35		07:22 (B050)		05:36		20:33 (B143)		05:05		05:18		06:02		06:52		07:57 (B014)		07:41		08:36 (B153)		07:35	
	16:37		17:31	28	08:58 (WEA01)		18:21				20:14	19	07:41 (B050)		21:03	3	20:36 (B143)		21:41		21:38		20:53		19:46	19	08:16 (B014)		18:37	7	08:43 (B153)		16:38			
14	08:25		07:42		08:30 (WEA01)		06:43				06:33		07:22 (B050)		05:35		20:33 (B143)		05:05		05:19		06:04		06:53		07:56 (B014)		07:42		08:35 (B153)		07:37			
	16:38		17:33	28	08:58 (WEA01)		18:23				20:15	19	07:41 (B050)		21:05	5	20:38 (B143)		21:41		21:37		20:51		19:44	22	08:18 (B014)		18:35	10	08:45 (B153)		16:37			
15	08:24		07:40		08:30 (WEA01)		06:41				06:31		07:23 (B050)		05:33		20:32 (B143)		05:04		05:20		06:05		06:55		07:54 (B014)		07:44		08:34 (B153)		07:39			
	16:40		17:35	28	08:58 (WEA01)		18:25				20:17	17	07:40 (B050)		21:06	7	20:39 (B143)		21:42		21:36		20:49		19:41	24	08:18 (B014)		18:33	12	08:46 (B153)		16:35			
16	08:23		07:38		08:30 (WEA01)		06:39				06:28		07:23 (B050)		05:31		20:33 (B143)		05:04		05:22		06:07		06:56		07:54 (B014)		07:46		08:33 (B153)		07:40			
	16:42		17:36	28	08:58 (WEA01)		18:26				20:19	15	07:38 (B050)		21:08	8	20:41 (B143)		21:42		21:35		20:47		19:39	25	08:19 (B014)		18:31	14	08:47 (B153)		16:34			
17	08:22		07:36		08:31 (WEA01)		06:36				06:26		07:24 (B050)		05:30		20:32 (B143)		05:04		05:23		06:08		20:12 (B172)		06:58		07:52 (B014)		07:48		08:33 (B153)		07:42		08:23	
	16:43		17:38	26	08:57 (WEA01)		18:28				20:20	12	07:36 (B050)		21:10	9	20:41 (B143)		21:43		21:34		20:45	7	20:19 (B172)		19:37	26	08:18 (B014)		18:29	14	08:47 (B153)		16:32		16:13	
18	08:21		07:35		08:31 (WEA01)		06:34		07:16 (B014)		06:24		07:26 (B050)		05:28		20:33 (B143)		05:04		05:24		06:10		20:09 (B172)		07:00		07:52 (B014)		07:49		08:32 (B153)		07:44		08:24	
	16:45		17:40	26	08:57 (WEA01)		18:30	8	07:24 (B014)		20:22	7	07:33 (B050)		21:11	10	20:43 (B143)		21:43		21:33		20:43	8	20:17 (B172)		19:34	26	08:18 (B014)		18:27	13	08:45 (B153)		16:31		16:13	
19	08:20		07:33		08:32 (WEA01)		06:32		07:12 (B014)		06:22				05:27		20:34 (B143)		05:04		05:25		06:12		20:09 (B172)		07:01		07:51 (B014)		07:51		08:33 (B153)		07:45		08:25	
	16:46		17:42	24	08:56 (WEA01)		18:31	14	07:26 (B014)		20:24				21:12	11	20:45 (B143)		21:44		21:32		20:41	7	20:16 (B172)		19:32	26	08:17 (B014)		18:24	12	08:45 (B153)		16:30		16:14	
20	08:19		07:31		08:33 (WEA01)		06:29		07:10 (B014)		06:20				05:26		20:34 (B143)		05:04		05:27		06:13		20:07 (B172)		07:03		07:51 (B014)		07:53		08:34 (B153)		07:47		08:25	
	16:48		17:44	22	08:55 (WEA01)		18:33	18	07:28 (B014)		20:26				21:14	11	20:45 (B143)		21:44		21:31		20:39	6	20:13 (B172)		19:30	26	08:17 (B014)		18:22	10	08:44 (B153)		16:29		16:14	
21	08:18		07:29		08:35 (WEA01)		06:27		07:08 (B014)		06:18				05:24		20:35 (B143)		05:04		05:28		06:15		20:08 (B172)		07:05		07:52 (B014)		07:55		08:36 (B153)		07:49		08:26	
	16:50		17:46	18	08:53 (WEA01)		18:35	21	07:29 (B014)		20:27				21:15	10	20:45 (B143)		21:44		21:30		20:37	4	20:12 (B172)		19:27	25	08:17 (B014)		18:20	19	09:21 (WEA01)		16:27		16:14	
22	08:17		07:27		08:06 (B153)		06:25		07:07 (B014)		06:16		20:02 (B172)		05:23		20:36 (B143)		05:04		05:29		20:48 (B143)		06:16		20:07 (B172)		07:06		07:51 (B014)		07:56		09:06 (WEA01)		07:51		08:27	
	16:51		17:47	19	08:51 (WEA01)		18:37	23	07:30 (B014)		20:29	2	20:04 (B172)		21:17	8	20:44 (B143)		21:45		21:29	5	20:53 (B143)		20:35	2	20:09 (B172)		19:25	25	08:16 (B014)		18:18	17	09:23 (WEA01)		16:26		16:15	
23	08:16		07:25		08:04 (B153)		06:23		07:05 (B014)		06:14		20:02 (B172)		05:22		20:38 (B143)		05:05		05:30		20:46 (B143)		06:18		20:07 (B172)		07:08		07:52 (B014)		07:58		09:04 (WEA01)		07:52		08:27	
	16:53		17:49	15	08:47 (WEA01)		18:38	25	07:30 (B014)		20:31	3	20:05 (B172)		21:18	5	20:43 (B143)		21:45		21:27	8	20:54 (B143)		20:33	1	20:08 (B172)		19:23	23	08:15 (B014)		18:16	21	09:25 (WEA01)		16:25		16:15	
24	08:15		07:22		08:02 (B153)		06:20		07:05 (B014)		06:11		20:02 (B172)		05:20				05:05		05:32		20:45 (B143)		06:20				07:09		07:52 (B014)		08:00		09:02 (WEA01)		07:54		08:28	
	16:55		17:51	11	08:13 (B153)		18:40	26	07:31 (B014)		20:32	5	20:07 (B172)		21:20				21:45		21:26	10	20:55 (B143)		20:31				19:21	21	08:13 (B014)		18:14	23	09:25 (WEA01)		16:24		16:16	
25	08:14		07:20		08:01 (B153)		06:18		07:05 (B014)		06:09		20:02 (B172)		05:19				05:05		05:33		20:45 (B143)		06:21				07:11		07:54 (B014)		08:01		09:01 (WEA01)		07:55		08:28	
	16:56		17:53	13	08:14 (B153)		18:42	26	07:31 (B014)		20:34	7	20:09 (B172)		21:21				21:45		21:25	11	20:56 (B143)		20:29				19:18	18	08:12 (B014)		18:12	25	09:26 (WEA01)		16:23		16:16	
26	08:13		07:18		08:01 (B153)		07:16		08:04 (B014)		06:07		20:02 (B172)		05:18				05:05		05:35		20:44 (B143)		06:23		07:31 (B050)		07:13		07:56 (B014)		08:03		09:01 (WEA01)		07:57		08:28	
	16:58		17:55	13	08:14 (B153)		19:43	26	08:30 (B014)		20:36	8	20:10 (B172)		21:22				21:45		21:23	11	20:55 (B143)		20:26	3	07:34 (B050)		19:16	13	08:09 (B014)		18:10	26	09:27 (WEA01)		16:22		16:17	
27	08:11		07:16		08:01 (B153)		07:13		08:04 (B014)		06:05		20:04 (B172)		05:17				05:06		05:36		20:43 (B143)		06:24		07:28 (B050)		07:14		07:58 (B014)		08:05		09:00 (WEA01)		07:59		08:29	
	17:00		17:56	13	08:14 (B153)		19:45	26	08:30 (B014)		20:37	8	20:12 (B172)		21:24				21:45		21:22	10	20:53 (B143)		20:24	10	07:38 (B050)		19:14	7	08:05 (B014)		18:08	27	09:27 (WEA01)		16:21		16:18	
28	08:10		07:14		08:01 (B153)		07:11		08:04 (B014)		06:03		20:06 (B172)		05:16				05:06		05:37		20:44 (B143)		06:26		07:25 (B050)		07:16				08:07		09:00 (WEA01)		08:00		08:29	
	17:02		17:58	13	08:14 (B153)		19:47	25	08:29 (B014)		20:39	3	20:09 (B172)		21:25				21:45		21:20	9	20:53 (B143)		20:22	14	07:39 (B050)		19:11				18:06	28	09:28 (WEA01)		16:20		16:18	
29	08:09						07:09		08:03 (B014)		06:01				05:15				05:07		05:39		20:43 (B143)		06:28		07:24 (B050)		07:17				07:09		08:00 (WEA01)		08:02		08:29	
	17:03						19:48	25	08:28 (B014)		20:41				21:26				21:45		21:19	8	20:51 (B143)		20:20	16	07:40 (B050)		19:09				17:04	28	08:28 (WEA01)		16:19		16:19	
30	08:07						07:07		08:04 (B014)		05:59				05:14				05:07		05:40		20:43 (B143)		06:29		07:22 (B050)		07:19				07:10		08:00 (WEA01)		08:03		08:29	
	17:05						19:50	23	08:27 (B014)		20:42				21:27				21:45		21:17	6	20:49 (B143)		20:18	18	07:40 (B050)		19:07				17:02	28	08:28 (WEA01)		16:18		16:20	
31	08:06						07:04		08:05 (B014)						05:13						05:42		20:43 (B143)		06:31		07:22 (B050)						07:12		08:00 (WEA01)				08:29	
	17:07						19:52	21	08:26 (B014)						21:29						21:16	5	20:48 (B143)		20:15	19	07:41 (B050)						17:00	28	08:28 (WEA01)				16:21	
Sonnenscheinstunden	259		277		366		414		483		497		502		454		382		333		268		245	
astr.max.mögl.Beschattung		547				404		291		88		83				119		488		440		209		
Red.Sonnenscheinwahrsch.		0.32				0.28		0.36		0.43		0.39				0.40		0.32		0.29		0.23		
Reduktion Betriebsdauer		0.95				0.95		0.95		0.95		0.95				0.95		0.95		0.95		0.95		
Reduktion Windrichtung		0.61				0.69		0.71		0.64		0.64				0.70		0.70		0.63		0.61		
Gesamte Reduktion		0.19				0.19		0.25		0.26		0.23				0.27		0.21		0.17		0.13		
Met.wahrsch.Beschattung		104				75		72		23		19				32		104		76		27		

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)	

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO067 - Kirchborchener Str. 84, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember
1	08:30		08:04		08:41 (WEA01)	07:12	07:53 (B152)	07:02		05:57		05:12		05:08		05:43	20:35 (B143)	06:32	07:29 (B050)	07:21	08:06 (B014)	07:14	08:08 (WEA01)	08:05
	16:22		17:09	21	09:02 (WEA01)	18:00	07:58 (B152)	19:54		20:44		21:30		21:45		21:14	10 20:45 (B143)	20:13	16 07:45 (B050)	19:04	5 08:11 (B014)	16:58	28 08:36 (WEA01)	16:18
2	08:29		08:03		08:40 (WEA01)	07:10	07:51 (B152)	07:00	07:38 (B050)	05:56		05:11		05:09		05:45	20:35 (B143)	06:34	07:28 (B050)	07:22		07:16	08:08 (WEA01)	08:06
	16:23		17:11	22	09:02 (WEA01)	18:02	8:00 (B152)	19:55	6 07:44 (B050)	20:46		21:31		21:44		21:13	11 20:46 (B143)	20:11	18 07:46 (B050)	19:02		16:57	28 08:36 (WEA01)	16:17
3	08:29		08:01		08:40 (WEA01)	07:08	07:50 (B152)	06:57	07:35 (B050)	05:54		05:10		05:09		05:46	20:34 (B143)	06:36	07:27 (B050)	07:24		07:17	08:08 (WEA01)	08:07
	16:24		17:12	24	09:04 (WEA01)	18:04	11 08:01 (B152)	19:57	12 07:47 (B050)	20:47		21:32		21:44		21:11	10 20:44 (B143)	20:09	19 07:46 (B050)	19:00		16:55	28 08:36 (WEA01)	16:16
4	08:29		08:00		08:39 (WEA01)	07:05	07:50 (B152)	06:55	07:33 (B050)	05:52		05:10		05:10		05:48	20:33 (B143)	06:37	07:27 (B050)	07:26		07:19	08:07 (WEA01)	08:09
	16:25		17:14	26	09:05 (WEA01)	18:05	12 08:02 (B152)	19:59	16 07:49 (B050)	20:49		21:33		21:44		21:09	9 20:42 (B143)	20:07	20 07:47 (B050)	18:58		16:53	29 08:36 (WEA01)	16:16
5	08:29		07:58		08:39 (WEA01)	07:03	07:49 (B152)	06:53	07:31 (B050)	05:50		05:09		05:11		05:49	20:33 (B143)	06:39	07:27 (B050)	07:27		07:21	08:07 (WEA01)	08:10
	16:26		17:16	26	09:05 (WEA01)	18:07	13 08:02 (B152)	20:00	18 07:49 (B050)	20:51		21:34		21:43		21:08	8 20:41 (B143)	20:04	20 07:47 (B050)	18:55		16:51	29 08:36 (WEA01)	16:15
6	08:29		07:56		08:38 (WEA01)	07:01	07:49 (B152)	06:51	07:30 (B050)	05:48	20:24 (B143)	05:08		05:12		05:51	20:33 (B143)	06:40	07:26 (B050)	07:29		07:23	08:08 (WEA01)	08:11
	16:28		17:18	27	09:05 (WEA01)	18:09	12 08:01 (B152)	20:02	19 07:49 (B050)	20:52	2 20:26 (B143)	21:35		21:43		21:06	5 20:38 (B143)	20:02	20 07:46 (B050)	18:53		16:49	27 08:35 (WEA01)	16:15
7	08:28		07:55		08:38 (WEA01)	06:59	07:50 (B152)	06:48	07:30 (B050)	05:46	20:23 (B143)	05:08		05:12		05:52	20:33 (B143)	06:42	07:26 (B050)	07:31	08:27 (B152)	07:24	08:08 (WEA01)	08:13
	16:29		17:20	28	09:06 (WEA01)	18:11	10 08:00 (B152)	20:04	20 07:50 (B050)	20:54	4 20:27 (B143)	21:36		21:42		21:04	4 20:37 (B143)	20:00	20 07:46 (B050)	18:51	7 08:34 (B152)	16:48	27 08:35 (WEA01)	16:14
8	08:28		07:53		08:38 (WEA01)	06:57	07:51 (B152)	06:46	07:29 (B050)	05:45	20:23 (B143)	05:07		05:13		05:54	20:33 (B143)	06:44	07:26 (B050)	07:32	08:26 (B152)	07:26	08:09 (WEA01)	08:14
	16:30		17:22	29	09:07 (WEA01)	18:12	7 07:58 (B152)	20:05	21 07:50 (B050)	20:55	6 20:29 (B143)	21:37		21:42		21:02	2 20:35 (B143)	19:57	18 07:44 (B050)	18:48	10 08:36 (B152)	16:46	26 08:35 (WEA01)	16:14
9	08:28		07:51		08:38 (WEA01)	06:54		06:44	07:29 (B050)	05:43	20:23 (B143)	05:06		05:14		05:56		06:45	07:27 (B050)	07:34	08:24 (B152)	07:28	08:10 (WEA01)	08:15
	16:31		17:24	29	09:07 (WEA01)	18:14		20:07	21 07:50 (B050)	20:57	7 20:30 (B143)	21:38		21:41		21:00		19:55	17 07:44 (B050)	18:46	12 08:36 (B152)	16:44	24 08:34 (WEA01)	16:14
10	08:27		07:50		08:38 (WEA01)	06:52		06:42	07:29 (B050)	05:41	20:24 (B143)	05:06		05:15		05:57		06:47	07:27 (B050)	07:36	08:24 (B152)	07:30	08:10 (WEA01)	08:16
	16:33		17:25	29	09:07 (WEA01)	18:16		20:09	19 07:48 (B050)	20:59	8 20:32 (B143)	21:38		21:40		20:59		19:53	14 07:41 (B050)	18:44	12 08:36 (B152)	16:43	24 08:34 (WEA01)	16:13
11	08:27		07:48		08:38 (WEA01)	06:50		06:39	07:29 (B050)	05:39	20:23 (B143)	05:06		05:16		05:59		06:48	07:29 (B050)	07:37	08:24 (B152)	07:32	08:12 (WEA01)	08:17
	16:34		17:27	28	09:06 (WEA01)	18:18		20:10	19 07:48 (B050)	21:00	10 20:33 (B143)	21:39		21:40		20:57		19:51	11 07:40 (B050)	18:42	12 08:36 (B152)	16:41	21 08:33 (WEA01)	16:13
12	08:26		07:46		08:39 (WEA01)	06:48		06:37	07:30 (B050)	05:38	20:24 (B143)	05:05		05:17		06:00		06:50		07:39	08:24 (B152)	07:33	08:13 (WEA01)	08:18
	16:36		17:29	27	09:06 (WEA01)	18:19		20:12	17 07:47 (B050)	21:02	10 20:34 (B143)	21:40		21:39		20:55		16:48		18:40	11 08:35 (B152)	16:40	19 08:32 (WEA01)	16:13
13	08:25		07:44		08:39 (WEA01)	06:45		06:35	07:31 (B050)	05:36	20:25 (B143)	05:05		05:18		06:02		06:52		07:41	08:24 (B152)	07:35	08:15 (WEA01)	08:20
	16:37		17:31	26	09:05 (WEA01)	18:21		20:14	14 07:45 (B050)	21:03	10 20:35 (B143)	21:41		21:38		20:53		19:46		18:37	9 08:33 (B152)	16:38	16 08:31 (WEA01)	16:13
14	08:25		07:42		08:40 (WEA01)	06:43	07:25 (B014)	06:33	07:32 (B050)	05:35	20:27 (B143)	05:05		05:19		06:04		06:53		07:42	08:26 (B152)	07:37	08:17 (WEA01)	08:21
	16:38		17:33	25	09:05 (WEA01)	18:23	7 07:32 (B014)	20:15	12 07:44 (B050)	21:05	8 20:35 (B143)	21:41		21:37		20:51		19:44		18:35	5 08:31 (B152)	16:37	12 08:29 (WEA01)	16:13
15	08:24		07:40		08:40 (WEA01)	06:41	07:22 (B014)	06:31	07:35 (B050)	05:33	20:29 (B143)	05:04		05:20		06:05		06:55	08:08 (B014)	07:44		07:39	08:21 (WEA01)	08:21
	16:40		17:35	24	09:04 (WEA01)	18:25	14 07:36 (B014)	20:17	5 07:40 (B050)	21:06	2 20:31 (B143)	21:42		21:36		20:49		19:41	12 08:20 (B014)	18:33		16:35	5 08:26 (WEA01)	16:13
16	08:23		07:38		08:41 (WEA01)	06:39	07:19 (B014)	06:28		05:31		05:04		05:22		06:07		06:56	08:05 (B014)	07:46	08:44 (B153)	07:40		08:22
	16:42		17:36	22	09:03 (WEA01)	18:26	18 07:37 (B014)	20:19		21:08		21:42		21:35		20:47		19:39	17 08:22 (B014)	18:31	5 08:49 (B153)	16:34		16:13
17	08:22		07:36		08:43 (WEA01)	06:36	07:17 (B014)	06:26	19:55 (B172)	05:30		05:04	21:12 (B004)	05:23		06:08		06:58	08:03 (B014)	07:48	08:42 (B153)	07:42		08:23
	16:43		17:38	18	09:01 (WEA01)	18:28	21 07:38 (B014)	20:20	1 19:56 (B172)	21:10		21:43	1 21:13 (B004)	21:34		20:45		19:37	20 08:23 (B014)	18:29	9 08:51 (B153)	16:32		16:13
18	08:21		07:35		08:45 (WEA01)	06:34	07:16 (B014)	06:24	19:54 (B172)	05:28		05:04		05:24		06:10		07:00	08:02 (B014)	07:49	08:39 (B153)	07:44		08:24
	16:45		17:40	14	08:59 (WEA01)	18:30	23 07:39 (B014)	20:22	3 19:57 (B172)	21:11		21:43		21:33		20:43		19:34	22 08:24 (B014)	18:27	12 08:51 (B153)	16:31		16:13
19	08:20		07:33		08:12 (B153)	06:32	07:14 (B014)	06:22	19:54 (B172)	05:27		05:04		05:25		06:12		07:01	08:00 (B014)	07:51	08:39 (B153)	07:45		08:25
	16:46		17:42	12	08:55 (WEA01)	18:31	25 07:39 (B014)	20:24	5 19:59 (B172)	21:12		21:44		21:32		20:41		19:32	24 08:24 (B014)	18:24	13 08:52 (B153)	16:30		16:14
20	08:19		07:31		08:10 (B153)	06:29	07:14 (B014)	06:20	19:55 (B172)	05:26		05:04	21:13 (B004)	05:27		06:13		07:03	07:59 (B014)	07:53	08:39 (B153)	07:47		08:25
	16:48		17:44	10	08:20 (B153)	18:33	26 07:40 (B014)	20:26	6 20:01 (B172)	21:14		21:44	1 21:14 (B004)	21:31		20:39		19:30	26 08:25 (B014)	18:22	13 08:52 (B153)	16:29		16:14
21	08:18		07:29		08:09 (B153)	06:27	07:13 (B014)	06:18	19:55 (B172)	05:24		05:04		05:28		06:15		07:05	07:59 (B014)	07:54	08:39 (B153)	07:49		08:26
	16:50		17:46	12	08:21 (B153)	18:35	27 07:40 (B014)	20:27	7 20:02 (B172)	21:15		21:44		21:30		20:37		19:27	26 08:25 (B014)	18:20	13 08:52 (B153)	16:27		16:14
22	08:17		07:27		08:08 (B153)	06:25	07:13 (B014)	06:16	19:57 (B172)	05:23		05:04		05:29		06:16	20:02 (B172)	07:06	07:58 (B014)	07:56	08:39 (B153)	07:51		08:27
	16:51		17:47	14	08:22 (B153)	18:37	27 07:40 (B014)	20:29	7 20:04 (B172)	21:17		21:45		21:29		20:35	5 20:07 (B172)	19:25	27 08:25 (B014)	18:18	13 08:52 (B153)	16:26		16:15
23	08:16		07:25		08:08 (B153)	06:23	07:12 (B014)	06:14		05:22		05:05		05:30		06:18	20:00 (B172)	07:08	07:58 (B014)	07:58	08:40 (B153)	07:52		08:27
	16:53		17:49	14	08:22 (B153)	18:38	27 07:39 (B014)	20:31		21:18		21:45		21:27		20:33	8 20:08 (B172)	19:23	27 08:25 (B014)	18:16	11 08:51 (B153)	16:25		16:15
24	08:15		07:22		08:07 (B153)	06:20	07:13 (B014)	06:11		05:20		05:05	21:14 (B004)	05:32		06:20	19:59 (B172)	07:09	07:57 (B014)	08:00	08:40 (B153)	07:54		08:28
	16:55		17:51	14	08:21 (B153)	18:40	26 07:39 (B014)	20:32		21:20		21:45	1 21:15 (B004)	21:26		20:31	6 20:05 (B172)	19:21	27 08:24 (B014)	18:14	10 09:22 (WEA01)	16:24		16:16
25	08:14		07:20		08:08 (B153)	06:18	07:13 (B014)	06:09		05:19		05:05		05:33		06:21	19:58 (B172)	07:11	07:58 (B014)	08:01	09:15 (WEA01)	07:55		08:28
	16:56		17:53	12	08:20 (B153)	18:42	25 07:38 (B014)	20:34		21:21		21:45		21:25		20:29	5 20:03 (B172)	19:18	25 08:23 (B014)	18:12	13 09:28 (WEA01)	16:23		16:16
26	08:13		07:18		08:09 (B153)	07:16	08:13 (B014)	06:07		05:18		05:05		05:35		06:23	19:57 (B172)	07:13	07:58 (B014)	08:03	09:13 (WEA01)	07:57		08:28
	16:58		17:55	10	08:19 (B153)	19:43	23 08:36 (B014)	20:36		21:22		21:45		21:23		20:26	4 20:01 (B172)	19:16	25 08:23 (B014)	18:10	17 09:30 (WEA01)	16:22		16:17
27	08:11		07:16		08:11 (B153)	07:13	08:14 (B014)	06:05		05:17		05:06	21:14 (B004)	05:36		06:24	19:57 (B172)	07:14	07:58 (B014)	08:05	09:11 (WEA01)	07:59		08:29
	17:00		17:56	6	08:17 (B153)	19:45	21 08:35 (B014)	20:37		21:24		21:45	1 21:15 (B004)	21:22		20:24	2 19:59 (B172)	19:14	23 08:21 (B014)	18:08	21 09:32 (WEA01)	16:21		16:18
28	08:10		07:14			07:11	08:15 (B014)	06:03		05:16		05:06		05:37		06:26		07:16	07:59 (B014)	08:07	09:10 (WEA01)	08:00		08:29
	17:02		17:58			19:47	19 08:34 (B014)	20:39		21:25		21:45		21:20		20:22		19:11	21 08:20 (B014)	18:06	23 09:33 (WEA01)	16:20		16:18
29	08:09	08:46 (WEA01)				07:09		08:16 (B014)	06:01			05:07		05:39		06:28		07:17	07:59 (B014)	07:59	08:09 (WEA01)	08:02		08:29
	17:03	10 08:56 (WEA01)				19:48	15 08:31 (B014)	20:41		21:26		21:45		21:19		20:20		19:09	18 08:17 (B014)	17:04	25 08:34 (WEA01)	16:19		16:19
30	08:07	08:44 (WEA01)				07:07	08:18 (B014)	05:59		05:14		05:07		05:40	20:39 (B143)	06:29	07:33 (B050)	07:19	08:02 (B014)	07:10	08:09 (WEA01)	08:03		08:29
	17:05	14 08:58 (WEA01)				19:50	10 08:28 (B014)	20:42		21:27		21:45	2 20:41 (B143)	21:17	2 20:41 (B143)	20:18	9 07:42 (B050)	19:07	13 08:15 (B014)	17:02	26 08:35 (WEA01)	16:18		16:20
31	08:06	08:43 (WEA01)				07:04				05:13		05:42	20:37 (B143)	06:31		07:31 (B050)				07:12	08:08 (WEA01)			08:29
	17:07	17 09:00 (WEA01)				19:52				21:29		21:16	7 20:44 (B143)	20:15	14 07:45 (B050)					17:00	27 08:35 (WEA01)			16:21
Sonnenscheinstunden	259		277		366		414		483		497		502		454		382		333		268		245	
astr.max.mögl.Beschattung	41		549		433		248		67		4		9		112		546		334		343			
Red.Sonnenscheinwahrsch.	0.19		0.32		0.28		0.36		0.43		0.34		0.39		0.40		0.32		0.29		0.23			
Reduktion Betriebsdauer	0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95		0.95			
Reduktion Windrichtung	0.60		0.61		0.68		0.72		0.65		0.60		0.65		0.67		0.70		0.63		0.60			
Gesamte Reduktion	0.11		0.19		0.18		0.25		0.26		0.19		0.24		0.25		0.21		0.17		0.13			
Met.wahrsch.Beschattung	4		102		79		62		18		1		2		29		116		57		44			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO068 - Sebastianstr. 7, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			08:04			08:46 (WEA03)	07:12		07:54 (WEA02)	07:02		07:52 (B153)	05:57			05:12		06:04 (B050)	05:08		06:10 (B050)	05:43		06:40 (B014)	06:32		07:25 (B152)	07:21		08:07 (WEA01)	07:14		07:58 (B178)	08:05	
	16:22			17:09	19		09:05 (WEA03)	18:00	24	08:18 (WEA02)	19:54	49	08:45 (WEA01)	20:44			21:30	43	06:57 (B014)	21:45	21	06:31 (B050)	21:14	29	07:09 (B014)	20:13	1	07:26 (B152)	19:04	36	08:53 (WEA02)	16:58	39	08:39 (WEA03)	16:18	
2	08:29			08:03			08:45 (WEA03)	07:10		07:53 (WEA02)	07:00		07:51 (B153)	05:56			05:11		06:03 (B050)	05:09		06:09 (B050)	05:45		06:41 (B014)	06:34			07:22		08:30 (WEA02)	07:16		07:58 (B178)	08:06	
	16:23			17:11	21		09:06 (WEA03)	18:02	26	08:19 (WEA02)	19:55	46	08:43 (WEA01)	20:46			21:31	43	06:56 (B014)	21:44	22	21:13 (B172)	21:13	29	07:10 (B014)	20:11			19:02	23	08:53 (WEA02)	16:57	39	08:39 (WEA03)	16:17	
3	08:29			08:01			08:44 (WEA03)	07:08		07:52 (WEA02)	06:57		07:52 (B153)	05:54			05:10		06:03 (B050)	05:09		06:10 (B050)	05:46		06:41 (B014)	06:36			07:24		08:29 (WEA02)	07:17		07:58 (B178)	08:07	
	16:24			17:13	22		09:06 (WEA03)	18:04	27	08:19 (WEA02)	19:57	42	08:41 (WEA01)	20:47			21:32	41	06:55 (B014)	21:44	22	21:13 (B172)	21:11	28	07:09 (B014)	20:09			19:00	26	08:55 (WEA02)	16:55	39	08:39 (WEA03)	16:16	
4	08:29			08:00			08:44 (WEA03)	07:05		07:51 (WEA02)	06:55		07:53 (B153)	05:52		06:41 (B014)	05:10		06:04 (B050)	05:10		06:10 (B050)	05:48		06:41 (B014)	06:37			07:26		08:28 (WEA02)	07:19		07:57 (B178)	08:09	
	16:25			17:14	24		09:08 (WEA03)	18:05	29	08:20 (WEA02)	19:59	36	08:39 (WEA01)	20:49	7	06:48 (B014)	21:33	40	06:55 (B014)	21:44	27	21:13 (B172)	21:09	26	07:07 (B014)	20:07			18:57	27	08:55 (WEA02)	16:53	39	08:39 (WEA03)	16:16	
5	08:29			07:58			08:43 (WEA03)	07:03		07:51 (WEA02)	06:53		07:53 (B153)	05:50		06:38 (B014)	05:09		06:04 (B050)	05:11		06:10 (B050)	05:49		06:42 (B014)	06:39			07:27		08:28 (WEA02)	07:21		07:58 (B178)	08:10	
	16:26			17:16	25		09:08 (WEA03)	18:07	30	08:21 (WEA02)	20:00	29	08:36 (WEA01)	20:51	14	06:52 (B014)	21:34	38	06:54 (B014)	21:43	29	06:56 (B014)	21:08	25	07:07 (B014)	20:04			18:55	28	08:56 (WEA02)	16:51	38	08:39 (WEA03)	16:15	
6	08:29			07:56			08:31 (B178)	07:01		07:50 (WEA02)	06:51		08:21 (WEA01)	05:48		06:36 (B014)	05:08		06:03 (B050)	05:12		06:10 (B050)	05:51		06:42 (B014)	06:40			07:29		08:26 (WEA02)	07:23		08:00 (B178)	08:11	
	16:28			17:18	32		09:09 (WEA03)	18:09	30	08:20 (WEA02)	20:02	11	08:32 (WEA01)	20:52	18	06:54 (B014)	21:35	36	06:53 (B014)	21:43	32	06:57 (B014)	21:06	24	07:06 (B014)	20:02			18:53	30	08:56 (WEA02)	16:49	33	08:39 (WEA03)	16:15	
7	08:28			07:55			08:29 (B178)	06:59		07:50 (WEA02)	06:48			05:46		06:34 (B014)	05:08		06:04 (B050)	05:12		06:10 (B050)	05:52		06:44 (B014)	06:42		08:21 (WEA01)	07:31		08:26 (WEA02)	07:24		08:13 (WEA03)	08:13	
	16:29			17:20	35		09:09 (WEA03)	18:11	30	08:20 (WEA02)	20:04			20:54	21	06:55 (B014)	21:36	34	06:52 (B014)	21:42	34	06:58 (B014)	21:04	21	07:05 (B014)	20:00	3	08:24 (WEA01)	18:51	30	08:56 (WEA02)	16:48	25	08:38 (WEA03)	16:14	
8	08:28			07:53			08:29 (B178)	06:57		07:50 (WEA02)	06:46			05:45		06:33 (B014)	05:07		06:04 (B050)	05:13		06:10 (B050)	05:54		06:45 (B014)	06:44		07:50 (B153)	07:32		08:26 (WEA02)	07:26		08:14 (WEA03)	08:14	
	16:30			17:22	38		09:10 (WEA03)	18:12	30	08:20 (WEA02)	20:05			20:55	23	06:56 (B014)	21:37	32	06:51 (B014)	21:42	37	07:00 (B014)	21:02	18	07:03 (B014)	19:57	21	08:29 (WEA01)	18:48	30	08:56 (WEA02)	16:46	24	08:38 (WEA03)	16:14	
9	08:28			07:51			08:28 (B178)	06:54		07:49 (WEA02)	06:44			05:43		06:32 (B014)	05:06		06:04 (B050)	05:14		06:11 (B050)	05:56		06:47 (B014)	06:45		07:48 (B153)	07:34		08:25 (WEA02)	07:28		08:14 (WEA03)	08:15	
	16:31			17:24	40		09:10 (WEA03)	18:14	30	08:19 (WEA02)	20:07			20:57	25	06:57 (B014)	21:38	29	06:50 (B014)	21:41	38	07:01 (B014)	21:00	15	07:02 (B014)	19:55	32	08:32 (WEA01)	18:46	30	08:55 (WEA02)	16:44	24	08:38 (WEA03)	16:14	
10	08:27			07:49			08:28 (B178)	06:52		07:50 (WEA02)	06:42			05:41		06:32 (B014)	05:06		06:05 (B050)	05:15		06:11 (B050)	05:57		06:49 (B014)	06:47		07:46 (B153)	07:36		08:25 (WEA02)	07:30		08:15 (WEA03)	08:16	
	16:33			17:25	40		09:10 (WEA03)	18:16	28	08:18 (WEA02)	20:09			20:59	26	06:58 (B014)	21:38	24	06:48 (B014)	21:40	40	07:02 (B014)	20:59	9	06:58 (B014)	19:53	37	08:33 (WEA01)	18:44	30	08:55 (WEA02)	16:43	22	08:37 (WEA03)	16:13	
11	08:27			07:48			08:28 (B178)	06:50		07:50 (WEA02)	06:39			05:39		06:30 (B014)	05:06		06:05 (B050)	05:16		06:11 (B050)	05:59			06:48		07:45 (B153)	07:37		08:26 (WEA02)	07:32		08:16 (WEA03)	08:17	
	16:34			17:27	39		09:09 (WEA03)	18:18	27	08:17 (WEA02)	20:10			21:00	28	06:58 (B014)	21:39	21	06:26 (B050)	21:40	41	07:03 (B014)	20:57			19:51	43	08:35 (WEA01)	18:42	28	08:54 (WEA02)	16:41	20	08:36 (WEA03)	16:13	
12	08:26			07:46			08:28 (B178)	06:48		07:51 (WEA02)	06:37			05:38		06:29 (B014)	05:05		06:05 (B050)	05:17		06:11 (B050)	06:00			06:50		07:43 (B153)	07:39		08:26 (WEA02)	07:33		08:18 (WEA03)	08:18	
	16:36			17:29	38		09:09 (WEA03)	18:19	26	08:17 (WEA02)	20:12			21:02	29	06:58 (B014)	21:40	21	06:26 (B050)	21:39	43	07:04 (B014)	20:55			19:48	48	08:36 (WEA01)	18:40	28	08:54 (WEA02)	16:40	17	08:35 (WEA03)	16:13	
13	08:25			07:44			08:28 (B178)	06:45		07:51 (WEA02)	06:35		07:23 (B152)	05:36		06:30 (B014)	05:05		06:06 (B050)	05:18		06:12 (B050)	06:02			06:52		07:43 (B153)	07:41		08:26 (WEA02)	07:35		08:20 (WEA03)	08:19	
	16:37			17:31	36		09:08 (WEA03)	18:21	23	08:14 (WEA02)	20:14	7	07:30 (B152)	21:03	29	06:59 (B014)	21:41	21	06:27 (B050)	21:38	43	07:05 (B014)	20:53			19:46	50	08:37 (WEA01)	18:37	26	08:52 (WEA02)	16:38	14	08:34 (WEA03)	16:13	
14	08:25			07:42			08:29 (B178)	06:43		07:27 (WEA01)	06:33		07:21 (B152)	05:35		06:30 (B014)	05:05		06:06 (B050)	05:19		06:12 (B050)	06:04			06:53		07:43 (B153)	07:42		08:27 (WEA02)	07:37		08:22 (WEA03)	08:20	
	16:39			17:33	32		09:07 (WEA03)	18:23	35	08:13 (WEA02)	20:15	11	07:32 (B152)	21:05	30	07:00 (B014)	21:41	21	06:27 (B050)	21:37	44	07:05 (B014)	20:51			19:44	51	08:37 (WEA01)	18:35	24	08:51 (WEA02)	16:37	10	08:32 (WEA03)	16:13	
15	08:24			07:40			08:31 (B178)	06:41		07:24 (WEA01)	06:31		07:20 (B152)	05:33		06:29 (B014)	05:04		06:07 (B050)	05:20		06:12 (B050)	06:05		06:55 (B087)	06:55		07:43 (B223)	07:44		08:28 (WEA02)	07:39		08:21	
	16:40			17:35	26		09:06 (WEA03)	18:25	37	08:11 (WEA02)	20:17	13	07:33 (B152)	21:06	30	06:59 (B014)	21:42	20	06:27 (B050)	21:36	45	07:06 (B014)	20:49	7	07:02 (B087)	19:41	52	08:38 (WEA01)	18:33	25	08:53 (B013)	16:35			16:13	
16	08:23			07:38			08:48 (WEA03)	06:39		07:21 (WEA01)	06:28		07:18 (B152)	05:31		06:29 (B014)	05:04		06:07 (B050)	05:22		06:12 (B050)	06:07		06:53 (B087)	06:56		07:42 (B223)	07:46		08:30 (WEA02)	07:40		08:22	
	16:42			17:36	16		09:04 (WEA03)	18:26	35	08:07 (WEA02)	20:19	14	07:32 (B152)	21:08	31	07:00 (B014)	21:42	21	06:28 (B050)	21:35	46	07:06 (B014)	20:47	10	07:03 (B087)	19:39	53	08:38 (WEA01)	18:31	24	08:54 (B013)	16:34			16:13	
17	08:22			07:36			08:50 (WEA03)	06:36		07:19 (WEA01)	06:26		07:17 (B152)	05:30		06:28 (B014)	05:04		06:07 (B050)	05:23		06:13 (B050)	06:08		06:52 (B087)	06:58		07:41 (B223)	07:48		08:32 (WEA02)	07:42		08:23	
	16:43			17:38	12		09:02 (WEA03)	18:28	29	07:48 (WEA01)	20:20	15	07:32 (B152)	21:09	31	06:59 (B014)	21:43	21	06:28 (B050)	21:34	46	07:07 (B014)	20:45	12	07:04 (B087)	19:37	53	08:38 (WEA01)	18:29	23	08:55 (B013)	16:32			16:13	
18	08:21			07:35			08:54 (WEA03)	06:34		07:18 (WEA01)	06:24		07:17 (B152)	05:28		06:29 (B014)	05:04		06:07 (B050)	05:24		06:13 (B050)	06:10		06:51 (B087)	07:00		07:41 (B223)	07:49		08:41 (B013)	07:44		08:24	
	16:45			17:40	4		08:58 (WEA03)	18:30	31	07:49 (WEA01)	20:22	15	07:32 (B152)	21:11	31	07:00 (B014)	21:43	21	06:28 (B050)	21:33	46	07:07 (B014)	20:43	13	07:04 (B087)	19:34	53	08:38 (WEA01)	18:27	13	08:54 (B013)	16:31			16:13	
19	08:20			07:33				06:32		07:16 (WEA01)	06:22		07:17 (B152)	05:27		06:29 (B014)	05:04		06:08 (B050)	05:25		06:13 (B050)	06:12		06:51 (B087)	07:01		07:41 (B223)	07:51		08:41 (B013)	07:45		08:25	
	16:46			17:42				18:31	33	07:49 (WEA01)	20:24	15	07:32 (B152)	21:12	31	07:00 (B014)	21:44	20	06:28 (B050)	21:32	47	07:08 (B014)	20:41	13	07:04 (B087)	19:32	51	08:37 (WEA01)	18:24	13	08:54 (B013)	16:30			16:14	
20	08:19			07:31				06:29		07:15 (WEA01)	06:20		07:18 (B152)	05:26		06:29 (B014)	05:04		06:08 (B050)	05:27		06:15 (B050)	06:13		06:50 (B087)	07:03		07:42 (B223)	07:53		08:42 (B013)	07:47		08:25	
	16:48			17:44				18:33	35	07:50 (WEA01)	20:26	13	07:31 (B152)	21:14	31	07:00 (B014)	21:44	20	06:28 (B050)	21:31	45	07:09 (B014)	20:39	14	07:04 (B087)	19:30	49	08:37 (WEA01)	18:22	11	08:53 (B013)	16:29			16:14	
21	08:18			07:29				06:27		07:14 (WEA01)	06:18		06:48 (B087)	05:24		06:09 (B050)	05:04		06:08 (B050)	05:28		06:16 (B050)	06:15		06:51 (B087)	07:05		07:44 (B223)	07:54		08:43 (B013)	07:49		08:26	
	16:50			17:46				18:35	37	07:51 (WEA01)	20:27	20	07:30 (B152)	21:15	37	06:59 (B014)	21:44	20	06:28 (B050)	21:30	44	07:09 (B014)	20:37	13	07:04 (B087)	19:27	46	08:37 (WEA01)	18:20	9	08:52 (B013)	16:27			16:14	
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	16:51			17:47	8	08:21 (B013)	18:37	37		07:51 (WEA01)	20:29	19	07:28 (B152)	21:17	41	06:59 (B014)	21:45	20	06:28 (B050)	21:28	43	07:09 (B014)	20:35	18	07:32 (B152)	19:25	38	08:36 (WEA01)	18:18	3	08:49 (B013)	16:26			16:15	
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	16:53			17:49	10	08:22 (B013)	18:38	39		07:51 (WEA01)	20:31	13	06:58 (B087)	21:18	43	06:59 (B014)	21:45	20	06:28 (B050)	21:27	41	07:09 (B014)	20:33	20	07:34 (B152)	19:23	37	08:36 (WEA01)	18:16						16:25		
24	08:15			07:22		08:10 (B013)	06:20			06:57 (B223)	06:11		06:45 (B087)	05:20		06:06 (B050)	05:05		06:09 (B050)	05:32		06:19 (B050)	06:20		06:54 (B087)	07:09		07:58 (WEA01)	08:00						07:54		
	16:55			17:51	12	08:22 (B013)	18:40	48		07:51 (WEA01)	20:32	13	06:58 (B087)	21:20	44	06:59 (B014)	21:45	20	06:29 (B050)	21:26	37	07:09 (B014)	20:31	16	07:34 (B152)	19:21	36	08:34 (WEA01)	18:14						16:24		
25	08:14			07:20		08:10 (B013)	06:18			06:55 (B223)	06:09		06:44 (B087)	05:19		06:05 (B050)	05:05		06:09 (B050)	05:33		06:39 (B014)	06:21		07:21 (B152)	07:11		07:59 (WEA01)	08:01						07:55		
	16:56			17:53	12	08:22 (B013)	18:42	51		07:51 (WEA01)	20:34	14	06:58 (B087)	21:21	45	06:59 (B014)	21:45	20	06:29 (B050)	21:25	31	07:10 (B014)	20:29	14	07:35 (B152)	19:18	35	08:34 (WEA01)	18:12						16:23		
26	08:13			07:18		08:01 (WEA02)	07:16			07:53 (B223)	06:07		06:44 (B087)	05:18		06:04 (B050)	05:05		06:08 (B050)	05:35		06:39 (B014)	06:23		07:20 (B152)	07:13		08:00 (WEA01)	08:03		09:20 (WEA03)	07:57			08:28	
	16:58			17:55	21	08:22 (B013)	19:43	53		08:50 (WEA01)	20:36	14	06:58 (B087)	21:22	47	06:59 (B014)	21:45	21	06:29 (B050)	21:23	31	07:10 (B014)	20:26	15	07:35 (B152)	19:16	33	08:33 (WEA01)	18:10	11	09:31 (WEA03)	16:22			16:17	
27	08:11			07:16		07:58 (WEA02)	07:13			07:53 (B223)	06:05		06:45 (B087)	05:17		06:04 (B050)	05:06		06:09 (B050)	05:36		06:39 (B014)	06:24		07:20 (B152)	07:14		08:00 (WEA01)	08:05		09:18 (WEA03)	07:59			08:29	
	17:00			17:56	24	08:22 (B013)	19:45	52		08:49 (WEA01)	20:37	12	06:57 (B087)	21:24	46	06:58 (B014)	21:45	21	06:30 (B050)	21:22	31	07:10 (B014)	20:24	15	07:35 (B152)	19:14	31	08:31 (WEA01)	18:08	16	09:34 (WEA03)	16:21			16:18	
28	08:10			07:14		07:56 (WEA02)	07:11			07:53 (B223)	06:03		06:45 (B087)	05:16		06:04 (B050)	05:06		06:09 (B050)	05:37		06:39 (B014)	06:26		07:19 (B152)	07:16		08:01 (WEA01)	08:07		09:02 (B178)	08:00			08:29	
	17:02			17:58	25	08:21 (B013)	19:47	52		08:49 (WEA01)	20:39	11	06:56 (B087)	21:25	46	06:58 (B014)	21:45	21	06:30 (B050)	21:20	32	07:11 (B014)	20:22	15	07:34 (B152)	19:11	28	08:29 (WEA01)	18:06	23	09:35 (WEA03)	16:20			16:18	
29	08:09		08:52 (WEA03)				07:09			07:52 (B223)	06:01		06:46 (B087)	05:15		06:03 (B050)	05:07		06:10 (B050)	05:39		06:39 (B014)	06:28		07:20 (B152)	07:17		08:02 (WEA01)	07:58		07:59 (B178)	08:02			08:29	
	17:03	7	08:59 (WEA03)				19:48	53		08:48 (WEA01)	20:41	8	06:54 (B087)	21:26	46	06:57 (B014)	21:45	20	06:30 (B050)	21:19	31	07:10 (B014)	20:20	14	07:34 (B152)	19:09	36	08:48 (WEA02)	17:04	30	08:36 (WEA03)	16:19			16:19	
30	08:07		08:49 (WEA03)				07:07			07:52 (B223)	05:59		06:50 (B087)	05:14		06:03 (B050)	05:07		06:09 (B050)	05:40		06:39 (B014)	06:29		07:20 (B152)	07:19		08:04 (WEA01)	07:10		07:58 (B178)	08:03			08:29	
	17:05	12	09:01 (WEA03)				19:50	52		08:47 (WEA01)	20:42	2	06:52 (B087)	21:27	45	06:57 (B014)	21:45	21	06:30 (B050)	21:17	31	07:10 (B014)	20:18	12	07:32 (B152)	19:07	38	08:51 (WEA01)	17:02	35	08:37 (WEA03)	16:18			16:20	
31	08:06		08:47 (WEA03)				07:04			07:52 (B153)				05:13		06:03 (B050)				05:42		06:40 (B014)	06:31		07:22 (B152)				07:12		07:58 (B178)				08:29	
	17:07	16	09:03 (WEA03)				19:52	51		08:46 (WEA01)				21:28	44	06:56 (B014)				21:16	30	07:10 (B014)	20:15	9	07:31 (B152)				17:00	36	08:38 (WEA03)				16:21	
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.m0g/l.Beschattung	35			611			1120			442			919			771			1130			454			955			668			383					
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23				
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95				
Reduktion Windrichtung	0.59			0.61			0.68			0.71			0.74			0.74			0.74			0.73			0.69			0.64			0.60				
Gesamte Reduktion	0.11			0.19			0.18			0.25			0.30			0.24			0.27			0.28			0.21			0.18			0.13				
Met.wahrsch.Beschattung	4			114			204			109			276			183			308			127			200			117			49				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO069 - Sebastianstr. 45, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		09:48 (B253)	08:04		08:43 (B178)	07:12		08:05 (WEA02)	07:02		07:53 (B223)	05:57		06:37 (B087)	05:12		06:16 (B014)	05:08		06:20 (B014)	05:43			06:32		08:31 (WEA01)	07:21		08:05 (B124)	07:14		08:14 (B178)	08:05		
	16:22	7	09:55 (B253)	17:09	38	09:32 (WEA03)	18:03	34	08:39 (WEA02)	19:54	67	09:06 (WEA01)	20:44	34	07:26 (B152)	21:30	34	06:50 (B014)	21:45	38	06:58 (B014)	21:14			20:13	12	08:43 (WEA01)	19:04	58	09:10 (WEA02)	16:58	26	08:57 (WEA03)	16:18		
2	08:29		09:50 (B253)	08:03		08:41 (B178)	07:10		08:04 (WEA02)	07:00		07:53 (B153)	05:56		06:37 (B087)	05:11		06:16 (B014)	05:09		06:20 (B014)	05:45			06:34		08:27 (WEA01)	07:22		08:03 (B124)	07:16		08:13 (B178)	08:06		
	16:23	5	09:55 (B253)	17:11	41	09:32 (WEA03)	18:02	35	08:39 (WEA02)	19:55	67	09:05 (WEA01)	20:46	25	07:24 (B152)	21:31	35	06:51 (B014)	21:44	38	06:58 (B014)	21:13			20:11	20	08:47 (WEA01)	19:02	58	09:11 (WEA02)	16:57	33	08:59 (WEA03)	16:17		
3	08:29		09:51 (B253)	08:01		08:40 (B178)	07:08		08:04 (WEA02)	06:57		07:53 (B153)	05:54		06:37 (B087)	05:10		06:16 (B014)	05:09		06:20 (B014)	05:46			06:36		08:24 (WEA01)	07:24		08:03 (B124)	07:17		08:11 (B178)	08:07		
	16:24	4	09:55 (B253)	17:12	43	09:32 (WEA03)	18:04	36	08:40 (WEA02)	19:57	65	09:04 (WEA01)	20:47	15	07:19 (B152)	21:32	35	06:51 (B014)	21:44	38	06:58 (B014)	21:11			20:09	25	08:49 (WEA01)	19:00	48	09:12 (WEA02)	16:55	38	09:00 (WEA03)	16:16		
4	08:29			08:00		08:41 (B178)	07:05		08:04 (WEA02)	06:55		07:53 (B153)	05:52		06:37 (B087)	05:10		06:16 (B014)	05:10		06:21 (B014)	05:48			06:37		07:53 (B153)	07:26		08:03 (B124)	07:19		08:10 (B178)	08:09		
	16:25			17:14	44	09:33 (WEA03)	18:05	36	08:40 (WEA02)	19:59	65	09:04 (WEA01)	20:49	13	06:50 (B087)	21:33	36	06:52 (B014)	21:44	38	06:59 (B014)	21:09			20:06	40	08:52 (WEA01)	18:57	50	09:13 (WEA02)	16:53	40	09:00 (WEA03)	16:16		
5	08:29			07:58		08:40 (B178)	07:03		08:04 (WEA02)	06:53		07:52 (B153)	05:50		06:38 (B087)	05:09		06:16 (B014)	05:11		06:22 (B014)	05:49			06:39		07:52 (B153)	07:27		08:03 (B124)	07:21		08:10 (B178)	08:10		
	16:26			17:16	44	09:32 (WEA03)	18:07	36	08:40 (WEA02)	20:00	63	09:02 (WEA01)	20:51	12	06:50 (B087)	21:34	36	06:52 (B014)	21:43	37	06:59 (B014)	21:08			20:04	47	08:54 (WEA01)	18:55	50	09:13 (WEA02)	16:51	42	09:01 (WEA03)	16:15		
6	08:29			07:56		08:40 (B178)	07:01		08:03 (WEA02)	06:51		07:52 (B153)	05:48		06:39 (B087)	05:08		06:15 (B014)	05:12		06:21 (B014)	05:51			06:40		07:49 (B153)	07:29		08:04 (B124)	07:23		08:10 (B178)	08:11		
	16:28			17:18	44	09:32 (WEA03)	18:09	36	08:39 (WEA02)	20:02	59	09:00 (WEA01)	20:52	9	06:48 (B087)	21:35	37	06:52 (B014)	21:43	37	06:58 (B014)	21:06			20:02	53	08:54 (WEA01)	18:53	50	09:14 (WEA02)	16:49	44	09:02 (WEA03)	16:14		
7	08:28			07:55		08:40 (B178)	06:59		07:31 (B124)	06:48		07:53 (B153)	05:46		06:41 (B087)	05:08		06:16 (B014)	05:12		06:22 (B014)	05:52		06:52 (B087)	06:42		07:49 (B153)	07:31		08:05 (B124)	07:24		08:10 (B178)	08:13		
	16:29			17:20	43	09:31 (WEA03)	18:11	46	08:39 (WEA02)	20:04	55	08:59 (WEA01)	20:54	4	06:45 (B087)	21:36	36	06:52 (B014)	21:42	36	06:58 (B014)	21:04	3	06:55 (B087)	20:00	57	08:56 (WEA01)	18:51	49	09:14 (WEA02)	16:48	44	09:02 (WEA03)	16:14		
8	08:28			07:53		08:41 (B178)	06:57		07:29 (B124)	06:46		07:54 (B153)	05:45			05:07		06:15 (B014)	05:13		06:22 (B014)	05:54		06:49 (B087)	06:44		07:47 (B153)	07:32		08:07 (B124)	07:26		08:10 (B178)	08:14		
	16:30			17:22	41	09:32 (WEA03)	18:12	49	08:38 (WEA02)	20:05	50	08:57 (WEA01)	20:55			21:37	37	06:52 (B014)	21:42	37	06:59 (B014)	21:02	8	06:57 (B087)	19:57	61	08:56 (WEA01)	18:48	46	09:15 (WEA02)	16:46	46	09:03 (WEA03)	16:14		
9	08:28			07:51		08:41 (B178)	06:54		07:27 (B124)	06:44		07:55 (B153)	05:43			05:06		06:16 (B014)	05:14		06:23 (B014)	05:56		06:48 (B087)	06:45		07:47 (B153)	07:34		08:10 (B124)	07:28		08:11 (B178)	08:15		
	16:31			17:23	40	09:31 (WEA03)	18:14	50	08:37 (WEA02)	20:07	45	08:56 (WEA01)	20:57			21:38	37	06:53 (B014)	21:41	36	06:59 (B014)	21:00	11	06:59 (B087)	19:55	63	08:57 (WEA01)	18:46	37	09:14 (WEA02)	16:44	44	09:03 (WEA03)	16:14		
10	08:27			07:49		08:42 (B178)	06:52		07:26 (B124)	06:42		07:57 (B153)	05:41			05:06		06:16 (B014)	05:15		06:23 (B014)	05:57		06:46 (B087)	06:47		07:46 (B153)	07:36		08:38 (WEA02)	07:30		08:12 (B178)	08:16		
	16:33			17:25	36	09:30 (WEA03)	18:16	50	08:36 (WEA02)	20:09	35	08:52 (WEA01)	20:59			21:38	38	06:54 (B014)	21:40	36	06:59 (B014)	20:59	13	06:59 (B087)	19:53	65	08:57 (WEA01)	18:44	36	09:14 (WEA02)	16:43	42	09:03 (WEA03)	16:13		
11	08:27			07:48		08:44 (B178)	06:50		07:25 (B124)	06:39		08:27 (WEA01)	05:39			05:06		06:15 (B014)	05:16		06:24 (B014)	05:59		06:46 (B087)	06:48		07:46 (B153)	07:37		08:38 (WEA02)	07:32		08:13 (B178)	08:17		09:41 (B253)
	16:34			17:27	29	09:28 (WEA03)	18:18	50	08:35 (WEA02)	20:10	23	08:50 (WEA01)	21:00			21:39	38	06:53 (B014)	21:40	35	06:59 (B014)	20:57	14	07:00 (B087)	19:51	66	08:58 (WEA01)	18:42	36	09:14 (WEA02)	16:41	40	09:03 (WEA03)	16:13	4	09:45 (B253)
12	08:26			07:46		09:09 (WEA03)	06:48		07:25 (B124)	06:37		08:30 (WEA01)	05:38			05:05		06:16 (B014)	05:17		06:24 (B014)	06:00		06:45 (B087)	06:50		07:45 (B223)	07:39		08:38 (WEA02)	07:33		08:15 (B178)	08:18		09:40 (B253)
	16:36			17:29	18	09:27 (WEA03)	18:19	48	08:34 (WEA02)	20:12	16	08:46 (WEA01)	21:02			21:40	38	06:54 (B014)	21:39	35	06:59 (B014)	20:55	24	07:32 (B152)	19:48	67	08:58 (WEA01)	18:40	36	09:14 (WEA02)	16:40	36	09:03 (WEA03)	16:13	6	09:46 (B253)
13	08:25			07:44		09:11 (WEA03)	06:45		07:24 (B124)	06:35			05:36			05:05		06:16 (B014)	05:18		06:24 (B014)	06:02		06:45 (B087)	06:52		07:45 (B223)	07:41		08:38 (WEA02)	07:35		08:34 (WEA03)	08:19		09:45 (B253)
	16:37			17:31	13	09:24 (WEA03)	18:21	59	08:32 (WEA02)	20:14			21:03			21:41	38	06:54 (B014)	21:38	34	06:58 (B014)	20:53	31	07:34 (B152)	19:46	67	08:58 (WEA01)	18:37	35	09:13 (WEA02)	16:38	29	09:03 (WEA03)	16:13	7	09:47 (B253)
14	08:25			07:42			06:43		07:25 (B124)	06:33			05:35			05:05		06:17 (B014)	05:19		06:25 (B014)	06:03		06:45 (B087)	06:53		07:43 (B223)	07:42		08:38 (WEA02)	07:37		08:34 (WEA03)	08:20		09:40 (B253)
	16:38			17:33			18:23	58	08:30 (WEA02)	20:15			21:05			21:41	38	06:55 (B014)	21:37	33	06:58 (B014)	20:51	38	07:34 (B152)	19:44	68	08:58 (WEA01)	18:35	34	09:12 (WEA02)	16:37	29	09:03 (WEA03)	16:13	8	09:48 (B253)
15	08:24			07:40			06:41		07:26 (B124)	06:31			05:33			05:04		06:17 (B014)	05:20		06:25 (B014)	06:05		06:45 (B087)	06:55		07:43 (B223)	07:44		08:39 (WEA02)	07:39		08:35 (WEA03)	08:21		09:40 (B253)
	16:40			17:35			18:25	55	08:28 (WEA02)	20:17			21:06			21:42	38	06:55 (B014)	21:36	33	06:58 (B014)	20:49	43	07:36 (B152)	19:41	67	08:58 (WEA01)	18:33	32	09:11 (WEA02)	16:35	28	09:03 (WEA03)	16:13	9	09:49 (B253)
16	08:23			07:38			06:39		07:26 (B124)	06:28			05:31			05:04		06:17 (B014)	05:22		06:26 (B014)	06:07		06:45 (B087)	06:56		07:44 (B223)	07:46		08:39 (WEA02)	07:40		08:36 (WEA03)	08:22		09:40 (B253)
	16:42			17:36			18:26	49	08:23 (WEA02)	20:19			21:08			21:42	38	06:55 (B014)	21:35	31	06:57 (B014)	20:47	45	07:36 (B152)	19:39	65	08:58 (WEA01)	18:31	32	09:11 (WEA02)	16:34	27	09:03 (WEA03)	16:13	10	09:50 (B253)
17	08:22			07:36		08:31 (B013)	06:36		07:27 (B124)	06:26			05:30			05:04		06:17 (B014)	05:23		06:26 (B014)	06:08		06:46 (B087)	06:58		07:43 (B223)	07:48		08:40 (WEA02)	07:42		08:35 (WEA03)	08:23		09:40 (B253)
	16:43			17:38	4	08:35 (B013)	18:28	39	08:06 (WEA01)	20:20			21:09			21:43	39	06:56 (B014)	21:34	31	06:57 (B014)	20:45	44	07:36 (B152)	19:37	66	08:58 (WEA01)	18:29	30	09:10 (WEA02)	16:32	27	09:02 (WEA03)	16:13	10	09:50 (B253)
18	08:21			07:35		08:28 (B013)	06:34		07:28 (WEA01)	06:24			05:28			05:04		06:17 (B014)	05:24		06:27 (B014)	06:10		06:47 (B087)	07:00		07:44 (B223)	07:49		08:41 (WEA02)	07:44		08:36 (WEA03)	08:24		09:40 (B253)
	16:45			17:40	10	08:38 (B013)	18:30	39	08:07 (WEA01)	20:22			21:11			21:43	39	06:56 (B014)	21:33	29	06:56 (B014)	20:43	42	07:36 (B152)	19:34	64	08:58 (WEA01)	18:27	28	09:09 (B013)	16:31	25	09:01 (WEA03)	16:13	11	09:51 (B253)
19	08:20		09:11 (WEA03)	07:33		08:27 (B013)	06:32		07:26 (WEA01)	06:22			05:27			05:04		06:18 (B014)	05:25		06:28 (B014)	06:11		06:50 (B087)	07:01		07:44 (B223)	07:51		08:42 (WEA02)	07:45		08:38 (WEA03)	08:25		09:41 (B253)
	16:46	5	09:16 (WEA03)	17:42	12	08:39 (B013)	18:31	41	08:07 (WEA01)	20:24			21:12			21:44	38	06:56 (B014)	21:32	27	06:55 (B014)	20:41	35	07:36 (B152)	19:32	62	08:57 (WEA01)	18:24	28	09:10 (B013)	16:30	23	09:01 (WEA03)	16:14	10	09:51 (B253)
20	08:19		09:08 (WEA03)	07:31		08:26 (B013)	06:29		07:25 (WEA01)	06:20		07:17 (B152)	05:26		06:26 (B014)	05:04		06:01 (B050)	05:27		06:29 (B014)	06:13		07:03 (B086)	07:03		07:46 (B223)	07:53		08:44 (WEA02)	07:47		08:39 (WEA03)	08:25		09:41 (B253)
	16:48	12	09:20 (WEA03)	17:44	14	08:40 (B013)	18:33	43	08:08 (WEA01)	20:26	9	07:26 (B152)	21:14	11	06:37 (B014)	21:44	40	06:56 (B014)	21:31	27	06:58 (B014)	20:39	32	07:35 (B152)	19:30	57	08:56 (WEA01)	18:22	27	09:11 (B013)	16:29	22	09:01 (WEA03)	16:14	10	09:51 (B253)
21	08:18		09:07 (WEA03)	07:29		08:26 (B013)	06:27		07:24 (WEA01)	06:18		07:02 (B086)	05:24		06:24 (B014)	05:04		06:01 (B050)	05:28		06:30 (B014)	06:15		07:04 (B086)	07:04		08:08 (WEA01)	07:54		08:47 (WEA02)	07:49		08:40 (WEA03)	08:26		09:42 (B253)
	16:50	15	09:22 (WEA03)	17:46	14	08:40 (B013)	18:35	45	08:09 (WEA01)	20:27	19	07:27 (B152)	21:15	16	06:40 (B014)	21:44	41	06:56 (B014)	21:30	24	06:54 (B014)	20:37	30	07:35 (B152)	19:27	48	08:56 (WEA01)	18:20	24	09:11 (B013)	16:27	20	09:00 (WEA03)	16:14	10	09:52 (B253)
22	08:17		09:06 (WEA03)	07:27		08:17 (WEA02)	06:25		07:22 (WEA01)	06:16		07:00 (B086)	05:23		06:22 (B014)	05:04		06:01 (B050)	05:29		06:31 (B014)	06:16		07:04 (B086)	07:06		08:07 (WEA01)	07:56		08:52 (WEA02)	07:50		08:42 (WEA03)	08:27		09:43 (B253)
	16:51	18	09:24 (WEA03)	17:47	23	08:40 (B013)	18:37	47	08:09 (WEA01)	20:29	26	07:28 (B152)	21:17	20	06:42 (B014)	21:45	41	06:56 (B014)	21:28	22	06:53 (B014)	20:35	27	07:33 (B152)	19:25	48	08:55 (WEA01)	18:18	19	09:11 (B013)	16:26	17	08:59 (WEA03)	16:15	10	09:53 (B253)
23	08:16		09:05 (WEA03)	07:24		08:14 (WEA02)	06:23		07:22 (WEA01)	06:14		06:59 (B086)	05:22		06:21 (B014)	05:05		06:01 (B050)	05:30		06:32 (B014)	06:18		07:06 (B086)	07:08		08:08 (WEA01)	07:58		08:56 (B013)	07:52		08:43 (WEA03)	08:27		09:43 (B253)
	16:53	20	09:25 (WEA03)	17:49	26	08:40 (B013)	18:38	47	08:09 (WEA01)	20:31	30	07:29 (B152)	21:18	22	06:43 (B014)	21:45	41	06:56 (B014)	21:27	20	06:52 (B014)	20:33	23	07:33 (B152)	19:23	46	08:54 (WEA01)	18:16	14	09:10 (B013)	16:25	14	08:57 (WEA03)	16:15	10	09:53 (B253)
24	08:15		09:04 (WEA03)	07:22		08:11 (WEA02)	06:20		07:21 (WEA01)	06:11		06:58 (B086)	05:20		06:20 (B014)	05:05		06:02 (B050)	05:32		06:34 (B014)	06:20		07:08 (B086)	07:09		08:08 (WEA01)	08:00		08:56 (B013)	07:54		08:46 (WEA03)	08:28		09:43 (B253)
	16:55	23	09:27 (WEA03)	17:51	28	08:39 (B013)	18:40	49	08:10 (WEA01)	20:32	31	07:29 (B152)	21:20	24	06:44 (B014)	21:45	40	06:57 (B014)	21:26	16	06:56 (B014)	20:31	13	07:30 (B152)	19:20	45	08:53 (WEA02)	18:14	13	09:09 (B013)	16:24	9	08:55 (WEA03)	16:16	10	09:53 (B253)
25	08:14		09:04 (WEA03)	07:20		08:09 (WEA02)	06:18		06:59 (B223)	06:09		06:57 (B086)	05:19		06:19 (B014)	05:05		06:19 (B014)	05:33		06:37 (B014)	06:21		07:23 (B152)	07:11		08:09 (WEA01)	08:01		08:57 (B013)	07:55				08:28		09:44 (B253)
	16:56	24	09:28 (WEA03)	17:53	29	08:38 (B013)	18:42	58	08:10 (WEA01)	20:34	32	07:29 (B152)	21:21	27	06:46 (B014)	21:45	38	06:57 (B014)	21:25	11	06:48 (B014)	20:28	4	07:27 (B152)	19:18	43	08:52 (WEA01)	18:12	11	09:08 (B013)	16:23				16:16	10	09:54 (B253)
26	08:13		09:03 (WEA03)	07:18		08:08 (WEA02)	07:16		07:56 (B223)	06:07		06:41 (B087)	05:18		06:19 (B014)	05:05		06:18 (B014)	05:35			06:23			07:13		08:10 (WEA01)	08:03		08:59 (B013)	07:57				08:28		09:44 (B253)
	16:58	26	09:29 (WEA03)	17:55	29	08:37 (WEA02)	19:43	62	09:09 (WEA01)	20:36	40	07:29 (B152)	21:22	27	06:46 (B014)	21:45	39	06:57 (B014)	21:23			20:26			19:16	41	08:51 (WEA01)	18:10	7	09:06 (B013)	16:22				16:17	10	09:54 (B253)
27	08:11		09:03 (WEA03)	07:16		08:07 (WEA02)	07:13		07:55 (B223)	06:05		06:39 (B087)	05:17		06:18 (B014)	05:06		06:19 (B014)	05:36			06:24			07:14		08:10 (WEA01)	08:05							07:58		09:44 (B253)
	17:00	27	09:30 (WEA03)	17:56	31	08:38 (WEA02)	19:45	65	09:09 (WEA01)	20:37	43	07:29 (B152)	21:24	29	06:47 (B014)	21:45	39	06:58 (B014)	21:22			20:24			19:14	39	08:49 (WEA01)	18:08							16:21		09:55 (B253)
28	08:10		09:02 (WEA03)	07:14		08:06 (WEA02)	07:11		07:54 (B223)	06:03		06:38 (B087)	05:16		06:17 (B014)	05:06		06:19 (B014)	05:37			06:26			07:16		08:09 (B124)	08:07							08:00		09:45 (B253)
	17:02	28	09:30 (WEA03)	17:58	33	08:39 (WEA02)	19:47	67	09:09 (WEA01)	20:39	44	07:28 (B152)	21:25	31	06:48 (B014)	21:45	38	06:57 (B014)	21:20			20:22			19:11	38	08:47 (WEA01)	18:06							16:20		09:55 (B253)
29	08:09		09:02 (WEA03)				07:09		07:53 (B223)	06:01		06:37 (B087)	05:15		06:17 (B014)	05:07		06:20 (B014)	05:39			06:28			07:17		08:06 (B124)	07:08							08:02		09:46 (B253)
	17:03	29	09:31 (WEA03)				19:48	67	09:08 (WEA01)	20:41	43	07:27 (B152)	21:26	31	06:48 (B014)	21:45	38	06:58 (B014)	21:19			20:20			19:09	50	09:04 (WEA02)	17:04							16:19	9	09:55 (B253)
30	08:07		09:02 (WEA03)				07:07		07:53 (B223)	05:59		06:37 (B087)	05:14		06:16 (B014)	05:07		06:20 (B014)	05:40			06:29			07:19		08:05 (B124)	07:10		08:42 (WEA03)	08:03				08:29	9	09:47 (B253)
	17:05	29	09:31 (WEA03)				19:50	68	09:08 (WEA01)	20:42	40	07:27 (B152)	21:27	33	06:49 (B014)	21:45	38	06:58 (B014)	21:17			20:18			19:07	57	09:08 (WEA02)	17:02	11	08:53 (WEA03)	16:18				16:20	9	09:56 (B253)
31	08:06		09:01 (WEA03)				07:04		07:53 (B223)				05:13		06:16 (B014)				05:42			06:31						07:12		08:39 (WEA03)					08:29		09:47 (B253)
	17:07	30	09:31 (WEA03)				19:52	67	09:07 (WEA01)				21:28	33	06:49 (B014)				21:16			20:15						17:00	16	08:55 (WEA03)					16:21	8	09:55 (B253)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	302			727			1531			967			416			1138			779			480			1547			915			745			192		
Red.Sonnenscheinwahrsch.	0.19			0.32			0.26			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.56			0.59			0.67			0.70			0.74			0.74			0.74			0.73			0.68			0.64			0.57			0.54		
Gesamte Reduktion	0.10			0.18			0.18			0.24			0.30			0.24			0.27			0.28			0.21			0.18			0.12			0.09		
Met.wahrsch.Beschattung	30			133			275			235			125			271			214			134			319			161			91			17		

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: Dörenhagen GB Schattenrezeptor: IO070 - Sebastianstr. 47, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		09:47 (B253)	08:04		08:43 (B178)	07:12		08:03 (WEA02)	07:02		07:50 (B223)	05:57		06:35 (B087)	05:12		06:14 (B014)	05:08		06:17 (B014)	05:43			06:32		08:20 (WEA01)	07:21		08:02 (B124)	07:14		08:12 (B178)	08:04		
	16:22	8	09:55 (B253)	17:09	35	09:31 (WEA03)	18:00	33	08:36 (WEA02)	19:54	68	09:03 (WEA01)	20:44	42	07:24 (B152)	21:30	31	06:45 (B014)	21:45	37	06:54 (B014)	21:14			20:13	27	08:47 (WEA01)	19:04	50	09:10 (WEA02)	16:58	31	08:57 (WEA03)	16:18		
2	08:29		09:48 (B253)	08:03		08:41 (B178)	07:10		08:02 (WEA02)	07:00		07:31 (B223)	05:56		06:34 (B087)	05:11		06:14 (B014)	05:09		06:17 (B014)	05:45			06:34		07:53 (B153)	07:22		08:01 (B124)	07:16		08:10 (B178)	08:06		
	16:23	7	09:55 (B253)	17:11	40	09:31 (WEA03)	18:02	34	08:36 (WEA02)	19:55	67	09:03 (WEA01)	20:46	39	07:23 (B152)	21:31	31	06:45 (B014)	21:44	36	06:53 (B014)	21:13			20:11	38	08:49 (WEA01)	19:02	48	09:10 (WEA02)	16:57	37	08:59 (WEA03)	16:17		
3	08:29		09:49 (B253)	08:01		08:40 (B178)	07:08		08:02 (WEA02)	06:57		07:51 (B223)	05:54		06:34 (B087)	05:10		06:13 (B014)	05:09		06:17 (B014)	05:46			06:36		07:49 (B153)	07:24		08:01 (B124)	07:17		08:09 (B178)	08:07		
	16:24	7	09:56 (B253)	17:12	42	09:31 (WEA03)	18:04	35	08:37 (WEA02)	19:57	67	09:02 (WEA01)	20:47	28	07:22 (B152)	21:32	33	06:46 (B014)	21:44	37	06:54 (B014)	21:11			20:09	47	08:50 (WEA01)	19:00	50	09:11 (WEA02)	16:55	40	08:59 (WEA03)	16:16		
4	08:29		09:51 (B253)	08:00		08:40 (B178)	07:05		08:02 (WEA02)	06:55		07:50 (B153)	05:52		06:34 (B087)	05:10		06:13 (B014)	05:10		06:18 (B014)	05:48			06:37		07:48 (B153)	07:26		08:02 (B124)	07:19		08:08 (B178)	08:09		
	16:25	4	09:55 (B253)	17:14	44	09:32 (WEA03)	18:05	35	08:37 (WEA02)	19:59	68	09:02 (WEA01)	20:49	25	07:20 (B152)	21:33	34	06:47 (B014)	21:44	36	06:54 (B014)	21:09			20:06	53	08:52 (WEA01)	18:57	51	09:12 (WEA02)	16:53	42	08:59 (WEA03)	16:16		
5	08:29			07:58		08:39 (B178)	07:03		08:01 (WEA02)	06:53		07:49 (B153)	05:50		06:35 (B087)	05:09		06:13 (B014)	05:11		06:19 (B014)	05:49			06:39		07:47 (B153)	07:27		08:02 (B124)	07:21		08:08 (B178)	08:10		
	16:26			17:16	44	09:31 (WEA03)	18:07	37	08:38 (WEA02)	20:00	66	09:00 (WEA01)	20:51	17	07:17 (B152)	21:34	34	06:47 (B014)	21:43	35	06:54 (B014)	21:08			20:04	57	08:53 (WEA01)	18:55	51	09:12 (WEA02)	16:51	44	09:00 (WEA03)	16:15		
6	08:29			07:56		08:38 (B178)	07:01		08:00 (WEA02)	06:51		07:49 (B153)	05:48		06:36 (B087)	05:08		06:12 (B014)	05:12		06:18 (B014)	05:51		06:49 (B087)	06:40		07:45 (B153)	07:29		08:03 (B124)	07:23		08:08 (B178)	08:11		
	16:28			17:18	45	09:31 (WEA03)	18:09	37	08:37 (WEA02)	20:02	65	08:59 (WEA01)	20:52	11	06:47 (B087)	21:35	35	06:47 (B014)	21:43	35	06:53 (B014)	21:06	4	06:53 (B087)	20:02	61	08:54 (WEA01)	18:53	49	09:12 (WEA02)	16:49	45	09:01 (WEA03)	16:15		
7	08:28			07:55		08:38 (B178)	06:59		07:32 (B124)	06:48		07:49 (B153)	05:46		06:36 (B087)	05:08		06:13 (B014)	05:12		06:19 (B014)	05:52		06:47 (B087)	06:42		07:45 (B153)	07:31		08:04 (B124)	07:24		08:09 (B178)	08:13		
	16:29			17:20	45	09:31 (WEA03)	18:11	40	08:37 (WEA02)	20:04	63	08:58 (WEA01)	20:54	10	06:46 (B087)	21:36	35	06:48 (B014)	21:42	35	06:54 (B014)	21:04	9	06:56 (B087)	20:00	64	08:55 (WEA01)	18:51	47	09:13 (WEA02)	16:48	44	09:01 (WEA03)	16:14		
8	08:28			07:53		08:39 (B178)	06:57		07:28 (B124)	06:46		07:50 (B153)	05:45		06:39 (B087)	05:07		06:12 (B014)	05:13		06:19 (B014)	05:54		06:45 (B087)	06:44		07:44 (B153)	07:32		08:06 (B124)	07:26		08:09 (B178)	08:14		
	16:30			17:22	43	09:31 (WEA03)	18:12	48	08:37 (WEA02)	20:05	59	08:57 (WEA01)	20:55	5	06:44 (B087)	21:37	36	06:48 (B014)	21:42	35	06:54 (B014)	21:02	12	06:57 (B087)	19:57	66	08:55 (WEA01)	18:48	41	09:13 (WEA02)	16:46	44	09:01 (WEA03)	16:14		
9	08:28			07:51		08:40 (B178)	06:54		07:26 (B124)	06:44		07:50 (B153)	05:43			05:06		06:13 (B014)	05:14		06:20 (B014)	05:56		06:45 (B087)	06:45		07:44 (B153)	07:34		08:35 (WEA02)	07:28		08:10 (B178)	08:15		09:39 (B253)
	16:31			17:23	41	09:30 (WEA03)	18:14	49	08:35 (WEA02)	20:07	56	08:56 (WEA01)	20:57			21:38	35	06:48 (B014)	21:41	34	06:54 (B014)	21:00	13	06:58 (B087)	19:55	66	08:55 (WEA01)	18:46	37	09:12 (WEA02)	16:44	43	09:02 (WEA03)	16:14	3	09:42 (B253)
10	08:27			07:49		08:40 (B178)	06:52		07:25 (B124)	06:42		07:50 (B153)	05:41			05:06		06:13 (B014)	05:15		06:20 (B014)	05:57		06:43 (B087)	06:47		07:44 (B153)	07:36		08:35 (WEA02)	07:30		08:11 (B178)	08:16		09:38 (B253)
	16:33			17:25	38	09:29 (WEA03)	18:16	51	08:35 (WEA02)	20:09	50	08:53 (WEA01)	20:59			21:38	36	06:49 (B014)	21:40	34	06:54 (B014)	20:59	24	07:29 (B152)	19:53	67	08:55 (WEA01)	18:44	37	09:12 (WEA02)	16:43	42	09:02 (WEA03)	16:13	5	09:43 (B253)
11	08:27			07:48		08:41 (B178)	06:50		07:24 (B124)	06:39		07:52 (B153)	05:39			05:06		06:12 (B014)	05:16		06:21 (B014)	05:59		06:44 (B087)	06:48		07:44 (B223)	07:37		08:36 (WEA02)	07:32		08:13 (B178)	08:17		09:39 (B253)
	16:34			17:27	34	09:28 (WEA03)	18:18	51	08:34 (WEA02)	20:10	43	08:51 (WEA01)	21:00			21:39	37	06:49 (B014)	21:40	33	06:54 (B014)	20:57	27	07:31 (B152)	19:51	68	08:56 (WEA01)	18:42	36	09:12 (WEA02)	16:41	38	09:02 (WEA03)	16:13	7	09:46 (B253)
12	08:26			07:46		08:43 (B178)	06:48		07:24 (B124)	06:37		08:20 (WEA01)	05:38			05:05		06:13 (B014)	05:17		06:22 (B014)	06:00		06:43 (B087)	06:50		07:43 (B223)	07:39		08:36 (WEA02)	07:33		08:14 (B178)	08:18		09:38 (B253)
	16:36			17:29	28	09:27 (WEA03)	18:19	49	08:33 (WEA02)	20:12	29	08:49 (WEA01)	21:02			21:40	36	06:49 (B014)	21:39	31	06:53 (B014)	20:55	36	07:31 (B152)	19:48	67	08:55 (WEA01)	18:40	35	09:11 (WEA02)	16:40	30	09:02 (WEA03)	16:13	8	09:46 (B253)
13	08:25			07:44		09:08 (WEA03)	06:45		07:22 (B124)	06:35		08:22 (WEA01)	05:36			05:05		06:13 (B014)	05:18		06:22 (B014)	06:02		06:43 (B087)	06:52		07:42 (B223)	07:41		08:36 (WEA02)	07:35		08:32 (WEA03)	08:19		09:38 (B253)
	16:37			17:31	17	09:25 (WEA03)	18:21	48	08:31 (WEA02)	20:14	25	08:47 (WEA01)	21:03			21:41	37	06:50 (B014)	21:38	31	06:53 (B014)	20:53	42	07:33 (B152)	19:46	68	08:56 (WEA01)	18:37	34	09:10 (WEA02)	16:38	30	09:02 (WEA03)	16:13	9	09:47 (B253)
14	08:25			07:42		09:10 (WEA03)	06:43		07:23 (B124)	06:33		08:25 (WEA01)	05:35			05:05		06:13 (B014)	05:19		06:23 (B014)	06:03		06:43 (B087)	06:53		07:41 (B223)	07:42		08:36 (WEA02)	07:37		08:33 (WEA03)	08:20		09:38 (B253)
	16:38			17:33	12	09:22 (WEA03)	18:23	51	08:30 (WEA02)	20:15	18	08:43 (WEA01)	21:05			21:41	37	06:50 (B014)	21:37	30	06:53 (B014)	20:51	44	07:33 (B152)	19:44	67	08:55 (WEA01)	18:35	33	09:09 (WEA02)	16:37	29	09:02 (WEA03)	16:13	10	09:48 (B253)
15	08:24			07:40		06:41			07:23 (B124)	06:31		08:29 (WEA01)	05:33			05:04		06:14 (B014)	05:20		06:23 (B014)	06:05		06:44 (B087)	06:55		07:41 (B223)	07:44		08:37 (WEA02)	07:39		08:34 (WEA03)	08:21		09:39 (B253)
	16:40			17:35		08:28 (WEA02)	20:17	9	08:38 (WEA01)	21:06			21:42	37	06:51 (B014)	21:36	29	06:52 (B014)	20:49	43	07:33 (B152)	19:41	67	08:55 (WEA01)	18:33	31	09:08 (WEA02)	16:35	28	09:02 (WEA03)	16:13	10	09:49 (B253)
16	08:23			07:38		06:39			07:23 (B124)	06:28			05:31			05:04		06:14 (B014)	05:22		06:24 (B014)	06:07		06:44 (B087)	06:56		07:42 (B223)	07:46		08:38 (WEA02)	07:40		08:34 (WEA03)	08:22		09:39 (B253)
	16:42			17:36		18:26	52	08:25 (WEA02)	20:19				21:08			21:42	37	06:51 (B014)	21:35	28	06:52 (B014)	20:47	43	07:33 (B152)	19:39	66	08:55 (WEA01)	18:31	29	09:07 (WEA02)	16:34	27	09:01 (WEA03)	16:13	11	09:50 (B253)
17	08:22			07:36		06:36			07:24 (B124)	06:26			05:30			05:04		06:14 (B014)	05:23		06:25 (B014)	06:08		06:46 (B087)	06:58		07:42 (B223)	07:48		08:39 (WEA02)	07:42		08:34 (WEA03)	08:23		09:38 (B253)
	16:43			17:38		18:28	48	08:22 (WEA02)	20:20				21:09			21:43	37	06:51 (B014)	21:34	26	06:51 (B014)	20:45	40	07:33 (B152)	19:37	64	08:54 (WEA01)	18:29	29	09:08 (B013)	16:32	26	09:00 (WEA03)	16:13	11	09:49 (B253)
18	08:21			07:35		08:28 (B013)	06:34		07:26 (B124)	06:24			05:28			05:04		06:14 (B014)	05:24		06:26 (B014)	06:10		06:48 (B087)	07:00		07:43 (B223)	07:49		08:40 (WEA02)	07:44		08:36 (WEA03)	08:24		09:39 (B253)
	16:45			17:40	5	08:33 (B013)	18:30	35	08:01 (WEA01)	20:22			21:11			21:43	37	06:51 (B014)	21:33	24	06:50 (B014)	20:43	34	07:32 (B152)	19:34	62	08:54 (WEA01)	18:27	28	09:08 (B013)	16:31	23	08:59 (WEA03)	16:13	11	09:50 (B253)
19	08:20			07:33		08:26 (B013)	06:32		07:24 (WEA01)	06:22			05:27			05:04		06:14 (B014)	05:25		06:27 (B014)	06:11		07:02 (B086)	07:01		07:44 (B223)	07:51		08:42 (WEA02)	07:45		08:37 (WEA03)	08:25		09:40 (B253)
	16:46			17:42	10	08:36 (B013)	18:31	37	08:01 (WEA02)	20:24			21:12			21:44	38	06:52 (B014)	21:32	22	06:49 (B014)	20:41	30	07:32 (B152)	19:32	57	08:53 (WEA01)	18:24	27	09:09 (B013)	16:30	22	08:59 (WEA03)	16:14	11	09:51 (B253)
20	08:19		09:10 (WEA03)	07:31		08:25 (B013)	06:29		07:23 (WEA01)	06:20			05:26			05:04		06:14 (B014)	05:27		06:29 (B014)	06:13		07:01 (B086)	07:03		08:04 (WEA01)	07:53		08:45 (WEA02)	07:47		08:38 (WEA03)	08:25		09:39 (B253)
	16:48	6	09:16 (WEA03)	17:44	12	08:37 (B013)	18:33	40	08:03 (WEA02)	20:26			21:14			21:44	38	06:52 (B014)	21:31	20	06:49 (B014)	20:39	30	07:31 (B152)	19:30	48	08:52 (WEA01)	18:22	24	09:09 (B013)	16:29	20	08:58 (WEA03)	16:14	12	09:51 (B253)
21	08:18		09:07 (WEA03)	07:29		08:24 (B013)	06:27		07:22 (WEA01)	06:18		07:17 (B152)	05:24			05:04		06:14 (B014)	05:28		06:30 (B014)	06:15		07:03 (B086)	07:04		08:05 (WEA01)	07:54		08:54 (B013)	07:49		08:40 (WEA03)	08:26		09:40 (B253)
	16:50	12	09:19 (WEA03)	17:46	14	08:38 (B013)	18:35	42	08:04 (WEA01)	20:27	2	07:19 (B152)	21:15			21:44	38	06:52 (B014)	21:30	17	06:47 (B014)	20:37	25	07:30 (B152)	19:27	47	08:52 (WEA01)	18:20	15	09:09 (B013)	16:27	17	08:57 (WEA03)	16:14	12	09:52 (B253)
22	08:17		09:06 (WEA03)	07:27		08:23 (B013)	06:25		07:20 (WEA01)	06:16		07:00 (B086)	05:23		06:25 (B014)	05:04		06:14 (B014)	05:29		06:32 (B014)	06:16		07:04 (B086)	07:06		08:05 (WEA01)	07:56		08:54 (B013)	07:50		08:42 (WEA03)	08:27		09:41 (B253)
	16:51	16	09:22 (WEA03)	17:47	15	08:38 (B013)	18:37	44	08:04 (WEA01)	20:29	16	07:23 (B152)	21:17	6	06:31 (B014)	21:45	38	06:52 (B014)	21:28	13	06:45 (B014)	20:35	18	07:28 (B152)	19:25	45	08:50 (WEA01)	18:18	15	09:09 (B013)	16:26	14	08:56 (WEA03)	16:15	12	09:53 (B253)
23	08:16		09:04 (WEA03)	07:24		08:15 (WEA02)	06:23		07:19 (WEA01)	06:14		06:58 (B086)	05:22		06:22 (B014)	05:05		06:14 (B014)	05:30		06:35 (B014)	06:18		07:19 (B152)	07:08		08:06 (WEA01)	07:58		08:55 (B013)	07:52		08:44 (WEA03)	08:27		09:41 (B253)
	16:53	19	09:23 (WEA03)	17:49	23	08:38 (B013)	18:38	46	08:05 (WEA01)	20:31	23	07:24 (B152)	21:18	13	06:35 (B014)	21:45	38	06:52 (B014)	21:27	6	06:41 (B014)	20:33	7	07:26 (B152)	19:23	43	08:49 (WEA01)	18:16	13	09:08 (B013)	16:25	9	08:53 (WEA03)	16:15	12	09:53 (B253)
24	08:15		09:03 (WEA03)	07:22		08:11 (WEA02)	06:20		07:18 (WEA01)	06:11		06:56 (B086)	05:20		06:20 (B014)	05:05		06:15 (B014)	05:32		06:20 (B014)	06:20			07:09		08:06 (WEA01)	08:00		08:55 (B013)	07:54			08:28		09:41 (B253)
	16:55	21	09:24 (WEA03)	17:51	26	08:37 (B013)	18:40	47	08:05 (WEA01)	20:32	29	07:25 (B152)	21:20	17	06:37 (B014)	21:45	38	06:53 (B014)	21:26			20:31			19:20	41	08:47 (WEA01)	18:14	11	09:06 (B013)	16:24			16:16	12	09:53 (B253)
25	08:14		09:03 (WEA03)	07:20		08:09 (WEA02)	06:18		07:18 (WEA01)	06:09		06:55 (B086)	05:19		06:19 (B014)	05:05		06:15 (B014)	05:33		06:21			07:11		08:07 (WEA01)	08:01		08:57 (B013)	07:55			08:28		09:42 (B253)
	16:56	23	09:26 (WEA03)	17:53	28	08:37 (B013)	18:42	48	08:06 (WEA01)	20:34	30	07:25 (B152)	21:21	19	06:38 (B014)	21:45	38	06:53 (B014)	21:25			20:28			19:18	39	08:46 (WEA01)	18:12	7	09:04 (B013)	16:23			16:16	12	09:54 (B253)
26	08:13		09:02 (WEA03)	07:18		08:07 (WEA02)	07:16		07:56 (B223)	06:07		06:55 (B086)	05:18		06:18 (B014)	05:05		06:15 (B014)	05:35		06:23			07:13		08:08 (WEA01)	08:03			07:57			08:28		09:43 (B253)
	16:58	25	09:27 (WEA03)	17:55	29	08:36 (B013)	19:43	58	09:05 (WEA01)	20:36	31	07:26 (B152)	21:22	22	06:40 (B014)	21:45	37	06:52 (B014)	21:23			20:26			19:16	37	08:45 (WEA01)	18:10			16:22			16:17	11	09:54 (B253)
27	08:11		09:02 (WEA03)	07:16		08:06 (WEA02)	07:13		07:54 (B223)	06:05		06:39 (B087)	05:17		06:17 (B014)	05:06		06:16 (B014)	05:36		06:24			07:14		08:07 (B124)	08:05			07:58			08:29		09:43 (B253)
	17:00	26	09:28 (WEA03)	17:56	29	08:35 (WEA02)	19:45	63	09:06 (WEA01)	20:37	39	07:26 (B152)	21:24	24	06:41 (B014)	21:45	37	06:53 (B014)	21:22			20:24			19:14	35	08:42 (WEA01)	18:08			16:21			16:18	11	09:54 (B253)
28	08:10		09:01 (WEA03)	07:14		08:05 (WEA02)	07:11		07:53 (B223)	06:03		06:37 (B087)	05:16		06:16 (B014)	05:06		06:16 (B014)	05:37		06:26			07:16		08:06 (B124)	08:07			08:00			08:29		09:44 (B253)
	17:02	27	09:28 (WEA03)	17:58	31	08:36 (WEA02)	19:47	65	09:06 (WEA01)	20:39	42	07:25 (B152)	21:25	26	06:42 (B014)	21:45	37	06:53 (B014)	21:20			20:22			19:11	48	09:04 (WEA02)	18:06			16:20			16:18	10	09:54 (B253)
29	08:09		09:01 (WEA03)				07:09		07:51 (B223)	06:01		06:35 (B087)	05:15		06:15 (B014)	05:07		06:17 (B014)	05:39		06:28			07:17		08:04 (B124)	07:08		08:41 (WEA03)	08:02			08:29		09:44 (B253)
	17:03	29	09:30 (WEA03)				19:48	68	09:05 (WEA01)	20:41	45	07:25 (B152)	21:26	28	06:43 (B014)	21:45	37	06:54 (B014)	21:19			20:20			19:09	53	09:06 (WEA02)	17:04	9	08:50 (WEA03)	16:19			16:19	11	09:55 (B253)
30	08:07		09:01 (WEA03)				07:07		07:51 (B223)	05:59		06:35 (B087)	05:14		06:14 (B014)	05:07		06:16 (B014)	05:40		06:29	08:26 (WEA01)	07:19		08:03 (B124)	07:10		08:38 (WEA03)	08:03			08:29		09:46 (B253)
	17:05	29	09:30 (WEA03)				19:50	68	09:05 (WEA01)	20:42	45	07:25 (B152)	21:27	29	06:43 (B014)	21:45	37	06:53 (B014)	21:17			20:18	15	08:41 (WEA01)	19:07	55	09:08 (WEA02)	17:02	16	08:54 (WEA03)	16:18			16:20	10	09:56 (B253)
31	08:06		09:00 (WEA03)				07:04		07:51 (B223)				05:13		06:14 (B014)				05:42			06:31		08:23 (WEA01)				07:12		08:14 (B178)				08:29		09:45 (B253)
	17:07	30	09:30 (WEA03)				19:52	68	09:05 (WEA01)				21:28	30	06:44 (B014)				21:16			20:15	22	08:45 (WEA01)				17:00	24	08:56 (WEA03)				16:21	10	09:55 (B253)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung	289			730			1482			1055			391			1086			664			518			1623			877			725			231		
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung	0.56			0.59			0.67			0.70			0.74			0.74			0.74			0.73			0.68			0.64			0.57			0.54		
Gesamte Reduktion	0.10			0.18			0.18			0.24			0.30			0.24			0.27			0.28			0.21			0.18			0.12			0.09		
Met.wahrsch.Beschattung	29			133			267			256			118			259			182			144			337			154			89			20		

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: Dörenhagen GB Schattenrezeptor: IO071 - Sebastianstr. 49, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		09:43 (B253)	08:04		08:58 (WEA03)	07:12		08:01 (WEA02)	07:02		07:47 (B223)	05:57		06:33 (B087)	05:12		06:12 (B014)	05:08		06:14 (B014)	05:43		06:32		07:46 (B153)	07:21		07:59 (B124)	07:14		08:08 (B178)	08:04			
	16:22	11	09:54 (B253)	17:09	30	09:28 (WEA03)	18:00	29	08:30 (WEA02)	19:54	68	08:58 (WEA01)	20:44	43	07:21 (B152)	21:30	26	06:38 (B014)	21:45	34	06:48 (B014)	21:14		20:13	49	08:46 (WEA01)	19:04	50	09:08 (WEA02)	16:58	38	08:56 (WEA03)	16:18			
2	08:29		09:44 (B253)	08:03		08:42 (B178)	07:10		08:00 (WEA02)	07:00		07:47 (B223)	05:56		06:32 (B087)	05:11		06:11 (B014)	05:09		06:13 (B014)	05:45		06:34		07:45 (B153)	07:22		07:59 (B124)	07:16		08:07 (B178)	08:06			
	16:23	10	09:54 (B253)	17:11	33	09:28 (WEA03)	18:02	31	08:31 (WEA02)	19:55	68	08:58 (WEA01)	20:46	43	07:20 (B152)	21:31	28	06:39 (B014)	21:44	35	06:48 (B014)	21:13		20:11	55	08:48 (WEA01)	19:02	51	09:08 (WEA02)	16:57	42	08:57 (WEA03)	16:17			
3	08:29		09:45 (B253)	08:01		08:39 (B178)	07:08		07:59 (WEA02)	06:57		07:47 (B223)	05:54		06:32 (B087)	05:10		06:10 (B014)	05:09		06:14 (B014)	05:46		06:36		07:43 (B153)	07:24		07:59 (B124)	07:17		08:06 (B178)	08:07			
	16:24	10	09:55 (B253)	17:12	39	09:28 (WEA03)	18:04	33	08:32 (WEA02)	19:57	68	08:58 (WEA01)	20:47	40	07:19 (B152)	21:32	29	06:39 (B014)	21:44	34	06:48 (B014)	21:11		20:09	58	08:48 (WEA01)	19:00	53	09:09 (WEA02)	16:55	43	08:57 (WEA03)	16:16			
4	08:29		09:46 (B253)	08:00		08:38 (B178)	07:05		07:58 (WEA02)	06:55		07:47 (B153)	05:52		06:31 (B087)	05:10		06:11 (B014)	05:10		06:15 (B014)	05:48		06:37		07:42 (B153)	07:26		08:00 (B124)	07:19		08:06 (B178)	08:09			
	16:25	9	09:55 (B253)	17:14	42	09:29 (WEA03)	18:05	35	08:33 (WEA02)	19:59	68	08:57 (WEA01)	20:49	36	07:18 (B152)	21:33	30	06:41 (B014)	21:44	33	06:48 (B014)	21:09		20:06	62	08:49 (WEA01)	18:57	51	09:09 (WEA02)	16:53	44	08:57 (WEA03)	16:16			
5	08:29		09:46 (B253)	07:58		08:37 (B178)	07:03		07:58 (WEA02)	06:53		07:45 (B153)	05:50		06:32 (B087)	05:09		06:10 (B014)	05:11		06:15 (B014)	05:49		06:46 (B087)	06:39		07:42 (B153)	07:27		08:00 (B124)	07:21		08:06 (B178)	08:10			
	16:26	8	09:54 (B253)	17:16	45	09:29 (WEA03)	18:07	35	08:33 (WEA02)	20:00	69	08:56 (WEA01)	20:51	28	07:18 (B152)	21:34	31	06:41 (B014)	21:43	33	06:48 (B014)	21:08	6	06:52 (B087)	20:04	65	08:50 (WEA01)	18:55	51	09:09 (WEA02)	16:51	46	08:58 (WEA03)	16:15			
6	08:29		09:48 (B253)	07:56		08:36 (B178)	07:01		07:56 (WEA02)	06:51		07:45 (B153)	05:48		06:32 (B087)	05:08		06:09 (B014)	05:12		06:15 (B014)	05:51		06:44 (B087)	06:40		07:41 (B153)	07:29		08:02 (B124)	07:23		08:06 (B178)	08:11			
	16:28	6	09:54 (B253)	17:18	46	09:28 (WEA03)	18:09	37	08:33 (WEA02)	20:02	68	08:55 (WEA01)	20:52	24	07:16 (B152)	21:35	32	06:41 (B014)	21:43	33	06:48 (B014)	21:06	9	06:53 (B087)	20:02	66	08:50 (WEA01)	18:53	47	09:09 (WEA02)	16:49	46	08:58 (WEA03)	16:15			
7	08:28		09:49 (B253)	07:55		08:36 (B178)	06:59		07:56 (WEA02)	06:48		07:45 (B153)	05:46		06:32 (B087)	05:08		06:10 (B014)	05:12		06:16 (B014)	05:52		06:43 (B087)	06:42		07:41 (B153)	07:31		08:32 (WEA02)	07:24		08:07 (B178)	08:13		09:35	(B253)
	16:29	4	09:53 (B253)	17:20	46	09:28 (WEA03)	18:11	37	08:33 (WEA02)	20:04	67	08:54 (WEA01)	20:54	19	07:13 (B152)	21:36	32	06:42 (B014)	21:42	32	06:48 (B014)	21:04	16	07:23 (B152)	20:00	68	08:51 (WEA01)	18:51	37	09:09 (WEA02)	16:48	44	08:58 (WEA03)	16:14	5	09:40	(B253)
8	08:28			07:53		08:37 (B178)	06:57		07:56 (WEA02)	06:46		07:45 (B153)	05:45		06:34 (B087)	05:07		06:09 (B014)	05:13		06:16 (B014)	05:54		06:42 (B087)	06:44		07:40 (B153)	07:32		08:32 (WEA02)	07:26		08:07 (B178)	08:14		09:34	(B253)
	16:30			17:22	45	09:29 (WEA03)	18:12	37	08:33 (WEA02)	20:05	66	08:54 (WEA01)	20:55	10	06:44 (B087)	21:37	33	06:42 (B014)	21:42	32	06:48 (B014)	21:02	23	07:25 (B152)	19:57	69	08:51 (WEA01)	18:48	37	09:09 (WEA02)	16:46	44	08:58 (WEA03)	16:14	7	09:41	(B253)
9	08:28			07:51		08:37 (B178)	06:54		07:25 (B124)	06:44		07:45 (B153)	05:43		06:35 (B087)	05:06		06:10 (B014)	05:14		06:17 (B014)	05:56		06:42 (B087)	06:45		07:41 (B153)	07:34		08:31 (WEA02)	07:28		08:09 (B178)	08:15		09:34	(B253)
	16:31			17:23	44	09:28 (WEA03)	18:14	47	08:32 (WEA02)	20:07	64	08:53 (WEA01)	20:57	7	06:42 (B087)	21:38	33	06:43 (B014)	21:41	31	06:48 (B014)	21:00	27	07:27 (B152)	19:55	68	08:51 (WEA01)	18:46	37	09:08 (WEA02)	16:44	41	08:59 (WEA03)	16:14	8	09:42	(B253)
10	08:27			07:49		08:37 (B178)	06:52		07:23 (B124)	06:42		07:44 (B153)	05:41			05:06		06:10 (B014)	05:15		06:18 (B014)	05:57		06:41 (B087)	06:47		07:41 (B223)	07:36		08:32 (WEA02)	07:30		08:11 (B178)	08:16		09:33	(B253)
	16:33			17:25	42	09:27 (WEA03)	18:16	51	08:32 (WEA02)	20:09	61	08:51 (WEA01)	20:59			21:38	33	06:43 (B014)	21:40	29	06:47 (B014)	21:02	32	07:27 (B152)	19:53	67	08:51 (WEA01)	18:44	35	09:07 (WEA02)	16:43	37	08:59 (WEA03)	16:13	10	09:43	(B253)
11	08:27			07:48		08:38 (B178)	06:50		07:22 (B124)	06:39		07:45 (B153)	05:39			05:06		06:09 (B014)	05:16		06:18 (B014)	05:59		06:41 (B087)	06:48		07:40 (B223)	07:37		08:32 (WEA02)	07:32		08:28 (WEA03)	08:17		09:34	(B253)
	16:34			17:27	40	09:27 (WEA03)	18:18	51	08:31 (WEA02)	20:10	56	08:49 (WEA01)	21:00			21:39	34	06:43 (B014)	21:40	29	06:47 (B014)	20:57	40	07:29 (B152)	19:51	67	08:51 (WEA01)	18:42	35	09:07 (WEA02)	16:41	31	08:59 (WEA03)	16:13	11	09:45	(B253)
12	08:26			07:46		08:39 (B178)	06:48		07:21 (B124)	06:37		07:46 (B153)	05:38			05:05		06:09 (B014)	05:17		06:19 (B014)	06:00		06:40 (B087)	06:50		07:39 (B223)	07:39		08:33 (WEA02)	07:33		08:29 (WEA03)	08:18		09:34	(B253)
	16:36			17:29	34	09:25 (WEA03)	18:19	53	08:31 (WEA02)	20:12	52	08:48 (WEA01)	21:02			21:40	35	06:44 (B014)	21:39	28	06:47 (B014)	20:55	42	07:28 (B152)	19:48	67	08:50 (WEA01)	18:40	33	09:06 (WEA02)	16:40	29	08:58 (WEA03)	16:13	11	09:45	(B253)
13	08:25			07:44		08:40 (B178)	06:45		07:20 (B124)	06:35		07:48 (B153)	05:36			05:05		06:10 (B014)	05:18		06:20 (B014)	06:02		06:41 (B087)	06:52		07:39 (B223)	07:41		08:33 (WEA02)	07:35		08:30 (WEA03)	08:19		09:34	(B253)
	16:37			17:31	29	09:24 (WEA03)	18:21	51	08:29 (WEA02)	20:14	45	08:47 (WEA01)	21:03			21:41	34	06:44 (B014)	21:38	26	06:46 (B014)	20:53	43	07:29 (B152)	19:46	67	08:50 (WEA01)	18:37	31	09:04 (WEA02)	16:38	28	08:58 (WEA03)	16:13	12	09:46	(B253)
14	08:25			07:42		09:04 (WEA03)	06:43		07:20 (B124)	06:33		08:12 (WEA01)	05:35			05:05		06:10 (B014)	05:19		06:21 (B014)	06:04		06:41 (B087)	06:53		07:38 (B223)	07:42		08:34 (WEA02)	07:37		08:30 (WEA03)	08:20		09:35	(B253)
	16:38			17:33	19	09:23 (WEA03)	18:23	50	08:28 (WEA02)	20:15	33	08:45 (WEA01)	21:05			21:41	35	06:45 (B014)	21:37	25	06:46 (B014)	20:51	43	07:29 (B152)	19:44	67	08:49 (WEA01)	18:35	29	09:03 (WEA02)	16:37	28	08:58 (WEA03)	16:13	11	09:46	(B253)
15	08:24			07:40		09:06 (WEA03)	06:41		07:20 (B124)	06:31		08:14 (WEA01)	05:33			05:04		06:10 (B014)	05:20		06:22 (B014)	06:05		06:42 (B087)	06:55		07:39 (B223)	07:44		08:35 (WEA02)	07:39		08:31 (WEA03)	08:21		09:35	(B253)
	16:40			17:35	14	09:20 (WEA03)	18:25	47	08:27 (WEA02)	20:17	29	08:43 (WEA01)	21:06			21:42	35	06:45 (B014)	21:36	23	06:46 (B014)	20:49	42	07:29 (B152)	19:41	66	08:49 (WEA01)	18:33	29	09:04 (B013)	16:35	26	08:57 (WEA03)	16:13	12	09:47	(B253)
16	08:23			07:38		09:10 (WEA03)	06:39		07:19 (B124)	06:28		08:15 (WEA01)	05:31			05:04		06:10 (B014)	05:22		06:22 (B014)	06:07		06:43 (B087)	06:56		07:40 (B223)	07:46		08:36 (WEA02)	07:40		08:32 (WEA03)	08:22		09:36	(B253)
	16:42			17:36	6	09:16 (WEA03)	18:26	45	08:25 (WEA02)	20:19	24	08:39 (WEA01)	21:08			21:42	36	06:46 (B014)	21:35	22	06:44 (B014)	20:47	38	07:28 (B152)	19:39	63	08:49 (WEA01)	18:31	29	09:05 (B013)	16:34	25	08:57 (WEA03)	16:13	12	09:48	(B253)
17	08:22			07:36			06:36		07:20 (B124)	06:26		08:18 (WEA01)	05:30			05:04		06:11 (B014)	05:23		06:24 (B014)	06:08		06:59 (B086)	06:58		07:40 (B223)	07:48		08:38 (WEA02)	07:42		08:33 (WEA03)	08:23		09:35	(B253)
	16:43			17:38			18:28	48	08:23 (WEA02)	20:20	18	08:36 (WEA01)	21:09			21:43	35	06:46 (B014)	21:34	19	06:43 (B014)	20:45	29	07:28 (B152)	19:37	61	08:48 (WEA01)	18:29	28	09:06 (B013)	16:32	22	08:55 (WEA03)	16:13	13	09:48	(B253)
18	08:21			07:35			06:34		07:21 (B124)	06:24		08:23 (WEA01)	05:28			05:04		06:11 (B014)	05:24		06:25 (B014)	06:10		06:58 (B086)	07:00		07:43 (B223)	07:49		08:40 (WEA02)	07:44		08:34 (WEA03)	08:24		09:36	(B253)
	16:45			17:40			18:30	47	08:21 (WEA02)	20:22	7	08:30 (WEA01)	21:11			21:43	35	06:46 (B014)	21:33	17	06:42 (B014)	20:43	29	07:27 (B152)	19:34	53	08:47 (WEA01)	18:27	25	09:05 (B013)	16:31	21	08:55 (WEA03)	16:13	12	09:48	(B253)
19	08:20			07:33			06:32		07:21 (B124)	06:22			05:27			05:04		06:11 (B014)	05:25		06:27 (B014)	06:11		06:59 (B086)	07:01		07:59 (WEA01)	07:51		08:46 (WEA02)	07:45		08:36 (WEA03)	08:25		09:36	(B253)
	16:46			17:42			18:31	42	08:16 (WEA02)	20:24			21:12			21:44	35	06:46 (B014)	21:32	13	06:40 (B014)	20:41	27	07:26 (B152)	19:32	47	08:46 (WEA01)	18:24	18	09:05 (B013)	16:30	18	08:54 (WEA03)	16:14	13	09:49	(B253)
20	08:19			07:31		08:24 (B013)	06:29		07:21 (WEA02)	06:20			05:26			05:04		06:11 (B014)	05:27		06:30 (B014)	06:13		07:00 (B086)	07:03		08:00 (WEA01)	07:53		08:50 (B013)	07:47		08:38 (WEA03)	08:25		09:36	(B253)
	16:48			17:44	7	08:31 (B013)	18:33	32	07:53 (WEA02)	20:26			21:14			21:44	35	06:46 (B014)	21:31	8	06:38 (B014)	20:39	21	07:24 (B152)	19:30	45	08:45 (WEA01)	18:22	15	09:05 (B013)	16:29	15	08:53 (WEA03)	16:14	13	09:49	(B253)
21	08:18			07:29		08:22 (B013)	06:27		07:19 (WEA02)	06:18			05:24			05:04		06:11 (B014)	05:28			06:15		07:02 (B086)	07:04		08:01 (WEA01)	07:54		08:51 (B013)	07:49		08:40 (WEA03)	08:26		09:37	(B253)
	16:50			17:46	11	08:33 (B013)	18:35	36	07:55 (WEA02)	20:27			21:15			21:44	36	06:47 (B014)	21:30			20:37	12	07:22 (B152)	19:27	43	08:44 (WEA01)	18:20	14	09:05 (B013)	16:27	11	08:51 (WEA03)	16:14	13	09:50	(B253)
22	08:17		09:07 (WEA03)	07:27		08:21 (B013)	06:25		07:17 (WEA02)	06:16			05:23			05:04		06:11 (B014)	05:29			06:16			19:06		08:01 (WEA01)	07:56		08:52 (B013)	07:50			08:27		09:38	(B253)
	16:51	7	09:14 (WEA03)	17:47	13	08:34 (B013)	18:37	38	07:55 (WEA02)	20:29			21:17			21:45	36	06:47 (B014)	21:28			20:35			19:25	41	08:42 (WEA01)	18:18	12	09:04 (B013)	16:26				16:15	13	09:51	(B253)
23	08:16		09:04 (WEA03)	07:24		08:20 (B013)	06:23		07:15 (WEA02)	06:14		06:59 (B086)	05:22			05:05		06:11 (B014)	05:30			06:18			19:08		08:03 (WEA01)	07:58		08:53 (B013)	07:52			08:27		09:38	(B253)
	16:53	13	09:17 (WEA03)	17:49	15	08:35 (B013)	18:38	42	07:57 (WEA02)	20:31	3	07:14 (B152)	21:18			21:45	36	06:47 (B014)	21:27			20:33			19:23	38	08:41 (WEA01)	18:16	9	09:02 (B013)	16:25				16:15	13	09:51	(B253)
24	08:15		09:03 (WEA03)	07:22		08:19 (B013)	06:20		07:14 (WEA02)	06:11		06:55 (B086)	05:20			05:05		06:12 (B014)	05:32			06:20			07:09		08:03 (WEA01)	08:00			07:54			08:28		09:38	(B253)
	16:55	16	09:19 (WEA03)	17:51	15	08:34 (B013)	18:40	44	07:58 (WEA02)	20:32	19	07:18 (B152)	21:20			21:45	35	06:47 (B014)	21:26			20:31			19:20	35	08:38 (WEA01)	18:14			16:24				16:16	13	09:51	(B253)
25	08:14		09:02 (WEA03)	07:20		08:09 (WEA02)	06:18		07:13 (WEA01)	06:09		06:53 (B086)	05:19		06:20 (B014)	05:05		06:12 (B014)	05:33			06:21			07:11		08:05 (WEA01)	08:01			07:55			08:28		09:39	(B253)
	16:56	19	09:21 (WEA03)	17:53	25	08:34 (B013)	18:42	46	07:58 (WEA02)	20:34	25	07:19 (B152)	21:21	8	06:28 (B014)	21:45	35	06:47 (B014)	21:25			20:28			19:18	32	08:37 (WEA01)	18:12			16:23				16:16	13	09:52	(B253)
26	08:13		09:00 (WEA03)	07:18		08:06 (WEA02)	07:16		08:12 (WEA01)	06:07		06:52 (B086)	05:18		06:18 (B014)	05:05		06:12 (B014)	05:35			06:23			07:13		08:05 (B124)	08:03			07:57			08:28		09:39	(B253)
	16:58	22	09:22 (WEA03)	17:55	28	08:34 (B013)	19:43	46	08:58 (WEA01)	20:36	28	07:20 (B152)	21:22	13	06:31 (B014)	21:45	35	06:47 (B014)	21:23			20:26			19:16	42	09:00 (WEA02)	18:10			16:22				16:17	13	09:52	(B253)
27	08:11		09:00 (WEA03)	07:16		08:04 (WEA02)	07:13		07:53 (B223)	06:05		06:51 (B086)	05:17		06:16 (B014)	05:06		06:13 (B014)	05:36			06:24		08:23 (WEA01)	07:14		08:02 (B124)	08:05			07:58			08:29		09:40	(B253)
	17:00	24	09:24 (WEA03)	17:56	29	08:33 (B013)	19:45	57	08:59 (WEA01)	20:37	29	07:20 (B152)	21:24	17	06:33 (B014)	21:45	35	06:48 (B014)	21:22			20:24	14	08:37 (WEA01)	19:14	48	09:03 (WEA02)	18:08			16:21				16:18	12	09:52	(B253)
28	08:10		08:59 (WEA03)	07:14		08:03 (WEA02)	07:11		07:51 (B223)	06:03		06:36 (B087)	05:16		06:15 (B014)	05:06		06:12 (B014)	05:37			06:26		08:18 (WEA01)	07:16		08:01 (B124)	08:07		09:36 (WEA03)	08:00			08:29		09:40	(B253)
	17:02	25	09:24 (WEA03)	17:58	29	08:32 (B013)	19:47	61	08:59 (WEA01)	20:39	37	07:21 (B152)	21:25	19	06:34 (B014)	21:45	35	06:47 (B014)	21:20			20:22	22	08:40 (WEA01)	19:11	49	09:05 (WEA02)	18:06	13	09:49 (WEA03)	16:20				16:18	13	09:53	(B253)
29	08:09		08:59 (WEA03)				07:09		07:49 (B223)	06:01		06:34 (B087)	05:15		06:13 (B014)	05:07		06:13 (B014)	05:39			06:28		08:16 (WEA01)	07:17		08:00 (B124)	07:08		08:34 (WEA03)	08:02			08:29		09:41	(B253)
	17:03	27	09:26 (WEA03)				19:48	65	08:58 (WEA01)	20:41	40	07:20 (B152)	21:26	22	06:35 (B014)	21:45	35	06:48 (B014)	21:19			20:20	26	08:42 (WEA01)	19:09	45	09:06 (WEA02)	17:04	18	08:52 (WEA03)	16:19				16:19	12	09:53	(B253)
30	08:07		08:58 (WEA03)				07:07		07:48 (B223)	05:59		06:34 (B087)	05:14		06:13 (B014)	05:07		06:13 (B014)	05:40			06:29		08:13 (WEA01)	07:19		07:59 (B124)	07:10		08:11 (B178)	08:03			08:29		09:42	(B253)
	17:05	28	09:26 (WEA03)				19:50	67	08:58 (WEA01)	20:42	43	07:21 (B152)	21:27	23	06:36 (B014)	21:45	35	06:48 (B014)	21:17			20:18	31	08:44 (WEA01)	19:07	48	09:07 (WEA02)	17:02	26	08:53 (WEA03)	16:18				16:20	12	09:54	(B253)
31	08:06		08:57 (WEA03)				07:04		07:48 (B223)				05:13		06:12 (B014)				05:42			06:31		07:50 (B153)				07:12		08:09 (B178)				08:29		09:42	(B253)
	17:07	29	09:26 (WEA03)				19:52	67	08:59 (WEA01)				21:28	25	06:37 (B014)				21:16			20:15	40	08:46 (WEA01)				17:00	34	08:55 (WEA03)				16:21	12	09:54	(B253)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245			
astr.max.mögl.Beschattung	268			726			1407			1155			377			1009			536			612			1651			847			679			289			
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17			
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung	0.56			0.59			0.67			0.70			0.74			0.74			0.74			0.72			0.69			0.64			0.58			0.54			
Gesamte Reduktion	0.10			0.18			0.18			0.24			0.30			0.24			0.27			0.28			0.21			0.18			0.12			0.09			
Met.wahrsch.Beschattung	27			132			254			281			113			241			147			169			346			149			84			25			

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)	

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO072 - Sebastianstr. 51, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1 | 08:29			09:40 (B253) | 08:04			08:55 (WEA03) | 07:12			07:59 (WEA02) | 07:02			07:44 (B223) | 05:57			06:31 (B087) | 05:12			06:11 (B014) | 05:08			06:11 (B014) | 05:43			06:32			07:40 (B153) | 07:21			07:57 (B124) | 07:14			08:05 (B178) | 08:04			08:58 (B083)
| 16:22			09:53 (B253) | 17:09		29	09:24 (WEA03) | 18:00		29	08:28 (B013) | 19:54		67	08:52 (WEA01) | 20:44		42	07:17 (B152) | 21:30		20	06:31 (B014) | 21:45		31	06:42 (B014) | 21:14			20:13		60	08:44 (WEA01) | 19:04		52	09:06 (WEA02) | 16:58		42	08:54 (WEA03) | 16:18		16	09:14 (B083)
2 | 08:29			09:41 (B253) | 08:03			08:55 (WEA03) | 07:10			07:58 (WEA02) | 07:00			07:44 (B223) | 05:56			06:30 (B087) | 05:11			06:10 (B014) | 05:09			06:11 (B014) | 05:45			06:34			07:39 (B153) | 07:22			07:57 (B124) | 07:16			08:04 (B178) | 08:06			08:58 (B083)
| 16:23		12	09:53 (B253) | 17:11		30	09:25 (WEA03) | 18:02		29	08:27 (B013) | 19:55		68	08:53 (WEA01) | 20:46		42	07:16 (B152) | 21:31		22	06:32 (B014) | 21:44		31	06:42 (B014) | 21:13			20:11		64	08:46 (WEA01) | 19:02		53	09:06 (WEA02) | 16:57		44	08:55 (WEA03) | 16:17		15	09:13 (B083)
3 | 08:29			09:42 (B253) | 08:01			08:54 (WEA03) | 07:08			07:57 (WEA02) | 06:57			07:44 (B223) | 05:54			06:29 (B087) | 05:10			06:09 (B014) | 05:09			06:12 (B014) | 05:46			06:36			07:38 (B153) | 07:24			07:57 (B124) | 07:17			08:03 (B178) | 08:07			09:00 (B083)
| 16:24		11	09:53 (B253) | 17:12		31	09:25 (WEA03) | 18:04		30	08:27 (WEA02) | 19:57		68	08:53 (WEA01) | 20:47		43	07:16 (B152) | 21:32		23	06:32 (B014) | 21:44		30	06:42 (B014) | 21:11		1	06:47 (B087) | 20:09		66	08:45 (WEA01) | 19:00		52	09:06 (WEA02) | 16:55		46	08:55 (WEA03) | 16:16		13	09:13 (B083)
4 | 08:29			09:43 (B253) | 08:00			08:38 (B178) | 07:05			07:56 (WEA02) | 06:55			07:44 (B223) | 05:52			06:29 (B087) | 05:10			06:09 (B014) | 05:10			06:12 (B014) | 05:48			06:37			07:38 (B153) | 07:26			07:59 (B124) | 07:19			08:03 (B178) | 08:08			09:00 (B083)
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28 | 08:10			08:57 (WEA03) | 07:14			08:02 (WEA02) | 07:11			07:52 (B223) | 06:03			06:48 (B086) | 05:16			06:18 (B014) | 05:06			06:10 (B014) | 05:37			06:26			08:07 (WEA01) | 07:16			07:58 (B124) | 08:07						09:30 (WEA03) | 08:00			08:55 (B083) | 08:29			09:37 (B253)
| 17:02		36	09:35 (B083) | 17:58		28	08:30 (B013) | 19:47		52	08:53 (WEA01) | 20:39		27	07:15 (B152) | 21:25		4	06:22 (B014) | 21:45		32	06:42 (B014) | 21:20			20:22		34	08:41 (WEA01) | 19:11		47	09:04 (WEA02) | 18:08		20	09:50 (WEA03) | 16:20		19	09:14 (B083) | 16:18		14	09:51 (B253)
29 | 08:09			08:57 (WEA03) |						07:09			07:48 (B223) | 06:01			06:34 (B087) | 05:15			06:14 (B014) | 05:07			06:10 (B014) | 05:39			06:28			07:48 (B153) | 07:17			07:57 (B124) | 07:08						08:09 (B178) | 08:02			08:56 (B083) | 08:29			09:38 (B253)
| 17:03		34	09:34 (B083) |						19:48		58	08:52 (WEA01) | 20:41		33	07:15 (B152) | 21:26		12	06:26 (B014) | 21:45		32	06:42 (B014) | 21:19			20:20		40	08:42 (WEA01) | 19:09		50	09:04 (WEA02) | 17:04		27	08:51 (WEA03) | 16:19		18	09:14 (B083) | 16:19		13	09:51 (B253)
30 | 08:07			08:56 (WEA03) |						07:07			07:47 (B223) | 05:59			06:33 (B087) | 05:14			06:13 (B014) | 05:07			06:10 (B014) | 05:40			06:29			07:44 (B153) | 07:19			07:57 (B124) | 07:10			08:07 (B178) | 08:03			08:56 (B083) | 08:29			09:39 (B253)
| 17:05		26	09:22 (WEA03) |						19:50		63	08:53 (WEA01) | 20:42		39	07:17 (B152) | 21:27		15	06:28 (B014) | 21:45		32	06:42 (B014) | 21:17			20:18		50	08:43 (WEA01) | 19:07		52	09:05 (WEA02) | 17:02		34	08:53 (WEA03) | 16:18		17	09:13 (B083) | 16:20		14	09:53 (B253)
31 | 08:06			08:55 (WEA03) |						07:04			07:46 (B223) |			05:13			06:11 (B014) |			05:42			06:31			07:42 (B153) |			07:12			08:05 (B178) |			08:29			09:39 (B253)
| 17:07		28	09:23 (WEA03) |						19:52		65	08:53 (WEA01) |			21:28		18	06:29 (B014) |			21:16			20:15		56	08:44 (WEA01) |			17:00		40	08:54 (WEA03) |			16:21		13	09:52 (B253)
Sonnenscheinstunden | 259			277			366			414			483			497			501			454			382			333			268			245			
astr.max.mögl.Beschattung | 615			724			1325			1257			375			900			397			749			1634			827			919			414			
Red.Sonnenscheinwahrsch. | 0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17			
Reduktion Betriebsdauer | 0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			
Reduktion Windrichtung | 0.55			0.59			0.67			0.70			0.73			0.74			0.74			0.72			0.69			0.64			0.57			0.54			
Gesamte Reduktion | 0.10			0.18

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO073 - Sebastianstr. 53, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		09:38 (B253)	08:04		08:54 (WEA03)	07:12		07:59 (WEA02)	07:02		07:42 (B223)	05:57		06:31 (B087)	05:12			05:08		06:09 (B014)	05:43			06:32		07:35 (B153)	07:21		07:55 (B124)	07:14		08:02 (B178)	08:04		08:57 (B083)
	16:22	14	09:52 (B253)	17:09	28	09:22 (WEA03)	18:00	28	08:27 (B013)	19:54	65	08:47 (WEA01)	20:44	34	07:11 (B152)	21:30			21:46	26	06:35 (B014)	21:14			20:13	67	08:42 (WEA01)	19:04	54	09:04 (WEA02)	16:58	45	08:53 (WEA03)	16:18	15	09:12 (B083)
2	08:29		09:39 (B253)	08:03		08:53 (WEA03)	07:10		07:57 (WEA02)	07:00		07:42 (B223)	05:56		06:29 (B087)	05:11		06:12 (B014)	05:09		06:09 (B014)	05:45		06:41 (B087)	06:34		07:35 (B153)	07:22		07:55 (B124)	07:16		08:02 (B178)	08:06		08:57 (B083)
	16:23	13	09:52 (B253)	17:11	29	09:22 (WEA03)	18:02	29	08:26 (B013)	19:55	65	08:47 (WEA01)	20:46	39	07:12 (B152)	21:31	8	06:20 (B014)	21:44	25	06:34 (B014)	21:13	14	07:16 (B152)	20:11	68	08:43 (WEA01)	19:02	52	09:03 (WEA02)	16:57	47	08:54 (WEA03)	16:17	14	09:11 (B083)
3	08:29		09:40 (B253)	08:01		08:53 (WEA03)	07:08		07:55 (WEA02)	06:57		07:41 (B223)	05:54		06:28 (B087)	05:10		06:10 (B014)	05:09		06:10 (B014)	05:46		06:39 (B087)	06:36		07:34 (B153)	07:24		07:57 (B124)	07:17		08:01 (B178)	08:07		08:59 (B083)
	16:24	13	09:53 (B253)	17:12	30	09:23 (WEA03)	18:04	30	08:25 (B013)	19:57	67	08:48 (WEA01)	20:47	41	07:12 (B152)	21:32	12	06:22 (B014)	21:44	24	06:34 (B014)	21:11	21	07:18 (B152)	20:09	69	08:43 (WEA01)	19:00	49	09:03 (WEA02)	16:55	47	08:53 (WEA03)	16:16	16	09:34 (B253)
4	08:29		09:41 (B253)	08:00		08:53 (WEA03)	07:05		07:54 (WEA02)	06:55		07:41 (B223)	05:52		06:27 (B087)	05:10		06:09 (B014)	05:10		06:11 (B014)	05:48		06:37 (B087)	06:37		07:34 (B153)	07:26		07:59 (B124)	07:19		08:02 (B178)	08:09		09:00 (B083)
	16:25	12	09:53 (B253)	17:14	31	09:24 (WEA03)	18:05	29	08:23 (WEA02)	19:59	67	08:48 (WEA01)	20:49	41	07:11 (B152)	21:33	15	06:24 (B014)	21:44	23	06:34 (B014)	21:09	25	07:19 (B152)	20:06	69	08:43 (WEA01)	18:57	44	09:03 (WEA02)	16:53	47	08:54 (WEA03)	16:16	17	09:36 (B253)
5	08:29		09:41 (B253)	07:58		08:36 (B178)	07:03		07:53 (WEA02)	06:53		07:40 (B223)	05:50		06:27 (B087)	05:09		06:08 (B014)	05:11		06:12 (B014)	05:49		06:37 (B087)	06:39		07:35 (B153)	07:27		08:25 (WEA02)	07:21		08:02 (B178)	08:10		09:02 (B083)
	16:26	12	09:53 (B253)	17:16	39	09:24 (WEA03)	18:07	31	08:24 (WEA02)	20:00	67	08:47 (WEA01)	20:51	42	07:12 (B152)	21:34	17	06:25 (B014)	21:43	22	06:34 (B014)	21:08	29	07:20 (B152)	20:04	68	08:43 (WEA01)	18:55	37	09:02 (WEA02)	16:51	46	08:54 (WEA03)	16:15	16	09:38 (B253)
6	08:29		09:42 (B253)	07:56		08:34 (B178)	07:01		07:51 (WEA02)	06:51		07:40 (B153)	05:48		06:27 (B087)	05:08		06:07 (B014)	05:12		06:11 (B014)	05:51		06:36 (B087)	06:40		07:35 (B153)	07:29		08:26 (WEA02)	07:23		08:03 (B178)	08:11		09:05 (B083)
	16:28	11	09:53 (B253)	17:18	43	09:24 (WEA03)	18:09	33	08:24 (WEA02)	20:02	67	08:47 (WEA01)	20:52	41	07:12 (B152)	21:35	19	06:26 (B014)	21:43	22	06:33 (B014)	21:06	32	07:20 (B152)	20:02	68	08:43 (WEA01)	18:53	36	09:02 (WEA02)	16:49	45	08:54 (WEA03)	16:15	11	09:38 (B253)
7	08:28		09:42 (B253)	07:55		08:33 (B178)	06:59		07:50 (WEA02)	06:48		07:39 (B153)	05:46		06:26 (B087)	05:08		06:07 (B014)	05:12		06:13 (B014)	05:52		06:36 (B087)	06:42		07:36 (B153)	07:31		08:26 (WEA02)	07:24		08:05 (B178)	08:13		09:29 (B253)
	16:29	11	09:53 (B253)	17:20	45	09:24 (WEA03)	18:11	35	08:25 (WEA02)	20:04	68	08:47 (WEA01)	20:54	39	07:11 (B152)	21:36	20	06:27 (B014)	21:42	20	06:33 (B014)	21:04	38	07:21 (B152)	20:00	67	08:43 (WEA01)	18:51	36	09:02 (WEA02)	16:48	41	08:54 (WEA03)	16:14	11	09:40 (B253)
8	08:28		09:43 (B083)	07:53		08:33 (B178)	06:57		07:50 (WEA02)	06:46		07:38 (B153)	05:45		06:27 (B087)	05:07		06:05 (B014)	05:13		06:14 (B014)	05:54		06:36 (B087)	06:44		07:36 (B223)	07:32		08:26 (WEA02)	07:26		08:07 (B178)	08:14		09:28 (B253)
	16:30	13	09:53 (B253)	17:22	47	09:25 (WEA03)	18:12	36	08:26 (WEA02)	20:05	68	08:46 (WEA01)	20:55	32	07:11 (B152)	21:37	22	06:27 (B014)	21:42	19	06:33 (B014)	21:02	41	07:21 (B152)	19:57	66	08:42 (WEA01)	18:48	35	09:01 (WEA02)	16:46	37	08:54 (WEA03)	16:14	12	09:40 (B253)
9	08:28		09:17 (B083)	07:51		08:33 (B178)	06:54		07:48 (WEA02)	06:44		07:37 (B153)	05:43		06:27 (B087)	05:06		06:06 (B014)	05:14		06:15 (B014)	05:56		06:36 (B087)	06:45		07:35 (B223)	07:34		08:26 (WEA02)	07:28		08:23 (WEA03)	08:15		09:28 (B253)
	16:31	17	09:53 (B253)	17:23	47	09:25 (WEA03)	18:14	37	08:25 (WEA02)	20:07	69	08:46 (WEA01)	20:57	30	07:10 (B152)	21:38	22	06:28 (B014)	21:41	17	06:32 (B014)	21:00	41	07:21 (B152)	19:55	67	08:42 (WEA01)	18:46	33	08:59 (WEA02)	16:44	31	08:54 (WEA03)	16:14	13	09:41 (B253)
10	08:27		09:16 (B083)	07:49		08:33 (B178)	06:52		07:48 (WEA02)	06:42		07:36 (B153)	05:41		06:28 (B087)	05:06		06:06 (B014)	05:15		06:16 (B014)	05:57		06:36 (B087)	06:47		07:34 (B223)	07:36		08:27 (WEA02)	07:30		08:24 (WEA03)	08:16		09:28 (B253)
	16:33	17	09:52 (B253)	17:25	46	09:24 (WEA03)	18:16	37	08:25 (WEA02)	20:09	69	08:45 (WEA01)	20:59	25	07:09 (B152)	21:38	24	06:30 (B014)	21:40	15	06:31 (B014)	20:59	42	07:21 (B152)	19:53	67	08:41 (WEA01)	18:44	32	08:59 (WEA02)	16:43	29	08:53 (WEA03)	16:13	13	09:41 (B253)
11	08:27		09:16 (B083)	07:48		08:33 (B178)	06:50		07:21 (B124)	06:39		07:36 (B153)	05:39		06:29 (B087)	05:06		06:05 (B014)	05:16		06:18 (B014)	05:59		06:37 (B087)	06:48		07:35 (B223)	07:37		08:28 (WEA02)	07:32		08:25 (WEA03)	08:17		09:29 (B253)
	16:34	14	09:51 (B253)	17:27	45	09:24 (WEA03)	18:18	44	08:25 (WEA02)	20:10	68	08:44 (WEA01)	21:00	22	07:08 (B152)	21:39	24	06:29 (B014)	21:40	12	06:30 (B014)	20:57	40	07:21 (B152)	19:51	66	08:41 (WEA01)	18:42	29	08:57 (WEA02)	16:41	28	08:53 (WEA03)	16:13	14	09:43 (B253)
12	08:26		09:16 (B083)	07:46		08:33 (B178)	06:48		07:19 (B124)	06:37		07:36 (B153)	05:38		06:30 (B087)	05:05		06:05 (B014)	05:17		06:20 (B014)	06:00		06:37 (B087)	06:50		07:34 (B223)	07:39		08:29 (WEA02)	07:33		08:25 (WEA03)	08:18		09:30 (B253)
	16:36	13	09:29 (B083)	17:29	43	09:23 (WEA03)	18:19	49	08:25 (WEA02)	20:12	68	08:44 (WEA01)	21:02	15	07:05 (B152)	21:40	25	06:30 (B014)	21:39	8	06:28 (B014)	20:55	39	07:20 (B152)	19:48	65	08:39 (WEA01)	18:40	30	08:59 (B013)	16:40	27	08:52 (WEA03)	16:13	13	09:43 (B253)
13	08:25		09:15 (B083)	07:44		08:34 (B178)	06:45		07:16 (B124)	06:35		07:36 (B153)	05:36			05:05		06:05 (B014)	05:18					06:02			06:39 (B087)	06:52		07:35 (B223)	07:41		08:30 (WEA02)	07:35		08:26 (WEA03)	08:19		09:30 (B253)
	16:37	15	09:30 (B083)	17:31	40	09:22 (WEA03)	18:21	53	08:24 (WEA02)	20:14	67	08:43 (WEA01)	21:03			21:41	26	06:31 (B014)	21:38					20:53	36	07:20 (B152)	19:46	63	08:39 (WEA01)	18:37	29	08:59 (B013)	16:38	31	09:02 (B083)	16:13	14	09:44 (B253)
14	08:25		09:15 (B083)	07:42		08:35 (B178)	06:43		07:15 (B124)	06:33		07:37 (B153)	05:35			05:05		06:05 (B014)	05:19					06:04		06:40 (B087)	06:53		07:35 (B223)	07:42		08:32 (WEA02)	07:37		08:28 (WEA03)	08:20		09:30 (B253)
	16:38	16	09:31 (B083)	17:33	37	09:22 (WEA03)	18:23	54	08:24 (WEA02)	20:15	64	08:42 (WEA01)	21:05			21:41	27	06:32 (B014)	21:37					20:51	30	07:18 (B152)	19:44	59	08:37 (WEA01)	18:35	28	09:00 (B013)	16:37	34	09:05 (B083)	16:13	14	09:44 (B253)
15	08:24		09:15 (B083)	07:40		08:37 (B178)	06:41		07:15 (B124)	06:31		07:38 (B153)	05:33			05:04		06:05 (B014)	05:20					06:05		06:54 (B086)	06:55		07:37 (B223)	07:44		08:36 (WEA02)	07:39		08:29 (WEA03)	08:21		09:31 (B253)
	16:40	17	09:32 (B083)	17:35	31	09:20 (WEA03)	18:25	54	08:24 (WEA02)	20:17	60	08:41 (WEA01)	21:06			21:42	27	06:32 (B014)	21:36					20:49	24	07:18 (B152)	19:41	54	08:37 (WEA01)	18:33	25	09:01 (B013)	16:35	35	09:07 (B083)	16:13	14	09:45 (B253)
16	08:23		09:14 (B083)	07:38		08:58 (WEA03)	06:39		07:13 (B124)	06:28		07:38 (B153)	05:31			05:04		06:05 (B014)	05:22					06:07		06:54 (B086)	06:56		07:53 (WEA01)	07:46		08:45 (B013)	07:40		08:31 (WEA03)	08:22		09:30 (B253)
	16:42	19	09:33 (B083)	17:36	21	09:19 (WEA03)	18:26	53	08:22 (WEA02)	20:19	56	08:39 (WEA01)	21:08			21:42	28	06:33 (B014)	21:35					20:47	21	07:15 (B152)	19:39	43	08:36 (WEA01)	18:31	16	09:01 (B013)	16:34	34	09:08 (B083)	16:13	14	09:44 (B253)
17	08:22		09:14 (B083)	07:36		09:00 (WEA03)	06:36		07:13 (B124)	06:26		07:40 (B153)	05:30			05:04		06:05 (B014)	05:23					06:08		06:55 (B086)	06:58		07:53 (WEA01)	07:48		08:45 (B013)	07:42		08:32 (WEA03)	08:23		09:31 (B253)
	16:43	19	09:33 (B083)	17:38	17	09:17 (WEA03)	18:28	53	08:21 (WEA02)	20:20	49	08:38 (WEA01)	21:09			21:43	28	06:33 (B014)	21:34					20:45	10	07:05 (B086)	19:37	41	08:34 (WEA01)	18:29	16	09:01 (B013)	16:32	32	09:08 (B083)	16:13	14	09:45 (B253)
18	08:21		09:15 (B083)	07:35		09:02 (WEA03)	06:34		07:14 (B124)	06:24		07:58 (WEA01)	05:28			05:04		06:05 (B014)	05:24					06:10		06:57 (B086)	07:00		07:54 (WEA01)	07:49		08:45 (B013)	07:44		08:34 (WEA03)	08:24		09:32 (B253)
	16:45	19	09:34 (B083)	17:40	12	09:14 (WEA03)	18:30	49	08:20 (WEA02)	20:22	38	08:36 (WEA01)	21:11			21:43	28	06:33 (B014)	21:33					20:43	4	07:01 (B086)	19:34	39	08:33 (WEA01)	18:27	14	08:59 (B013)	16:31	29	09:09 (B083)	16:13	14	09:46 (B253)
19	08:20		09:15 (B083)	07:33			06:32		07:13 (B124)	06:22		07:59 (WEA01)	05:27			05:04		06:05 (B014)	05:25					06:11			07:01		07:55 (WEA01)	07:51		08:46 (B013)	07:45		08:51 (B083)	08:25		09:32 (B253)
	16:46	20	09:35 (B083)	17:42		18:31	47	08:18 (WEA02)	20:24	36	08:35 (WEA01)	21:12			21:44	29	06:34 (B014)	21:32					20:41			19:32	35	08:30 (WEA01)	18:24	12	08:58 (B013)	16:30	19	09:10 (B083)	16:14	14	09:46 (B253)
20	08:19		09:15 (B083)	07:31		06:29		07:14 (B124)	06:20		08:00 (WEA01)	05:26			05:04		06:05 (B014)	05:27					06:13		08:18 (WEA01)	07:03		07:57 (WEA01)	07:53		08:47 (B013)	07:47		08:51 (B083)	08:25		09:32 (B253)
	16:48	20	09:35 (B083)	17:44		18:33	41	08:16 (WEA02)	20:26	33	08:33 (WEA01)	21:14			21:44	29	06:34 (B014)	21:31					20:39	6	08:24 (WEA01)	19:30	31	08:28 (WEA01)	18:22	10	08:57 (B013)	16:29	20	09:11 (B083)	16:14	14	09:46 (B253)
21	08:18		09:16 (B083)	07:29		06:27		07:15 (B124)	06:18		08:01 (WEA01)	05:24			05:04		06:05 (B014)	05:28					06:15		08:12 (WEA01)	07:04		07:59 (WEA01)	07:54		08:51 (B013)	07:49		08:51 (B083)	08:26		09:33 (B253)
	16:50	20	09:36 (B083)	17:46		18:35	35	08:14 (WEA02)	20:27	30	08:31 (WEA01)	21:15			21:44	29	06:34 (B014)	21:30					20:37	18	08:30 (WEA01)	19:27	27	08:26 (WEA01)	18:20	2	08:53 (B013)	16:27	20	09:11 (B083)	16:14	14	09:47 (B253)
22	08:17		09:16 (B083)	07:27		06:25		07:16 (B124)	06:16		08:03 (WEA01)	05:23			05:04		06:05 (B014)	05:29					06:16		08:09 (WEA01)	07:06		08:01 (WEA01)	07:56			07:50		08:51 (B083)	08:27		09:34 (B253)
	16:51	20	09:36 (B083)	17:47		18:37	34	08:11 (WEA02)	20:29	25	08:28 (WEA01)	21:17			21:45	29	06:34 (B014)	21:28					20:35	23	08:32 (WEA01)	19:25	31	08:53 (WEA02)	18:18			16:26	21	09:12 (B083)	16:15	14	09:48 (B253)
23	08:16		09:16 (B083)	07:24		08:17 (B013)	06:23		07:14 (WEA01)	06:14		08:06 (WEA01)	05:22			05:05		06:05 (B014)	05:30					06:18		08:07 (WEA01)	07:08		08:02 (B124)	07:58			07:52		08:51 (B083)	08:27		09:34 (B253)
	16:53	20	09:36 (B083)	17:49	9	08:26 (B013)	18:38	30	08:06 (WEA02)	20:31	19	08:25 (WEA01)	21:18			21:45	29	06:34 (B014)	21:27					20:33	28	08:35 (WEA01)	19:23	34	08:57 (WEA02)	18:16			16:25	20	09:11 (B083)	16:15	14	09:48 (B253)
24	08:15		09:17 (B083)	07:22		08:15 (B013)	06:20		07:12 (WEA01)	06:11		08:10 (WEA01)	05:20			05:05		06:06 (B014)	05:32					06:20		08:04 (WEA01)	07:09		07:59 (B124)	08:00			07:54		08:52 (B083)	08:28		09:34 (B253)
	16:55	19	09:36 (B083)	17:51	11	08:26 (B013)	18:40	28	07:40 (WEA01)	20:32	11	08:21 (WEA01)	21:20			21:45	29	06:35 (B014)	21:26					20:31	32	08:36 (WEA01)	19:20	36	08:58 (WEA02)	18:14			16:24	20	09:12 (B083)	16:16	14	09:48 (B253)
25	08:14		09:03 (WEA03)	07:20		08:14 (B013)	06:18		07:10 (WEA01)	06:09			05:19			05:05		06:06 (B014)	05:33					06:21		08:03 (WEA01)	07:11		07:58 (B124)	08:01		09:33 (WEA03)	07:55		08:52 (B083)	08:28		09:35 (B253)
	16:56	26	09:37 (B083)	17:53	14	08:28 (B013)	18:42	32	07:42 (WEA01)	20:34			21:21			21:45	29	06:35 (B014)	21:25					20:28	35	08:38 (WEA01)	19:18	42	09:00 (WEA02)	18:12	10	09:43 (WEA03)	16:23	20	09:12 (B083)	16:16	14	09:49 (B253)
26	08:13		09:00 (WEA03)	07:18		08:13 (B013)	07:16		08:07 (WEA01)	06:07			05:18			05:05		06:06 (B014)	05:35					06:23		08:01 (WEA01)	07:13		07:57 (B124)	08:03		09:30 (WEA03)	07:57		08:53 (B083)	08:28		09:35 (B253)
	16:58	31	09:36 (B083)	17:55	15	08:28 (B013)	19:43	36	08:43 (WEA01)	20:36			21:22			21:45	28	06:34 (B014)	21:23					20:26	37	08:38 (WEA01)	19:16	47	09:02 (WEA02)	18:10	16	09:46 (WEA03)	16:22	19	09:12 (B083)	16:17	14	09:49 (B253)
27	08:11		08:59 (WEA03)	07:16		08:13 (B013)	07:13		08:05 (WEA01)	06:05		06:48 (B086)	05:17			05:04		06:07 (B014)	05:36					06:24		07:44 (B153)	07:14		07:55 (B124)	08:05		09:28 (WEA03)	07:58		08:53 (B083)	08:29		09:36 (B253)
	17:00	34	09:36 (B083)	17:56	15	08:28 (B013)	19:45	39	08:44 (WEA01)	20:37	8	06:56 (B086)	21:24			21:45	28	06:35 (B014)	21:22					20:24	45	08:40 (WEA01)	19:14	50	09:02 (WEA02)	18:08	20	09:48 (WEA03)	16:21	19	09:12 (B083)	16:18	14	09:50 (B253)
28	08:10		08:57 (WEA03)	07:14		08:04 (WEA02)	07:11		08:04 (WEA01)	06:03		06:47 (B086)	05:16			05:06		06:07 (B014)	05:37					06:26		07:40 (B153)	07:16		07:55 (B124)	08:07		09:07 (B178)	08:00		08:54 (B083)	08:29		09:36 (B253)
	17:02	35	09:35 (B083)	17:58	24	08:28 (B013)	19:47	42	08:46 (WEA01)	20:39	18	07:07 (B152)	21:25			21:45	28	06:35 (B014)	21:20					20:22	54	08:40 (WEA01)	19:11	52	09:03 (WEA02)	18:06	29	09:50 (WEA03)	16:20	18	09:12 (B083)	16:18	14	09:50 (B253)
29	08:09		08:56 (WEA03)				07:09		07:50 (B223)	06:01		06:45 (B086)	05:15			05:07		06:08 (B014)	05:39					06:28		07:39 (B153)	07:17		07:54 (B124)	07:08		08:05 (B178)	08:02		08:55 (B083)	08:29		09:36 (B253)
	17:03	35	09:34 (B083)				19:48	46	08:46 (WEA01)	20:41	24	07:09 (B152)	21:26			21:45	27	06:35 (B014)	21:19					20:20	59	08:41 (WEA01)	19:09	54	09:03 (WEA02)	17:04	36	08:51 (WEA03)	16:19	17	09:12 (B083)	16:19	14	09:50 (B253)
30	08:07		08:55 (WEA03)				07:07		07:46 (B223)	05:59		06:34 (B087)	05:14			05:07		06:08 (B014)	05:40					06:29		07:37 (B153)	07:19		07:55 (B124)	07:10		08:04 (B178)	08:03		08:56 (B083)	08:29		09:38 (B253)
	17:05	34	09:32 (B083)				19:50	56	07:44 (B223)	20:42	29	07:11 (B152)	21:27			21:45	27	06:35 (B014)	21:17					20:18	62	08:41 (WEA01)	19:07	53	09:03 (WEA02)	17:02	39	08:52 (WEA03)	16:18	15	09:11 (B083)	16:20	14	09:52 (B253)
31	08:06		08:54 (WEA03)				07:04		07:44 (B223)				05:13						05:42					06:31		07:36 (B153)			07:12			08:03 (B178)			08:29		09:37 (B253)
	17:07	26	09:20 (WEA03)				19:52	61	08:47 (WEA01)				21:28						21:16					20:15	66	08:42 (WEA01)			17:00	43	08:53 (WEA03)			16:21	14	09:51 (B253)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		605			719			1261			1375			401			713			233			952			1598			812			893			431	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23			0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95	
Reduktion Windrichtung		0.55			0.59			0.67			0.71			0.73			0.74			0.74			0.72			0.70			0.64			0.57			0.54	
Gesamte Reduktion		0.10			0.18			0.18			0.24			0.30			0.24			0.27			0.27			0.21			0.17			0.12			0.09	
Met.wahrsch.Beschattung		60			131			228			336			120			170			64			261			337			142			109			38	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO074 - Warburger Str. 2, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni		Juli		August			September			Oktober			November			Dezember	
1	08:29			08:04			07:12			07:02			05:57			05:12		05:08		05:43			06:32			07:21			07:14			08:05	
	16:22			17:09	38		17:00	29		19:54	48		20:44	24		21:30		21:45		21:14			20:13	30		19:04	14		16:58	38		16:18	
2	08:29			08:03			07:10			07:00			06:56			05:11		05:09		05:45			06:34			07:22			07:16			08:06	
	16:23			17:11	39		17:02	27		19:55	51		20:46	22		21:31		21:44		21:13			20:11	32		19:02	16		16:57	38		16:17	
3	08:29			08:01			07:08			06:57			05:54			05:10		05:09		05:46			06:36			07:24			07:17			08:07	
	16:24			17:12	39		17:04	22		19:57	50		20:47	21		21:32		21:44		21:11			20:09	33		19:00	16		16:55	38		16:16	
4	08:29			08:00			07:05			06:55			05:52			05:09		05:10		05:48			06:37			07:26			07:19			08:09	
	16:25			17:14	39		17:05	13		19:59	50		20:49	19		21:33		21:44		21:09			20:07	35		18:57	16		16:53	38		16:16	
5	08:29			07:58			07:03			06:53			05:50			05:09		05:11		05:49			06:39			07:27			07:21			08:10	
	16:26			17:16	39		17:07	11		20:00	49		20:51	16		21:34		21:43		21:08	1		20:04	35		18:55	16		16:51	39		16:15	
6	08:29			07:56			07:01			06:51			05:48			05:12		05:12		05:51			06:40			07:29			07:23			08:11	
	16:28			17:18	39		17:09	11		20:02	45		20:52	13		21:35		21:43		21:06			20:02	36		18:53	15		16:49	39		16:15	
7	08:28			07:55			07:00			06:48			05:46			05:07		05:12		05:52			06:42			07:31			07:24			08:13	
	16:29			17:20	39		17:11	10		20:04	37		20:54	6		21:36		21:42		21:04	3		20:00	41		18:51	14		16:48	39		16:14	
8	08:28			07:53			06:57			06:46			05:45			05:07		05:13		05:54			06:44			07:32			07:26			08:14	
	16:30			17:22	39		17:12	14		20:05	35		20:55			21:37		21:42		21:02	11		19:57	46		18:48	10		16:46	38		16:14	
9	08:28			07:51			06:54			06:44			05:43			05:06		05:14		05:56			06:45			07:34			07:28			08:15	
	16:31			17:23	38		17:14	15		20:07	35		20:57			21:38		21:41		21:00	15		19:55	49		18:46	11		16:44	39		16:14	
10	08:27			07:49			06:52			06:42			05:41			05:06		05:15		05:57			06:47			07:36			07:30			08:16	
	16:33			17:25	38		17:16	16		20:09	34		20:59			21:38		21:40		20:59	18		19:53	51		18:44	11		16:43	38		16:13	
11	08:27			07:48			06:50			06:39			05:39			05:06		05:16		05:59			06:48			07:37			07:32			08:17	
	16:34			17:27	38		17:18	16		20:10	32		21:00			21:39		21:40		20:57	20		19:51	51		18:42	13		16:41	39		16:13	
12	08:26			07:46			06:48			06:37			05:38			05:05		05:17		06:00			06:50			07:39			07:33			08:18	
	16:36			17:29	37		17:19	16		20:12	30		21:02			21:40		21:39		20:55	23		19:48	50		18:40	21		16:40	38		16:13	
13	08:25			07:44			06:45			06:35			05:36			05:05		05:18		06:02			06:52			07:41			07:35			08:19	
	16:37			17:31	36		17:21	16		20:14	28		21:03			21:41		21:38		20:53	24		19:46	50		18:37	27		16:38	38		16:13	
14	08:25			07:42			06:43			06:33			05:34			05:05		05:19		06:03			06:53			07:42			07:37			08:20	
	16:38			17:33	35		17:23	14		20:15	25		21:05			21:41		21:37		20:51	25		19:44	46		18:35	29		16:37	37		16:13	
15	08:24		09:09 (WEA02)	07:40			06:41			06:31			05:33			05:04		05:20		06:05			06:55			07:44			07:39			08:21	
	16:40	8	09:17 (WEA02)	17:35	33		17:25	11		20:17	23		21:06			21:42		21:36		20:49	25		19:41	42		18:33	31		16:35	36		16:13	
16	08:23		09:07 (WEA02)	07:38			06:39			06:28			05:31			05:04		05:22		06:07			06:56			07:46			07:40			08:22	
	16:42	12	09:19 (WEA02)	17:36	32		17:26	6		20:19	18		21:08			21:42		21:35		20:47	26		19:39	36		18:31	31		16:34	35		16:13	
17	08:22		09:06 (WEA02)	07:36			06:36			06:26			05:30			05:04		05:23		06:08			06:58			07:48			07:42			08:23	
	16:43	15	09:21 (WEA02)	17:38	29		18:28			20:20	12		08:13 (B014)			21:43		21:34		20:45	26		19:37	26		18:29	30		16:32	33		16:13	
18	08:21		09:05 (WEA02)	07:35			06:34			06:24			05:28			05:04		05:24		06:10			07:00			07:49			07:44			08:24	
	16:45	18	09:23 (WEA02)	17:40	27		18:30	1		20:22	12		07:21 (B050)			21:43		21:33		20:43	27		19:34	22		18:27	27		16:31	33		16:13	
19	08:20		09:04 (WEA02)	07:33			06:32			06:22			05:27			05:04		05:25		06:11			07:01			07:45			07:45			08:25	
	16:46	20	09:24 (WEA02)	17:42	23		18:31	9		20:24	17		21:12			21:44		21:32		20:41	26		19:32	17		18:24	17		16:30	31		16:14	
20	08:19		09:04 (WEA02)	07:31			06:29			06:20			05:26			05:04		05:27		06:13			07:03			07:53			07:47			08:25	
	16:48	22	09:26 (WEA02)	17:44	24		18:33	12		20:26	19		21:14			21:44		21:31		20:39	26		19:30	12		18:22	16		16:29	27		16:14	
21	08:18		09:04 (WEA02)	07:29			06:27			06:18			05:24			05:04		05:28		06:15			07:04			07:54			07:49			08:26	
	16:50	23	09:27 (WEA02)	17:46	23		18:35	13		20:27	22		21:15			21:44		21:30		20:37	25		19:27	14		18:20	14		16:27	25		16:14	
22	08:17		09:04 (WEA02)	07:27			06:25			06:16			05:23			05:04		05:29		06:16			07:06			07:56			07:50			08:27	
	16:51	24	09:28 (WEA02)	17:47	14		18:37	14		20:29	24		21:17			21:45		21:29		20:35	24		19:25	14		18:18	22		16:26	24		16:15	
23	08:16		09:02 (WEA01)	07:24			06:23			06:14			05:22			05:05		05:30		06:18			07:08			07:58			08:47			08:27	
	16:53	26	09:28 (WEA02)	17:49	16		18:38	14		20:31	25		21:18			21:45		21:27		20:33	22		19:23	14		18:16	25		16:25	23		16:15	
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	16:55	29	09:29 (WEA02)	17:51	17		18:40	13		20:32	25		21:20			21:45		21:26		20:31	20		19:20	13		18:14	22		16:24	21		16:16	
25	08:14		08:59 (WEA01)	07:20			06:18			06:09			05:19			05:05		05:33		06:21			07:11			08:01			07:55			08:28	
	16:56	31	09:30 (WEA02)	17:53	26		18:42	12		20:34	26		21:21			21:45		21:25		20:29	18		19:18	11		18:12	26		16:23	19		16:14	
26	08:13		08:58 (WEA01)	07:18			06:07			06:07			05:18			05:05		05:35		06:23			07:13			07:58			07:57			08:44	
	16:58	32	09:30 (WEA02)	17:55	30		18:43	19		20:36	26		21:22			21:45		21:23		20:26	14		19:16	9		18:10	29		16:22	17		16:17	
27	08:11		08:57 (WEA01)	07:16			06:05			06:05			05:17			05:06		05:36		06:24			07:14			08:05			07:59			08:29	
	17:00	34	09:31 (WEA02)	17:56	31		18:45	23		20:37	27		21:24			21:45		21:22		20:24	14		19:14			18:08	31		16:21	14		16:18	
28	08:10		08:56 (WEA01)	07:14			06:03			06:03			05:16			05:06		05:37		06:26			07:16			08:07			08:00			08:29	
	17:02	35	09:31 (WEA02)	17:58	31		18:47	27		20:39	27		21:25			21:45		21:20		20:22	16		19:11			18:06	33		16:20	11		16:18	
29	08:09		08:56 (WEA01)				07:09			06:01			05:15			05:07		05:39		06:28			07:17			08:29 (B152)			08:02			08:29	
	17:03	36	09:32 (WEA02)				19:48	37		20:41	26		21:26			21:45		21:19		20:20	20		19:09	6		08:35 (B152)			08:24 (WEA01)	6		16:19	
30	08:07		08:54 (WEA01)				07:07			06:59			05:14			05:07		05:40		06:29			07:19			08:26 (B152)			08:03			08:29	
	17:05	38	09:32 (WEA02)				19:50	43		20:42	25		21:27			21:45		21:17		20:18	25		19:07	12		08:38 (B152)			08:59 (WEA01)			16:20	
31	08:06		08:54 (WEA01)				07:04			07:36 (B087)			05:13					05:42		06:31			07:55 (B014)						08:23 (WEA01)			08:29	
	17:07	38	09:32 (WEA02)				19:52	47		08:30 (B014)			21:29					21:16		20:15	27		08:22 (B014)						17:00	37		09:00 (WEA01)			16:21	
Sonnenscheinstunden	259			277			366			414			483			497		502		454			382			333			268			245	
astr.max.mögl.Beschattung	441			889			531			903			121							521			833			690			891				
Red.Sonnenscheinwahrsch.	0.19			0.32			0.28			0.36			0.43							0.40			0.32			0.29			0.23				
Reduktion Betriebsdauer	0.95			0.95			0.95			0.95			0.95							0.95			0.95			0.95			0.95				
Reduktion Windrichtung	0.56			0.58			0.68			0.72			0.73							0.73			0.71			0.62			0.56				
Gesamte Reduktion	0.10			0.18			0.18			0.25			0.30							0.28			0.21			0.17			0.12				
Met.wahrsch.Beschattung	44			160			98			224			36							144			178			117			108				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO075 - Warburger Str. 3, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni		Juli		August			September			Oktober			November			Dezember	
1	08:29			08:04			07:12			07:02			05:57			05:12		05:08		05:43			06:32			07:21			07:14			08:05	
	16:22			17:09	39		17:00	31		19:54	49		20:44	25		21:30		21:45		21:14			20:13	31		19:04	14		16:58	38		16:18	
2	08:29			08:03			07:10			07:00			05:56			05:11		05:09		05:45			06:34			07:22			07:16			08:06	
	16:23			17:11	39		17:02	28		19:55	50		20:46	24		21:31		21:44		21:13			20:11	33		19:02	16		16:57	39		16:17	
3	08:29			08:01			07:08			06:57			05:54			05:10		05:09		05:46			06:36			07:24			07:17			08:07	
	16:24			17:12	39		17:04	23		19:57	52		20:47	22		21:32		21:44		21:11			20:09	34		19:00	16		16:55	39		16:16	
4	08:29			08:00			07:05			06:55			05:52			05:09		05:10		05:48			06:37			07:26			07:19			08:09	
	16:25			17:14	39		17:02	14		19:59	51		20:49	21		21:33		21:44		21:09			20:07	36		18:55	16		16:53	39		16:16	
5	08:29			07:58			07:03			06:53			05:50			05:09		05:11		05:49			06:39			07:27			07:21			08:10	
	16:26			17:16	38		17:00	11		20:00	50		20:51	18		21:34		21:43		21:08	1		20:04	36		18:55	16		16:51	39		16:15	
6	08:29			07:56			07:01			06:51			05:48			05:08		05:12		05:51			06:40			07:29			07:23			08:11	
	16:28			17:18	39		17:00	7		20:02	47		20:52	15		21:35		21:43		21:06			20:02	37		18:53	15		16:49	39		16:15	
7	08:28			07:55			06:59			06:48			05:46			05:07		05:12		05:52			06:42			07:31			07:24			08:13	
	16:29			17:20	39		17:00	10		20:04	41		20:54	12		21:36		21:42		21:04	11		20:00	44		18:51	14		16:48	38		16:14	
8	08:28			07:53			06:57			06:46			05:45			05:07		05:13		05:54			06:44			07:32			07:26			08:14	
	16:30			17:22	39		17:00	13		20:05	36		20:55	4		21:37		21:42		21:02	14		19:57	48		18:49	10		16:46	39		16:14	
9	08:28			07:51			06:54			06:44			05:43			05:06		05:14		05:56			06:45			07:34			07:28			08:15	
	16:31			17:23	39		17:00	15		20:07	36		20:57			21:38		21:41		21:00	18		19:55	50		18:46	9		16:44	39		16:14	
10	08:27			07:49			06:52			06:42			05:41			05:06		05:15		05:57			06:47			07:36			07:30			08:16	
	16:33			17:25	39		17:00	16		20:09	35		20:59			21:38		21:40		20:59	20		19:53	52		18:44	11		16:43	39		16:13	
11	08:27			07:48			06:50			06:39			05:39			05:06		05:16		05:59			06:48			07:37			07:32			08:17	
	16:34			17:27	39		17:00	16		20:10	33		21:00			21:39		21:40		20:57	22		19:51	51		18:42	13		16:41	39		16:13	
12	08:26			07:46			06:48			06:37			05:38			05:05		05:17		06:00			06:50			07:39			07:33			08:18	
	16:36			17:29	37		17:00	16		20:12	32		21:02			21:40		21:39		20:55	23		19:48	50		18:40	23		16:40	39		16:13	
13	08:25			07:44			06:45			06:35			05:36			05:05		05:18		06:02			06:52			07:41			07:35			08:19	
	16:37			17:31	37		17:00	16		20:14	30		21:03			21:41		21:38		20:53	24		19:46	48		18:37	27		16:38	38		16:13	
14	08:25			07:42			06:43			06:33			05:34			05:05		05:19		06:03			06:53			07:42			07:37			08:20	
	16:38			17:33	35		17:00	14		20:15	28		21:05			21:41		21:37		20:51	25		19:44	44		18:35	29		16:37	38		16:13	
15	08:24		09:09 (WEA02)	07:40			06:41			06:31			05:33			05:04		05:20		06:05			06:55			07:44			07:39			08:21	
	16:40	9	09:18 (WEA02)	17:35	34		17:00	12		20:17	25		21:06			21:42		21:36		20:49	26		19:41	40		18:33	31		16:35	37		16:13	
16	08:23		09:07 (WEA02)	07:38			06:39			06:28			05:31			05:04		05:22		06:07			06:56			07:45			07:40			08:22	
	16:42	13	09:20 (WEA02)	17:36	32		17:00	8		20:19	21		21:08			21:42		21:35		20:47	26		19:39	34		18:31	30		16:34	35		16:13	
17	08:22		09:06 (WEA02)	07:36			06:36			06:26			05:30			05:04		05:23		06:08			06:58			07:48			07:42			08:23	
	16:43	16	09:22 (WEA02)	17:38	30		17:00	1		20:20	17		21:09			21:43		21:34		20:45	27		19:37	24		18:29	29		16:32	34		16:13	
18	08:21		09:05 (WEA02)	07:35			06:34			06:24			05:28			05:04		05:24		06:10			07:00			07:49			07:44			08:24	
	16:45	18	09:23 (WEA02)	17:40	28		17:00	1		20:22	17		21:11			21:43		21:33		20:43	27		19:34	20		18:27	27		16:31	32		16:13	
19	08:20		09:05 (WEA02)	07:33			06:32			06:22			05:27			05:04		05:25		06:11			07:01			07:51			07:45			08:25	
	16:46	20	09:25 (WEA02)	17:42	24		17:00	8		20:24	14		21:12			21:44		21:32		20:41	26		19:32	14		18:24	17		16:30	30		16:14	
20	08:19		09:04 (WEA02)	07:31			06:29			06:20			05:26			05:04		05:27		06:13			07:03			07:54			07:47			08:25	
	16:48	22	09:26 (WEA02)	17:44	24		17:00	11		20:26	17		21:14			21:44		21:31		20:39	26		19:30	13		18:22	16		16:29	28		16:14	
21	08:18		09:04 (WEA02)	07:29			06:27			06:18			05:24			05:04		05:28		06:15			07:04			07:54			07:49			08:26	
	16:50	24	09:28 (WEA02)	17:46	24		17:00	13		20:27	21		21:15			21:44		21:30		20:37	25		19:27	14		18:20	14		16:27	26		16:14	
22	08:17		09:04 (WEA02)	07:27			06:25			06:16			05:23			05:04		05:29		06:16			06:58			07:56			07:50			08:27	
	16:51	25	09:29 (WEA02)	17:47	13		17:00	14		20:29	22		21:17			21:45		21:29		20:35	23		19:25	14		18:18	22		16:26	25		16:15	
23	08:16		09:02 (WEA01)	07:24			06:23			06:14			05:22			05:05		05:30		06:18			07:08			07:58			07:52			08:27	
	16:53	27	09:29 (WEA02)	17:49	16		17:00	14		20:31	24		21:18			21:45		21:27		20:33	22		19:23	14		18:16	25		16:25	23		16:15	
24	08:15		09:01 (WEA01)	07:22			06:20			06:11			05:20			05:05		05:32		06:20			07:09			08:00			07:54			08:28	
	16:55	29	09:30 (WEA02)	17:51	17		17:00	14		20:32	25		21:20			21:45		21:26		20:31	19		19:20	13		18:14	23		16:24	21		16:16	
25	08:14		09:00 (WEA01)	07:20			06:18			06:09			05:19			05:05		05:33		06:21			07:11			08:01			07:55			08:28	
	16:56	31	09:31 (WEA02)	17:53	26		17:00	12		20:34	26		21:21			21:45		21:25		20:29	15		19:18	11		18:04	27		16:23	20		16:16	
26	08:13		08:58 (WEA01)	07:18			06:16			06:07			05:18			05:05		05:35		06:23			07:13			08:03			07:57			08:28	
	16:58	33	09:31 (WEA02)	17:55	30		17:00	16		20:36	26		21:22			21:45		21:23		20:26	11		19:16	8		18:10	29		16:22	17		16:17	
27	08:11		08:57 (WEA01)	07:16			06:13			06:05			05:17			05:06		05:36		06:24			07:14			08:05			07:59			08:29	
	17:00	35	09:32 (WEA02)	17:56	32		17:00	21		20:37	27		21:24			21:45		21:22		20:24	14		19:14			18:08	32		16:21	15		16:18	
28	08:10		08:56 (WEA01)	07:14			06:03			06:03			05:16			05:06		05:37		06:26			07:16			08:07			08:00			08:29	
	17:02	36	09:32 (WEA02)	17:58	31		17:00	25		20:39	27		21:25			21:45		21:20		20:22	19		19:11			18:06	34		16:20	12		16:18	
29	08:09		08:56 (WEA01)				07:09			06:01			05:15			05:07		05:39		06:28			07:17			08:28 (B152)			08:24 (WEA01)			08:50 (WEA02)			08:29	
	17:03	37	09:33 (WEA02)				19:48	35		08:27 (B014)	20:41	26		07:24 (B050)	21:26		21:45		21:19		20:20	23		08:20 (B014)	19:09	8	08:36 (B152)	17:04	35		08:59 (WEA01)	16:19	8	08:58 (B013)	16:19	
30	08:07		08:55 (WEA01)				07:07			07:37 (B087)	05:59			06:59 (B050)	05:14		05:07		05:40		06:29			07:55 (B014)	07:19		08:26 (B152)	17:10			08:24 (WEA01)	08:03				08:29	
	17:05	37	09:32 (WEA02)				19:50	42		08:28 (B014)	20:42	26		07:25 (B050)	21:27		21:45		21:17		20:18	26		08:21 (B014)	19:07	12	08:38 (B152)	17:02	36		09:00 (WEA01)	16:18				16:20	
31	08:06		08:54 (WEA01)				07:04			07:36 (B087)					05:13				05:42		06:31			07:54 (B014)				07:12			08:23 (WEA01)					08:29	
	17:07	38	09:32 (WEA02)				19:52	46		08:29 (B014)					21:29				21:16		20:15	29		08:23 (B014)				17:00	38		09:01 (WEA01)					16:21	
Sonnenscheinstunden	259			277			366			414			483			497		502		454			382			333			268			245	
astr.max.mögl.Beschattung		450			898			521			931			141						542				833			694			905				
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43						0.40				0.32			0.29			0.23				
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95						0.95				0.95			0.95			0.95				
Reduktion Windrichtung		0.56			0.58			0.68			0.72			0.73						0.73				0.71			0.62			0.56				
Gesamte Reduktion		0.10			0.18			0.18			0.25			0.30						0.28				0.21			0.17			0.12				
Met.wahrsch.Beschattung		45			162			96			231			42						150				179			118			110				

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: Dörenhagen GB Schattenrezeptor: IO076 - Warburger Str. 3a, Dörenhagen

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		09:40 (WEA03)	08:04		08:59 (WEA01)	07:12		07:53 (B223)	07:02		07:33 (B087)	05:57		06:51 (B050)	05:12		05:08			05:43			07:05 (B050)	06:32		07:45 (B014)	07:21		08:24 (B152)	07:14		07:49 (B124)	08:05		08:54 (WEA02)
	16:22	23	10:03 (WEA03)	17:09	40	09:39 (WEA01)	18:00	34	08:29 (B153)	19:54	39	08:23 (B014)	20:44	28	07:19 (B050)	21:30		21:45			21:14	18		07:23 (B050)	20:13	40	08:25 (B014)	19:04	17	08:41 (B152)	16:58	57	09:10 (WEA01)	16:18	24	09:44 (WEA03)
2	08:29		09:40 (WEA03)	08:03		08:59 (WEA01)	07:10		07:53 (B223)	07:00		07:32 (B087)	05:56		06:51 (B050)	05:11		05:09			05:45			07:04 (B050)	06:34		07:45 (B014)	07:22		08:22 (B152)	07:16		07:49 (B124)	08:06		08:56 (WEA02)
	16:23	24	10:04 (WEA03)	17:11	40	09:39 (WEA01)	18:02	32	08:28 (B153)	19:55	45	08:25 (B014)	20:46	28	07:19 (B050)	21:31		21:44			21:13	21		07:25 (B050)	20:11	40	08:25 (B014)	19:02	19	08:41 (B152)	16:57	57	09:11 (WEA01)	16:17	22	09:45 (WEA03)
3	08:29		09:41 (WEA03)	08:01		08:58 (WEA01)	07:08		07:53 (B223)	06:57		07:31 (B087)	05:54		06:50 (B050)	05:09		05:10			05:46			07:03 (B050)	06:36		07:44 (B014)	07:24		08:23 (B152)	07:17		07:50 (B124)	08:07		09:31 (WEA03)
	16:24	23	10:04 (WEA03)	17:12	42	09:40 (WEA01)	18:04	29	08:27 (B153)	19:57	49	08:26 (B014)	20:47	29	07:19 (B050)	21:32		21:44			21:11	23		07:26 (B050)	20:09	41	08:25 (B014)	19:00	17	08:40 (B152)	16:55	55	09:11 (WEA01)	16:16	16	09:47 (WEA03)
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	16:25	23	10:05 (WEA03)	17:14	42	09:41 (WEA01)	18:05	24	08:24 (B153)	19:59	51	08:27 (B014)	20:49	29	07:19 (B050)	21:33		21:44			21:09	24		07:26 (B050)	20:06	45	08:25 (B014)	18:57	17	08:40 (B152)	16:53	52	09:10 (WEA01)	16:16	17	09:47 (WEA03)
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	16:26	22	10:04 (WEA03)	17:16	43	09:41 (WEA01)	18:07	14	08:08 (B223)	20:00	53	08:26 (B014)	20:51	28	07:19 (B050)	21:34		21:43			21:08	25		07:27 (B050)	20:04	51	08:25 (B014)	18:55	15	08:38 (B152)	16:51	45	09:10 (WEA01)	16:15	19	09:49 (WEA03)
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7	08:28		09:44 (WEA03)	07:55		08:58 (WEA01)	06:59		07:56 (B223)	06:48		07:30 (B087)	05:46		06:50 (B050)	05:07		05:12			05:52			07:01 (B050)	06:42		07:26 (B087)	07:31		08:27 (B152)	07:24		08:28 (WEA01)	08:13		09:30 (WEA03)
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8	08:28		09:45 (WEA03)	07:53		08:23 (B124)	06:57		07:51 (B152)	06:46		07:31 (B087)	05:45		06:51 (B050)	05:07		05:13			05:54			07:00 (B050)	06:44		07:25 (B087)	07:32		08:33 (B223)	07:26		08:29 (WEA01)	08:14		09:30 (WEA03)
	16:30	20	10:05 (WEA03)	17:22	51	09:42 (WEA01)	18:12	7	07:58 (B152)	20:05	52	08:27 (B014)	20:55	27	07:18 (B050)	21:37		21:42			21:02	28		07:28 (B050)	19:57	53	08:22 (B014)	18:48	7	08:40 (B223)	16:46	42	09:11 (WEA01)	16:14	21	09:51 (WEA03)
9	08:28		09:46 (WEA03)	07:51		08:21 (B124)	06:54		07:47 (B152)	06:44		07:33 (B087)	05:43		06:51 (B050)	05:06		05:14			05:56			07:00 (B050)	06:45		07:25 (B087)	07:34		08:29 (B223)	07:28		08:29 (WEA01)	08:15		09:30 (WEA03)
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	16:36	22	10:03 (WEA03)	17:29	58	09:40 (WEA01)	18:19	17	08:02 (B152)	20:12	40	08:26 (B014)	21:02	21	07:14 (B050)	21:40		21:39			20:55	29		07:28 (B050)	19:48	43	08:16 (B014)	18:40	29	09:01 (B153)	16:40	40	09:11 (WEA02)	16:13	23	09:54 (WEA03)
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28	08:10		09:01 (WEA01)	07:14		07:54 (B223)	07:11		08:06 (B086)	06:03		06:53 (B050)	05:16			05:06		05:37			06:26			07:47 (B014)	07:16		08:27 (B152)	08:07		08:48 (B124)	08:00		08:49 (WEA02)	08:29		09:37 (WEA03)
	17:02	38	09:39 (WEA02)	17:58	33	08:30 (B153)	19:47	11	08:17 (B086)	20:39	25	07:18 (B050)	21:25			21:45		21:20			20:22	37		08:24 (B014)	19:11	13	08:40 (B152)	18:06	54	10:08 (WEA01)	16:20	20	09:09 (WEA02)	16:18	25	10:02 (WEA03)
29	08:09		09:01 (WEA01)				07:09		08:04 (B014)	06:01		06:52 (B050)	05:15			05:07		05:39	07:11 (B050)		06:28			07:47 (B014)	07:17		08:24 (B152)	07:08		08:47 (B124)	08:02		08:51 (WEA02)	08:29		09:37 (WEA03)
	17:03	39	09:40 (WEA02)				19:48	12	08:16 (B014)	20:41	26	07:18 (B050)	21:26			21:45		21:19	6 07:17 (B050)		20:20	38		08:25 (B014)	19:09	16	08:40 (B152)	17:04	56	09:08 (WEA01)	16:19	17	09:08 (WEA02)	16:19	24	10:03 (WEA03)
30	08:07		09:00 (WEA01)				07:07		08:00 (B014)	05:59		06:52 (B050)	05:14			05:07		05:40	07:08 (B050)		06:29			07:46 (B014)	07:19		08:24 (B152)	07:10		07:48 (B124)	08:03		08:52 (WEA02)	08:29		09:39 (WEA03)
	17:05	39	09:39 (WEA02)				19:50	20	08:20 (B014)	20:42	27	07:19 (B050)	21:27			21:45		21:17	12 07:20 (B050)		20:18	39		08:25 (B014)	19:07	17	08:41 (B152)	17:02	57	09:09 (WEA01)	16:18	23	09:41 (WEA02)	16:20	24	10:03 (WEA03)
31	08:06		08:59 (WEA01)				07:04		07:36 (B087)				05:13			05:42		07:07 (B050)	06:31		07:46 (B014)									07:12		07:48 (B124)				08:29		09:39 (WEA03)
	17:07	40	09:39 (WEA02)				19:52	31	08:22 (B014)				21:28			21:16	15	07:22 (B050)	20:15	40	08:26 (B014)									17:00	58	09:10 (WEA01)				16:21	24	10:03 (WEA03)
Sonnenscheinstunden	259			277			366			414			483			497		502			454			382			333			268			245		
astr.max.mögl.Beschattung		815			1153			480			1105			373			33			868			824			889			1091			715		
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.39			0.40			0.32			0.29			0.23			0.17		
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95		
Reduktion Windrichtung		0.55			0.58			0.67			0.72			0.73			0.73			0.72			0.71			0.61			0.56			0.54		
Gesamte Reduktion		0.10			0.18			0.18			0.25			0.30			0.27			0.28			0.21			0.17			0.12			0.09		
Met.wahrsch.Beschattung		80			207			87			274			111			9			239			177			150			131			63		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO077 - Am Schulberg 1, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 - 16:22	08:04 - 17:09	07:12 - 18:00 (9) 07:47 (B200) - 07:56 (B200)	07:02 - 19:53	05:57 - 20:44 (15)	19:38 (B083) - 05:12 - 21:29 (26)	20:15 (WEA03) - 05:08 - 20:41 (WEA03)	20:21 (WEA03) - 05:43 - 21:44 (26)	19:44 (B083) - 06:32 - 20:47 (WEA03)	19:01 (B084) - 07:21 - 19:04	07:14 - 16:58	08:04 - 16:18
2	08:29 - 16:23	08:03 - 17:11	07:10 - 18:02 (5) 07:49 (B200) - 07:54 (B200)	07:00 - 19:55	05:55 - 20:45 (18)	19:36 (B083) - 05:11 - 21:31 (26)	20:15 (WEA03) - 05:09 - 20:41 (WEA04)	20:20 (WEA03) - 05:45 - 21:44 (26)	19:44 (B083) - 06:34 - 20:47 (WEA03)	19:02 (B084) - 07:22 - 19:02	07:15 - 16:56	08:06 - 16:17
3	08:29 - 16:24	08:01 - 17:12	07:07 - 18:03	06:57 - 19:57	05:54 - 20:47 (20)	19:35 (B083) - 05:10 - 21:32 (27)	20:14 (WEA03) - 05:09 - 20:41 (WEA03)	20:21 (WEA03) - 05:46 - 21:44 (26)	19:43 (B083) - 06:35 - 20:47 (WEA03)	19:02 (B084) - 07:24 - 19:00	07:17 - 16:55	08:07 - 16:16
4	08:29 - 16:25	07:59 - 17:14	07:05 - 18:05	06:55 - 19:58	05:52 - 20:49 (21)	19:34 (B083) - 05:09 - 21:33 (27)	20:14 (WEA03) - 05:10 - 20:41 (WEA03)	20:21 (WEA03) - 05:48 - 21:43 (26)	19:42 (B083) - 06:37 - 20:47 (WEA03)	19:04 (B084) - 07:26 - 18:57	07:19 - 16:53	08:09 - 16:16
5	08:29 - 16:26	07:58 - 17:16	07:03 - 18:07	06:53 - 20:00	05:50 - 20:50 (23)	19:34 (B083) - 05:09 - 21:34 (26)	20:15 (WEA03) - 05:11 - 20:41 (WEA03)	20:21 (WEA03) - 05:49 - 21:43 (26)	19:43 (B083) - 06:39 - 20:47 (WEA03)	19:06 (B084) - 07:27 - 19:12 (6)	07:21 - 16:51	08:10 - 16:15
6	08:28 - 16:28	07:56 - 17:18	07:01 - 18:09	06:50 - 20:02	05:48 - 20:52 (24)	19:33 (B083) - 05:08 - 21:35 (26)	20:15 (WEA03) - 05:11 - 20:41 (WEA03)	20:21 (WEA03) - 05:51 - 21:42 (26)	19:42 (B083) - 06:40 - 20:47 (WEA03)	19:12 (B084) - 18:55	07:22 - 16:49	08:11 - 16:15
7	08:28 - 16:29	07:54 - 17:20	06:59 - 18:10	06:48 - 20:03	05:46 - 20:54 (23)	19:33 (B083) - 05:07 - 21:36 (27)	20:15 (WEA03) - 05:12 - 20:42 (WEA03)	20:21 (WEA03) - 05:52 - 21:42 (27)	19:43 (B083) - 06:42 - 20:48 (WEA03)	07:30 - 18:51	07:24 - 16:48	08:12 - 16:14
8	08:28 - 16:30	07:53 - 17:22	06:56 - 18:12	06:46 - 20:05	05:44 - 20:55 (24)	19:33 (B083) - 05:07 - 21:37 (26)	20:15 (WEA03) - 05:13 - 20:41 (WEA03)	20:22 (WEA03) - 05:54 - 21:41 (26)	19:42 (B083) - 06:43 - 20:48 (WEA03)	07:32 - 18:48	07:26 - 16:46	08:14 - 16:14
9	08:27 - 16:31	07:51 - 17:23	06:54 - 18:14	06:44 - 19:07 (B084) - 20:07 (9)	05:43 - 20:57 (24)	19:33 (B083) - 05:06 - 21:37 (26)	20:16 (WEA03) - 05:14 - 20:42 (WEA03)	20:22 (WEA03) - 05:56 - 21:41 (26)	19:43 (B083) - 06:45 - 20:48 (WEA03)	07:34 - 18:46	07:28 - 16:44	08:15 - 16:14
10	08:27 - 16:33	07:49 - 17:25	06:52 - 18:16	06:41 - 19:05 (B084) - 20:09 (13)	05:41 - 20:58 (24)	19:32 (B083) - 05:06 - 21:38 (26)	20:16 (WEA03) - 05:15 - 20:42 (WEA03)	20:22 (WEA03) - 05:57 - 21:40 (27)	19:43 (B083) - 06:47 - 20:49 (WEA03)	07:36 - 18:44	07:30 - 16:43	08:16 - 16:13
11	08:26 - 16:34	07:47 - 17:27	06:50 - 18:17	06:39 - 19:03 (B084) - 20:10 (17)	05:39 - 21:00 (23)	19:33 (B083) - 05:05 - 21:39 (26)	20:16 (WEA03) - 05:16 - 20:42 (WEA03)	20:22 (WEA03) - 05:59 - 21:39 (27)	19:44 (B083) - 06:48 - 20:49 (WEA03)	07:37 - 18:42	07:31 - 16:41	08:17 - 16:13
12	08:26 - 16:35	07:46 - 17:29	06:47 - 18:19	06:37 - 19:02 (B084) - 20:12 (19)	05:38 - 21:02 (23)	19:33 (B083) - 05:05 - 21:40 (26)	20:16 (WEA03) - 05:17 - 20:42 (WEA03)	20:23 (WEA03) - 06:00 - 21:39 (26)	19:44 (B083) - 06:50 - 20:49 (WEA03)	07:39 - 18:39	07:33 - 16:40	08:18 - 16:13
13	08:25 - 16:37	07:44 - 17:31	06:45 - 18:21	06:35 - 19:02 (B084) - 20:14 (19)	05:36 - 21:03 (22)	19:34 (B083) - 05:05 - 21:40 (26)	20:17 (WEA03) - 05:18 - 20:43 (WEA03)	20:23 (WEA03) - 06:02 - 21:38 (26)	19:46 (B083) - 06:51 - 20:49 (WEA03)	08:22 (B200) - 18:37 (5)	07:41 - 16:39	08:19 - 16:13
14	08:24 - 16:38	07:42 - 17:33 (6) 08:19 (B062) - 08:25 (B062)	06:43 - 18:23	06:33 - 19:01 (B084) - 20:15 (20)	05:34 - 21:05 (21)	19:34 (B083) - 05:04 - 21:41 (26)	20:17 (WEA03) - 05:19 - 20:43 (WEA03)	20:23 (WEA03) - 06:03 - 21:37 (26)	19:47 (B083) - 06:53 - 20:49 (WEA03)	08:27 (B200) - 18:42 (5)	07:42 - 16:38	08:20 - 16:13
15	08:24 - 16:40	07:40 - 17:34 (9) 08:17 (B062) - 08:26 (B062)	06:41 - 18:24	06:30 - 19:00 (B084) - 20:17 (20)	05:33 - 21:06 (20)	19:35 (B083) - 05:04 - 21:42 (25)	20:18 (WEA03) - 05:20 - 20:43 (WEA03)	20:23 (WEA03) - 06:05 - 21:36 (26)	19:50 (B083) - 06:55 - 20:49 (WEA03)	08:29 (B200) - 18:35 (9)	07:44 - 16:38	08:21 - 16:13
16	08:23 - 16:41	07:38 - 17:36 (11) 08:16 (B062) - 08:27 (B062)	06:38 - 18:26	06:28 - 19:00 (B084) - 20:19 (20)	05:31 - 21:08 (18)	19:36 (B083) - 05:04 - 21:42 (25)	20:17 (WEA03) - 05:22 - 20:42 (WEA03)	20:23 (WEA03) - 06:07 - 21:35 (26)	19:56 (B083) - 06:56 - 20:49 (WEA03)	08:19 (B200) - 18:31 (11)	07:46 - 16:34	08:22 - 16:13
17	08:22 - 16:43	07:36 - 17:38 (11) 08:16 (B062) - 08:27 (B062)	06:36 - 18:28	06:26 - 19:00 (B084) - 20:20 (20)	05:30 - 21:09 (17)	19:36 (B083) - 05:04 - 21:43 (26)	20:17 (WEA03) - 05:23 - 20:43 (WEA03)	20:24 (WEA03) - 06:08 - 21:34 (24)	19:39 - 06:58	08:30 (B200) - 18:31 (12)	07:47 - 16:32	08:23 - 16:13
18	08:21 - 16:45	07:34 - 17:40 (11) 08:16 (B062) - 08:27 (B062)	06:34 - 18:30	06:24 - 19:00 (B084) - 20:22 (19)	05:28 - 21:11 (19)	19:38 (B083) - 05:04 - 21:43 (25)	20:18 (WEA03) - 05:24 - 20:43 (WEA03)	20:24 (WEA03) - 06:10 - 21:33 (24)	19:37 - 07:00	08:31 (B200) - 18:29 (12)	07:49 - 16:32	08:24 - 16:13
19	08:20 - 16:46	07:32 - 17:42 (11) 08:16 (B062) - 08:27 (B062)	06:32 - 18:31	06:22 - 19:01 (B084) - 20:24 (17)	05:27 - 21:14 (21)	19:40 (B083) - 05:04 - 21:44 (25)	20:19 (WEA03) - 05:25 - 20:44 (WEA03)	20:24 (WEA03) - 06:11 - 21:32 (24)	19:34 - 07:01	08:29 (B200) - 18:26 (10)	07:45 - 16:32	08:24 - 16:13
20	08:19 - 16:48	07:30 - 17:44 (9) 08:17 (B062) - 08:26 (B062)	06:29 - 18:33	06:20 - 19:02 (B084) - 20:25 (15)	05:26 - 21:14 (21)	19:41 (B083) - 05:04 - 21:44 (25)	20:19 (WEA03) - 05:26 - 20:44 (WEA03)	20:24 (WEA03) - 06:13 - 21:31 (23)	19:32 - 07:03	08:27 (B200) - 18:22 (6)	07:53 - 16:30	08:25 - 16:13
21	08:18 - 16:50	07:28 - 17:45 (4) 08:24 (B062) - 08:35	06:27 - 18:35	06:18 - 19:03 (B084) - 20:27 (12)	05:24 - 21:15 (16)	20:18 (WEA03) - 05:04 - 21:44 (25)	20:19 (WEA03) - 05:28 - 20:44 (WEA03)	20:26 (WEA03) - 06:15 - 21:29 (21)	19:30 - 07:04	08:26 (B200) - 18:27 (11)	07:54 - 16:27	08:26 - 16:14
22	08:17 - 16:51	07:26 - 17:47	06:25 - 18:36	06:15 - 19:06 (B084) - 20:29 (6)	05:23 - 21:17 (19)	20:17 (WEA03) - 05:04 - 21:44 (25)	20:19 (WEA03) - 05:29 - 20:44 (WEA03)	20:26 (WEA03) - 06:16 - 21:28 (21)	19:27 - 07:04	08:51 (B062) - 18:18 (2)	07:49 - 16:26	08:26 - 16:15
23	08:16 - 16:53	07:24 - 17:49 (5) 07:50 (B200) - 07:55 (B200)	06:22 - 18:38	06:13 - 19:12 (B084) - 20:30	05:22 - 21:18 (21)	20:16 (WEA03) - 05:05 - 21:45 (25)	20:19 (WEA03) - 05:30 - 20:44 (WEA03)	20:27 (WEA03) - 06:18 - 21:27 (19)	19:13 (B084) - 07:06 - 19:25	08:53 (B062) - 18:16 (8)	07:50 - 16:26	08:27 - 16:15
24	08:15 - 16:55	07:22 - 17:51 (9) 07:57 (B200) - 18:40	06:20 - 18:40	06:11 - 20:32	05:20 - 21:19 (21)	20:16 (WEA03) - 05:05 - 21:45 (25)	20:20 (WEA03) - 05:32 - 20:45 (WEA03)	20:28 (WEA03) - 06:19 - 21:26 (17)	19:09 (B084) - 07:08 - 19:23	08:47 (B062) - 18:14 (10)	07:52 - 16:25	08:27 - 16:15
25	08:14 - 16:56	07:20 - 17:53 (11) 07:47 (B200) - 07:58 (B200)	06:18 - 18:42	06:09 - 20:34	05:19 - 21:21 (23)	20:15 (WEA03) - 05:05 - 21:45 (25)	20:20 (WEA03) - 05:33 - 20:45 (WEA03)	19:53 (B083) - 06:21 - 21:24 (19)	19:06 (B084) - 07:09 - 19:18	08:46 (B062) - 18:12 (11)	07:55 - 16:23	08:28 - 16:16
26	08:12 - 16:58	07:18 - 17:54 (12) 07:46 (B200) - 07:58 (B200)	06:16 - 19:43	06:07 - 20:35	05:18 - 21:22 (24)	20:15 (WEA03) - 05:05 - 21:45 (25)	20:20 (WEA03) - 05:35 - 20:45 (WEA03)	19:50 (B083) - 06:23 - 21:23 (22)	19:03 (B084) - 07:12 - 19:16	08:57 (B062) - 18:10 (11)	07:57 - 16:22	08:28 - 16:17
27	08:11 - 17:00	07:16 - 17:56 (12) 07:46 (B200) - 07:58 (B200)	06:14 - 19:45	06:05 - 20:37	05:17 - 21:23 (24)	20:15 (WEA03) - 05:06 - 21:45 (26)	20:20 (WEA03) - 05:36 - 20:46 (WEA03)	19:48 (B083) - 06:24 - 21:22 (20)	19:03 (B084) - 07:14 - 19:22 (B084) - 19:13	08:46 (B062) - 18:08 (11)	07:58 - 16:21	08:28 - 16:18
28	08:10 - 17:02	07:14 - 17:58 (11) 07:46 (B200) - 07:57 (B200)	06:11 - 19:47	06:03 - 20:39	05:16 - 21:25 (24)	20:15 (WEA03) - 05:06 - 21:45 (25)	20:20 (WEA03) - 05:37 - 20:46 (WEA03)	19:47 (B083) - 06:26 - 21:20 (17)	19:02 (B084) - 07:16 - 19:11	08:57 (B062) - 18:07	08:00 - 16:20	08:29 - 16:18
29	08:08 - 17:03		07:09 - 19:48	06:01 - 19:43 (B083) - 20:40 (5)	05:15 - 21:26 (26)	20:14 (WEA03) - 05:07 - 21:45 (25)	20:21 (WEA03) - 05:39 - 20:46 (WEA03)	19:46 (B083) - 06:27 - 21:19 (18)	19:02 (B084) - 07:17 - 19:09	08:46 (B062) - 18:06 (10)	07:48 (B062) - 08:00	08:29
30	08:07 - 17:05		07:06 - 19:50	05:59 - 19:40 (B083) - 20:42 (12)	05:14 - 21:27 (26)	20:14 (WEA03) - 05:07 - 21:45 (26)	20:20 (WEA03) - 05:40 - 21:17 (20)	19:45 (B083) - 06:29 - 20:05 (B083) - 20:17 (20)	19:01 (B084) - 07:19 - 19:21 (B084) - 19:06	08:56 (B062) - 18:04 (7)	07:51 (B062) - 08:03	08:29
31	08:06 - 17:07		07:04 - 19:52	05:13 - 21:28 (26)	20:14 (WEA03) - 20:40 (WEA03)		05:42 - 21:16 (21)	19:45 (B083) - 06:31 - 20:06 (B083) - 20:15 (20)	19:01 (B084) - 19:21 (B084)	07:52 (B062) - 17:02 (1)	07:12 - 17:00	08:29 - 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		132	14	243	672	770	729	472	69	147		
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29		
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Reduktion Windrichtung		0.64	0.66	0.71	0.65	0.64	0.64	0.68	0.71	0.64		
Gesamte Reduktion		0.20	0.18	0.25	0.27	0.20	0.24	0.26	0.22	0.18		
Met.wahrsch.Beschattung		26	2	60	179	157	173	122	15	26		

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
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49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO078 - Am Schulberg 2, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	19:38 (B083)	05:12	20:14 (WEA03)	05:08	20:21 (WEA03)	05:43	19:45 (B083)	06:32	19:03 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00 10 07:57 (B200)	19:53	20:44 16	19:54 (B083)	21:29 26	20:40 (WEA03)	21:44 25	20:46 (WEA03)	21:14 21	20:06 (B083)	20:13 18	19:21 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:48 (B200)	07:00	19:37 (B083)	05:11	20:15 (WEA03)	05:09	20:21 (WEA03)	05:45	19:45 (B083)	06:34	19:03 (B084)	07:22	07:15	08:06
	16:23	17:11	18:02 7 07:55 (B200)	19:55	20:45 18	19:55 (B083)	21:31 26	20:41 (WEA03)	21:44 25	20:46 (WEA03)	21:12 22	20:07 (B083)	20:11 17	19:20 (B084)	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	19:36 (B083)	05:10	20:14 (WEA03)	05:09	20:21 (WEA03)	05:46	19:44 (B083)	06:35	19:04 (B084)	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47 20	19:56 (B083)	21:32 27	20:41 (WEA03)	21:44 25	20:46 (WEA03)	21:11 23	20:07 (B083)	20:09 14	19:18 (B084)	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	19:35 (B083)	05:09	20:14 (WEA03)	05:10	20:22 (WEA03)	05:48	19:43 (B083)	06:37	19:06 (B084)	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49 21	19:56 (B083)	21:33 26	20:40 (WEA03)	21:43 25	20:47 (WEA03)	21:09 24	20:07 (B083)	20:06 10	19:16 (B084)	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	19:35 (B083)	05:09	20:15 (WEA03)	05:11	20:21 (WEA03)	05:49	19:44 (B083)	06:39	19:09 (B084)	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50 22	19:57 (B083)	21:34 26	20:41 (WEA03)	21:43 25	20:46 (WEA03)	21:07 23	20:07 (B083)	20:04 2	19:11 (B084)	18:55	16:51	16:15
6	08:28	07:56	07:01	06:50	05:48	19:34 (B083)	05:08	20:15 (WEA03)	05:11	20:21 (WEA03)	05:51	19:43 (B083)	06:40		07:29	07:22	08:11
	16:28	17:18	18:09	20:02	20:52 23	19:57 (B083)	21:35 26	20:41 (WEA03)	21:42 26	20:47 (WEA03)	21:06 24	20:07 (B083)	20:02		18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	19:33 (B083)	05:07	20:16 (WEA03)	05:12	20:22 (WEA03)	05:52	19:44 (B083)	06:42		07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:54 24	19:57 (B083)	21:36 25	20:41 (WEA03)	21:42 25	20:47 (WEA03)	21:04 23	20:07 (B083)	20:00		18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	19:34 (B083)	05:07	20:15 (WEA03)	05:13	20:22 (WEA03)	05:54	19:43 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55 24	19:58 (B083)	21:37 26	20:41 (WEA03)	21:41 26	20:48 (WEA03)	21:02 23	20:06 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54	06:44 19:09 (B084)	05:43	19:33 (B083)	05:06	20:16 (WEA03)	05:14	20:22 (WEA03)	05:56	19:44 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14	20:07 8 19:17 (B084)	20:57 24	19:57 (B083)	21:37 25	20:41 (WEA03)	21:41 26	20:48 (WEA03)	21:00 23	20:07 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52	06:41 19:07 (B084)	05:41	19:33 (B083)	05:06	20:17 (WEA03)	05:15	20:22 (WEA03)	05:57	19:44 (B083)	06:47		07:36	07:30	08:16
	16:33	17:25	18:16	20:09 12 19:19 (B084)	20:58 24	19:57 (B083)	21:38 25	20:42 (WEA03)	21:40 26	20:48 (WEA03)	20:58 21	20:05 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50	06:39 19:05 (B084)	05:39	19:34 (B083)	05:05	20:16 (WEA03)	05:16	20:22 (WEA03)	05:59	19:45 (B083)	06:48		07:37	07:31	08:17
	16:34	17:27	18:17	20:10 16 19:21 (B084)	21:00 23	19:57 (B083)	21:39 25	20:41 (WEA03)	21:39 27	20:49 (WEA03)	20:57 20	20:05 (B083)	19:50		18:42	16:41	16:13
12	08:26	07:46	06:47	06:37 19:04 (B084)	05:38	19:34 (B083)	05:05	20:17 (WEA03)	05:17	20:23 (WEA03)	06:00	19:45 (B083)	06:50		07:39	07:33	08:18
	16:35	17:29	18:19	20:12 18 19:22 (B084)	21:02 22	19:56 (B083)	21:40 25	20:42 (WEA03)	21:39 26	20:49 (WEA03)	20:55 19	20:04 (B083)	19:48		18:39	16:40	16:13
13	08:25	07:44	06:45	06:35 19:03 (B084)	05:36	19:35 (B083)	05:05	20:17 (WEA03)	05:18	20:23 (WEA03)	06:02	19:46 (B083)	06:51		07:41 08:22 (B200)	07:35	08:19
	16:37	17:31	18:21	20:14 19 19:22 (B084)	21:03 21	19:56 (B083)	21:40 25	20:42 (WEA03)	21:38 26	20:49 (WEA03)	20:53 17	20:03 (B083)	19:46		18:37 6 08:28 (B200)	16:38	16:13
14	08:24	07:42 08:19 (B062)	06:43	06:33 19:03 (B084)	05:34	19:35 (B083)	05:05	20:18 (WEA03)	05:19	20:23 (WEA03)	06:03	19:47 (B083)	06:53		07:42 08:20 (B200)	07:37	08:20
	16:38	17:33 6 08:25 (B062)	18:23	20:15 20 19:23 (B084)	21:05 20	19:55 (B083)	21:41 24	20:42 (WEA03)	21:37 26	20:49 (WEA03)	20:51 14	20:01 (B083)	19:44		18:35 10 08:30 (B200)	16:37	16:13
15	08:24	07:40 08:17 (B062)	06:41	06:30 19:01 (B084)	05:33	19:36 (B083)	05:04	20:18 (WEA03)	05:20	20:23 (WEA03)	06:05	19:50 (B083)	06:55		07:44 08:19 (B200)	07:38	08:21
	16:40	17:34 10 08:27 (B062)	18:24	20:17 21 19:22 (B084)	21:06 19	19:55 (B083)	21:42 25	20:43 (WEA03)	21:36 26	20:49 (WEA03)	20:49 9	19:59 (B083)	19:41		18:33 12 08:31 (B200)	16:35	16:13
16	08:23	07:38 08:17 (B062)	06:38	06:28 19:01 (B084)	05:31	19:37 (B083)	05:04	20:18 (WEA03)	05:22	20:23 (WEA03)	06:07		06:56		07:46 08:19 (B200)	07:40	08:22
	16:41	17:36 11 08:28 (B062)	18:26	20:19 20 19:21 (B084)	21:08 17	19:54 (B083)	21:42 24	20:42 (WEA03)	21:35 26	20:49 (WEA03)	20:47		19:39		18:31 12 08:31 (B200)	16:34	16:13
17	08:22	07:36 08:16 (B062)	06:36	06:26 19:01 (B084)	05:30	19:38 (B083)	05:04	20:18 (WEA03)	05:23	20:23 (WEA03)	06:08		06:58		07:47 08:18 (B200)	07:42	08:23
	16:43	17:38 12 08:28 (B062)	18:28	20:20 20 19:21 (B084)	21:09 15	19:53 (B083)	21:43 24	20:42 (WEA03)	21:34 25	20:48 (WEA03)	20:45		19:37		18:29 12 08:30 (B200)	16:32	16:13
18	08:21	07:34 08:16 (B062)	06:34	06:24 19:02 (B084)	05:28	19:39 (B083)	05:04	20:18 (WEA03)	05:24	20:24 (WEA03)	06:10		07:00		07:49 08:18 (B200)	07:44	08:24
	16:45	17:40 12 08:28 (B062)	18:30	20:22 18 19:20 (B084)	21:11 21	20:30 (WEA03)	21:43 24	20:42 (WEA03)	21:33 24	20:48 (WEA03)	20:43		19:34		18:26 12 08:30 (B200)	16:31	16:13
19	08:20	07:32 08:17 (B062)	06:32	06:22 19:02 (B084)	05:27	19:42 (B083)	05:04	20:19 (WEA03)	05:25	20:24 (WEA03)	06:11		07:01		07:51 08:19 (B200)	07:45	08:24
	16:46	17:42 10 08:27 (B062)	18:31	20:24 18 19:20 (B084)	21:12 21	20:33 (WEA03)	21:44 24	20:43 (WEA03)	21:32 24	20:48 (WEA03)	20:41		19:32		18:24 10 08:29 (B200)	16:30	16:13
20	08:19	07:30 08:18 (B062)	06:29	06:20 19:03 (B084)	05:26	20:18 (WEA03)	05:04	20:19 (WEA03)	05:26	20:24 (WEA03)	06:13		07:03		07:53 08:21 (B200)	07:47	08:25
	16:48	17:44 8 08:26 (B062)	18:33	20:25 15 19:18 (B084)	21:14 15	20:33 (WEA03)	21:44 24	20:43 (WEA03)	21:31 23	20:47 (WEA03)	20:39		19:30		18:22 6 08:27 (B200)	16:28	16:14
21	08:18	07:28 08:20 (B062)	06:27	06:18 19:05 (B084)	05:24	20:17 (WEA03)	05:04	20:20 (WEA03)	05:28	20:26 (WEA03)	06:15		07:04		07:54	07:49	08:26
	16:50	17:45 4 08:24 (B062)	18:35	20:27 12 19:17 (B084)	21:15 18	20:35 (WEA03)	21:44 23	20:43 (WEA03)	21:29 22	20:48 (WEA03)	20:37		19:27		18:20	16:27	16:14
22	08:17	07:26	06:25	06:15 19:07 (B084)	05:23	20:16 (WEA03)	05:04	20:20 (WEA03)	05:29	20:26 (WEA03)	06:16	19:14 (B084)	07:06		07:56 08:52 (B062)	07:50	08:26
	16:51	17:47	18:36	20:29 7 19:14 (B084)	21:17 20	20:36 (WEA03)	21:44 23	20:43 (WEA03)	21:28 21	20:47 (WEA03)	20:35 2	19:16 (B084)	19:25		18:18 2 08:54 (B062)	16:26	16:15
23	08:16	07:24 07:50 (B200)	06:22	06:13	05:22	20:16 (WEA03)	05:05	20:20 (WEA03)	05:30	20:26 (WEA03)	06:18	19:10 (B084)	07:08		07:58 08:48 (B062)	07:52	08:27
	16:53	17:49 5 07:55 (B200)	18:38	20:30	21:18 21	20:37 (WEA03)	21:45 23	20:43 (WEA03)	21:27 20	20:46 (WEA03)	20:33 11	19:21 (B084)	19:23		18:16 8 08:56 (B062)	16:25	16:15
24	08:15	07:22 07:48 (B200)	06:20	06:11	05:20	20:16 (WEA03)	05:05	20:20 (WEA03)	05:32	20:27 (WEA03)	06:19	19:08 (B084)	07:09		08:00 08:47 (B062)	07:54	08:27
	16:55	17:51 9 07:57 (B200)	18:40	20:32	21:19 22	20:38 (WEA03)	21:45 24	20:44 (WEA03)	21:26 18	20:45 (WEA03)	20:30 14	19:22 (B084)	19:20		18:14 10 08:57 (B062)	16:24	16:16
25	08:14	07:20 07:47 (B200)	06:18	06:09	05:19	20:15 (WEA03)	05:05	20:20 (WEA03)	05:33	20:29 (WEA03)	06:21	19:07 (B084)	07:11		08:01 08:46 (B062)	07:55	08:28
	16:56	17:53 11 07:58 (B200)	18:42	20:34	21:21 23	20:38 (WEA03)	21:45 24	20:44 (WEA03)	21:24 16	20:45 (WEA03)	20:28 16	19:23 (B084)	19:18		18:12 11 08:57 (B062)	16:23	16:16
26	08:12	07:18 07:47 (B200)	07:16	06:07	05:18	20:15 (WEA03)	05:05	20:20 (WEA03)	05:35	19:52 (B083)	06:23	19:05 (B084)	07:12		08:03 08:46 (B062)	07:57	08:28
	16:58	17:54 12 07:59 (B200)	19:43	20:35	21:22 24	20:39 (WEA03)	21:45 24	20:44 (WEA03)	21:23 21	20:43 (WEA03)	20:26 18	19:23 (B084)	19:16		18:10 11 08:57 (B062)	16:22	16:17
27	08:11	07:16 07:47 (B200)	07:13	06:05	05:17	20:15 (WEA03)	05:06	20:21 (WEA03)	05:36	19:50 (B083)	06:24	19:04 (B084)	07:14		08:05 08:46 (B062)	07:58	08:28
	17:00	17:56 12 07:59 (B200)	19:45	20:37	21:23 24	20:39 (WEA03)	21:45 24	20:45 (WEA03)	21:22 20	20:41 (WEA03)	20:24 20	19:24 (B084)	19:13		18:08 11 08:57 (B062)	16:21	16:18
28	08:10	07:14 07:46 (B200)	07:11	06:03	05:16	20:14 (WEA03)	05:06	20:20 (WEA03)	05:37	19:49 (B083)	06:26	19:03 (B084)	07:16		08:07 08:47 (B062)	08:00	08:29
	17:02	17:58 11 07:57 (B200)	19:47	20:39	21:25 25	20:39 (WEA03)	21:45 25	20:45 (WEA03)	21:20 15	20:04 (B083)	20:22 20	19:23 (B084)	19:11		18:06 10 08:57 (B062)	16:20	16:18
29	08:08		07:09	06:01 19:43 (B083)	05:15	20:14 (WEA03)	05:07	20:21 (WEA03)	05:39	19:47 (B083)	06:27	19:03 (B084)	07:17		07:08 07:48 (B062)	08:01	08:29
	17:03		19:48	20:40 6 19:49 (B083)	21:26 26	20:40 (WEA03)	21:45 25	20:46 (WEA03)	21:19 17	20:04 (B083)	20:20 20	19:23 (B084)	19:09		17:04 8 07:56 (B062)	16:19	16:19
30	08:07		07:06	05:59 19:40 (B083)	05:14	20:14 (WEA03)	05:07	20:21 (WEA03)	05:40	19:46 (B083)	06:29	19:02 (B084)	07:19		07:10 07:51 (B062)	08:03	08:29
	17:05		19:50	20:42 13 19:53 (B083)	21:27 26	20:40 (WEA03)	21:45 24	20:45 (WEA03)	21:17 19	20:05 (B083)	20:17 20	19:22 (B084)	19:06		17:02 2 07:53 (B062)	16:18	16:20
31	08:06		07:04		05:13	20:14 (WEA03)			05:42	19:46 (B083)	06:31	19:03 (B084)			07:12		08:29
	17:07		19:52		21:28 26	20:40 (WEA03)			21:16 20	20:06 (B083)	20:15 19	19:22 (B084)			17:00		16:21
Sonnenscheinstunden	259	277	366	414	483		497		501		454		382		333	268	245
astr.max.mögl.Beschattung		133	17	243	665		741		716		466		61	153			
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43		0.34		0.39		0.40		0.32	0.29			
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95		0.95		0.95		0.95		0.95	0.95			
Reduktion Windrichtung		0.64	0.66	0.71	0.65		0.64		0.64		0.68		0.71	0.64			
Gesamte Reduktion		0.20	0.18	0.24	0.27		0.20		0.24		0.26		0.22	0.18			
Met.wahrsch.Beschattung		26	3	59	177		152		169		121		13	27			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO079 - Am Schulberg 3, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:52 (B200)	07:02	05:57	19:33 (B083)	05:12	20:11 (WEA03)	05:08	20:20 (WEA03)	05:43	19:45 (B083)	06:32	18:59 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00	4 07:56 (B200)	19:53	20:44 21	19:54 (B083)	21:29 26	20:37 (WEA03)	21:44 22	20:42 (WEA03)	21:14 16	20:01 (B083)	20:13 20	19:19 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10		07:00	05:55	19:32 (B083)	05:11	20:12 (WEA03)	05:09	20:19 (WEA03)	05:45	19:44 (B083)	06:34	19:00 (B084)	07:22	07:15	08:06
	16:23	17:11	18:02		19:55	20:45 22	19:54 (B083)	21:31 26	20:38 (WEA03)	21:44 23	20:42 (WEA03)	21:12 18	20:02 (B083)	20:11 19	19:19 (B084)	19:02	16:56	16:17
3	08:29	08:01	07:07		06:57	05:54	19:31 (B083)	05:10	20:12 (WEA03)	05:09	20:20 (WEA03)	05:46	19:43 (B083)	06:35	18:59 (B084)	07:24	07:17	08:07
	16:24	17:12	18:03		19:57	20:47 23	19:54 (B083)	21:32 26	20:38 (WEA03)	21:44 23	20:43 (WEA03)	21:11 20	20:03 (B083)	20:09 19	19:18 (B084)	19:00	16:55	16:16
4	08:29	07:59	07:05		06:55	05:52	19:31 (B083)	05:09	20:12 (WEA03)	05:10	20:20 (WEA03)	05:48	19:42 (B083)	06:37	19:00 (B084)	07:26	07:19	08:09
	16:25	17:14	18:05		19:58	20:49 23	19:54 (B083)	21:33 25	20:37 (WEA03)	21:43 23	20:43 (WEA03)	21:09 21	20:03 (B083)	20:06 17	19:17 (B084)	18:57	16:53	16:16
5	08:29	07:58	07:03		06:53	05:50	19:31 (B083)	05:09	20:13 (WEA03)	05:11	20:19 (WEA03)	05:49	19:42 (B083)	06:39	19:00 (B084)	07:27	07:21	08:10
	16:26	17:16	18:07		20:00	20:50 24	19:55 (B083)	21:34 25	20:38 (WEA03)	21:43 24	20:43 (WEA03)	21:07 22	20:04 (B083)	20:04 15	19:15 (B084)	18:55	16:51	16:15
6	08:28	07:56	07:01		06:50	05:48	19:31 (B083)	05:08	20:13 (WEA03)	05:11	20:20 (WEA03)	05:51	19:41 (B083)	06:40	19:02 (B084)	07:29	07:22	08:11
	16:28	17:18	18:09		20:02	20:52 24	19:55 (B083)	21:35 25	20:38 (WEA03)	21:42 24	20:44 (WEA03)	21:06 23	20:04 (B083)	20:02 11	19:13 (B084)	18:53	16:49	16:15
7	08:28	07:54	06:59		06:48 19:07 (B084)	05:46	19:31 (B083)	05:07	20:14 (WEA03)	05:12	20:20 (WEA03)	05:52	19:41 (B083)	06:42	19:05 (B084)	07:30	07:24	08:12
	16:29	17:20	18:10		20:03 9 19:16 (B084)	20:54 23	19:54 (B083)	21:36 24	20:38 (WEA03)	21:42 24	20:44 (WEA03)	21:04 23	20:04 (B083)	20:00 4	19:09 (B084)	18:51	16:48	16:14
8	08:28	07:53	06:56		06:46 19:05 (B084)	05:44	19:32 (B083)	05:07	20:14 (WEA03)	05:13	20:20 (WEA03)	05:54	19:40 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12		20:05 13 19:18 (B084)	20:55 22	19:54 (B083)	21:37 24	20:38 (WEA03)	21:41 25	20:45 (WEA03)	21:02 24	20:04 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54		06:44 19:03 (B084)	05:43	19:31 (B083)	05:06	20:14 (WEA03)	05:14	20:20 (WEA03)	05:56	19:41 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14		20:07 15 19:18 (B084)	20:57 23	19:54 (B083)	21:37 24	20:38 (WEA03)	21:41 25	20:45 (WEA03)	21:00 23	20:04 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52		06:41 19:01 (B084)	05:41	19:31 (B083)	05:06	20:15 (WEA03)	05:15	20:20 (WEA03)	05:57	19:40 (B083)	06:47		07:36	07:30	08:16
	16:33	17:25	18:16		20:09 18 19:19 (B084)	20:58 22	19:53 (B083)	21:38 23	20:38 (WEA03)	21:40 25	20:45 (WEA03)	20:58 24	20:04 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50		06:39 19:01 (B084)	05:39	19:33 (B083)	05:05	20:15 (WEA03)	05:16	20:20 (WEA03)	05:59	19:41 (B083)	06:48		07:37	07:31	08:17
	16:34	17:27	18:17		20:10 19 19:20 (B084)	21:00 20	19:53 (B083)	21:39 23	20:38 (WEA03)	21:39 26	20:46 (WEA03)	20:57 23	20:04 (B083)	19:50		18:42	16:41	16:13
12	08:26	07:46 08:23 (B062)	06:47		06:37 19:00 (B084)	05:38	19:33 (B083)	05:05	20:15 (WEA03)	05:17	20:20 (WEA03)	06:00	19:40 (B083)	06:50		07:39	07:33	08:18
	16:35	17:29 3 08:26 (B062)	18:19		20:12 20 19:20 (B084)	21:02 18	19:51 (B083)	21:40 23	20:38 (WEA03)	21:39 26	20:46 (WEA03)	20:55 23	20:03 (B083)	19:48		18:39	16:40	16:13
13	08:25	07:44 08:20 (B062)	06:45		06:35 19:00 (B084)	05:36	19:34 (B083)	05:05	20:16 (WEA03)	05:18	20:20 (WEA03)	06:02	19:41 (B083)	06:51		07:41	07:35	08:19
	16:37	17:31 8 08:28 (B062)	18:21		20:14 20 19:20 (B084)	21:03 17	19:51 (B083)	21:40 22	20:38 (WEA03)	21:38 26	20:46 (WEA03)	20:53 21	20:02 (B083)	19:46		18:37	16:38	16:13
14	08:24	07:42 08:19 (B062)	06:43		06:33 19:00 (B084)	05:34	19:35 (B083)	05:05	20:17 (WEA03)	05:19	20:20 (WEA03)	06:03	19:41 (B083)	06:53		07:42 08:26 (B200)	07:37	08:20
	16:38	17:33 10 08:29 (B062)	18:23		20:15 20 19:20 (B084)	21:05 14	19:49 (B083)	21:41 22	20:39 (WEA03)	21:37 26	20:46 (WEA03)	20:51 20	20:01 (B083)	19:44		18:35 2 08:28 (B200)	16:37	16:13
15	08:24	07:40 08:19 (B062)	06:41		06:30 18:59 (B084)	05:33	19:37 (B083)	05:04	20:17 (WEA03)	05:20	20:20 (WEA03)	06:05	19:43 (B083)	06:55		07:44 08:23 (B200)	07:38	08:21
	16:40	17:34 11 08:30 (B062)	18:24		20:17 20 19:19 (B084)	21:06 18	20:27 (WEA03)	21:42 22	20:39 (WEA03)	21:36 26	20:46 (WEA03)	20:49 17	20:00 (B083)	19:41		18:33 8 08:31 (B200)	16:35	16:13
16	08:23	07:38 08:18 (B062)	06:38		06:28 19:00 (B084)	05:31	19:40 (B083)	05:04	20:16 (WEA03)	05:22	20:20 (WEA03)	06:07	19:43 (B083)	06:56		07:46 08:22 (B200)	07:40	08:22
	16:41	17:36 12 08:30 (B062)	18:26		20:19 18 19:18 (B084)	21:08 18	20:30 (WEA03)	21:42 22	20:38 (WEA03)	21:35 26	20:46 (WEA03)	20:47 15	19:58 (B083)	19:39		18:31 10 08:32 (B200)	16:34	16:13
17	08:22	07:36 08:19 (B062)	06:36		06:26 19:00 (B084)	05:30	20:16 (WEA03)	05:04	20:17 (WEA03)	05:23	20:20 (WEA03)	06:08	19:46 (B083)	06:58		07:47 08:20 (B200)	07:42	08:23
	16:43	17:38 11 08:30 (B062)	18:28		20:20 17 19:17 (B084)	21:09 15	20:31 (WEA03)	21:43 22	20:39 (B178)	21:34 26	20:46 (WEA03)	20:45 11	19:57 (B083)	19:37		18:29 12 08:32 (B200)	16:32	16:13
18	08:21	07:34 08:19 (B062)	06:34		06:24 19:02 (B084)	05:28	20:15 (WEA03)	05:04	20:17 (WEA03)	05:24	20:20 (WEA03)	06:10	19:49 (B083)	07:00		07:49 08:20 (B200)	07:44	08:24
	16:45	17:40 10 08:29 (B062)	18:30		20:22 14 19:16 (B084)	21:11 17	20:32 (WEA03)	21:43 23	20:40 (B178)	21:33 26	20:46 (WEA03)	20:43 3	19:52 (B083)	19:34		18:26 12 08:32 (B200)	16:31	16:13
19	08:20	07:32 08:20 (B062)	06:32		06:22 19:03 (B084)	05:27	20:14 (WEA03)	05:04	20:18 (WEA03)	05:25	20:21 (WEA03)	06:11		07:01		07:51 08:20 (B200)	07:45	08:24
	16:46	17:42 8 08:28 (B062)	18:31		20:24 11 19:14 (B084)	21:12 19	20:33 (WEA03)	21:44 23	20:41 (B178)	21:32 25	20:46 (WEA03)	20:41		19:32		18:24 12 08:32 (B200)	16:30	16:13
20	08:19	07:30	06:29		06:20	05:26	20:13 (WEA03)	05:04	20:18 (WEA03)	05:26	20:21 (WEA03)	06:13		07:03		07:53 08:21 (B200)	07:47	08:25
	16:48	17:44	18:33		20:25	21:14 21	20:34 (WEA03)	21:44 23	20:41 (B178)	21:31 25	20:46 (WEA03)	20:39		19:30		18:22 10 08:31 (B200)	16:28	16:14
21	08:18	07:28	06:27		06:18	05:24	20:12 (WEA03)	05:04	20:19 (WEA03)	05:28	20:22 (WEA03)	06:15		07:04		07:54 08:23 (B200)	07:49	08:26
	16:50	17:45	18:35		20:27	21:15 22	20:34 (WEA03)	21:44 22	20:41 (B178)	21:29 24	20:46 (WEA03)	20:37		19:27		18:20 7 08:30 (B200)	16:27	16:14
22	08:17	07:26 07:52 (B200)	06:25		06:15	05:23	20:12 (WEA03)	05:04	20:19 (WEA03)	05:29	20:22 (WEA03)	06:16		07:06		07:56 08:25 (B200)	07:50	08:26
	16:51	17:47 6 07:58 (B200)	18:36		20:29	21:17 23	20:35 (WEA03)	21:44 22	20:41 (B178)	21:28 24	20:46 (WEA03)	20:35		19:25		18:18 3 08:28 (B200)	16:26	16:15
23	08:16	07:24 07:50 (B200)	06:22		06:13	05:22	20:12 (WEA03)	05:05	20:19 (WEA03)	05:30	20:22 (WEA03)	06:18		07:08		07:58	07:52	08:27
	16:53	17:49 10 08:00 (B200)	18:38		20:30	21:18 24	20:36 (WEA03)	21:45 22	20:41 (B178)	21:27 23	20:45 (WEA03)	20:33		19:23		18:16	16:25	16:15
24	08:15	07:22 07:49 (B200)	06:20		06:11	05:20	20:12 (WEA03)	05:05	20:19 (WEA03)	05:32	20:22 (WEA03)	06:19		07:09		08:00 08:50 (B062)	07:54	08:27
	16:55	17:51 11 08:00 (B200)	18:40		20:32	21:19 24	20:36 (WEA03)	21:45 23	20:42 (B178)	21:26 22	20:44 (WEA03)	20:30		19:20		18:14 7 08:57 (B062)	16:24	16:16
25	08:14	07:20 07:49 (B200)	06:18		06:09	05:19	20:12 (WEA03)	05:05	20:19 (WEA03)	05:33	20:24 (WEA03)	06:21	19:08 (B084)	07:11		08:01 08:49 (B062)	07:55	08:28
	16:56	17:53 12 08:01 (B200)	18:42		20:34	21:21 25	20:37 (WEA03)	21:45 23	20:42 (B178)	21:24 21	20:45 (WEA03)	20:28 8	19:16 (B084)	19:18		18:12 9 08:58 (B062)	16:23	16:16
26	08:12	07:18 07:49 (B200)	07:16		06:07	05:18	20:12 (WEA03)	05:05	20:19 (WEA03)	05:35	20:24 (WEA03)	06:23	19:05 (B084)	07:12		08:03 08:48 (B062)	07:57	08:28
	16:58	17:54 12 08:01 (B200)	19:43		20:35	21:22 25	20:37 (WEA03)	21:45 23	20:42 (B178)	21:23 20	20:44 (WEA03)	20:26 13	19:18 (B084)	19:16		18:10 11 08:59 (B062)	16:22	16:17
27	08:11	07:16 07:49 (B200)	07:13		06:05 19:39 (B083)	05:17	20:11 (WEA03)	05:06	20:20 (WEA03)	05:36	20:25 (WEA03)	06:24	19:04 (B084)	07:14		08:05 08:48 (B062)	07:58	08:28
	17:00	17:56 11 08:00 (B200)	19:45		20:37 9 19:48 (B083)	21:23 26	20:37 (WEA03)	21:45 22	20:42 (B178)	21:22 17	20:42 (WEA03)	20:24 15	19:19 (B084)	19:13		18:08 12 09:00 (B062)	16:21	16:18
28	08:10	07:14 07:49 (B200)	07:11		06:03 19:36 (B083)	05:16	20:11 (WEA03)	05:06	20:19 (WEA03)	05:37	20:27 (WEA03)	06:26	19:02 (B084)	07:16		08:07 08:48 (B062)	08:00	08:29
	17:02	17:58 9 07:58 (B200)	19:47		20:39 14 19:50 (B083)	21:25 26	20:37 (WEA03)	21:45 22	20:41 (WEA03)	21:20 15	20:42 (WEA03)	20:22 17	19:19 (B084)	19:11		18:06 12 09:00 (B062)	16:20	16:18
29	08:08		07:09		06:01 19:35 (B083)	05:15	20:11 (WEA03)	05:07	20:20 (WEA03)	05:39	19:51 (B083)	06:27	19:01 (B084)	07:17		07:08 07:49 (B062)	08:01	08:29
	17:03		19:48		20:40 17 19:52 (B083)	21:26 26	20:37 (WEA03)	21:45 22	20:42 (WEA03)	21:19 16	20:40 (WEA03)	20:20 19	19:20 (B084)	19:09		17:04 10 07:59 (B062)	16:19	16:19
30	08:07		07:06		05:59 19:34 (B083)	05:14	20:11 (WEA03)	05:07	20:19 (WEA03)	05:40	19:48 (B083)	06:29	19:00 (B084)	07:19		07:10 07:49 (B062)	08:03	08:29
	17:05		19:50		20:42 19 19:53 (B083)	21:27 26	20:37 (WEA03)	21:45 23	20:42 (WEA03)	21:17 17	20:37 (WEA03)	20:17 20	19:20 (B084)	19:06		17:02 9 07:58 (B062)	16:18	16:20
31	08:06		07:04			05:13	20:11 (WEA03)			05:42	19:46 (B083)	06:31	19:00 (B084)			07:12 07:51 (B062)		08:29
	17:07		19:52			21:28 26	20:37 (WEA03)			21:16 14	20:00 (B083)	20:15 20	19:20 (B084)			17:00 6 07:57 (B062)		16:21
Sonnenscheinstunden	259	277	366	414	483	497		501		454		382		333		268		245
astr.max.mögl.Beschattung		144	4	273	677	697		709		459		105		152				
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34		0.39		0.40		0.32		0.29				
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95		0.95		0.95		0.95		0.95				
Reduktion Windrichtung		0.64	0.65	0.70	0.65	0.64		0.64		0.68		0.71		0.64				
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20		0.24		0.26		0.22		0.18				
Met.wahrsch.Beschattung		28	1	66	180	143		168		119		23		27				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO080 - Am Schulberg 3a, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		07:12		07:02		05:57		19:31 (B083)		05:12		20:10 (WEA03)		05:08		20:19 (WEA03)		05:43		19:45 (B083)		06:32		18:57 (B084)		07:21		07:14		07:52 (B062)		08:04	
	16:22		17:09		18:00		19:53		20:44	22	19:53 (B083)	21	29	26	20:36 (WEA03)	23	21:44	23	20:42 (B178)	13	21:14	13	19:58 (B083)	20	19:17 (B084)	19	19:04				16:58	4	07:56 (B062)		16:18	
2	08:29		08:03		07:10		07:00		05:55		19:30 (B083)		05:11		20:11 (WEA03)		05:09		20:19 (WEA03)		05:45		19:44 (B083)		06:34		18:57 (B084)		07:22		07:15				08:06	
	16:23		17:11		18:02		19:55		20:45	23	19:53 (B083)	21	31	26	20:37 (WEA03)	22	21:44	22	20:41 (WEA03)	16	21:12	16	20:00 (B083)	21	19:18 (B084)	21	19:02				16:56				16:17	
3	08:29		08:01		07:07		06:57		05:54		19:30 (B083)		05:10		20:11 (WEA03)		05:09		20:19 (WEA03)		05:46		19:42 (B083)		06:35		18:57 (B084)		07:24		07:17				08:07	
	16:24		17:12		18:03		19:57		20:47	23	19:53 (B083)	21	32	26	20:37 (WEA03)	22	21:44	22	20:41 (WEA03)	18	21:11	18	20:00 (B083)	20	19:17 (B084)	20	19:00				16:55				16:16	
4	08:29		07:59		07:05		06:55		05:52		19:29 (B083)		05:09		20:11 (WEA03)		05:10		20:19 (WEA03)		05:48		19:41 (B083)		06:37		18:57 (B084)		07:26		07:19				08:09	
	16:25		17:14		18:05		19:58		20:49	24	19:53 (B083)	21	33	25	20:36 (WEA03)	23	21:43	23	20:42 (WEA03)	21	21:09	20	20:01 (B083)	20	19:16 (B084)	19	18:57				16:53				16:16	
5	08:29		07:58		07:03		06:53		05:50		19:30 (B083)		05:09		20:12 (WEA03)		05:11		20:19 (WEA03)		05:49		19:41 (B083)		06:39		18:57 (B084)		07:27		07:21				08:10	
	16:26		17:16		18:07		20:00		20:50	24	19:54 (B083)	21	34	25	20:37 (WEA03)	23	21:43	23	20:42 (WEA03)	21	21:07	21	20:02 (B083)	20	19:15 (B084)	18	18:55				16:51				16:15	
6	08:28		07:56		07:01		06:50		19:05 (B084)		05:48		19:30 (B083)		05:08		20:12 (WEA03)		05:11		20:19 (WEA03)		05:51		19:40 (B083)		06:40		18:58 (B084)		07:29		07:22				08:11	
	16:28		17:18		18:09		20:02	10	19:15 (B084)		20:52	23	19:53 (B083)		21:35	24	20:36 (WEA03)		21:42	23	20:42 (WEA03)		21:06	22	20:02 (B083)		20:02	16	19:14 (B084)		18:53				16:49				16:15	
7	08:28		07:54		06:59		06:48		19:03 (B084)		05:46		19:29 (B083)		05:07		20:13 (WEA03)		05:12		20:19 (WEA03)		05:52		19:40 (B083)		06:42		18:59 (B084)		07:30		07:24				08:12	
	16:29		17:20		18:10		20:03	14	19:17 (B084)		20:54	23	19:52 (B083)		21:36	24	20:37 (WEA03)		21:42	24	20:43 (WEA03)		21:04	23	20:03 (B083)		20:00	12	19:11 (B084)		18:51				16:48				16:14	
8	08:28		07:53		06:56		06:46		19:01 (B084)		05:44		19:30 (B083)		05:07		20:13 (WEA03)		05:13		20:19 (WEA03)		05:54		19:39 (B083)		06:43		19:02 (B084)		07:32		07:26				08:14	
	16:30		17:22		18:12		20:05	17	19:18 (B084)		20:55	23	19:53 (B083)		21:37	23	20:36 (WEA03)		21:41	24	20:43 (WEA03)		21:02	23	20:02 (B083)		19:57	7	19:09 (B084)		18:48				16:46				16:14	
9	08:27		07:51		06:54		06:44		19:00 (B084)		05:43		19:31 (B083)		05:06		20:14 (WEA03)		05:14		20:19 (WEA03)		05:56		19:39 (B083)		06:45				07:34				07:28				08:15	
	16:31		17:23		18:14		20:07	18	19:18 (B084)		20:57	21	19:52 (B083)		21:37	23	20:37 (WEA03)		21:41	25	20:44 (WEA03)		21:00	24	20:03 (B083)		19:55				18:46				16:44				16:14	
10	08:27		07:49		06:52		06:41		18:59 (B084)		05:41		19:31 (B083)		05:06		20:14 (WEA03)		05:15		20:19 (WEA03)		05:57		19:38 (B083)		06:47				07:36				07:30				08:16	
	16:33		17:25		18:16		20:09	19	19:18 (B084)		20:58	19	19:50 (B083)		21:38	23	20:37 (WEA03)		21:40	25	20:44 (WEA03)		20:58	24	20:02 (B083)		19:53				18:44				16:43				16:13	
11	08:26		07:47		06:50		06:39		18:59 (B084)		05:39		19:32 (B083)		05:05		20:14 (WEA03)		05:16		20:19 (WEA03)		05:59		19:39 (B083)		06:48				07:37				07:31				08:17	
	16:34		17:27		18:17		20:10	20	19:19 (B084)		21:00	18	19:50 (B083)		21:39	22	20:36 (WEA03)		21:39	26	20:45 (WEA03)		20:57	24	20:03 (B083)		19:50				18:42				16:41				16:13	
12	08:26		07:46		06:47		06:37		18:58 (B084)		05:38		19:33 (B083)		05:05		20:15 (WEA03)		05:17		20:19 (WEA03)		06:00		19:38 (B083)		06:50				07:39				07:33				08:18	
	16:35		17:29	7	08:28 (B062)		18:19		20:12	21	19:19 (B084)		21:02	16	19:49 (B083)		21:40	22	20:37 (WEA03)		21:39	26	20:45 (WEA03)		20:55	24	20:02 (B083)		19:48				18:39				16:40				16:13	
13	08:25		07:44		08:20 (B062)		06:45		18:58 (B084)		05:36		19:35 (B083)		05:05		20:16 (WEA03)		05:18		20:19 (WEA03)		06:02		19:39 (B083)		06:51				07:41				07:35				08:19	
	16:37		17:31	10	08:30 (B062)		18:21		20:14	20	19:18 (B084)		21:03	13	19:48 (B083)		21:40	22	20:38 (B178)		21:38	26	20:45 (WEA03)		20:53	23	20:02 (B083)		19:46				18:37				16:38				16:13	
14	08:24		07:42		08:19 (B062)		06:43		18:59 (B084)		05:34		19:36 (B083)		05:05		20:16 (WEA03)		05:19		20:19 (WEA03)		06:03		19:39 (B083)		06:53				07:42				07:37				08:20	
	16:38		17:33	11	08:30 (B062)		18:23		20:15	19	19:18 (B084)		21:05	16	20:25 (WEA03)		21:41	23	20:39 (B178)		21:37	26	20:45 (WEA03)		20:51	22	20:01 (B083)		19:44				18:35				16:37				16:13	
15	08:24		07:40		08:19 (B062)		06:41		18:58 (B084)		05:33		20:16 (WEA03)		05:04		20:17 (WEA03)		05:20		20:19 (WEA03)		06:05		19:40 (B083)		06:55				07:44		08:25 (B200)		07:38				08:21	
	16:40		17:34	11	08:30 (B062)		18:24		20:17	18	19:16 (B084)		21:06	12	20:28 (WEA03)		21:42	23	20:40 (B178)		21:36	26	20:45 (WEA03)		20:49	20	20:00 (B083)		19:41				18:33	5	08:30 (B200)		16:35				16:13	
16	08:23		07:38		08:19 (B062)		06:38		18:59 (B084)		05:31		20:15 (WEA03)		05:04		20:16 (WEA03)		05:22		20:19 (WEA03)		06:07		19:40 (B083)		06:56				07:46		08:23 (B200)		07:40				08:22	
	16:41		17:36	11	08:30 (B062)		18:26		20:19	16	19:15 (B084)		21:08	15	20:30 (WEA03)		21:42	24	20:40 (B178)		21:35	27	20:46 (WEA03)		20:47	19	19:59 (B083)		19:39				18:31	9	08:32 (B200)		16:34				16:13	
17	08:22		07:36		08:20 (B062)		06:36		19:00 (B084)		05:30		20:13 (WEA03)		05:04		20:16 (WEA03)		05:23		20:19 (WEA03)		06:08		19:42 (B083)		06:58				07:47		08:21 (B200)		07:42				08:23	
	16:43		17:38	10	08:30 (B062)		18:28		20:20	14	19:14 (B084)		21:09	18	20:31 (WEA03)		21:43	24	20:40 (B178)		21:34	26	20:45 (WEA03)		20:45	16	19:58 (B083)		19:37				18:29	11	08:32 (B200)		16:32				16:13	
18	08:21		07:34		08:20 (B062)		06:34		19:02 (B084)		05:28		20:13 (WEA03)		05:04		20:17 (WEA03)		05:24		20:19 (WEA03)		06:10		19:43 (B083)		07:00				07:49		08:21 (B200)		07:44				08:24	
	16:45		17:40	9	08:29 (B062)		18:30		20:22	9	19:11 (B084)		21:11	19	20:32 (WEA03)		21:43	23	20:40 (B178)		21:33	26	20:45 (WEA03)		20:43	12	19:55 (B083)		19:34				18:26	12	08:33 (B200)		16:31				16:13	
19	08:20		07:32		08:23 (B062)		06:32		06:22				05:27		20:12 (WEA03)		05:04		20:18 (WEA03)		05:25		20:19 (WEA03)		06:11		19:46 (B083)		07:01				07:51		08:21 (B200)		07:45				08:24	
	16:46		17:42	4	08:27 (B062)		18:31		20:24				21:12	21	20:33 (WEA03)		21:44	24	20:42 (B178)		21:32	26	20:45 (WEA03)		20:41	6	19:52 (B083)		19:32				18:24	12	08:33 (B200)		16:30				16:13	
20	08:19		07:30				06:29		06:20				05:26		20:11 (WEA03)		05:04		20:18 (WEA03)		05:26		20:19 (WEA03)		06:13				07:03				07:53		08:21 (B200)		07:47				08:25	
	16:48		17:44				18:33		20:25				21:14	22	20:33 (WEA03)		21:44	24	20:42 (B178)		21:31	26	20:45 (WEA03)		20:39				19:30				18:22	12	08:33 (B200)		16:28				16:14	
21	08:18		07:28		07:55 (B200)		06:27		06:18				05:24		20:11 (WEA03)		05:04		20:18 (WEA03)		05:28		20:20 (WEA03)		06:15				07:04				07:54		08:23 (B200)		07:49				08:26	
	16:50		17:45	5	08:00 (B200)		18:35		20:27				21:15	23	20:34 (WEA03)		21:44	24	20:42 (B178)		21:29	26	20:46 (WEA03)		20:37				19:27				18:20	9	08:32 (B200)		16:27				16:14	
22	08:17		07:26		07:52 (B200)		06:25		06:15				05:23		20:10 (WEA03)		05:04		20:18 (WEA03)		05:29		20:20 (WEA03)		06:16				07:06				07:56		08:25 (B200)		07:50				08:26	
	16:51		17:47	8	08:00 (B200)		18:36		20:29				21:17	25	20:35 (WEA03)		21:44	24	20:42 (B178)		21:28	25	20:45 (WEA03)		20:35				19:25				18:18	6	08:31 (B200)		16:26				16:15	
23	08:16		07:24		07:50 (B200)		06:22		06:13				05:22		20:10 (WEA03)		05:05		20:18 (WEA03)		05:30		20:20 (WEA03)		06:18				07:08				07:58				07:52				08:27	
	16:53		17:49	11	08:01 (B200)		18:38		20:30				21:18	25	20:35 (WEA03)		21:45	24	20:42 (B178)		21:27	25	20:45 (WEA03)		20:33				19:23				18:16				16:25				16:15	
24	08:15		07:22		07:49 (B200)		06:20		06:11				05:20		20:10 (WEA03)		05:05		20:19 (WEA03)		05:32		20:21 (WEA03)		06:19				07:09				08:00				07:54				08:27	
	16:55		17:51	12	08:01 (B200)		18:40		20:32				21:19	26	20:36 (WEA03)		21:45	24	20:43 (B178)		21:26	23	20:44 (WEA03)		20:30				19:20				18:14				16:24				16:16	
25	08:14		07:20		07:49 (B200)		06:18		06:09				05:19		20:10 (WEA03)		05:05		20:19 (WEA03)		05:33		20:22 (WEA03)		06:21				07:11				08:01		08:50 (B062)		07:55				08:28	
	16:56		17:53	12	08:01 (B200)		18:42		20:34				21:21	26	20:36 (WEA03)		21:45	24	20:43 (B178)		21:24	22	20:44 (WEA03)		20:28				19:18				18:12	8	08:58 (B062)		16:23				16:16	
26	08:12		07:18		07:50 (B200)		07:16		06:07		19:37 (B083)		05:18		20:10 (WEA03)		05:05		20:19 (WEA03)		05:35		20:22 (WEA03)		06:23		19:06 (B084)		07:12				08:03		08:49 (B062)		07:57				08:28	
	16:58		17:54	11	08:01 (B200)		19:43		20:35	11	19:48 (B083)		21:22	26	20:36 (WEA03)		21:45	23	20:42 (B178)		21:23	22	20:44 (WEA03)		20:26	7	19:13 (B084)		19:16				18:10	10	08:59 (B062)		16:22				16:17	
27	08:11		07:16		07:51 (B200)		07:13		06:05		19:35 (B083)		05:17		20:10 (WEA03)		05:06		20:19 (WEA03)		05:36		20:23 (WEA03)		06:24		19:04 (B084)		07:14				08:05		08:49 (B062)		07:58				08:28	
	17:00		17:56	9	08:00 (B200)		19:45		20:37	15	19:50 (B083)		21:23	26	20:36 (WEA03)		21:45	24	20:43 (B178)		21:22	19	20:42 (WEA03)		20:24	12	19:16 (B084)		19:13				18:08	11	09:00 (B062)		16:21				16:18	
28	08:10		07:14		07:52 (B200)		07:11		06:03		19:33 (B083)		05:16		20:10 (WEA03)		05:06		20:19 (WEA03)		05:37		20:24 (WEA03)		06:26		19:01 (B084)		07:16				08:07		08:49 (B062)		08:00				08:29	
	17:02		17:58	5	07:57 (B200)		19:47		20:39	18	19:51 (B083)		21:25	26	20:36 (WEA03)		21:45	24	20:43 (B178)		21:20	18	20:42 (WEA03)		20:22	15	19:16 (B084)		19:11				18:06	11	09:00 (B062)		16:20				16:18	
29	08:08				07:09		06:01		19:32 (B083)		05:15		20:10 (WEA03)		05:07		20:20 (WEA03)		05:39		20:25 (WEA03)		06:27		19:00 (B084)		07:17				07:08		07:49 (B062)		08:01				08:29	
	17:03				19:48		20:40	19	19:51 (B083)		21:26	27	20:37 (WEA03)		21:45	23	20:43 (B178)		21:19	16	20:41 (WEA03)		20:20	18	19:18 (B084)		19:09				17:04	11	08:00 (B062)		16:19				16:19	
30	08:07				07:06		05:59		19:32 (B083)		05:14		20:10 (WEA03)		05:07		20:19 (WEA03)		05:40		20:26 (WEA03)		06:29		18:59 (B084)		07:19				07:10		07:49 (B062)		08:03				08:29	
	17:05				19:50		20:42	21	19:53 (B083)		21:27	26	20:36 (WEA03)		21:45	23	20:42 (B178)		21:17	13	20:39 (WEA03)		20:17	18	19:17 (B084)		19:06				17:02	10	07:59 (B062)		16:18				16:20	
31	08:06				07:04				05:13		20:10 (WEA03)								05:42		19:47 (B083)		06:31		18:58 (B084)						07:12		07:50 (B062)						08:29	
	17:07				19:52				21:28	26	20:36 (WEA03)								21:16	17	20:37 (WEA03)		20:15	20	19:18 (B084)						17:00	9	07:59 (B062)						16:21	
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333		268		245	
astr.max.mögl.Beschattung		146				299				677		713		721		460		133		146		4		
Red.Sonnenscheinwahrsch.		0.32				0.36				0.43		0.34		0.39		0.40		0.32		0.29		0.23		
Reduktion Betriebsdauer		0.95				0.95				0.95		0.95		0.95		0.95		0.95		0.95		0.95		
Reduktion Windrichtung		0.64				0.70				0.65		0.64		0.64		0.68		0.72		0.64		0.63		
Gesamte Reduktion		0.20				0.24				0.27		0.20		0.24		0.26		0.22		0.18		0.14		
Met.wahrsch.Beschattung		29				73				180		146		171		119		29		26		1		

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)

Lizenzierter Anwender:
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Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO081 - Am Schulberg 4, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:46 (B200)	07:02	05:57	19:40 (B083)	05:12	20:14 (WEA03)	05:08	20:22 (WEA03)	05:43	19:46 (B083)	06:32	19:04 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00 11	07:57 (B200)	19:53	20:44 15	19:55 (B083)	21:29 26	20:40 (WEA03)	21:44 24	20:46 (WEA03)	21:14 21	20:07 (B083)	20:13 18	19:22 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:48 (B200)	07:00	05:55	19:38 (B083)	05:11	20:15 (WEA03)	05:09	20:21 (WEA03)	05:45	19:46 (B083)	06:34	19:05 (B084)	07:22	07:15	08:06
	16:23	17:11	18:02 7	07:55 (B200)	19:55	20:45 18	19:56 (B083)	21:31 26	20:41 (WEA03)	21:44 25	20:46 (WEA03)	21:12 22	20:08 (B083)	20:11 16	19:21 (B084)	19:02	16:56	16:17
3	08:29	08:01	07:07		06:57	05:54	19:37 (B083)	05:10	20:15 (WEA03)	05:09	20:22 (WEA03)	05:46	19:45 (B083)	06:35	19:06 (B084)	07:24	07:17	08:07
	16:24	17:12	18:03		19:57	20:47 19	19:56 (B083)	21:32 26	20:41 (WEA03)	21:44 24	20:46 (WEA03)	21:11 23	20:08 (B083)	20:09 13	19:19 (B084)	19:00	16:55	16:16
4	08:29	07:59	07:05		06:55	05:52	19:36 (B083)	05:09	20:15 (WEA03)	05:10	20:22 (WEA03)	05:48	19:44 (B083)	06:37	19:08 (B084)	07:26	07:19	08:09
	16:25	17:14	18:05		19:58	20:49 21	19:57 (B083)	21:33 26	20:41 (WEA03)	21:43 25	20:47 (WEA03)	21:09 24	20:08 (B083)	20:06 9	19:17 (B084)	18:57	16:53	16:16
5	08:29	07:58	07:03		06:53	05:50	19:36 (B083)	05:09	20:16 (WEA03)	05:11	20:21 (WEA03)	05:49	19:45 (B083)	06:39		07:27	07:21	08:10
	16:26	17:16	18:07		20:00	20:50 22	19:58 (B083)	21:34 25	20:41 (WEA03)	21:43 26	20:47 (WEA03)	21:07 23	20:08 (B083)	20:04		18:55	16:51	16:15
6	08:28	07:56	07:01		06:50	05:48	19:35 (B083)	05:08	20:15 (WEA03)	05:11	20:22 (WEA03)	05:51	19:44 (B083)	06:40		07:29	07:22	08:11
	16:28	17:18	18:09		20:02	20:52 23	19:58 (B083)	21:35 26	20:41 (WEA03)	21:42 25	20:47 (WEA03)	21:06 24	20:08 (B083)	20:02		18:53	16:49	16:15
7	08:28	07:54	06:59		06:48	05:46	19:34 (B083)	05:07	20:16 (WEA03)	05:12	20:22 (WEA03)	05:52	19:45 (B083)	06:42		07:30	07:24	08:12
	16:29	17:20	18:10		20:03	20:54 24	19:58 (B083)	21:36 26	20:42 (WEA03)	21:42 26	20:48 (WEA03)	21:04 23	20:08 (B083)	20:00		18:51	16:48	16:14
8	08:28	07:53	06:56		06:46	05:44	19:35 (B083)	05:07	20:16 (WEA03)	05:13	20:22 (WEA03)	05:54	19:44 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12		20:05	20:55 23	19:58 (B083)	21:37 25	20:41 (WEA03)	21:41 26	20:48 (WEA03)	21:02 23	20:07 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54		06:44 19:13 (B084)	05:43	19:35 (B083)	05:06	20:17 (WEA03)	05:14	20:23 (WEA03)	05:56	19:45 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14		20:07 3 19:16 (B084)	20:57 23	19:58 (B083)	21:37 25	20:42 (WEA03)	21:41 25	20:48 (WEA03)	21:00 22	20:07 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52		06:41 19:09 (B084)	05:41	19:34 (B083)	05:06	20:17 (WEA03)	05:15	20:23 (WEA03)	05:57	19:45 (B083)	06:47		07:36	07:30	08:16
	16:33	17:25	18:16		20:09 11 19:20 (B084)	20:58 23	19:57 (B083)	21:38 25	20:42 (WEA03)	21:40 26	20:49 (WEA03)	20:58 21	20:06 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50		06:39 19:07 (B084)	05:39	19:35 (B083)	05:05	20:17 (WEA03)	05:16	20:23 (WEA03)	05:59	19:46 (B083)	06:48		07:37	07:31	08:17
	16:34	17:27	18:17		20:10 15 19:22 (B084)	21:00 23	19:58 (B083)	21:39 25	20:42 (WEA03)	21:39 26	20:49 (WEA03)	20:57 20	20:06 (B083)	19:50		18:42	16:41	16:13
12	08:26	07:46	06:47		06:37 19:06 (B084)	05:38	19:35 (B083)	05:05	20:17 (WEA03)	05:17	20:23 (WEA03)	06:00	19:46 (B083)	06:50		07:39	07:33	08:18
	16:35	17:29	18:19		20:12 17 19:23 (B084)	21:02 22	19:57 (B083)	21:40 25	20:42 (WEA03)	21:39 26	20:49 (WEA03)	20:55 18	20:04 (B083)	19:48		18:39	16:40	16:13
13	08:25	07:44	06:45		06:35 19:05 (B084)	05:36	19:36 (B083)	05:05	20:18 (WEA03)	05:18	20:23 (WEA03)	06:02	19:48 (B083)	06:51		07:41 08:21 (B200)	07:35	08:19
	16:37	17:31	18:21		20:14 18 19:23 (B084)	21:03 21	19:57 (B083)	21:40 24	20:42 (WEA03)	21:38 26	20:49 (WEA03)	20:53 16	20:04 (B083)	19:46		18:37 7 08:28 (B200)	16:38	16:13
14	08:24	07:42 08:19 (B062)	06:43		06:33 19:04 (B084)	05:34	19:36 (B083)	05:05	20:18 (WEA03)	05:19	20:23 (WEA03)	06:03	19:49 (B083)	06:53		07:42	08:20 (B200)	07:37	08:20
	16:38	17:33 6 08:25 (B062)	18:23		20:15 20 19:24 (B084)	21:05 20	19:56 (B083)	21:41 25	20:43 (WEA03)	21:37 26	20:49 (WEA03)	20:51 12	20:01 (B083)	19:44		18:35 10 08:30 (B200)	16:37	16:13
15	08:24	07:40 08:18 (B062)	06:41		06:30 19:03 (B084)	05:33	19:37 (B083)	05:04	20:19 (WEA03)	05:20	20:24 (WEA03)	06:05	19:52 (B083)	06:55		07:44	08:19 (B200)	07:38	08:21
	16:40	17:34 9 08:27 (B062)	18:24		20:17 20 19:23 (B084)	21:06 18	19:55 (B083)	21:42 24	20:43 (WEA03)	21:36 25	20:49 (WEA03)	20:49 7	19:59 (B083)	19:41		18:33 12 08:31 (B200)	16:35	16:13
16	08:23	07:38 08:17 (B062)	06:38		06:28 19:03 (B084)	05:31	19:38 (B083)	05:04	20:18 (WEA03)	05:22	20:24 (WEA03)	06:07		06:56		07:46	08:19 (B200)	07:40	08:22
	16:41	17:36 11 08:28 (B062)	18:26		20:19 20 19:23 (B084)	21:08 17	19:55 (B083)	21:42 24	20:42 (WEA03)	21:35 25	20:49 (WEA03)	20:47		19:39		18:31 12 08:31 (B200)	16:34	16:13
17	08:22	07:36 08:16 (B062)	06:36		06:26 19:03 (B084)	05:30	19:39 (B083)	05:04	20:18 (WEA03)	05:23	20:24 (WEA03)	06:08		06:58		07:47	08:18 (B200)	07:42	08:23
	16:43	17:38 12 08:28 (B062)	18:28		20:20 19 19:22 (B084)	21:09 14	19:53 (B083)	21:43 24	20:42 (WEA03)	21:34 25	20:49 (WEA03)	20:45		19:37		18:29 12 08:30 (B200)	16:32	16:13
18	08:21	07:34 08:16 (B062)	06:34		06:24 19:03 (B084)	05:28	19:41 (B083)	05:04	20:19 (WEA03)	05:24	20:24 (WEA03)	06:10		07:00		07:49	08:18 (B200)	07:44	08:24
	16:45	17:40 12 08:28 (B062)	18:30		20:22 19 19:22 (B084)	21:11 20	20:31 (WEA03)	21:43 23	20:42 (WEA03)	21:33 24	20:48 (WEA03)	20:43		19:34		18:26 11 08:29 (B200)	16:31	16:13
19	08:20	07:32 08:17 (B062)	06:32		06:22 19:04 (B084)	05:27	19:43 (B083)	05:04	20:20 (WEA03)	05:25	20:24 (WEA03)	06:11		07:01		07:51	08:19 (B200)	07:45	08:24
	16:46	17:42 11 08:28 (B062)	18:31		20:24 17 19:21 (B084)	21:12 20	20:33 (WEA03)	21:44 23	20:43 (WEA03)	21:32 24	20:48 (WEA03)	20:41		19:32		18:24 9 08:28 (B200)	16:30	16:13
20	08:19	07:30 08:18 (B062)	06:29		06:20 19:04 (B084)	05:26	20:18 (WEA03)	05:04	20:20 (WEA03)	05:26	20:25 (WEA03)	06:13		07:03		07:53 08:21 (B200)	07:47	08:25
	16:48	17:44 9 08:27 (B062)	18:33		20:25 16 19:20 (B084)	21:14 16	20:34 (WEA03)	21:44 23	20:43 (WEA03)	21:31 23	20:48 (WEA03)	20:39		19:30		18:22 6 08:27 (B200)	16:28	16:14
21	08:18	07:28 08:20 (B062)	06:27		06:18 19:06 (B084)	05:24	20:17 (WEA03)	05:04	20:20 (WEA03)	05:28	20:26 (WEA03)	06:15		07:04		07:54	07:49	08:26
	16:50	17:45 5 08:25 (B062)	18:35		20:27 12 19:18 (B084)	21:15 18	20:35 (WEA03)	21:44 24	20:44 (WEA03)	21:29 22	20:48 (WEA03)	20:37		19:27		18:20	16:27	16:14
22	08:17	07:26	06:25		06:15 19:08 (B084)	05:23	20:17 (WEA03)	05:04	20:20 (WEA03)	05:29	20:26 (WEA03)	06:16	19:14 (B084)	07:06		07:56 08:51 (B062)	07:50	08:26
	16:51	17:47	18:36		20:29 8 19:16 (B084)	21:17 19	20:36 (WEA03)	21:44 24	20:44 (WEA03)	21:28 21	20:47 (WEA03)	20:35 5	19:19 (B084)	19:25		18:18 4 08:55 (B062)	16:26	16:15
23	08:16	07:24 07:50 (B200)	06:22		06:13	05:22	20:16 (WEA03)	05:05	20:20 (WEA03)	05:30	20:27 (WEA03)	06:18	19:11 (B084)	07:08		07:58 08:48 (B062)	07:52	08:27
	16:53	17:49 4 07:54 (B200)	18:38		20:30	21:18 21	20:37 (WEA03)	21:45 24	20:44 (WEA03)	21:27 19	20:46 (WEA03)	20:33 11	19:22 (B084)	19:23		18:16 8 08:56 (B062)	16:25	16:15
24	08:15	07:22 07:48 (B200)	06:20		06:11	05:20	20:16 (WEA03)	05:05	20:21 (WEA03)	05:32	20:27 (WEA03)	06:19	19:09 (B084)	07:09		08:00 08:47 (B062)	07:54	08:27
	16:55	17:51 9 07:57 (B200)	18:40		20:32	21:19 22	20:38 (WEA03)	21:45 23	20:44 (WEA03)	21:26 18	20:45 (WEA03)	20:30 14	19:23 (B084)	19:20		18:14 10 08:57 (B062)	16:24	16:16
25	08:14	07:20 07:47 (B200)	06:18		06:09	05:19	20:16 (WEA03)	05:05	20:21 (WEA03)	05:33	20:29 (WEA03)	06:21	19:08 (B084)	07:11		08:01 08:46 (B062)	07:55	08:28
	16:56	17:53 11 07:58 (B200)	18:42		20:34	21:21 23	20:39 (WEA03)	21:45 23	20:44 (WEA03)	21:24 16	20:45 (WEA03)	20:28 16	19:24 (B084)	19:18		18:12 11 08:57 (B062)	16:23	16:16
26	08:12	07:18 07:46 (B200)	07:16		06:07	05:18	20:15 (WEA03)	05:05	20:21 (WEA03)	05:35	19:53 (B083)	06:23	19:06 (B084)	07:12		08:03 08:46 (B062)	07:57	08:28
	16:58	17:54 12 07:58 (B200)	19:43		20:35	21:22 24	20:39 (WEA03)	21:45 23	20:44 (WEA03)	21:23 20	20:43 (WEA03)	20:26 18	19:24 (B084)	19:16		18:10 12 08:58 (B062)	16:22	16:17
27	08:11	07:16 07:46 (B200)	07:13		06:05	05:17	20:15 (WEA03)	05:06	20:21 (WEA03)	05:36	19:51 (B083)	06:24	19:06 (B084)	07:14		08:05 08:46 (B062)	07:58	08:28
	17:00	17:56 13 07:59 (B200)	19:45		20:37	21:23 24	20:39 (WEA03)	21:45 24	20:45 (WEA03)	21:22 20	20:41 (WEA03)	20:24 19	19:25 (B084)	19:13		18:08 11 08:57 (B062)	16:21	16:18
28	08:10	07:14 07:46 (B200)	07:11		06:03	05:16	20:15 (WEA03)	05:06	20:21 (WEA03)	05:37	19:50 (B083)	06:26	19:05 (B084)	07:16		08:07 08:47 (B062)	08:00	08:29
	17:02	17:58 11 07:57 (B200)	19:47		20:39	21:25 25	20:40 (WEA03)	21:45 24	20:45 (WEA03)	21:20 14	20:04 (B083)	20:22 19	19:24 (B084)	19:11		18:06 10 08:57 (B062)	16:20	16:18
29	08:08		07:09		06:01 19:44 (B083)	05:15	20:15 (WEA03)	05:07	20:22 (WEA03)	05:39	19:49 (B083)	06:27	19:05 (B084)	07:17		07:08 07:48 (B062)	08:01	08:29
	17:03		19:48		20:40 5 19:49 (B083)	21:26 25	20:40 (WEA03)	21:45 24	20:46 (WEA03)	21:19 16	20:05 (B083)	20:20 20	19:25 (B084)	19:09		17:04 8 07:56 (B062)	16:19	16:19
30	08:07		07:06		05:59 19:42 (B083)	05:14	20:15 (WEA03)	05:07	20:21 (WEA03)	05:40	19:47 (B083)	06:29	19:04 (B084)	07:19		07:10	08:03	08:29
	17:05		19:50		20:42 11 19:53 (B083)	21:27 25	20:40 (WEA03)	21:45 24	20:45 (WEA03)	21:17 18	20:05 (B083)	20:17 20	19:24 (B084)	19:06		17:02	16:18	16:20
31	08:06		07:04			05:13	20:14 (WEA03)			05:42	19:47 (B083)	06:31	19:05 (B084)			07:12		08:29
	17:07		19:52			21:28 26	20:40 (WEA03)			21:16 20	20:07 (B083)	20:15 19	19:24 (B084)			17:00		16:21
Sonnenscheinstunden	259	277	366		414	483		497		501		454		382		333	268	245
astr.max.mögl.Beschattung		135	18		231	654		733		706		460	56		153			
Red.Sonnenscheinwahrsch.		0.32	0.28		0.36	0.43		0.34		0.39		0.40	0.32		0.29			
Reduktion Betriebsdauer		0.95	0.95		0.95	0.95		0.95		0.95		0.95	0.95		0.95			
Reduktion Windrichtung		0.64	0.66		0.71	0.65		0.64		0.64		0.68	0.71		0.64			
Gesamte Reduktion		0.20	0.18		0.24	0.27		0.20		0.24		0.26	0.22		0.18			
Met.wahrsch.Beschattung		27	3		57	174		150		167		119	12		27			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO082 - Am Schulberg 5, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	19:34 (B083)	05:12	05:08	05:43	19:42 (B083)	06:32	18:57 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00 6	07:55 (B200) 19:53	20:44 19	19:53 (B083)	21:29	21:44 21	20:03 (B083)	20:13 21	19:18 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	19:33 (B083)	05:11	05:09	05:45	19:42 (B083)	06:34	18:57 (B084)	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45 20	19:53 (B083)	21:31	21:44 22	20:04 (B083)	20:11 20	19:17 (B084)	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	19:32 (B083)	05:10	05:09	05:46	19:41 (B083)	06:35	18:57 (B084)	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47 22	19:54 (B083)	21:32	21:44 23	20:04 (B083)	20:09 19	19:16 (B084)	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	19:31 (B083)	05:09	05:10	05:48	19:40 (B083)	06:37	18:58 (B084)	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49 23	19:54 (B083)	21:33	21:43 24	20:04 (B083)	20:06 17	19:15 (B084)	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	19:31 (B083)	05:09	05:11	05:49	19:40 (B083)	06:39	18:59 (B084)	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50 24	19:55 (B083)	21:34	21:43 25	20:05 (B083)	20:04 14	19:13 (B084)	18:55	16:51	16:15
6	08:28	07:56	07:01	06:50	05:48	19:30 (B083)	05:08	05:11	05:51	19:40 (B083)	06:40	19:01 (B084)	07:29	07:22	08:11
	16:28	17:18	18:09	20:02	20:52 25	19:55 (B083)	21:35	21:42 24	20:04 (B083)	20:02 10	19:11 (B084)	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48 19:07 (B084)	05:46	19:30 (B083)	05:07	05:12	05:52	19:40 (B083)	06:42		07:30	07:24	08:12
	16:29	17:20	18:10	20:03 5 19:12 (B084)	20:54 25	19:55 (B083)	21:36	21:42 25	20:05 (B083)	20:00			18:51	16:48	16:14
8	08:28	07:53	06:56	06:46 19:04 (B084)	05:44	19:30 (B083)	05:07	05:13	05:54	19:40 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12	20:05 12 19:16 (B084)	20:55 25	19:55 (B083)	21:37	21:41 24	21:02	20:04 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54	06:44 19:01 (B084)	05:43	19:30 (B083)	05:06	05:14	05:56	19:40 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14	20:07 15 19:16 (B084)	20:57 25	19:55 (B083)	21:37	21:41 24	21:00	20:04 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52	06:41 18:59 (B084)	05:41	19:30 (B083)	05:06	05:15	05:57	19:40 (B083)	06:47		07:36	07:30	08:16
	16:33	17:25	18:16	20:09 18 19:17 (B084)	20:58 24	19:54 (B083)	21:38	21:40 23	20:58	20:03 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50	06:39 18:59 (B084)	05:39	19:31 (B083)	05:05	05:16	05:59	19:41 (B083)	06:48		07:37	07:31	08:17
	16:34	17:27	18:17	20:10 19 19:18 (B084)	21:00 23	19:54 (B083)	21:39	21:39 22	20:57	20:03 (B083)	19:50		18:42	16:41	16:13
12	08:26	07:46	06:47	06:37 18:58 (B084)	05:38	19:31 (B083)	05:05	05:17	06:00	19:41 (B083)	06:50		07:39	07:33	08:18
	16:35	17:29	18:19	20:12 20 19:18 (B084)	21:02 22	19:53 (B083)	21:40	21:39 21	20:55	20:02 (B083)	19:48		18:39	16:40	16:13
13	08:25	07:44 08:20 (B062)	06:45	06:35 18:58 (B084)	05:36	19:32 (B083)	05:05	05:18	06:02	19:42 (B083)	06:51		07:41	07:35	08:19
	16:37	17:31 4 08:24 (B062)	18:21	20:14 21 19:19 (B084)	21:03 21	19:53 (B083)	21:40	21:38	20:53 19	20:01 (B083)	19:46		18:37	16:38	16:13
14	08:24	07:42 08:18 (B062)	06:43	06:33 18:57 (B084)	05:34	19:32 (B083)	05:05	05:19	06:03	19:43 (B083)	06:53		07:42 08:23 (B200)	07:37	08:20
	16:38	17:33 8 08:26 (B062)	18:23	20:15 22 19:19 (B084)	21:05 20	19:52 (B083)	21:41	21:37 17	20:51	20:00 (B083)	19:44		18:35 5 08:28 (B200)	16:37	16:13
15	08:24	07:40 08:17 (B062)	06:41	06:30 18:57 (B084)	05:33	19:33 (B083)	05:04	05:20	06:05	19:45 (B083)	06:55		07:44 08:21 (B200)	07:38	08:21
	16:40	17:34 10 08:27 (B062)	18:24	20:17 20 19:17 (B084)	21:06 19	19:52 (B083)	21:42	21:36 13	20:49	19:58 (B083)	19:41		18:33 9 08:30 (B200)	16:35	16:13
16	08:23	07:38 08:16 (B062)	06:38	06:28 18:57 (B084)	05:31	19:34 (B083)	05:04	05:22	06:07	19:46 (B083)	06:56		07:46 08:29 (B200)	07:40	08:22
	16:41	17:36 11 08:27 (B062)	18:26	20:19 20 19:17 (B084)	21:08 17	19:51 (B083)	21:42	21:35 9	20:47	19:55 (B083)	19:39		18:31 11 08:31 (B200)	16:34	16:13
17	08:22	07:36 08:16 (B062)	06:36	06:26 18:57 (B084)	05:30	19:35 (B083)	05:04	05:23	06:08		06:58		07:47 08:18 (B200)	07:42	08:23
	16:43	17:38 11 08:27 (B062)	18:28	20:20 19 19:16 (B084)	21:09 14	19:49 (B083)	21:43	21:34	20:45		19:37		18:29 12 08:30 (B200)	16:32	16:13
18	08:21	07:34 08:17 (B062)	06:34	06:24 18:58 (B084)	05:28	19:37 (B083)	05:04	05:24	06:10		07:00		07:49 08:18 (B200)	07:44	08:24
	16:45	17:40 10 08:27 (B062)	18:30	20:22 17 19:15 (B084)	21:11 11	19:48 (B083)	21:43	21:33	20:43		19:34		18:26 12 08:30 (B200)	16:31	16:13
19	08:20	07:32 08:17 (B062)	06:32	06:22 18:59 (B084)	05:27	19:40 (B083)	05:04	05:25	06:11		07:01		07:51 08:19 (B200)	07:45	08:24
	16:46	17:42 9 08:26 (B062)	18:31	20:24 15 19:14 (B084)	21:12 6	19:46 (B083)	21:44	21:32	20:41		19:32		18:24 11 08:30 (B200)	16:30	16:13
20	08:19	07:30 08:19 (B062)	06:29	06:20 19:01 (B084)	05:26		05:04	05:26	06:13		07:03		07:53 08:21 (B200)	07:47	08:25
	16:48	17:44 6 08:25 (B062)	18:33	20:25 11 19:12 (B084)	21:14		21:44	21:31	20:39		19:30		18:22 8 08:29 (B200)	16:28	16:14
21	08:18	07:28	06:27	06:18 19:05 (B084)	05:24		05:04	05:28	06:15		07:04		07:54 08:23 (B200)	07:49	08:26
	16:50	17:45	18:35	20:27 3 19:08 (B084)	21:15		21:44	21:29	20:37		19:27		18:20 4 08:27 (B200)	16:27	16:14
22	08:17	07:26 07:52 (B200)	06:25	06:15	05:23		05:04	05:29	06:16		07:06		07:56	07:50	08:26
	16:51	17:47 3 07:55 (B200)	18:36	20:29	21:17		21:44	21:28	20:35		19:25		18:18	16:26	16:15
23	08:16	07:24 07:50 (B200)	06:22	06:13	05:22		05:05	05:30	06:18		07:08		07:58 08:49 (B062)	07:52	08:27
	16:53	17:49 7 07:57 (B200)	18:38	20:30	21:18		21:45	21:27	20:33		19:23		18:16 4 08:53 (B062)	16:25	16:15
24	08:15	07:22 07:48 (B200)	06:20	06:11	05:20		05:05	05:32	06:19 19:06 (B084)		07:09		08:00 08:47 (B062)	07:54	08:27
	16:55	17:51 10 07:58 (B200)	18:40	20:32	21:19		21:45	21:26	20:30 8 19:14 (B084)		19:20		18:14 8 08:55 (B062)	16:24	16:16
25	08:14	07:20 07:47 (B200)	06:18	06:09	05:19		05:05	05:33	06:21 19:04 (B084)		07:11		08:01 08:46 (B062)	07:55	08:28
	16:56	17:53 12 07:59 (B200)	18:42	20:34	21:21		21:45	21:24	20:28 13 19:17 (B084)		19:18		18:12 10 08:56 (B062)	16:23	16:16
26	08:12	07:18 07:47 (B200)	07:16	06:07	05:18		05:05	05:35 19:50 (B083)	06:23		19:01 (B084)	07:12	08:03 08:46 (B062)	07:57	08:28
	16:58	17:55 12 07:59 (B200)	19:43	20:35	21:22		21:45	21:23 6 19:56 (B083)	20:26 16	19:17 (B084)	19:16		18:10 11 08:57 (B062)	16:22	16:17
27	08:11	07:16 07:47 (B200)	07:13	06:05	05:17		05:06	05:36 19:47 (B083)	06:24	19:00 (B084)	07:14		08:05 08:46 (B062)	07:58	08:28
	17:00	17:56 12 07:59 (B200)	19:45	20:37	21:23		21:45	21:22 11 19:58 (B083)	20:24 19	19:19 (B084)	19:13		18:08 11 08:57 (B062)	16:21	16:18
28	08:10	07:14 07:47 (B200)	07:11	06:03 19:40 (B083)	05:16		05:06	05:37 19:46 (B083)	06:26	18:59 (B084)	07:16		08:07 08:46 (B062)	08:00	08:29
	17:02	17:58 10 07:57 (B200)	19:47	20:39 6 19:46 (B083)	21:25		21:45	21:20 14 20:00 (B083)	20:22 19	19:18 (B084)	19:11		18:06 11 08:57 (B062)	16:20	16:18
29	08:08		07:09	06:01 19:37 (B083)	05:15		05:07	05:39 19:45 (B083)	06:27	18:59 (B084)	07:17		07:08 07:47 (B062)	08:01	08:29
	17:03		19:48	20:40 12 19:49 (B083)	21:26		21:45	21:19 16 20:01 (B083)	20:20 20	19:19 (B084)	19:09		17:04 9 07:56 (B062)	16:19	16:19
30	08:07		07:06	05:59 19:36 (B083)	05:14		05:07	05:40 19:43 (B083)	06:29	18:57 (B084)	07:19		07:10 07:48 (B062)	08:03	08:29
	17:05		19:50	20:42 16 19:52 (B083)	21:27		21:45	21:17 19 20:02 (B083)	20:17 21	19:18 (B084)	19:06		17:02 7 07:55 (B062)	16:18	16:20
31	08:06		07:04		05:13			05:42 19:43 (B083)	06:31	18:58 (B084)			07:12		08:29
	17:07		19:52		21:28			21:16 20 20:03 (B083)	20:15 21	19:19 (B084)			17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382		333		268	245	
astr.max.mögl.Beschattung		135	6	271	385		86	473	101		143				
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43		0.39	0.40	0.32		0.29				
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95		0.95	0.95	0.95		0.95				
Reduktion Windrichtung		0.64	0.65	0.71	0.66		0.66	0.68	0.71		0.64				
Gesamte Reduktion		0.20	0.18	0.25	0.27		0.25	0.26	0.22		0.18				
Met.wahrsch.Beschattung		27	1	66	104		21	123	22		25				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO083 - Am Schulberg 6, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 – 16:22	08:04 – 17:09	07:12 – 18:00 (10) 07:47 (B200) – 07:57 (B200)	07:02 – 19:53	05:57 – 20:44 (18)	19:38 (B083) – 21:29 (25)	05:12 – 20:39 (WEA03)	05:08 – 21:44 (23)	20:22 (WEA03) – 20:45 (WEA03)	05:43 – 21:14 (19)	19:47 (B083) – 20:13 (19)	06:32 – 19:23 (B084)	19:04 (B084) – 19:04	07:21 – 16:58	07:14 – 16:18	08:04 – 16:18
2	08:29 – 16:23	08:03 – 17:11	07:10 – 18:02 (6) 07:49 (B200) – 07:55 (B200)	07:00 – 19:55	05:55 – 20:45 (19)	19:37 (B083) – 21:31 (25)	05:11 – 20:40 (WEA03)	05:09 – 21:44 (24)	20:21 (WEA03) – 20:45 (WEA03)	05:45 – 21:12 (20)	19:47 (B083) – 20:07 (B083)	06:34 – 20:11 (17)	19:05 (B084) – 19:22 (B084)	07:22 – 16:56	07:15 – 16:17	08:06 – 16:17
3	08:29 – 16:24	08:01 – 17:12	07:07 – 18:03	06:57 – 19:57	05:54 – 20:47 (21)	19:36 (B083) – 21:32 (25)	05:10 – 20:40 (WEA03)	05:09 – 21:44 (23)	20:22 (WEA03) – 20:45 (WEA03)	05:46 – 21:11 (21)	19:46 (B083) – 20:07 (B083)	06:35 – 20:09 (14)	19:06 (B084) – 19:20 (B084)	07:24 – 19:00	07:17 – 16:55	08:07 – 16:16
4	08:29 – 16:25	07:59 – 17:14	07:05 – 18:05	06:55 – 19:58	05:52 – 20:49 (22)	19:35 (B083) – 21:33 (26)	05:09 – 20:40 (WEA03)	05:10 – 21:43 (24)	20:14 (WEA03) – 20:46 (WEA03)	05:48 – 21:09 (22)	19:45 (B083) – 20:07 (B083)	06:37 – 20:06 (11)	19:07 (B084) – 19:18 (B084)	07:26 – 18:57	07:19 – 16:53	08:09 – 16:16
5	08:29 – 16:26	07:58 – 17:16	07:03 – 18:07	06:53 – 20:00	05:50 – 20:50 (23)	19:35 (B083) – 21:34 (25)	05:09 – 20:40 (WEA03)	05:11 – 21:43 (25)	20:15 (WEA03) – 20:46 (WEA03)	05:49 – 21:07 (23)	19:45 (B083) – 20:08 (B083)	06:39 – 20:04 (4)	19:10 (B084) – 19:14 (B084)	07:27 – 18:55	07:21 – 16:51	08:10 – 16:15
6	08:28 – 16:28	07:56 – 17:18	07:01 – 18:09	06:50 – 20:02	05:48 – 20:52 (23)	19:35 (B083) – 21:35 (25)	05:08 – 20:40 (WEA03)	05:11 – 21:42 (24)	20:15 (WEA03) – 20:46 (WEA03)	05:51 – 21:06 (23)	19:44 (B083) – 20:07 (B083)	06:40 – 20:02		07:29 – 18:53	07:22 – 16:49	08:11 – 16:15
7	08:28 – 16:29	07:54 – 17:20	06:59 – 18:10	06:48 – 20:03	05:46 – 20:54 (24)	19:34 (B083) – 21:36 (25)	05:07 – 20:41 (WEA03)	05:12 – 21:42 (25)	20:16 (WEA03) – 20:47 (WEA03)	05:52 – 21:04 (23)	19:45 (B083) – 20:08 (B083)	06:42 – 20:00		07:30 – 18:51	07:24 – 16:48	08:12 – 16:14
8	08:28 – 16:30	07:53 – 17:22	06:56 – 18:12	06:46 – 20:05	05:44 – 20:55 (23)	19:35 (B083) – 21:37 (24)	05:07 – 20:40 (WEA03)	05:13 – 21:41 (25)	20:16 (WEA03) – 20:47 (WEA03)	05:54 – 21:02 (23)	19:44 (B083) – 20:07 (B083)	06:43 – 19:57		07:32 – 18:48	07:26 – 16:46	08:14 – 16:14
9	08:27 – 16:31	07:51 – 17:23	06:54 – 18:14	06:44 – 20:07 (8) 19:11 (B084) – 19:19 (B084)	05:43 – 20:57 (23)	19:35 (B083) – 21:37 (25)	05:06 – 20:41 (WEA03)	05:14 – 21:41 (25)	20:16 (WEA03) – 20:47 (WEA03)	05:56 – 21:00 (22)	19:45 (B083) – 20:07 (B083)	06:45 – 19:55		07:34 – 18:46	07:28 – 16:44	08:15 – 16:14
10	08:27 – 16:33	07:49 – 17:25	06:52 – 18:16	06:41 – 20:09 (13) 19:08 (B084) – 19:21 (B084)	05:41 – 20:58 (23)	19:34 (B083) – 21:38 (24)	05:06 – 20:41 (WEA03)	05:15 – 21:40 (26)	20:17 (WEA03) – 20:48 (WEA03)	05:57 – 20:58 (22)	19:44 (B083) – 20:06 (B083)	06:47 – 19:53		07:35 – 18:44	07:30 – 16:43	08:16 – 16:13
11	08:26 – 16:34	07:47 – 17:27	06:50 – 18:17	06:39 – 20:10 (15) 19:07 (B084) – 19:22 (B084)	05:39 – 21:00 (22)	19:35 (B083) – 21:39 (23)	05:05 – 20:40 (WEA03)	05:16 – 21:39 (25)	20:17 (WEA03) – 20:48 (WEA03)	05:59 – 20:57 (21)	19:45 (B083) – 20:06 (B083)	06:48 – 19:50		07:37 – 18:42	07:31 – 16:41	08:17 – 16:13
12	08:26 – 16:35	07:46 – 17:29	06:47 – 18:19	06:37 – 20:12 (17) 19:06 (B084) – 19:23 (B084)	05:38 – 21:02 (21)	19:35 (B083) – 21:40 (24)	05:05 – 20:41 (WEA03)	05:17 – 21:39 (25)	20:17 (WEA03) – 20:23 (WEA03)	06:00 – 20:55 (20)	19:45 (B083) – 20:05 (B083)	06:50 – 19:48		07:39 – 18:39	07:33 – 16:40	08:18 – 16:13
13	08:25 – 16:37	07:44 – 17:31 (2) 08:22 (B062) – 08:24 (B062)	06:45 – 18:21	06:35 – 20:14 (19) 19:05 (B084) – 19:24 (B084)	05:36 – 21:03 (20)	19:36 (B083) – 21:40 (23)	05:05 – 20:41 (WEA03)	05:18 – 21:38 (25)	20:18 (WEA03) – 20:48 (WEA03)	06:02 – 20:53 (17)	19:47 (B083) – 20:04 (B083)	06:51 – 19:46	08:22 (B200) – 08:28 (B200)	07:41 – 18:37 (6)	07:35 – 16:38	08:19 – 16:13
14	08:24 – 16:38	07:42 – 17:33 (8) 08:19 (B062) – 08:27 (B062)	06:43 – 18:23	06:33 – 20:15 (19) 19:05 (B084) – 19:24 (B084)	05:34 – 21:05 (18)	19:37 (B083) – 21:41 (23)	05:05 – 20:41 (WEA03)	05:19 – 21:37 (25)	20:18 (WEA03) – 20:48 (WEA03)	06:03 – 20:51 (16)	19:47 (B083) – 20:03 (B083)	06:53 – 19:44	08:21 (B200) – 08:30 (B200)	07:42 – 18:35 (9)	07:37 – 16:37	08:20 – 16:13
15	08:24 – 16:40	07:40 – 17:34 (10) 08:18 (B062) – 08:28 (B062)	06:41 – 18:24	06:30 – 20:17 (20) 19:03 (B084) – 19:23 (B084)	05:33 – 21:06 (16)	19:38 (B083) – 21:42 (22)	05:04 – 20:41 (WEA03)	05:20 – 21:36 (25)	20:19 (WEA03) – 20:48 (WEA03)	06:05 – 20:49 (12)	19:49 (B083) – 20:01 (B083)	06:55 – 19:41	08:20 (B200) – 08:30 (B200)	07:44 – 18:33 (11)	07:38 – 16:35	08:21 – 16:13
16	08:23 – 16:41	07:38 – 17:36 (12) 08:17 (B062) – 08:29 (B062)	06:38 – 18:26	06:28 – 20:19 (20) 19:03 (B084) – 19:23 (B084)	05:31 – 21:08 (13)	19:40 (B083) – 21:42 (23)	05:04 – 20:41 (WEA03)	05:22 – 21:35 (25)	20:18 (WEA03) – 20:48 (WEA03)	06:07 – 20:47 (5)	19:52 (B083) – 19:57 (B083)	06:56 – 19:39	08:19 (B200) – 08:31 (B200)	07:46 – 18:31 (12)	07:40 – 16:34	08:22 – 16:13
17	08:22 – 16:43	07:36 – 17:38 (12) 08:17 (B062) – 08:29 (B062)	06:36 – 18:28	06:26 – 20:20 (18) 19:04 (B084) – 19:22 (B084)	05:30 – 21:09 (19)	19:41 (B083) – 21:43 (22)	05:04 – 20:41 (WEA03)	05:23 – 21:34 (25)	20:19 (WEA03) – 20:23 (WEA03)	06:08 – 20:45 (WEA03)	06:58 – 19:37		08:31 (B200) – 08:49 (B062)	07:47 – 18:29 (12)	07:42 – 16:32	08:23 – 16:13
18	08:21 – 16:45	07:34 – 17:40 (12) 08:17 (B062) – 08:29 (B062)	06:34 – 18:30	06:24 – 20:22 (18) 19:04 (B084) – 19:22 (B084)	05:28 – 21:11 (19)	19:44 (B083) – 21:43 (22)	05:04 – 20:41 (WEA03)	05:24 – 21:33 (25)	20:19 (WEA03) – 20:48 (WEA03)	06:10 – 20:43 (WEA03)	07:00 – 19:34		08:18 (B200) – 08:30 (B200)	07:49 – 18:26 (12)	07:44 – 16:31	08:24 – 16:13
19	08:20 – 16:46	07:32 – 17:42 (10) 08:18 (B062) – 08:28 (B062)	06:32 – 18:31	06:22 – 20:24 (16) 19:05 (B084) – 19:21 (B084)	05:27 – 21:12 (16)	20:18 (WEA03) – 20:34 (WEA03)	05:04 – 20:40 (WEA03)	05:25 – 21:32 (25)	20:20 (WEA03) – 20:48 (WEA03)	06:11 – 20:41 (WEA03)	07:01 – 19:32		08:19 (B200) – 08:29 (B200)	07:51 – 18:24 (10)	07:45 – 16:30	08:24 – 16:13
20	08:19 – 16:48	07:30 – 17:44 (8) 08:19 (B062) – 08:27 (B062)	06:29 – 18:33	06:20 – 20:25 (13) 19:06 (B084) – 19:19 (B084)	05:26 – 21:14 (18)	20:16 (WEA03) – 20:34 (WEA03)	05:04 – 20:40 (WEA03)	05:26 – 21:32 (25)	20:20 (WEA03) – 20:48 (WEA03)	06:13 – 20:41 (WEA03)	07:03 – 19:30		08:21 (B200) – 08:29 (B200)	07:53 – 18:22 (7)	07:47 – 16:30	08:25 – 16:13
21	08:18 – 16:50	07:28 – 17:45 (2) 08:24 (B062) – 08:35	06:27 – 18:35	06:18 – 20:27 (10) 19:07 (B084) – 19:17 (B084)	05:24 – 21:15 (20)	20:16 (WEA03) – 20:36 (WEA03)	05:04 – 20:40 (WEA03)	05:28 – 21:31 (23)	20:20 (WEA03) – 20:25 (WEA03)	06:15 – 20:37 (WEA03)	07:04 – 19:27			07:54 – 18:20	07:49 – 16:27	08:26 – 16:14
22	08:17 – 16:51	07:26 – 17:47	06:25 – 18:36	06:15 – 20:29	05:23 – 21:17 (21)	20:15 (WEA03) – 20:36 (WEA03)	05:04 – 20:40 (WEA03)	05:29 – 21:28 (22)	20:20 (WEA03) – 20:47 (WEA03)	06:16 – 20:35 (WEA03)	07:06 – 19:25			07:56 – 18:18	07:50 – 16:26	08:26 – 16:15
23	08:16 – 16:53	07:24 – 17:49 (6) 07:50 (B200) – 07:56 (B200)	06:22 – 18:38	06:13 – 20:30	05:22 – 21:18 (22)	20:15 (WEA03) – 20:37 (WEA03)	05:05 – 20:40 (WEA03)	05:30 – 21:27 (22)	20:20 (WEA03) – 20:47 (WEA03)	06:18 – 20:33 (8)	19:13 (B084) – 19:21 (B084)	07:08 – 19:23	08:49 (B062) – 08:56 (B062)	07:58 – 18:16 (7)	07:52 – 16:25	08:27 – 16:15
24	08:15 – 16:55	07:22 – 17:51 (10) 07:58 (B200) – 08:18 (B062)	06:20 – 18:40	06:11 – 20:32	05:20 – 21:19 (23)	20:15 (WEA03) – 20:38 (WEA03)	05:05 – 20:40 (WEA03)	05:32 – 21:26 (20)	20:21 (WEA03) – 20:46 (WEA03)	06:19 – 20:30 (13)	19:10 (B084) – 19:23 (B084)	07:09 – 19:20	08:48 (B062) – 08:57 (B062)	08:00 – 18:14 (9)	07:54 – 16:24	08:27 – 16:16
25	08:14 – 16:56	07:20 – 17:53 (12) 07:47 (B200) – 07:59 (B200)	06:18 – 18:42	06:09 – 20:34	05:19 – 21:21 (23)	20:15 (WEA03) – 20:38 (WEA03)	05:05 – 20:41 (WEA03)	05:33 – 21:24 (19)	20:21 (WEA03) – 20:27 (WEA03)	06:21 – 20:28 (15)	19:09 (B084) – 19:24 (B084)	07:11 – 19:18	08:47 (B062) – 08:58 (B062)	08:01 – 18:12 (11)	07:55 – 16:23	08:28 – 16:16
26	08:12 – 16:58	07:18 – 17:54 (12) 07:47 (B200) – 07:59 (B200)	07:16 – 19:43	06:07 – 20:35	05:18 – 21:22 (25)	20:14 (WEA03) – 20:39 (WEA03)	05:05 – 20:41 (WEA03)	05:35 – 21:23 (16)	20:28 (WEA03) – 20:44 (WEA03)	06:23 – 20:26 (17)	19:07 (B084) – 19:24 (B084)	07:12 – 19:16	08:47 (B062) – 08:58 (B062)	08:03 – 18:10 (11)	07:57 – 16:22	08:28 – 16:17
27	08:11 – 17:00	07:16 – 17:56 (12) 07:47 (B200) – 07:59 (B200)	07:13 – 19:45	06:05 – 20:37	05:17 – 21:23 (25)	20:14 (WEA03) – 20:39 (WEA03)	05:06 – 20:41 (WEA03)	05:36 – 21:22 (18)	19:54 (B083) – 20:43 (WEA03)	06:24 – 20:24 (18)	19:07 (B084) – 19:25 (B084)	07:14 – 19:13	08:47 (B062) – 08:58 (B062)	08:05 – 18:08 (11)	07:58 – 16:21	08:28 – 16:18
28	08:10 – 17:02	07:14 – 17:58 (12) 07:46 (B200) – 07:58 (B200)	07:11 – 19:47	06:03 – 20:39	05:16 – 21:25 (25)	20:14 (WEA03) – 20:39 (WEA03)	05:06 – 20:41 (WEA03)	05:37 – 21:20 (20)	19:52 (B083) – 20:42 (WEA03)	06:26 – 20:22 (20)	19:25 (B084) – 19:25 (B084)	07:16 – 19:11	08:47 (B062) – 08:58 (B062)	08:07 – 18:06 (11)	08:00 – 16:20	08:29 – 16:18
29	08:08 – 17:03		07:09 – 19:48	06:01 – 20:40 (11) 19:41 (B083) – 19:52 (B083)	05:15 – 21:26 (25)	20:14 (WEA03) – 20:39 (WEA03)	05:07 – 20:41 (WEA03)	05:39 – 21:19 (15)	19:50 (B083) – 20:37 (WEA03)	06:27 – 20:20 (20)	19:05 (B084) – 19:25 (B084)	07:17 – 19:09	07:48 (B062) – 07:57 (B062)	07:08 – 17:04 (9)	08:01 – 16:19	08:29 – 16:19
30	08:07 – 17:05		07:06 – 19:50	05:59 – 20:42 (15) 19:39 (B083) – 19:54 (B083)	05:14 – 21:27 (25)	20:14 (WEA03) – 20:39 (WEA03)	05:07 – 20:45 (23)	05:40 – 21:17 (16)	19:48 (B083) – 20:04 (B083)	06:29 – 20:17 (20)	19:04 (B084) – 19:24 (B084)	07:19 – 19:06	07:50 (B062) – 07:55 (B062)	07:10 – 17:02 (5)	08:03 – 16:18	08:29 – 16:20
31	08:06 – 17:07		07:04 – 19:52		05:13 – 21:28 (25)	20:14 (WEA03) – 20:39 (WEA03)		05:42 – 21:16 (18)	19:48 (B083) – 20:06 (B083)	06:31 – 20:15 (19)	19:05 (B084) – 19:24 (B084)			07:12 – 17:00		08:29 – 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		140	16	232	660	697	701	459	65	153		
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29		
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Reduktion Windrichtung		0.64	0.65	0.70	0.65	0.64	0.64	0.68	0.71	0.64		
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20	0.24	0.26	0.22	0.18		
Met.wahrsch.Beschattung		28	3	57	175	143	166	119	14	27		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO084 - Am Schulberg 7, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	19:30 (B083)	05:12	20:10 (WEA03)	05:08	20:21 (WEA03)	05:43	20:25 (WEA03)	06:32	18:59 (B084)	07:21	07:14	07:51 (B062)	08:04
	16:22	17:09	18:00	19:53	20:44	19:53 (B083)	21:29	20:34 (WEA03)	21:44	20:44 (B178)	21:14	20:37 (WEA03)	20:13	19:18 (B084)	19:04	16:58	07:59 (B062)	16:18
2	08:29	08:03	07:10	07:00	05:55	19:30 (B083)	05:11	20:11 (WEA03)	05:09	20:20 (WEA03)	05:45	19:48 (B083)	06:34	18:58 (B084)	07:22	07:15	07:54 (B062)	08:06
	16:23	17:11	18:02	19:55	20:45	19:53 (B083)	21:31	20:34 (WEA03)	21:44	20:44 (B178)	21:12	20:35 (WEA03)	20:11	19:18 (B084)	19:02	16:56	07:57 (B062)	16:17
3	08:29	08:01	07:07	06:57	05:54	19:30 (B083)	05:10	20:11 (WEA03)	05:09	20:20 (WEA03)	05:46	19:45 (B083)	06:35	18:58 (B084)	07:24	07:17		08:07
	16:24	17:12	18:03	19:57	20:47	19:53 (B083)	21:32	20:34 (WEA03)	21:44	20:44 (B178)	21:11	19:57 (B083)	20:09	19:17 (B084)	19:00	16:55		16:16
4	08:29	07:59	07:05	06:55	05:52	19:29 (B083)	05:09	20:11 (WEA03)	05:10	20:20 (WEA03)	05:48	19:43 (B083)	06:37	18:58 (B084)	07:26	07:19		08:09
	16:25	17:14	18:05	19:58	20:49	19:52 (B083)	21:33	20:34 (WEA03)	21:43	20:44 (B178)	21:09	19:58 (B083)	20:06	19:17 (B084)	18:57	16:53		16:16
5	08:29	07:58	07:03	06:53	19:07 (B084)	05:50	19:30 (B083)	05:09	20:12 (WEA03)	05:11	20:19 (WEA03)	05:49	19:42 (B083)	06:39	18:57 (B084)	07:27		08:10
	16:26	17:16	18:07	20:00 8	19:15 (B084)	20:50 23	19:53 (B083)	21:34 23	20:35 (B178)	21:43 24	20:43 (B178)	21:07 18	20:00 (B083)	20:04 19	19:16 (B084)	18:55		16:15
6	08:28	07:56	07:01	06:50	19:04 (B084)	05:48	19:30 (B083)	05:08	20:13 (WEA03)	05:11	20:19 (WEA03)	05:51	19:41 (B083)	06:40	18:58 (B084)	07:29		08:11
	16:28	17:18	18:09	20:02 13	19:17 (B084)	20:52 22	19:52 (B083)	21:35 23	20:36 (B178)	21:42 24	20:43 (B178)	21:06 19	20:00 (B083)	20:02 17	19:15 (B084)	18:53		16:15
7	08:28	07:54	06:59	06:48	19:03 (B084)	05:46	19:30 (B083)	05:07	20:14 (WEA03)	05:12	20:20 (WEA03)	05:52	19:41 (B083)	06:42	18:59 (B084)	07:30		08:12
	16:29	17:20	18:10	20:03 15	19:18 (B084)	20:54 21	19:51 (B083)	21:36 23	20:37 (B178)	21:42 23	20:43 (B178)	21:04 20	20:01 (B083)	20:00 14	19:13 (B084)	18:51		16:14
8	08:28	07:53	06:56	06:46	19:02 (B084)	05:44	19:32 (B083)	05:07	20:14 (WEA03)	05:13	20:19 (WEA03)	05:54	19:40 (B083)	06:43	19:00 (B084)	07:32		08:14
	16:30	17:22	18:12	20:05 17	19:19 (B084)	20:55 19	19:51 (B083)	21:37 23	20:37 (B178)	21:41 24	20:43 (B178)	21:02 21	20:01 (B083)	19:57 11	19:11 (B084)	18:48		16:14
9	08:27	07:51	06:54	06:44	19:00 (B084)	05:43	19:32 (B083)	05:06	20:14 (WEA03)	05:14	20:19 (WEA03)	05:56	19:40 (B083)	06:45	19:04 (B084)	07:34		08:15
	16:31	17:23	18:14	20:07 19	19:19 (B084)	20:57 17	19:49 (B083)	21:37 24	20:38 (B178)	21:41 23	20:42 (B178)	21:00 22	20:02 (B083)	19:55 4	19:08 (B084)	18:46		16:14
10	08:27	07:49	06:52	06:41	19:00 (B084)	05:41	19:33 (B083)	05:06	20:15 (WEA03)	05:15	20:19 (WEA03)	05:57	19:39 (B083)	06:47		07:35		08:16
	16:33	17:25	18:16	20:09 19	19:19 (B084)	20:58 15	19:48 (B083)	21:38 24	20:39 (B178)	21:40 23	20:42 (WEA03)	20:58 22	20:01 (B083)	19:53		18:44		16:13
11	08:26	07:47	06:50	06:39	18:59 (B084)	05:39	19:35 (B083)	05:05	20:15 (WEA03)	05:16	20:19 (WEA03)	05:59	19:39 (B083)	06:48		07:37		08:17
	16:34	17:27 7	08:30 (B062) 18:17	20:10 20	19:19 (B084)	21:00 12	19:47 (B083)	21:39 24	20:39 (B178)	21:39 23	20:42 (WEA03)	20:57 23	20:02 (B083)	19:50		18:42		16:13
12	08:26	07:46	08:22 (B062) 06:47	06:37	19:00 (B084)	05:38	19:37 (B083)	05:05	20:16 (WEA03)	05:17	20:19 (WEA03)	06:00	19:38 (B083)	06:50		07:39		08:18
	16:35	17:29 9	08:31 (B062) 18:19	20:12 19	19:19 (B084)	21:02 13	20:24 (WEA03)	21:40 24	20:40 (B178)	21:39 23	20:42 (WEA03)	20:55 23	20:01 (B083)	19:48		18:39		16:13
13	08:25	07:44	08:21 (B062) 06:45	06:35	19:00 (B084)	05:36	20:15 (WEA03)	05:05	20:17 (WEA03)	05:18	20:19 (WEA03)	06:02	19:39 (B083)	06:51		07:41		08:19
	16:37	17:31 11	08:32 (B062) 18:21	20:14 18	19:18 (B084)	21:03 12	20:27 (WEA03)	21:40 23	20:40 (B178)	21:38 24	20:43 (WEA03)	20:53 23	20:02 (B083)	19:46		18:37		16:13
14	08:24	07:42	08:21 (B062) 06:43	06:33	19:00 (B084)	05:34	20:13 (WEA03)	05:05	20:18 (WEA03)	05:19	20:19 (WEA03)	06:03	19:38 (B083)	06:53		07:42		08:20
	16:38	17:33 11	08:32 (B062) 18:23	20:15 18	19:18 (B084)	21:05 15	20:28 (WEA03)	21:41 23	20:41 (B178)	21:37 24	20:43 (WEA03)	20:51 23	20:01 (B083)	19:44		18:35		16:13
15	08:24	07:40	08:21 (B062) 06:41	06:30	19:00 (B084)	05:33	20:12 (WEA03)	05:04	20:18 (WEA03)	05:20	20:19 (WEA03)	06:05	19:39 (B083)	06:55		07:44		08:21
	16:40	17:34 11	08:32 (B062) 18:24	20:17 16	19:16 (B084)	21:06 18	20:30 (WEA03)	21:42 23	20:41 (B178)	21:36 24	20:43 (WEA03)	20:49 22	20:01 (B083)	19:41		18:33		16:13
16	08:23	07:38	08:21 (B062) 06:38	06:28	19:01 (B084)	05:31	20:12 (WEA03)	05:04	20:18 (WEA03)	05:22	20:19 (WEA03)	06:07	19:39 (B083)	06:56	08:26 (B200)	07:46	07:40	08:22
	16:41	17:36 11	08:32 (B062) 18:26	20:19 13	19:14 (B084)	21:08 19	20:31 (WEA03)	21:42 23	20:41 (B178)	21:35 25	20:44 (WEA03)	20:47 20	19:59 (B083)	19:39	18:31 7	08:33 (B200)	16:34	16:13
17	08:22	07:36	08:22 (B062) 06:36	06:26	19:03 (B084)	05:30	20:10 (WEA03)	05:04	20:18 (WEA03)	05:23	20:18 (WEA03)	06:08	19:40 (B083)	06:58	18:29 10	08:23 (B200)	07:42	08:23
	16:43	17:38 9	08:31 (B062) 18:28	20:20 9	19:12 (B084)	21:09 21	20:31 (WEA03)	21:43 23	20:41 (B178)	21:34 26	20:44 (WEA03)	20:45 19	19:59 (B083)	19:37	18:29 10	08:33 (B200)	16:32	16:13
18	08:21	07:34	08:24 (B062) 06:34	06:24	05:28	20:10 (WEA03)	05:04	20:19 (WEA03)	05:24	20:18 (WEA03)	06:10	19:40 (B083)	07:00	07:49	08:22 (B200)	07:44		08:24
	16:45	17:40 5	08:29 (B062) 18:30	20:22	21:11 22	20:32 (WEA03)	21:43 22	20:41 (B178)	21:33 26	20:44 (WEA03)	20:43 17	19:57 (B083)	19:34	18:26 12	08:34 (B200)	16:31		16:13
19	08:20	07:32	06:32	06:22	05:27	20:10 (WEA03)	05:04	20:20 (WEA03)	05:25	20:18 (WEA03)	06:11	19:42 (B083)	07:01	07:51	08:22 (B200)	07:45		08:24
	16:46	17:42	18:31	20:24	21:12 23	20:33 (WEA03)	21:44 23	20:43 (B178)	21:32 26	20:44 (WEA03)	20:41 14	19:56 (B083)	19:32	18:24 12	08:34 (B200)	16:30		16:13
20	08:19	07:30	07:57 (B200) 06:29	06:20	05:26	20:09 (WEA03)	05:04	20:20 (WEA03)	05:26	20:18 (WEA03)	06:13	19:44 (B083)	07:03	07:53	08:22 (B200)	07:47		08:25
	16:48	17:44 3	08:00 (B200) 18:33	20:25	21:14 24	20:33 (WEA03)	21:44 23	20:43 (B178)	21:31 26	20:44 (WEA03)	20:39 8	19:52 (B083)	19:30	18:22 12	08:34 (B200)	16:28		16:14
21	08:18	07:28	07:55 (B200) 06:27	06:18	05:24	20:09 (WEA03)	05:04	20:20 (WEA03)	05:28	20:19 (WEA03)	06:15		07:04	07:54	08:23 (B200)	07:49		08:26
	16:50	17:45 7	08:02 (B200) 18:35	20:27	21:15 24	20:33 (WEA03)	21:44 23	20:43 (B178)	21:29 25	20:44 (WEA03)	20:37		19:27	18:20 11	08:34 (B200)	16:27		16:14
22	08:17	07:26	07:52 (B200) 06:25	06:15	05:23	20:09 (WEA03)	05:04	20:20 (WEA03)	05:29	20:19 (WEA03)	06:16		07:06	07:56	08:25 (B200)	07:50		08:26
	16:51	17:47 10	08:02 (B200) 18:36	20:29	21:17 25	20:34 (WEA03)	21:44 23	20:43 (B178)	21:28 25	20:44 (WEA03)	20:35		19:25	18:18 8	08:33 (B200)	16:26		16:15
23	08:16	07:24	07:51 (B200) 06:22	06:13	05:22	20:09 (WEA03)	05:05	20:20 (WEA03)	05:30	20:19 (WEA03)	06:18		07:08	07:58	08:26 (B200)	07:52		08:27
	16:53	17:49 12	08:03 (B200) 18:38	20:30	21:18 25	20:34 (WEA03)	21:45 23	20:43 (B178)	21:27 25	20:44 (WEA03)	20:33		19:23	18:16 5	08:31 (B200)	16:25		16:15
24	08:15	07:22	07:51 (B200) 06:20	06:11	19:40 (B083) 05:20	20:09 (WEA03)	05:05	20:21 (WEA03)	05:32	20:19 (WEA03)	06:19		07:09	08:00		07:54		08:27
	16:55	17:51 12	08:03 (B200) 18:40	20:32 5	19:45 (B083) 21:19	25 20:34 (WEA03)	21:45 23	20:44 (B178)	21:26 24	20:43 (WEA03)	20:30		19:20	18:14		16:24		16:16
25	08:14	07:20	07:51 (B200) 06:18	06:09	19:36 (B083) 05:19	20:09 (WEA03)	05:05	20:21 (WEA03)	05:33	20:20 (WEA03)	06:21		07:11	08:01	08:54 (B062)	07:55		08:28
	16:56	17:53 12	08:03 (B200) 18:42	20:34 12	19:48 (B083) 21:21	26 20:35 (WEA03)	21:45 23	20:44 (B178)	21:24 24	20:44 (WEA03)	20:28		19:18	18:12 4	08:58 (B062)	16:23		16:16
26	08:12	07:18	07:52 (B200) 07:16	06:07	19:34 (B083) 05:18	20:09 (WEA03)	05:05	20:21 (WEA03)	05:35	20:20 (WEA03)	06:23		07:12	08:03	08:52 (B062)	07:57		08:28
	16:58	17:54 10	08:02 (B200) 19:43	20:35 16	19:50 (B083) 21:22	26 20:35 (WEA03)	21:45 22	20:43 (B178)	21:23 23	20:43 (WEA03)	20:26		19:16	18:10 8	09:00 (B062)	16:22		16:17
27	08:11	07:16	07:53 (B200) 07:13	06:05	19:33 (B083) 05:17	20:09 (WEA03)	05:06	20:21 (WEA03)	05:36	20:20 (WEA03)	06:24	19:08 (B084)	07:14	08:05	08:51 (B062)	07:58		08:28
	17:00	17:56 8	08:01 (B200) 19:45	20:37 18	19:51 (B083) 21:23	26 20:35 (WEA03)	21:45 23	20:44 (B178)	21:22 22	20:42 (WEA03)	20:24 5	19:13 (B084)	19:13	18:08 10	09:01 (B062)	16:21		16:18
28	08:10	07:14	07:11	06:03	19:32 (B083) 05:16	20:09 (WEA03)	05:06	20:21 (WEA03)	05:37	20:21 (WEA03)	06:26	19:04 (B084)	07:16	08:07	08:50 (B062)	08:00		08:29
	17:02	17:58	19:47	20:39 20	19:52 (B083) 21:25	26 20:35 (WEA03)	21:45 23	20:44 (B178)	21:20 21	20:42 (WEA03)	20:22 11	19:15 (B084)	19:11	18:06 12	09:02 (B062)	16:20		16:18
29	08:08		07:09	06:01	19:31 (B083) 05:15	20:10 (WEA03)	05:07	20:21 (WEA03)	05:39	20:22 (WEA03)	06:27	19:03 (B084)	07:17	07:08	07:50 (B062)	08:01		08:29
	17:03		19:48	20:40 21	19:52 (B083) 21:26	25 20:35 (WEA03)	21:45 23	20:44 (B178)	21:19 19	20:41 (WEA03)	20:20 14	19:17 (B084)	19:09	17:04 12	08:02 (B062)	16:19		16:19
30	08:07		07:06	05:59	19:30 (B083) 05:14	20:10 (WEA03)	05:07	20:21 (WEA03)	05:40	20:22 (WEA03)	06:29	19:01 (B084)	07:19	07:10	07:51 (B062)	08:03		08:29
	17:05		19:50	20:42 22	19:52 (B083) 21:27	24 20:34 (WEA03)	21:45 23	20:44 (B178)	21:17 18	20:40 (WEA03)	20:17 16	19:17 (B084)	19:06	17:02 11	08:02 (B062)	16:18		16:20
31	08:06		07:04		05:13	20:10 (WEA03)			05:42	20:24 (WEA03)	06:31	19:00 (B084)		07:12	07:51 (B062)			08:29
	17:07		19:52		21:28 24	20:34 (WEA03)			21:16 16	20:40 (WEA03)	20:15 18	19:18 (B084)		17:00 10	08:01 (B062)			16:21
Sonnenscheinstunden	259	277	366	414	483		497		501		454		382	333		268		245
astr.max.mögl.Beschattung		148		318	664		693		725		431		142	144	11			
Red.Sonnenscheinwahrsch.		0.32		0.36	0.43		0.34		0.39		0.40		0.32	0.29	0.23			
Reduktion Betriebsdauer		0.95		0.95	0.95		0.95		0.95		0.95		0.95	0.95	0.95			
Reduktion Windrichtung		0.64		0.70	0.65		0.64		0.64		0.68		0.72	0.64	0.63			
Gesamte Reduktion		0.20		0.24	0.27		0.20		0.24		0.26		0.22	0.18	0.13			
Met.wahrsch.Beschattung		29		77	177		142		172		111		31	25	1			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO085 - Am Schulberg 8, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:45 (B200)	07:02	19:44 (B083)	05:12	20:16 (WEA03)	05:08	20:23 (WEA03)	05:43	19:48 (B083)	06:32	19:10 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00 12	07:57 (B200)	19:53	19:55 (B083)	21:29 25	20:41 (WEA03)	21:44 24	20:47 (WEA03)	21:14 21	20:09 (B083)	20:13 14	19:24 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:45 (B200)	07:00	19:42 (B083)	05:11	20:16 (WEA03)	05:09	20:23 (WEA03)	05:45	19:49 (B083)	06:34	19:12 (B084)	07:22	07:15	08:06
	16:23	17:11	18:02 11	07:56 (B200)	19:55	19:57 (B083)	21:31 26	20:42 (WEA03)	21:44 23	20:46 (WEA03)	21:12 21	20:10 (B083)	20:11 10	19:22 (B084)	19:02	16:56	16:17
3	08:29	08:01	07:07	07:47 (B200)	06:57	19:40 (B083)	05:10	20:16 (WEA03)	05:09	20:23 (WEA03)	05:46	19:48 (B083)	06:35		07:24	07:17	08:07
	16:24	17:12	18:03 8	07:55 (B200)	19:57	19:58 (B083)	21:32 25	20:41 (WEA03)	21:44 24	20:47 (WEA03)	21:11 22	20:10 (B083)	20:09		19:00	16:55	16:16
4	08:29	07:59	07:05		06:55	19:39 (B083)	05:09	20:16 (WEA03)	05:10	20:23 (WEA03)	05:48	19:47 (B083)	06:37		07:26	07:19	08:09
	16:25	17:14	18:05		19:58	19:58 (B083)	21:33 25	20:41 (WEA03)	21:43 25	20:48 (WEA03)	21:09 23	20:10 (B083)	20:06		18:57	16:53	16:16
5	08:29	07:58	07:03		06:53	19:39 (B083)	05:09	20:17 (WEA03)	05:11	20:23 (WEA03)	05:49	19:48 (B083)	06:39		07:27	07:21	08:10
	16:26	17:16	18:07		20:00	19:59 (B083)	21:34 25	20:42 (WEA03)	21:43 24	20:47 (WEA03)	21:07 22	20:10 (B083)	20:04		18:55	16:51	16:15
6	08:28	07:56	07:01		06:50	19:38 (B083)	05:08	20:17 (WEA03)	05:11	20:23 (WEA03)	05:51	19:47 (B083)	06:40		07:29	07:22	08:11
	16:28	17:18	18:09		20:02	20:00 (B083)	21:35 25	20:42 (WEA03)	21:42 25	20:48 (WEA03)	21:06 23	20:10 (B083)	20:02		18:53	16:49	16:15
7	08:28	07:54	06:59		06:48	19:37 (B083)	05:07	20:17 (WEA03)	05:12	20:23 (WEA03)	05:52	19:48 (B083)	06:42		07:30	07:24	08:12
	16:29	17:20	18:10		20:03	20:00 (B083)	21:36 25	20:42 (WEA03)	21:42 25	20:48 (WEA03)	21:04 22	20:10 (B083)	20:00		18:51	16:48	16:14
8	08:28	07:53	06:56		06:46	19:38 (B083)	05:07	20:17 (WEA03)	05:13	20:24 (WEA03)	05:54	19:47 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12		20:05	20:00 (B083)	21:37 25	20:42 (WEA03)	21:41 25	20:49 (WEA03)	21:02 22	20:09 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54		06:44	19:37 (B083)	05:06	20:18 (WEA03)	05:14	20:24 (WEA03)	05:56	19:48 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14		20:07	20:00 (B083)	21:37 24	20:42 (WEA03)	21:41 25	20:49 (WEA03)	21:00 21	20:09 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52		06:41	19:37 (B083)	05:06	20:18 (WEA03)	05:15	20:24 (WEA03)	05:57	19:48 (B083)	06:47		07:35	07:30	08:16
	16:33	17:25	18:16		20:08	20:59 (B083)	21:38 25	20:43 (WEA03)	21:40 25	20:49 (WEA03)	20:58 20	20:08 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50		06:39 19:14 (B084)	19:38 (B083)	05:05	20:18 (WEA03)	05:16	20:24 (WEA03)	05:59	19:50 (B083)	06:48		07:37	07:31	08:17
	16:34	17:27	18:17		20:10 8 19:22 (B084)	21:00 22	20:00 (B083)	21:39 24	20:42 (WEA03)	21:39 25	20:49 (WEA03)	20:57 17	20:07 (B083)	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47		06:37 19:12 (B084)	05:38	19:37 (B083)	05:05	20:19 (WEA03)	05:17	20:24 (WEA03)	06:00	19:50 (B083)	06:50	07:39	08:20 (B200)	07:33	08:18
	16:35	17:29	18:19		20:12 12 19:24 (B084)	21:02 22	19:59 (B083)	21:40 23	20:42 (WEA03)	21:39 25	20:49 (WEA03)	20:55 15	20:05 (B083)	19:48	18:39 8	08:28 (B200)	16:40	16:13
13	08:25	07:44	06:45		06:35 19:10 (B084)	05:36	19:38 (B083)	05:05	20:19 (WEA03)	05:18	20:25 (WEA03)	06:02	19:52 (B083)	06:51	07:41	08:19 (B200)	07:35	08:19
	16:37	17:31	18:21		20:14 15 19:25 (B084)	21:03 21	19:59 (B083)	21:40 24	20:43 (WEA03)	21:38 25	20:50 (WEA03)	20:53 12	20:04 (B083)	19:46	18:37 10	08:29 (B200)	16:38	16:13
14	08:24	07:42	06:43		06:33 19:09 (B084)	05:34	19:38 (B083)	05:05	20:20 (WEA03)	05:19	20:25 (WEA03)	06:03	19:54 (B083)	06:53	07:42	08:18 (B200)	07:37	08:20
	16:38	17:33	18:23		20:15 17 19:26 (B084)	21:05 20	19:58 (B083)	21:41 23	20:43 (WEA03)	21:37 25	20:50 (WEA03)	20:51 7	20:01 (B083)	19:44	18:35 12	08:30 (B200)	16:37	16:13
15	08:24	07:40 08:19 (B062)	06:41		06:30 19:07 (B084)	05:33	19:39 (B083)	05:04	20:20 (WEA03)	05:20	20:25 (WEA03)	06:05		06:55	07:44	08:18 (B200)	07:38	08:21
	16:40	17:34 7 08:26 (B062)	18:24		20:17 19 19:26 (B084)	21:06 19	19:58 (B083)	21:42 23	20:43 (WEA03)	21:36 25	20:50 (WEA03)	20:49		19:41	18:33 12	08:30 (B200)	16:35	16:13
16	08:23	07:38 08:17 (B062)	06:38		06:28 19:07 (B084)	05:31	19:40 (B083)	05:04	20:19 (WEA03)	05:22	20:25 (WEA03)	06:07		06:56	07:46	08:18 (B200)	07:40	08:22
	16:41	17:36 10 08:27 (B062)	18:26		20:19 19 19:26 (B084)	21:08 18	19:58 (B083)	21:42 24	20:43 (WEA03)	21:35 24	20:49 (WEA03)	20:47		19:39	18:31 12	08:30 (B200)	16:34	16:13
17	08:22	07:36 08:17 (B062)	06:36		06:26 19:07 (B084)	05:30	19:41 (B083)	05:04	20:20 (WEA03)	05:23	20:25 (WEA03)	06:08		06:58	07:47	08:17 (B200)	07:42	08:23
	16:43	17:38 11 08:28 (B062)	18:28		20:20 19 19:26 (B084)	21:09 15	19:56 (B083)	21:43 23	20:43 (WEA03)	21:34 24	20:49 (WEA03)	20:45		19:37	18:29 12	08:29 (B200)	16:32	16:13
18	08:21	07:34 08:16 (B062)	06:34		06:24 19:07 (B084)	05:28	19:42 (B083)	05:04	20:20 (WEA03)	05:24	20:26 (WEA03)	06:10		07:00	07:49	08:18 (B200)	07:44	08:24
	16:45	17:40 12 08:28 (B062)	18:30		20:22 19 19:26 (B084)	21:11 19	20:30 (WEA03)	21:43 23	20:43 (WEA03)	21:33 23	20:49 (WEA03)	20:43		19:34	18:26 10	08:28 (B200)	16:31	16:13
19	08:20	07:32 08:17 (B062)	06:32		06:22 19:07 (B084)	05:27	19:44 (B083)	05:04	20:21 (WEA03)	05:25	20:26 (WEA03)	06:11		07:01	07:51	08:20 (B200)	07:45	08:24
	16:46	17:42 11 08:28 (B062)	18:31		20:24 18 19:25 (B084)	21:12 21	20:33 (WEA03)	21:44 23	20:44 (WEA03)	21:32 22	20:48 (WEA03)	20:41		19:32	18:24 6	08:26 (B200)	16:30	16:13
20	08:19	07:30 08:17 (B062)	06:29		06:20 19:07 (B084)	05:26	19:46 (B083)	05:04	20:21 (WEA03)	05:26	20:26 (WEA03)	06:13		07:03	07:53		07:47	08:25
	16:48	17:44 11 08:28 (B062)	18:33		20:25 18 19:25 (B084)	21:14 19	20:34 (WEA03)	21:44 23	20:44 (WEA03)	21:31 22	20:48 (WEA03)	20:39		19:30	18:22		16:28	16:14
21	08:18	07:28 08:18 (B062)	06:27		06:18 19:08 (B084)	05:24	20:19 (WEA03)	05:04	20:21 (WEA03)	05:28	20:27 (WEA03)	06:15	19:17 (B084)	07:04	07:54	08:51 (B062)	07:49	08:26
	16:50	17:45 9 08:27 (B062)	18:35		20:27 16 19:24 (B084)	21:15 16	20:35 (WEA03)	21:44 23	20:44 (WEA03)	21:29 21	20:48 (WEA03)	20:37 8	19:25 (B084)	19:27	18:20 3	08:54 (B062)	16:27	16:14
22	08:17	07:26 08:19 (B062)	06:25		06:15 19:09 (B084)	05:23	20:18 (WEA03)	05:04	20:21 (WEA03)	05:29	20:28 (WEA03)	06:16	19:14 (B084)	07:06	07:56	08:49 (B062)	07:50	08:26
	16:51	17:47 5 08:24 (B062)	18:36		20:29 13 19:22 (B084)	21:17 19	20:37 (WEA03)	21:44 23	20:44 (WEA03)	21:28 20	20:48 (WEA03)	20:35 12	19:26 (B084)	19:25	18:18 8	08:57 (B062)	16:26	16:15
23	08:16	07:24	06:22		06:13 19:10 (B084)	05:22	20:18 (WEA03)	05:05	20:21 (WEA03)	05:30	20:28 (WEA03)	06:18	19:13 (B084)	07:08	07:58	08:47 (B062)	07:52	08:27
	16:53	17:49	18:38		20:30 10 19:20 (B084)	21:18 20	20:38 (WEA03)	21:45 23	20:44 (WEA03)	21:27 19	20:47 (WEA03)	20:33 15	19:28 (B084)	19:23	18:16 10	08:57 (B062)	16:25	16:15
24	08:15	07:22 07:49 (B200)	06:20		06:11	20:17 (WEA03)	05:05	20:22 (WEA03)	05:32	20:29 (WEA03)	06:19	19:11 (B084)	07:09	08:00	08:46 (B062)	07:54	08:27
	16:55	17:51 5 07:54 (B200)	18:40		20:32	21:19 21 20:38 (WEA03)	21:45 23	20:45 (WEA03)	21:26 17	20:46 (WEA03)	20:30 17	19:28 (B084)	19:20	18:14 12	08:58 (B062)	16:24	16:16
25	08:14	07:20 07:47 (B200)	06:18		06:09	20:17 (WEA03)	05:05	20:22 (WEA03)	05:33	19:57 (B083)	06:21	19:11 (B084)	07:11	08:01	08:46 (B062)	07:55	08:28
	16:56	17:53 9 07:56 (B200)	18:42		20:34	21:21 22 20:39 (WEA03)	21:45 23	20:45 (WEA03)	21:24 19	20:45 (WEA03)	20:28 18	19:29 (B084)	19:18	18:12 12	08:58 (B062)	16:23	16:16
26	08:12	07:18 07:46 (B200)	07:16		06:07	05:18 20:17 (WEA03)	05:05	20:22 (WEA03)	05:35	19:54 (B083)	06:23	19:09 (B084)	07:12	08:03	08:46 (B062)	07:57	08:28
	16:58	17:54 11 07:57 (B200)	19:43		20:35	21:22 22 20:39 (WEA03)	21:45 23	20:45 (WEA03)	21:23 21	20:43 (WEA03)	20:26 19	19:28 (B084)	19:16	18:10 12	08:58 (B062)	16:22	16:17
27	08:11	07:16 07:46 (B200)	07:13		06:05	05:17 20:17 (WEA03)	05:06	20:23 (WEA03)	05:36	19:52 (B083)	06:24	19:09 (B084)	07:14	08:05	08:47 (B062)	07:58	08:28
	17:00	17:56 12 07:58 (B200)	19:45		20:37	21:23 23 20:40 (WEA03)	21:45 23	20:46 (WEA03)	21:22 20	20:41 (WEA03)	20:24 20	19:29 (B084)	19:13	18:08 10	08:57 (B062)	16:21	16:18
28	08:10	07:14 07:44 (B200)	07:11		06:03	05:16 20:16 (WEA03)	05:06	20:22 (WEA03)	05:37	19:52 (B083)	06:26	19:09 (B084)	07:16	08:07	08:48 (B062)	08:00	08:29
	17:02	17:58 13 07:57 (B200)	19:47		20:39	21:25 24 20:40 (WEA03)	21:45 24	20:46 (WEA03)	21:20 15	20:07 (B083)	20:22 19	19:28 (B084)	19:11	18:06 8	08:56 (B062)	16:20	16:18
29	08:08		07:09		06:01	05:15 20:16 (WEA03)	05:07	20:23 (WEA03)	05:39	19:50 (B083)	06:27	19:09 (B084)	07:17	07:08	07:50 (B062)	08:01	08:29
	17:03		19:48		20:40	21:26 24 20:40 (WEA03)	21:45 23	20:46 (WEA03)	21:19 18	20:08 (B083)	20:20 19	19:28 (B084)	19:09	17:04 4	07:54 (B062)	16:19	16:19
30	08:07		07:06		05:59 19:47 (B083)	05:14 20:16 (WEA03)	05:07	20:23 (WEA03)	05:40	19:49 (B083)	06:29	19:09 (B084)	07:19	07:10		08:03	08:29
	17:05		19:50		20:42 4 19:51 (B083)	21:27 25 20:41 (WEA03)	21:45 23	20:46 (WEA03)	21:17 19	20:08 (B083)	20:17 17	19:26 (B084)	19:06	17:02		16:18	16:20
31	08:05		07:04			05:13 20:16 (WEA03)			05:42	19:49 (B083)	06:31	19:10 (B084)		07:12			08:29
	17:07		19:52			21:28 25 20:41 (WEA03)			21:16 20	20:09 (B083)	20:15 16	19:26 (B084)		17:00			16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		126	31	207	632	714	694	448	24	161		
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29		
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Reduktion Windrichtung		0.64	0.66	0.71	0.65	0.64	0.64	0.68	0.71	0.64		
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20	0.24	0.26	0.21	0.18		
Met.wahrsch.Beschattung		25	5	51	168	146	164	116	5	28		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO086 - Am Schulberg 9, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		07:12		07:02		05:57		19:30 (B083)	05:12	20:10 (WEA03)	05:08	20:21 (B178)	05:43	20:22 (WEA03)	06:32	18:59 (B084)	07:21		07:14	07:52 (B062)	08:04
	16:22		17:09		18:00		19:53		20:44	22	19:52 (B083)	21:29	20:32 (B178)	21:44	20:43 (B178)	21:14	20:38 (WEA03)	20:13	19:17 (B084)	19:04		16:58	08:02 (B062)	16:18
2	08:29		08:03		07:10		07:00		05:55		19:29 (B083)	05:11	20:11 (WEA03)	05:09	20:21 (B178)	05:45	20:24 (WEA03)	06:34	18:59 (B084)	07:22		07:15	07:54 (B062)	08:06
	16:23		17:11		18:02		19:55		20:45	23	19:52 (B083)	21:31	20:34 (B178)	21:44	20:43 (B178)	21:12	20:37 (WEA03)	20:11	19:18 (B084)	19:02		16:56	08:01 (B062)	16:17
3	08:29		08:01		07:07		06:57		05:54		19:29 (B083)	05:10	20:11 (WEA03)	05:09	20:21 (B178)	05:46	20:25 (WEA03)	06:35	18:58 (B084)	07:24		07:17		08:07
	16:24		17:12		18:03		19:57		20:47	22	19:51 (B083)	21:32	20:35 (B178)	21:44	20:43 (B178)	21:11	20:35 (WEA03)	20:09	19:17 (B084)	19:00		16:55		16:16
4	08:29		07:59		07:05		06:55		19:11 (B084)	05:52	19:29 (B083)	05:09	20:12 (WEA03)	05:10	20:22 (WEA03)	05:48	19:46 (B083)	06:37	18:58 (B084)	07:26		07:19		08:09
	16:25		17:14		18:05		19:58	2	19:13 (B084)	20:49	19:51 (B083)	21:33	20:35 (B178)	21:43	20:44 (B178)	21:09	19:54 (B083)	20:06	19:17 (B084)	18:57		16:53		16:16
5	08:29		07:58		07:03		06:53		19:05 (B084)	05:50	19:30 (B083)	05:09	20:13 (WEA03)	05:11	20:20 (WEA03)	05:49	19:44 (B083)	06:39	18:57 (B084)	07:27		07:21		08:10
	16:26		17:16		18:07		20:00	11	19:16 (B084)	20:50	19:51 (B083)	21:34	20:36 (B178)	21:43	20:43 (B178)	21:07	19:57 (B083)	20:04	19:16 (B084)	18:55		16:51		16:15
6	08:28		07:56		07:01		06:50		19:04 (B084)	05:48	19:31 (B083)	05:08	20:13 (WEA03)	05:11	20:20 (WEA03)	05:51	19:42 (B083)	06:40	18:58 (B084)	07:29		07:22		08:11
	16:28		17:18		18:09		20:02	14	19:18 (B084)	20:52	19:50 (B083)	21:35	20:36 (B178)	21:42	20:43 (B178)	21:06	19:58 (B083)	20:02	19:15 (B084)	18:53		16:49		16:15
7	08:28		07:54		06:59		06:48		19:02 (B084)	05:46	19:31 (B083)	05:07	20:14 (WEA03)	05:12	20:20 (WEA03)	05:52	19:41 (B083)	06:42	18:58 (B084)	07:30		07:24		08:12
	16:29		17:20		18:10		20:03	17	19:19 (B084)	20:54	19:49 (B083)	21:36	20:37 (B178)	21:42	20:43 (B178)	21:04	19:59 (B083)	20:00	19:14 (B084)	18:51		16:48		16:14
8	08:28		07:53		06:56		06:46		19:02 (B084)	05:44	19:33 (B083)	05:07	20:14 (WEA03)	05:13	20:20 (WEA03)	05:54	19:40 (B083)	06:43	18:59 (B084)	07:32		07:26		08:14
	16:30		17:22		18:12		20:05	18	19:20 (B084)	20:55	19:48 (B083)	21:37	20:37 (B178)	21:41	20:43 (B178)	21:02	19:59 (B083)	19:57	19:12 (B084)	18:48		16:46		16:14
9	08:27		07:51		06:54		06:44		19:00 (B084)	05:43	19:33 (B083)	05:06	20:15 (WEA03)	05:14	20:20 (WEA03)	05:56	19:40 (B083)	06:45	19:02 (B084)	07:34		07:28		08:15
	16:31		17:23		18:14		20:07	19	19:19 (B084)	20:57	19:47 (B083)	21:37	20:38 (B178)	21:41	20:43 (B178)	21:00	20:00 (B083)	19:55	19:10 (B084)	18:46		16:44		16:14
10	08:27		07:49	08:26 (B062)	06:52		06:41		19:00 (B084)	05:41	19:35 (B083)	05:06	20:17 (WEA03)	05:15	20:20 (WEA03)	05:57	19:39 (B083)	06:47		07:35		07:30		08:16
	16:33		17:25	5 08:31 (B062)	18:16		20:09	19	19:19 (B084)	20:58	19:44 (B083)	21:38	20:39 (B178)	21:40	20:43 (B178)	20:58	20:00 (B083)	19:53		18:44		16:43		16:13
11	08:26		07:47	08:24 (B062)	06:50		06:39		19:00 (B084)	05:39	20:16 (WEA03)	05:05	20:16 (B178)	05:16	20:19 (WEA03)	05:59	19:39 (B083)	06:48		07:37		07:31		08:17
	16:34		17:27	9 08:33 (B062)	18:17		20:10	19	19:19 (B084)	21:00	20:24 (WEA03)	21:39	20:38 (B178)	21:39	20:42 (B178)	20:57	20:01 (B083)	19:50		18:42		16:41		16:13
12	08:26		07:46	08:23 (B062)	06:47		06:37		19:00 (B084)	05:38	20:13 (WEA03)	05:05	20:17 (B178)	05:17	20:19 (WEA03)	06:00	19:38 (B083)	06:50		07:39		07:33		08:18
	16:35		17:29	11 08:34 (B062)	18:19		20:12	18	19:18 (B084)	21:02	20:26 (WEA03)	21:40	20:39 (B178)	21:39	20:42 (B178)	20:55	20:00 (B083)	19:48		18:39		16:40		16:13
13	08:25		07:44	08:22 (B062)	06:45		06:35		19:00 (B084)	05:36	20:12 (WEA03)	05:05	20:17 (B178)	05:18	20:19 (WEA03)	06:02	19:38 (B083)	06:51		07:41		07:35		08:19
	16:37		17:31	12 08:34 (B062)	18:21		20:14	18	19:18 (B084)	21:03	20:28 (WEA03)	21:40	20:39 (B178)	21:38	20:41 (B178)	20:53	20:01 (B083)	19:46		18:37		16:38		16:13
14	08:24		07:42	08:22 (B062)	06:43		06:33		19:01 (B084)	05:34	20:10 (WEA03)	05:05	20:17 (B178)	05:19	20:19 (WEA03)	06:03	19:37 (B083)	06:53		07:42		07:37		08:20
	16:38		17:33	12 08:34 (B062)	18:23		20:15	16	19:17 (B084)	21:05	20:28 (WEA03)	21:41	20:40 (B178)	21:37	20:41 (WEA03)	20:51	20:00 (B083)	19:44		18:35		16:37		16:13
15	08:24		07:40	08:23 (B062)	06:41		06:30		19:01 (B084)	05:33	20:10 (WEA03)	05:04	20:18 (B178)	05:20	20:18 (WEA03)	06:05	19:38 (B083)	06:55		07:44		07:38		08:21
	16:40		17:34	11 08:34 (B062)	18:24		20:17	13	19:14 (B084)	21:06	20:30 (WEA03)	21:42	20:40 (B178)	21:36	20:41 (WEA03)	20:49	20:00 (B083)	19:41		18:33		16:35		16:13
16	08:23		07:38	08:23 (B062)	06:38		06:28		19:03 (B084)	05:31	20:09 (WEA03)	05:04	20:17 (B178)	05:22	20:18 (WEA03)	06:07	19:38 (B083)	06:56		07:46	08:29 (B200)	07:40		08:22
	16:41		17:36	10 08:33 (B062)	18:26		20:19	9	19:12 (B084)	21:08	20:31 (WEA03)	21:42	20:40 (B178)	21:35	20:42 (WEA03)	20:47	19:59 (B083)	19:39		18:31	4 08:33 (B200)	16:34		16:13
17	08:22		07:36	08:24 (B062)	06:36		06:26			05:30	20:08 (WEA03)	05:04	20:17 (B178)	05:23	20:18 (WEA03)	06:08	19:39 (B083)	06:58		07:47	08:25 (B200)	07:42		08:23
	16:43		17:38	8 08:32 (B062)	18:28		20:20			21:09	20:31 (WEA03)	21:43	20:40 (B178)	21:34	20:42 (WEA03)	20:45	19:59 (B083)	19:37		18:29	9 08:34 (B200)	16:32		16:13
18	08:21		07:34		06:34		06:24			05:28	20:08 (WEA03)	05:04	20:17 (B178)	05:24	20:18 (WEA03)	06:10	19:39 (B083)	07:00		07:49	08:24 (B200)	07:44		08:24
	16:45		17:40		18:30		20:22			21:11	20:32 (WEA03)	21:43	20:40 (B178)	21:33	20:42 (WEA03)	20:43	19:57 (B083)	19:34		18:26	11 08:35 (B200)	16:31		16:13
19	08:20		07:32	07:59 (B200)	06:32		06:22			05:27	20:08 (WEA03)	05:04	20:18 (B178)	05:25	20:17 (WEA03)	06:11	19:40 (B083)	07:01		07:51	08:23 (B200)	07:45		08:24
	16:46		17:42	1 08:00 (B200)	18:31		20:24			21:12	20:32 (WEA03)	21:44	20:41 (B178)	21:32	20:42 (WEA03)	20:41	19:56 (B083)	19:32		18:24	13 08:36 (B200)	16:30		16:13
20	08:19		07:30	07:57 (B200)	06:29		06:20			05:26	20:07 (WEA03)	05:04	20:18 (B178)	05:26	20:17 (WEA03)	06:13	19:41 (B083)	07:03		07:53	08:23 (B200)	07:47		08:25
	16:48		17:44	6 08:03 (B200)	18:33		20:25			21:14	20:32 (WEA03)	21:44	20:42 (B178)	21:31	20:42 (WEA03)	20:39	19:54 (B083)	19:30		18:22	13 08:36 (B200)	16:28		16:14
21	08:18		07:28	07:55 (B200)	06:27		06:18			05:24	20:07 (WEA03)	05:04	20:18 (B178)	05:28	20:18 (WEA03)	06:15	19:44 (B083)	07:04		07:54	08:23 (B200)	07:49		08:26
	16:50		17:45	9 08:04 (B200)	18:35		20:27			21:15	20:32 (WEA03)	21:44	20:42 (B178)	21:29	20:43 (WEA03)	20:37	8 19:52 (B083)	19:27		18:20	13 08:36 (B200)	16:27		16:14
22	08:17		07:26	07:52 (B200)	06:25		06:15			05:23	20:07 (WEA03)	05:04	20:18 (B178)	05:29	20:18 (WEA03)	06:16		07:06		07:56	08:25 (B200)	07:50		08:26
	16:51		17:47	12 08:04 (B200)	18:36		20:29			21:17	20:33 (WEA03)	21:44	20:42 (B178)	21:28	20:43 (WEA03)	20:35		19:25		18:18	10 08:35 (B200)	16:26		16:15
23	08:16		07:24	07:52 (B200)	06:22		06:13		19:39 (B083)	05:22	20:08 (WEA03)	05:05	20:18 (B178)	05:30	20:17 (WEA03)	06:18		07:08		07:58	08:26 (B200)	07:52		08:27
	16:53		17:49	12 08:04 (B200)	18:38		20:30	6	19:45 (B083)	21:18	20:33 (WEA03)	21:45	20:42 (B178)	21:27	20:43 (WEA03)	20:33		19:23		18:16	7 08:33 (B200)	16:25		16:15
24	08:15		07:22	07:52 (B200)	06:20		06:11		19:36 (B083)	05:20	20:08 (WEA03)	05:05	20:19 (B178)	05:32	20:17 (WEA03)	06:19		07:09		08:00	08:28 (B200)	07:54		08:27
	16:55		17:51	12 08:04 (B200)	18:40		20:32	12	19:48 (B083)	21:19	20:33 (WEA03)	21:45	20:43 (B178)	21:26	20:42 (WEA03)	20:30		19:20		18:14	3 08:31 (B200)	16:24		16:16
25	08:14		07:20	07:53 (B200)	06:18		06:09		19:34 (B083)	05:19	20:08 (WEA03)	05:05	20:19 (B178)	05:33	20:18 (WEA03)	06:21		07:11		08:01		07:55		08:28
	16:56		17:53	11 08:04 (B200)	18:42		20:34	15	19:49 (B083)	21:21	20:33 (WEA03)	21:45	20:42 (B178)	21:24	20:43 (WEA03)	20:28		19:18		18:12		16:23		16:16
26	08:12		07:18	07:54 (B200)	07:16		06:07		19:32 (B083)	05:18	20:08 (WEA03)	05:05	20:19 (B178)	05:35	20:18 (WEA03)	06:23		07:12		08:03	08:55 (B062)	07:57		08:28
	16:58		17:54	9 08:03 (B200)	19:43		20:35	18	19:50 (B083)	21:22	20:33 (WEA03)	21:45	20:42 (B178)	21:23	20:43 (WEA03)	20:26		19:16		18:10	6 09:01 (B062)	16:22		16:17
27	08:11		07:16	07:56 (B200)	07:13		06:05		19:31 (B083)	05:17	20:09 (WEA03)	05:06	20:20 (B178)	05:36	20:18 (WEA03)	06:24		07:14		08:05	08:53 (B062)	07:58		08:28
	17:00		17:56	5 08:01 (B200)	19:45		20:37	20	19:51 (B083)	21:23	20:33 (WEA03)	21:45	20:43 (B178)	21:22	20:42 (WEA03)	20:24		19:13		18:08	10 09:03 (B062)	16:21		16:18
28	08:10		07:14		07:11		06:03		19:30 (B083)	05:16	20:09 (WEA03)	05:06	20:20 (B178)	05:37	20:19 (WEA03)	06:26	19:07 (B084)	07:16		08:07	08:52 (B062)	08:00		08:29
	17:02		17:58		19:47		20:39	21	19:51 (B083)	21:25	20:33 (WEA03)	21:45	20:43 (B178)	21:20	20:42 (WEA03)	20:22	6 19:13 (B084)	19:11		18:06	11 09:03 (B062)	16:20		16:18
29	08:08				07:09		06:01		19:30 (B083)	05:15	20:09 (WEA03)	05:07	20:21 (B178)	05:39	20:19 (WEA03)	06:27	19:04 (B084)	07:17		07:08	07:52 (B062)	08:01		08:29
	17:03				19:48		20:40	22	19:52 (B083)	21:26	20:33 (WEA03)	21:45	20:43 (B178)	21:19	20:41 (WEA03)	20:20	12 19:16 (B084)	19:09		17:04	12 08:04 (B062)	16:19		16:19
30	08:07				07:06		05:59		19:29 (B083)	05:14	20:09 (WEA03)	05:07	20:20 (B178)	05:40	20:20 (WEA03)	06:29	19:02 (B084)	07:19		07:10	07:52 (B062)	08:03		08:29
	17:05				19:50		20:42	23	19:52 (B083)	21:27	20:32 (WEA03)	21:45	20:43 (B178)	21:17	20:40 (WEA03)	20:17	14 19:16 (B084)	19:06		17:02	12 08:04 (B062)	16:18		16:20
31	08:06				07:04					05:13	20:10 (WEA03)			05:42	20:21 (WEA03)	06:31	19:01 (B084)			07:12	07:52 (B062)			08:29
	17:07				19:52					21:28	20:32 (WEA03)			21:16	20:40 (WEA03)	20:15	16 19:17 (B084)			17:00	12 08:04 (B062)			16:21
Sonnenscheinstunden	259		277		366		414		483			497		501		454		382		333		268		245
astr.max.mögl.Beschattung				155				330		646			689		719		410		148		146		17	
Red.Sonnenscheinwahrsch.				0.32				0.36		0.43			0.34		0.39		0.40		0.32		0.29		0.23	
Reduktion Betriebsdauer				0.95				0.95		0.95			0.95		0.95		0.95		0.95		0.95		0.95	
Reduktion Windrichtung				0.64				0.70		0.65			0.64		0.64		0.68		0.72		0.64		0.62	
Gesamte Reduktion				0.20				0.24		0.27			0.20		0.24		0.26		0.22		0.18		0.13	
Met.wahrsch.Beschattung				30				80		172			141		171		106		32		26		2	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO087 - Am Schulberg 10, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	19:35 (B083)	05:12	20:12 (WEA03)	05:08	20:21 (WEA03)	05:43	19:47 (B083)	06:32	19:02 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00	7 07:57 (B200)	19:53			20:44	20	19:55 (B083)	21:29	25	20:37 (WEA03)	21:44	23	20:44 (B178)	21:14	15	20:02 (B083)	20:13	20	19:22 (B084)	19:04			16:58	16:18
2	08:29	08:03	07:10		07:00			05:55		19:34 (B083)	05:11		20:13 (WEA03)	05:09		20:21 (WEA03)	05:45		19:46 (B083)	06:34		19:03 (B084)	07:22			07:15	08:06
	16:23	17:11	18:02		19:55			20:45	22	19:56 (B083)	21:31	25	20:38 (WEA03)	21:44	22	20:43 (B178)	21:12	18	20:04 (B083)	20:11	18	19:21 (B084)	19:02			16:56	16:17
3	08:29	08:01	07:07		06:57			05:54		19:34 (B083)	05:10		20:13 (WEA03)	05:09		20:21 (WEA03)	05:46		19:45 (B083)	06:35		19:03 (B084)	07:24			07:17	08:07
	16:24	17:12	18:03		19:57			20:47	22	19:56 (B083)	21:32	25	20:38 (WEA03)	21:44	22	20:43 (WEA03)	21:11	19	20:04 (B083)	20:09	17	19:20 (B084)	19:00			16:55	16:16
4	08:29	07:59	07:05		06:55			05:52		19:33 (B083)	05:09		20:13 (WEA03)	05:10		20:21 (WEA03)	05:48		19:44 (B083)	06:37		19:04 (B084)	07:26			07:19	08:09
	16:25	17:14	18:05		19:58			20:49	23	19:56 (B083)	21:33	25	20:38 (WEA03)	21:43	22	20:43 (WEA03)	21:09	20	20:04 (B083)	20:06	15	19:19 (B084)	18:57			16:53	16:16
5	08:29	07:58	07:03		06:53			05:50		19:34 (B083)	05:09		20:14 (WEA03)	05:11		20:21 (WEA03)	05:49		19:44 (B083)	06:39		19:04 (B084)	07:27			07:21	08:10
	16:26	17:16	18:07		20:00			20:50	22	19:56 (B083)	21:34	24	20:38 (WEA03)	21:43	22	20:43 (WEA03)	21:07	21	20:05 (B083)	20:04	13	19:17 (B084)	18:55			16:51	16:15
6	08:28	07:56	07:01		06:50			05:48		19:33 (B083)	05:08		20:14 (WEA03)	05:11		20:21 (WEA03)	05:51		19:43 (B083)	06:40		19:07 (B084)	07:29			07:22	08:11
	16:28	17:18	18:09		20:02			20:52	23	19:56 (B083)	21:35	24	20:38 (WEA03)	21:42	23	20:44 (WEA03)	21:06	22	20:05 (B083)	20:02	7	19:14 (B084)	18:53			16:49	16:15
7	08:28	07:54	06:59		06:48			05:46		19:33 (B083)	05:07		20:15 (WEA03)	05:12		20:21 (WEA03)	05:52		19:43 (B083)	06:42			07:30			07:24	08:12
	16:29	17:20	18:10		20:03			20:54	23	19:56 (B083)	21:36	23	20:38 (WEA03)	21:42	23	20:44 (WEA03)	21:04	23	20:06 (B083)	20:00			18:51			16:48	16:14
8	08:28	07:53	06:56		06:46	19:10 (B084)		05:44		19:34 (B083)	05:07		20:15 (WEA03)	05:13		20:21 (WEA03)	05:54		19:42 (B083)	06:43			07:32			07:26	08:14
	16:30	17:22	18:12		20:05	9 19:19 (B084)		20:55	22	19:56 (B083)	21:37	23	20:38 (WEA03)	21:41	24	20:45 (WEA03)	21:02	23	20:05 (B083)	19:57			18:48			16:46	16:14
9	08:27	07:51	06:54		06:44	19:06 (B084)		05:43		19:34 (B083)	05:06		20:16 (WEA03)	05:14		20:21 (WEA03)	05:56		19:43 (B083)	06:45			07:34			07:28	08:15
	16:31	17:23	18:14		20:07	14 19:20 (B084)		20:57	21	19:55 (B083)	21:37	22	20:38 (WEA03)	21:41	24	20:45 (WEA03)	21:00	23	20:06 (B083)	19:55			18:46			16:44	16:14
10	08:27	07:49	06:52		06:41	19:05 (B084)		05:41		19:34 (B083)	05:06		20:16 (WEA03)	05:15		20:21 (WEA03)	05:57		19:42 (B083)	06:47			07:35			07:30	08:16
	16:33	17:25	18:16		20:09	16 19:21 (B084)		20:58	20	19:54 (B083)	21:38	22	20:38 (WEA03)	21:40	25	20:46 (WEA03)	20:58	23	20:05 (B083)	19:53			18:44			16:43	16:13
11	08:26	07:47	06:50		06:39	19:04 (B084)		05:39		19:35 (B083)	05:05		20:16 (WEA03)	05:16		20:21 (WEA03)	05:59		19:43 (B083)	06:48			07:37			07:31	08:17
	16:34	17:27	18:17		20:10	18 19:22 (B084)		21:00	19	19:54 (B083)	21:39	22	20:38 (WEA03)	21:39	25	20:46 (WEA03)	20:57	22	20:05 (B083)	19:50			18:42			16:41	16:13
12	08:26	07:46	08:23 (B062)	06:47	06:37	19:04 (B084)		05:38		19:35 (B083)	05:05		20:17 (WEA03)	05:17		20:21 (WEA03)	06:00		19:43 (B083)	06:50			07:39			07:33	08:18
	16:35	17:29	3 08:26 (B062)	18:19	20:12	19 19:23 (B084)		21:02	18	19:53 (B083)	21:40	22	20:39 (B178)	21:39	25	20:46 (WEA03)	20:55	21	20:04 (B083)	19:48			18:39			16:40	16:13
13	08:25	07:44	08:21 (B062)	06:45	06:35	19:03 (B084)		05:36		19:37 (B083)	05:05		20:17 (WEA03)	05:18		20:21 (WEA03)	06:02		19:44 (B083)	06:51			07:41			07:35	08:19
	16:37	17:31	8 08:29 (B062)	18:21	20:14	20 19:23 (B084)		21:03	15	19:52 (B083)	21:40	23	20:40 (B178)	21:38	25	20:46 (WEA03)	20:53	20	20:04 (B083)	19:46			18:37			16:38	16:13
14	08:24	07:42	08:19 (B062)	06:43	06:33	19:03 (B084)		05:34		19:37 (B083)	05:05		20:18 (WEA03)	05:19		20:21 (WEA03)	06:03		19:44 (B083)	06:53			07:42	08:24 (B200)		07:37	08:20
	16:38	17:33	11 08:30 (B062)	18:23	20:15	20 19:23 (B084)		21:05	13	19:50 (B083)	21:41	23	20:41 (B178)	21:37	26	20:47 (WEA03)	20:51	19	20:03 (B083)	19:44			18:35	6 08:30 (B200)		16:37	16:13
15	08:24	07:40	08:19 (B062)	06:41	06:30	19:02 (B084)		05:33		19:40 (B083)	05:04		20:18 (WEA03)	05:20		20:21 (WEA03)	06:05		19:45 (B083)	06:55			07:44	08:22 (B200)		07:38	08:21
	16:40	17:34	11 08:30 (B062)	18:24	20:17	19 19:21 (B084)		21:06	17	20:28 (WEA03)	21:42	24	20:42 (B178)	21:36	26	20:47 (WEA03)	20:49	17	20:02 (B083)	19:41			18:33	10 08:32 (B200)		16:35	16:13
16	08:23	07:38	08:19 (B062)	06:38	06:28	19:02 (B084)		05:31		20:18 (WEA03)	05:04		20:18 (WEA03)	05:22		20:21 (WEA03)	06:07		19:46 (B083)	06:56			07:46	08:21 (B200)		07:40	08:22
	16:41	17:36	11 08:30 (B062)	18:26	20:19	19 19:21 (B084)		21:08	13	20:31 (WEA03)	21:42	23	20:41 (B178)	21:35	26	20:47 (WEA03)	20:47	14	20:00 (B083)	19:39			18:31	11 08:32 (B200)		16:34	16:13
17	08:22	07:36	08:19 (B062)	06:36	06:26	19:03 (B084)		05:30		20:16 (WEA03)	05:04		20:18 (WEA03)	05:23		20:21 (WEA03)	06:08		19:48 (B083)	06:58			07:47	08:20 (B200)		07:42	08:23
	16:43	17:38	11 08:30 (B062)	18:28	20:20	17 19:20 (B084)		21:09	16	20:32 (WEA03)	21:43	24	20:42 (B178)	21:34	26	20:47 (WEA03)	20:45	10	19:58 (B083)	19:37			18:29	12 08:32 (B200)		16:32	16:13
18	08:21	07:34	08:19 (B062)	06:34	06:24	19:04 (B084)		05:28		20:15 (WEA03)	05:04		20:19 (WEA03)	05:24		20:21 (WEA03)	06:10			07:00			07:49	08:20 (B200)		07:44	08:24
	16:45	17:40	11 08:30 (B062)	18:30	20:22	15 19:19 (B084)		21:11	18	20:33 (WEA03)	21:43	23	20:42 (B178)	21:33	26	20:47 (WEA03)	20:43			19:34			18:26	12 08:32 (B200)		16:31	16:13
19	08:20	07:32	08:20 (B062)	06:32	06:22	19:05 (B084)		05:27		20:15 (WEA03)	05:04		20:20 (WEA03)	05:25		20:21 (WEA03)	06:11			07:01			07:51	08:20 (B200)		07:45	08:24
	16:46	17:42	9 08:29 (B062)	18:31	20:24	12 19:17 (B084)		21:12	19	20:34 (WEA03)	21:44	23	20:43 (B178)	21:32	25	20:46 (WEA03)	20:41			19:32			18:24	12 08:32 (B200)		16:30	16:13
20	08:19	07:30	08:23 (B062)	06:29	06:20	19:08 (B084)		05:26		20:13 (WEA03)	05:04		20:20 (WEA03)	05:26		20:21 (WEA03)	06:13			07:03			07:53	08:21 (B200)		07:47	08:25
	16:48	17:44	3 08:26 (B062)	18:33	20:25	7 19:15 (B084)		21:14	21	20:34 (WEA03)	21:44	24	20:44 (B178)	21:31	25	20:46 (WEA03)	20:39			19:30			18:22	10 08:31 (B200)		16:28	16:14
21	08:18	07:28		06:27	06:18			05:24		20:13 (WEA03)	05:04		20:20 (WEA03)	05:28		20:22 (WEA03)	06:15			07:04			07:54	08:23 (B200)		07:49	08:26
	16:50	17:45		18:35	20:27			21:15	22	20:35 (WEA03)	21:44	24	20:44 (B178)	21:29	25	20:47 (WEA03)	20:37			19:27			18:20	7 08:30 (B200)		16:27	16:14
22	08:17	07:26	07:52 (B200)	06:25	06:15			05:23		20:13 (WEA03)	05:04		20:20 (WEA03)	05:29		20:23 (WEA03)	06:16			07:06			07:56			07:50	08:26
	16:51	17:47	6 07:58 (B200)	18:36	20:29			21:17	23	20:36 (WEA03)	21:44	24	20:44 (B178)	21:28	23	20:46 (WEA03)	20:35			19:25			18:18			16:26	16:15
23	08:16	07:24	07:50 (B200)	06:22	06:13			05:22		20:13 (WEA03)	05:05		20:20 (WEA03)	05:30		20:23 (WEA03)	06:18			07:08			07:58			07:52	08:27
	16:53	17:49	9 07:59 (B200)	18:38	20:30			21:18	23	20:36 (WEA03)	21:45	24	20:44 (B178)	21:27	23	20:46 (WEA03)	20:33			19:23			18:16			16:25	16:15
24	08:15	07:22	07:49 (B200)	06:20	06:11			05:20		20:12 (WEA03)	05:05		20:21 (WEA03)	05:32		20:23 (WEA03)	06:19		19:14 (B084)	07:09			08:00	08:50 (B062)		07:54	08:27
	16:55	17:51	11 08:00 (B200)	18:40	20:32			21:19	25	20:37 (WEA03)	21:45	24	20:45 (B178)	21:26	22	20:45 (WEA03)	20:30	2	19:16 (B084)	19:20			18:14	8 08:58 (B062)		16:24	16:16
25	08:14	07:20	07:48 (B200)	06:18	06:09			05:19		20:12 (WEA03)	05:05		20:21 (WEA03)	05:33		20:24 (WEA03)	06:21		19:10 (B084)	07:11			08:01	08:49 (B062)		07:55	08:28
	16:56	17:53	13 08:01 (B200)	18:42	20:34			21:21	25	20:37 (WEA03)	21:45	23	20:44 (B178)	21:24	21	20:45 (WEA03)	20:28	10	19:20 (B084)	19:18			18:12	10 08:59 (B062)		16:23	16:16
26	08:12	07:18	07:48 (B200)	07:16	06:07			05:18		20:12 (WEA03)	05:05		20:21 (WEA03)	05:35		20:25 (WEA03)	06:23		19:07 (B084)	07:12			08:03	08:48 (B062)		07:57	08:28
	16:58	17:54	13 08:01 (B200)	19:43	20:35			21:22	25	20:37 (WEA03)	21:45	23	20:44 (B178)	21:23	19	20:44 (WEA03)	20:26	14	19:21 (B084)	19:16			18:10	12 09:00 (B062)		16:22	16:17
27	08:11	07:16	07:49 (B200)	07:13	06:05	19:42 (B083)		05:17		20:12 (WEA03)	05:06		20:21 (WEA03)	05:36		20:25 (WEA03)	06:24		19:06 (B084)	07:14			08:05	08:48 (B062)		07:58	08:28
	17:00	17:56	11 08:00 (B200)	19:45	20:37	8 19:50 (B083)		21:23	26	20:38 (WEA03)	21:45	24	20:45 (B178)	21:22	18	20:43 (WEA03)	20:24	16	19:22 (B084)	19:13			18:08	12 09:00 (B062)		16:21	16:18
28	08:10	07:14	07:48 (B200)	07:11	06:03	19:39 (B083)		05:16		20:12 (WEA03)	05:06		20:21 (WEA03)	05:37		20:27 (WEA03)	06:26		19:05 (B084)	07:16			08:07	08:48 (B062)		08:00	08:29
	17:02	17:58	10 07:58 (B200)	19:47	20:39	13 19:52 (B083)		21:25	26	20:38 (WEA03)	21:45	23	20:44 (B178)	21:20	16	20:43 (WEA03)	20:22	17	19:22 (B084)	19:11			18:06	12 09:00 (B062)		16:20	16:18
29	08:08			07:09	06:01	19:37 (B083)		05:15		20:12 (WEA03)	05:07		20:21 (WEA03)	05:39		20:28 (WEA03)	06:27		19:04 (B084)	07:17			07:08	07:49 (B062)		08:01	08:29
	17:03			19:48	20:40	16 19:53 (B083)		21:26	26	20:38 (WEA03)	21:45	24	20:45 (B178)	21:19	13	20:41 (WEA03)	20:20	19	19:23 (B084)	19:09			17:04	10 07:59 (B062)		16:19	16:19
30	08:07			07:06	05:59	19:35 (B083)		05:14		20:12 (WEA03)	05:07		20:21 (WEA03)	05:40		19:50 (B083)	06:29		19:03 (B084)	07:19			07:10	07:50 (B062)		08:03	08:29
	17:05			19:50	20:42	19 19:54 (B083)		21:27	26	20:38 (WEA03)	21:45	23	20:44 (B178)	21:17	18	20:39 (WEA03)	20:17	19	19:22 (B084)	19:06			17:02	9 07:59 (B062)		16:18	16:20
31	08:06			07:04				05:13		20:12 (WEA03)				05:42		19:49 (B083)	06:31		19:03 (B084)				07:12	07:52 (B062)			08:29
	17:07			19:52				21:28	26	20:38 (WEA03)				21:16	12	20:01 (B083)	20:15	20	19:23 (B084)				17:00	5 07:57 (B062)			16:21
Sonnenscheinstunden	259	277	366		414			483		497			501			454			382			333			268	245
astr.max.mögl.Beschattung		151	7		261			660		705			695			447		90			158				
Red.Sonnenscheinwahrsch.		0.32	0.28		0.36			0.43		0.34			0.39			0.40		0.32			0.29				
Reduktion Betriebsdauer		0.95	0.95		0.95			0.95		0.95			0.95			0.95		0.95			0.95				
Reduktion Windrichtung		0.64	0.65		0.70			0.65		0.64			0.64			0.68		0.71			0.64				
Gesamte Reduktion		0.20	0.18		0.24			0.27		0.20			0.24			0.26		0.22			0.18				
Met.wahrsch.Beschattung		30	1		63			175		144			164			116		19			28				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO088 - Am Schulberg 12, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:52 (B200)	07:02	05:57	19:35 (B083)	05:12	20:12 (WEA03)	05:08	20:22 (WEA03)	05:43	19:49 (B083)	06:32	19:03 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00	5 07:57 (B200)	19:53	20:44 21	19:56 (B083)	21:29 24	20:36 (WEA03)	21:44 23	20:45 (B178)	21:14 11	20:00 (B083)	20:13 19	19:22 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10		07:00	05:55	19:34 (B083)	05:11	20:13 (WEA03)	05:09	20:21 (WEA03)	05:45	19:48 (B083)	06:34	19:03 (B084)	07:22	07:15	08:06
	16:23	17:11	18:02		19:55	20:45 22	19:56 (B083)	21:31 24	20:37 (WEA03)	21:44 24	20:45 (B178)	21:12 14	20:02 (B083)	20:11 19	19:22 (B084)	19:02	16:56	16:17
3	08:29	08:01	07:07		06:57	05:54	19:33 (B083)	05:10	20:13 (WEA03)	05:09	20:21 (WEA03)	05:46	19:46 (B083)	06:35	19:03 (B084)	07:24	07:17	08:07
	16:24	17:12	18:03		19:57	20:47 23	19:56 (B083)	21:32 24	20:37 (WEA03)	21:44 24	20:45 (B178)	21:11 17	20:03 (B083)	20:09 17	19:20 (B084)	19:00	16:55	16:16
4	08:29	07:59	07:05		06:55	05:52	19:33 (B083)	05:09	20:13 (WEA03)	05:10	20:22 (WEA03)	05:48	19:45 (B083)	06:37	19:04 (B084)	07:26	07:19	08:09
	16:25	17:14	18:05		19:58	20:49 22	19:55 (B083)	21:33 23	20:36 (WEA03)	21:43 23	20:45 (B178)	21:09 18	20:03 (B083)	20:06 16	19:20 (B084)	18:57	16:53	16:16
5	08:29	07:58	07:03		06:53	05:50	19:33 (B083)	05:09	20:14 (WEA03)	05:11	20:21 (WEA03)	05:49	19:44 (B083)	06:39	19:04 (B084)	07:27	07:21	08:10
	16:26	17:16	18:07		20:00	20:50 23	19:56 (B083)	21:34 23	20:37 (WEA03)	21:43 23	20:44 (B178)	21:07 20	20:04 (B083)	20:04 13	19:17 (B084)	18:55	16:51	16:15
6	08:28	07:56	07:01		06:50	05:48	19:33 (B083)	05:08	20:14 (WEA03)	05:11	20:21 (WEA03)	05:51	19:43 (B083)	06:40	19:06 (B084)	07:29	07:22	08:11
	16:28	17:18	18:09		20:02	20:52 23	19:56 (B083)	21:35 22	20:36 (WEA03)	21:42 22	20:43 (B178)	21:06 21	20:04 (B083)	20:02 10	19:16 (B084)	18:53	16:49	16:15
7	08:28	07:54	06:59		06:48 19:12 (B084)	05:46	19:33 (B083)	05:07	20:15 (WEA03)	05:12	20:21 (WEA03)	05:52	19:43 (B083)	06:42		07:30	07:24	08:12
	16:29	17:20	18:10		20:03 5 19:17 (B084)	20:54 22	19:55 (B083)	21:36 22	20:37 (WEA03)	21:42 22	20:43 (WEA03)	21:04 22	20:05 (B083)	20:00		18:51	16:48	16:14
8	08:28	07:53	06:56		06:46 19:09 (B084)	05:44	19:34 (B083)	05:07	20:15 (WEA03)	05:13	20:21 (WEA03)	05:54	19:43 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12		20:05 11 19:20 (B084)	20:55 21	19:55 (B083)	21:37 22	20:37 (B178)	21:41 22	20:43 (WEA03)	21:02 22	20:05 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54		06:44 19:06 (B084)	05:43	19:34 (B083)	05:06	20:16 (WEA03)	05:14	20:21 (WEA03)	05:56	19:43 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14		20:07 15 19:21 (B084)	20:57 20	19:54 (B083)	21:37 23	20:39 (B178)	21:41 23	20:44 (WEA03)	21:00 22	20:05 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52		06:41 19:05 (B084)	05:41	19:34 (B083)	05:06	20:17 (WEA03)	05:15	20:21 (WEA03)	05:57	19:42 (B083)	06:47		07:35	07:30	08:16
	16:33	17:25	18:16		20:08 17 19:22 (B084)	20:58 19	19:53 (B083)	21:38 23	20:40 (B178)	21:40 23	20:44 (WEA03)	20:58 23	20:05 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50		06:39 19:04 (B084)	05:39	19:36 (B083)	05:05	20:16 (WEA03)	05:16	20:21 (WEA03)	05:59	19:43 (B083)	06:48		07:37	07:31	08:17
	16:34	17:27	18:17		20:10 19 19:23 (B084)	21:00 17	19:53 (B083)	21:39 24	20:40 (B178)	21:39 24	20:45 (WEA03)	20:57 22	20:05 (B083)	19:50		18:42	16:41	16:13
12	08:26	07:46 08:23 (B062)	06:47		06:37 19:04 (B084)	05:38	19:36 (B083)	05:05	20:17 (WEA03)	05:17	20:21 (WEA03)	06:00	19:42 (B083)	06:50		07:39	07:33	08:18
	16:35	17:29 6 08:29 (B062)	18:19		20:12 19 19:23 (B084)	21:02 15	19:51 (B083)	21:40 24	20:41 (B178)	21:39 24	20:45 (WEA03)	20:55 22	20:04 (B083)	19:48		18:39	16:40	16:13
13	08:25	07:44 08:21 (B062)	06:45		06:35 19:04 (B084)	05:36	19:38 (B083)	05:05	20:18 (WEA03)	05:18	20:21 (WEA03)	06:02	19:43 (B083)	06:51		07:41	07:35	08:19
	16:37	17:31 9 08:30 (B062)	18:21		20:14 19 19:23 (B084)	21:03 12	19:50 (B083)	21:40 23	20:41 (B178)	21:38 24	20:45 (WEA03)	20:53 21	20:04 (B083)	19:46		18:37	16:38	16:13
14	08:24	07:42 08:20 (B062)	06:43		06:33 19:04 (B084)	05:34	19:40 (B083)	05:05	20:18 (WEA03)	05:19	20:21 (WEA03)	06:03	19:43 (B083)	06:53		07:42 08:25 (B200)	07:37	08:20
	16:38	17:33 11 08:31 (B062)	18:23		20:15 19 19:23 (B084)	21:05 16	20:27 (WEA03)	21:41 24	20:42 (B178)	21:37 25	20:46 (WEA03)	20:51 20	20:03 (B083)	19:44		18:35 5 08:30 (B200)	16:37	16:13
15	08:24	07:40 08:20 (B062)	06:41		06:30 19:03 (B084)	05:33	20:17 (WEA03)	05:04	20:19 (WEA03)	05:20	20:21 (WEA03)	06:05	19:44 (B083)	06:55		07:44 08:23 (B200)	07:38	08:21
	16:40	17:34 11 08:31 (B062)	18:24		20:17 18 19:21 (B084)	21:06 13	20:30 (WEA03)	21:42 24	20:43 (B178)	21:36 25	20:46 (WEA03)	20:49 18	20:02 (B083)	19:41		18:33 9 08:32 (B200)	16:35	16:13
16	08:23	07:38 08:20 (B062)	06:38		06:28 19:03 (B084)	05:31	20:16 (WEA03)	05:04	20:19 (WEA03)	05:22	20:21 (WEA03)	06:07	19:44 (B083)	06:56		07:46 08:22 (B200)	07:40	08:22
	16:41	17:36 11 08:31 (B062)	18:26		20:19 18 19:21 (B084)	21:08 15	20:31 (WEA03)	21:42 23	20:42 (B178)	21:35 25	20:46 (WEA03)	20:47 17	20:01 (B083)	19:39		18:31 11 08:33 (B200)	16:34	16:13
17	08:22	07:36 08:20 (B062)	06:36		06:26 19:04 (B084)	05:30	20:14 (WEA03)	05:04	20:19 (WEA03)	05:23	20:21 (WEA03)	06:08	19:46 (B083)	06:58		07:47 08:20 (B200)	07:42	08:23
	16:43	17:38 11 08:31 (B062)	18:28		20:20 16 19:20 (B084)	21:09 18	20:32 (WEA03)	21:43 23	20:42 (B178)	21:34 25	20:46 (WEA03)	20:45 13	19:59 (B083)	19:37		18:29 13 08:33 (B200)	16:32	16:13
18	08:21	07:34 08:21 (B062)	06:34		06:24 19:05 (B084)	05:28	20:14 (WEA03)	05:04	20:19 (WEA03)	05:24	20:21 (WEA03)	06:10	19:48 (B083)	07:00		07:49 08:20 (B200)	07:44	08:24
	16:45	17:40 9 08:30 (B062)	18:30		20:22 13 19:18 (B084)	21:11 19	20:33 (WEA03)	21:43 24	20:43 (B178)	21:33 25	20:46 (WEA03)	20:43 8	19:56 (B083)	19:34		18:26 13 08:33 (B200)	16:31	16:13
19	08:20	07:32 08:22 (B062)	06:32		06:22 19:07 (B084)	05:27	20:13 (WEA03)	05:04	20:21 (WEA03)	05:25	20:21 (WEA03)	06:11		07:01		07:51 08:20 (B200)	07:45	08:24
	16:46	17:42 7 08:29 (B062)	18:31		20:24 9 19:16 (B084)	21:12 21	20:34 (WEA03)	21:44 23	20:44 (B178)	21:32 25	20:46 (WEA03)	20:41		19:32		18:24 13 08:33 (B200)	16:30	16:13
20	08:19	07:30	06:29		06:20	05:26	20:12 (WEA03)	05:04	20:21 (WEA03)	05:26	20:21 (WEA03)	06:13		07:03		07:53 08:21 (B200)	07:47	08:25
	16:48	17:44	18:33		20:25	21:14 22	20:34 (WEA03)	21:44 23	20:44 (B178)	21:31 24	20:45 (WEA03)	20:39		19:30		18:22 11 08:32 (B200)	16:28	16:14
21	08:18	07:28 07:55 (B200)	06:27		06:18	05:24	20:12 (WEA03)	05:04	20:21 (WEA03)	05:28	20:22 (WEA03)	06:15		07:04		07:54 08:23 (B200)	07:49	08:26
	16:50	17:45 2 07:57 (B200)	18:35		20:27	21:15 23	20:35 (WEA03)	21:44 23	20:44 (B178)	21:29 24	20:46 (WEA03)	20:37		19:27		18:20 8 08:31 (B200)	16:27	16:14
22	08:17	07:26 07:52 (B200)	06:25		06:15	05:23	20:12 (WEA03)	05:04	20:21 (WEA03)	05:29	20:22 (WEA03)	06:16		07:06		07:56 08:25 (B200)	07:50	08:26
	16:51	17:47 7 07:59 (B200)	18:36		20:29	21:17 23	20:35 (WEA03)	21:44 23	20:44 (B178)	21:28 24	20:46 (WEA03)	20:35		19:25		18:18 4 08:29 (B200)	16:26	16:15
23	08:16	07:24 07:50 (B200)	06:22		06:13	05:22	20:12 (WEA03)	05:05	20:21 (WEA03)	05:30	20:22 (WEA03)	06:18		07:08		07:58	07:52	08:27
	16:53	17:49 10 08:00 (B200)	18:38		20:30	21:18 24	20:36 (WEA03)	21:45 23	20:44 (B178)	21:27 23	20:45 (WEA03)	20:33		19:23		18:16	16:25	16:15
24	08:15	07:22 07:49 (B200)	06:20		06:11	05:20	20:12 (WEA03)	05:05	20:22 (WEA03)	05:32	20:22 (WEA03)	06:19		07:09		08:00 08:52 (B062)	07:54	08:27
	16:55	17:51 12 08:01 (B200)	18:40		20:32	21:19 24	20:36 (WEA03)	21:45 23	20:45 (B178)	21:26 23	20:45 (WEA03)	20:30		19:20		18:14 6 08:58 (B062)	16:24	16:16
25	08:14	07:20 07:49 (B200)	06:18		06:09	05:19	20:12 (WEA03)	05:05	20:22 (WEA03)	05:33	20:23 (WEA03)	06:21	19:12 (B084)	07:11		08:01 08:50 (B062)	07:55	08:28
	16:56	17:53 12 08:01 (B200)	18:42		20:34	21:21 24	20:36 (WEA03)	21:45 23	20:45 (B178)	21:24 22	20:45 (WEA03)	20:28 7	19:19 (B084)	19:18		18:12 10 09:00 (B062)	16:23	16:16
26	08:12	07:18 07:49 (B200)	07:16		06:07 19:43 (B083)	05:18	20:12 (WEA03)	05:05	20:21 (WEA03)	05:35	20:23 (WEA03)	06:23	19:09 (B084)	07:12		08:03 08:50 (B062)	07:57	08:28
	16:58	17:54 12 08:01 (B200)	19:43		20:35 5 19:48 (B083)	21:22 25	20:37 (WEA03)	21:45 24	20:45 (B178)	21:23 21	20:44 (WEA03)	20:26 11	19:20 (B084)	19:16		18:10 11 09:01 (B062)	16:22	16:17
27	08:11	07:16 07:50 (B200)	07:13		06:05 19:39 (B083)	05:17	20:12 (WEA03)	05:06	20:22 (WEA03)	05:36	20:24 (WEA03)	06:24	19:07 (B084)	07:14		08:05 08:49 (B062)	07:58	08:28
	17:00	17:56 11 08:01 (B200)	19:45		20:37 12 19:51 (B083)	21:23 25	20:37 (WEA03)	21:45 23	20:45 (B178)	21:22 19	20:43 (WEA03)	20:24 15	19:22 (B084)	19:13		18:08 12 09:01 (B062)	16:21	16:18
28	08:10	07:14 07:50 (B200)	07:11		06:03 19:37 (B083)	05:16	20:12 (WEA03)	05:06	20:21 (WEA03)	05:37	20:25 (WEA03)	06:26	19:05 (B084)	07:16		08:07 08:49 (B062)	08:00	08:29
	17:02	17:58 9 07:59 (B200)	19:47		20:39 16 19:53 (B083)	21:25 25	20:37 (WEA03)	21:45 24	20:45 (B178)	21:20 18	20:43 (WEA03)	20:22 17	19:22 (B084)	19:11		18:06 12 09:01 (B062)	16:20	16:18
29	08:08		07:09		06:01 19:36 (B083)	05:15	20:12 (WEA03)	05:07	20:22 (WEA03)	05:39	20:26 (WEA03)	06:27	19:05 (B084)	07:17		07:08 07:50 (B062)	08:01	08:29
	17:03		19:48		20:40 18 19:54 (B083)	21:26 25	20:37 (WEA03)	21:45 24	20:46 (B178)	21:19 16	20:42 (WEA03)	20:20 18	19:23 (B084)	19:09		17:04 11 08:01 (B062)	16:19	16:19
30	08:07		07:06		05:59 19:35 (B083)	05:14	20:12 (WEA03)	05:07	20:21 (WEA03)	05:40	20:27 (WEA03)	06:29	19:04 (B084)	07:19		07:10 07:50 (B062)	08:03	08:29
	17:05		19:50		20:42 19 19:54 (B083)	21:27 25	20:37 (WEA03)	21:45 24	20:45 (B178)	21:17 13	20:40 (WEA03)	20:17 18	19:22 (B084)	19:06		17:02 10 08:00 (B062)	16:18	16:20
31	08:05		07:04			05:13	20:12 (WEA03)			05:42	19:51 (B083)	06:31	19:04 (B084)			07:12 07:52 (B062)		08:29
	17:07		19:52			21:28 25	20:37 (WEA03)			21:16 17	20:38 (WEA03)	20:15 19	19:23 (B084)			17:00 7 07:59 (B062)		16:21
Sonnenscheinstunden	259	277	366	414	483	497		501		454		382		333		268		245
astr.max.mögl.Beschattung		150	5	268	652	699		695		436		94		166				
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34		0.39		0.40		0.32		0.29				
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95		0.95		0.95		0.95		0.95				
Reduktion Windrichtung		0.64	0.65	0.70	0.65	0.64		0.64		0.68		0.71		0.64				
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20		0.24		0.26		0.22		0.18				
Met.wahrsch.Beschattung		30	1	65	173	143		164		113		20		29				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO089 - Am Schulberg 14, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		08:04			07:12			07:02			05:57		19:34 (B083)	05:12		20:12 (WEA03)	05:08		20:23 (WEA03)	05:43		19:52 (B083)	06:32		19:03 (B084)	07:21			07:14		07:53 (B062)	08:04		
	16:22		17:09			18:00			19:53			20:44	21	19:55 (B083)	21:29	23	20:35 (WEA03)	21:44	23	20:46 (B178)	21:14	14	20:38 (WEA03)	20:13	19	19:22 (B084)	19:04			16:58	5	07:58 (B062)	16:18		
2	08:29		08:03			07:10			07:00			05:55		19:33 (B083)	05:11		20:13 (WEA03)	05:09		20:22 (WEA03)	05:45		19:49 (B083)	06:34		19:03 (B084)	07:22		08:04 (B263)	07:15			08:06		
	16:23		17:11			18:02			19:55			20:45	22	19:55 (B083)	21:31	23	20:36 (WEA03)	21:44	23	20:45 (B178)	21:12	11	20:00 (B083)	20:11	19	19:22 (B084)	19:02	7	08:11 (B263)	16:56			16:17		
3	08:29		08:01			07:07			06:57			05:54		19:33 (B083)	05:10		20:13 (WEA03)	05:09		20:22 (WEA03)	05:46		19:47 (B083)	06:35		19:03 (B084)	07:24		08:03 (B263)	07:17			08:07		
	16:24		17:12			18:03			19:57			20:47	22	19:55 (B083)	21:32	22	20:35 (WEA03)	21:44	23	20:45 (B178)	21:11	14	20:01 (B083)	20:09	23	19:37 (B082)	19:00	9	08:12 (B263)	16:55			16:16		
4	08:29		07:59			07:05			06:55			05:52		19:33 (B083)	05:09		20:13 (WEA03)	05:10		20:22 (WEA03)	05:48		19:46 (B083)	06:37		19:03 (B084)	07:26		08:02 (B263)	07:19			08:09		
	16:25		17:14			18:05			19:58			20:49	22	19:55 (B083)	21:33	22	20:35 (WEA03)	21:43	24	20:46 (B178)	21:09	16	20:02 (B083)	20:06	24	19:38 (B082)	18:57	11	08:13 (B263)	16:53			16:16		
5	08:29		07:58			07:03			06:53			05:50		19:33 (B083)	05:09		20:14 (WEA03)	05:11		20:21 (WEA03)	05:49		19:45 (B083)	06:39		19:04 (B084)	07:27		08:01 (B263)	07:21			08:10		
	16:26		17:16			18:07			20:00			20:50	22	19:55 (B083)	21:34	23	20:37 (B178)	21:43	24	20:45 (B178)	21:07	18	20:03 (B083)	20:04	23	19:38 (B082)	18:55	11	08:12 (B263)	16:51			16:15		
6	08:28		07:56			07:01			06:50		19:35 (B082)	05:48		19:33 (B083)	05:08		20:14 (WEA03)	05:11		20:21 (WEA03)	05:51		19:44 (B083)	06:40		19:05 (B084)	07:29		08:02 (B263)	07:22			08:11		
	16:28		17:18			18:09			20:02	3	19:38 (B082)	20:52	22	19:55 (B083)	21:35	23	20:37 (B178)	21:42	24	20:45 (B178)	21:06	19	20:03 (B083)	20:02	19	19:37 (B082)	18:53	9	08:11 (B263)	16:49			16:15		
7	08:28		07:54			06:59			06:48		19:10 (B084)	05:46		19:33 (B083)	05:07		20:15 (WEA03)	05:12		20:21 (WEA03)	05:52		19:44 (B083)	06:42		19:07 (B084)	07:30		08:03 (B263)	07:24			08:12		
	16:29		17:20			18:10			20:03	15	19:40 (B082)	20:54	21	19:54 (B083)	21:36	24	20:39 (B178)	21:42	24	20:45 (B178)	21:04	20	20:04 (B083)	20:00	10	19:34 (B082)	18:51	7	08:10 (B263)	16:48			16:14		
8	08:28		07:53			06:56		07:27 (B263)	06:46		19:08 (B084)	05:44		19:34 (B083)	05:07		20:15 (WEA03)	05:13		20:21 (WEA03)	05:54		19:43 (B083)	06:43			07:32			07:26			08:14		
	16:30		17:22			18:12	7	07:34 (B263)	20:05	22	19:42 (B082)	20:55	20	19:54 (B083)	21:37	24	20:39 (B178)	21:41	23	20:44 (B178)	21:02	21	20:04 (B083)	19:57			18:48			16:46			16:14		
9	08:27		07:51			06:54		07:25 (B263)	06:44		19:06 (B084)	05:43		19:35 (B083)	05:06		20:16 (WEA03)	05:14		20:21 (WEA03)	05:56		19:43 (B083)	06:45			07:34			07:28			08:15		
	16:31		17:23			18:14	9	07:34 (B263)	20:07	25	19:41 (B082)	20:57	18	19:53 (B083)	21:37	24	20:40 (B178)	21:41	23	20:44 (B178)	21:00	22	20:05 (B083)	19:55			18:46			16:44			16:14		
10	08:27		07:49			06:52		07:24 (B263)	06:41		19:05 (B084)	05:41		19:35 (B083)	05:06		20:17 (WEA03)	05:15		20:21 (WEA03)	05:57		19:42 (B083)	06:47			07:35			07:30			08:16		
	16:33		17:25			18:16	11	07:35 (B263)	20:08	24	19:40 (B082)	20:58	16	19:51 (B083)	21:38	24	20:41 (B178)	21:40	22	20:43 (WEA03)	20:58	22	20:04 (B083)	19:53			18:44			16:43			16:13		
11	08:26		07:47		08:25 (B062)	06:50		07:24 (B263)	06:39		19:04 (B084)	05:39		19:37 (B083)	05:05		20:17 (WEA03)	05:16		20:21 (WEA03)	05:59		19:42 (B083)	06:48			07:37			07:31			08:17		
	16:34		17:27	4	08:29 (B062)	18:17	11	07:35 (B263)	20:10	22	19:38 (B082)	21:00	14	19:51 (B083)	21:39	23	20:40 (B178)	21:39	22	20:43 (WEA03)	20:57	23	20:05 (B083)	19:50			18:42			16:41			16:13		
12	08:26		07:46		08:23 (B062)	06:47		07:24 (B263)	06:37		19:04 (B084)	05:38		19:38 (B083)	05:05		20:18 (WEA03)	05:17		20:21 (WEA03)	06:00		19:42 (B083)	06:50			07:39			07:33			08:18		
	16:35		17:29	8	08:31 (B062)	18:19	9	07:33 (B263)	20:12	19	19:23 (B084)	21:02	11	19:49 (B083)	21:40	23	20:41 (B178)	21:39	22	20:43 (WEA03)	20:55	22	20:04 (B083)	19:48			18:39			16:40			16:13		
13	08:25		07:44		08:22 (B062)	06:45		07:25 (B263)	06:35		19:04 (B084)	05:36		19:41 (B083)	05:05		20:19 (WEA03)	05:18		20:21 (WEA03)	06:02		19:42 (B083)	06:51			07:41			07:35			08:19		
	16:37		17:31	10	08:32 (B062)	18:21	7	07:32 (B263)	20:14	19	19:23 (B084)	21:03	15	20:27 (WEA03)	21:40	23	20:42 (B178)	21:38	23	20:44 (WEA03)	20:53	22	20:04 (B083)	19:46			18:37			16:38			16:13		
14	08:24		07:42		08:21 (B062)	06:43			06:33		19:04 (B084)	05:34		20:15 (WEA03)	05:05		20:19 (WEA03)	05:19		20:21 (WEA03)	06:03		19:42 (B083)	06:53			07:42			07:37			08:20		
	16:38		17:33	11	08:32 (B062)	18:23			20:15	19	19:23 (B084)	21:05	14	20:29 (WEA03)	21:41	23	20:42 (B178)	21:37	23	20:44 (WEA03)	20:51	21	20:03 (B083)	19:44			18:35			16:37			16:13		
15	08:24		07:40		08:21 (B062)	06:41			06:30		19:03 (B084)	05:33		20:14 (WEA03)	05:04		20:20 (WEA03)	05:20		20:21 (WEA03)	06:05		19:43 (B083)	06:55			07:44		08:25 (B200)	07:38			08:21		
	16:40		17:34	12	08:33 (B062)	18:24			20:17	18	19:21 (B084)	21:06	16	20:30 (WEA03)	21:42	23	20:43 (B178)	21:36	23	20:44 (WEA03)	20:49	20	20:03 (B083)	19:41			18:33	7	08:32 (B200)	16:35			16:13		
16	08:23		07:38		08:21 (B062)	06:38			06:28		19:04 (B084)	05:31		20:14 (WEA03)	05:04		20:20 (WEA03)	05:22		20:20 (WEA03)	06:07		19:43 (B083)	06:56			07:46		08:23 (B200)	07:40			08:22		
	16:41		17:36	11	08:32 (B062)	18:26			20:19	16	19:20 (B084)	21:08	18	20:32 (WEA03)	21:42	22	20:42 (B178)	21:35	25	20:45 (WEA03)	20:47	18	20:01 (B083)	19:39			18:31	11	08:34 (B200)	16:34			16:13		
17	08:22		07:36		08:21 (B062)	06:36			06:26		19:05 (B084)	05:30		20:12 (WEA03)	05:04		20:20 (WEA03)	05:23		20:20 (WEA03)	06:08		19:45 (B083)	06:58			07:47		08:21 (B200)	07:42			08:23		
	16:43		17:38	11	08:32 (B062)	18:28			20:20	14	19:19 (B084)	21:09	20	20:32 (WEA03)	21:43	23	20:43 (B178)	21:34	25	20:45 (WEA03)	20:45	15	20:00 (B083)	19:37			18:29	12	08:33 (B200)	16:32			16:13		
18	08:21		07:34		08:22 (B062)	06:34			06:24		19:07 (B084)	05:28		20:12 (WEA03)	05:04		20:21 (WEA03)	05:24		20:20 (WEA03)	06:10		19:45 (B083)	07:00			07:49		08:21 (B200)	07:44			08:24		
	16:45		17:40	9	08:31 (B062)	18:30			20:22	10	19:17 (B084)	21:11	21	20:33 (WEA03)	21:43	22	20:43 (B178)	21:33	25	20:45 (WEA03)	20:43	13	19:58 (B083)	19:34			18:26	13	08:34 (B200)	16:31			16:13		
19	08:20		07:32		08:24 (B062)	06:32			06:22		19:10 (B084)	05:27		20:12 (WEA03)	05:04		20:22 (WEA03)	05:25		20:20 (WEA03)	06:11		19:48 (B083)	07:01			07:51		08:21 (B200)	07:45			08:24		
	16:46		17:42	5	08:29 (B062)	18:31			20:24	3	19:13 (B084)	21:12	22	20:34 (WEA03)	21:44	22	20:44 (B178)	21:32	25	20:45 (WEA03)	20:41	7	19:55 (B083)	19:32			18:24	13	08:34 (B200)	16:30			16:13		
20	08:19		07:30			06:29			06:20			05:26		20:11 (WEA03)	05:04		20:22 (WEA03)	05:26		20:20 (WEA03)	06:13			07:03			07:53		08:21 (B200)	07:47			08:25		
	16:48		17:44			18:33			20:25			21:14	23	20:34 (WEA03)	21:44	22	20:44 (B178)	21:31	25	20:45 (WEA03)	20:39			19:30			18:22	12	08:33 (B200)	16:28			16:14		
21	08:18		07:28		07:55 (B200)	06:27			06:18			05:24		20:11 (WEA03)	05:04		20:22 (WEA03)	05:28		20:21 (WEA03)	06:15			07:04			07:54		08:23 (B200)	07:49			08:26		
	16:50		17:45	5	08:00 (B200)	18:35			20:27			21:15	23	20:34 (WEA03)	21:44	22	20:44 (B178)	21:29	24	20:45 (WEA03)	20:37			19:27			18:20	10	08:33 (B200)	16:27			16:14		
22	08:17		07:26		07:52 (B200)	06:25			06:15			05:23		20:11 (WEA03)	05:04		20:22 (WEA03)	05:29		20:21 (WEA03)	06:16			07:06			07:56		08:25 (B200)	07:50			08:26		
	16:51		17:47	9	08:01 (B200)	18:36			20:29			21:17	24	20:35 (WEA03)	21:44	22	20:44 (B178)	21:28	24	20:45 (WEA03)	20:35			19:25			18:18	6	08:31 (B200)	16:26			16:15		
23	08:16		07:24		07:50 (B200)	06:22			06:13			05:22		20:11 (WEA03)	05:05		20:22 (WEA03)	05:30		20:21 (WEA03)	06:18			07:08			07:58			07:52			08:27		
	16:53		17:49	12	08:02 (B200)	18:38			20:30			21:18	24	20:35 (WEA03)	21:45	22	20:44 (B178)	21:27	24	20:45 (WEA03)	20:33			19:23			18:16			16:25			08:15		
24	08:15		07:22		07:50 (B200)	06:20			06:11			05:20		20:11 (WEA03)	05:05		20:23 (WEA03)	05:32		20:21 (WEA03)	06:19			07:09			08:00		08:55 (B062)	07:54			08:27		
	16:55		17:51	12	08:02 (B200)	18:40			20:32			21:19	24	20:35 (WEA03)	21:45	22	20:45 (B178)	21:26	23	20:44 (WEA03)	20:30			19:20			18:14	2	08:57 (B062)	16:24			16:16		
25	08:14		07:20		07:50 (B200)	06:18			06:09		19:44 (B083)	05:19		20:11 (WEA03)	05:05		20:23 (WEA03)	05:33		20:22 (WEA03)	06:21			07:11			08:01		08:52 (B062)	07:55			08:28		
	16:56		17:53	12	08:02 (B200)	18:42			20:34	3	19:47 (B083)	21:21	25	20:36 (WEA03)	21:45	22	20:45 (B178)	21:24	23	20:45 (WEA03)	20:28			19:18			18:12	8	09:00 (B062)	16:23			16:16		
26	08:12		07:18		07:50 (B200)	07:16			06:07		19:40 (B083)	05:18		20:11 (WEA03)	05:05		20:23 (WEA03)	05:35		20:22 (WEA03)	06:23		19:10 (B084)	07:12			08:03		08:51 (B062)	07:57			08:28		
	16:58		17:54	12	08:02 (B200)	19:43			20:35	11	19:51 (B083)	21:22	25	20:36 (WEA03)	21:45	22	20:45 (B178)	21:23	22	20:44 (WEA03)	20:26	9	19:19 (B084)	19:16			18:10	10	09:01 (B062)	16:22			16:17		
27	08:11		07:16		07:51 (B200)	07:13			06:05		19:37 (B083)	05:17		20:11 (WEA03)	05:06		20:23 (WEA03)	05:36		20:22 (WEA03)	06:24		19:08 (B084)	07:14			08:05		08:50 (B062)	07:58			08:28		
	17:00		17:56	10	08:01 (B200)	19:45			20:37	15	19:52 (B083)	21:23	25	20:36 (WEA03)	21:45	23	20:46 (B178)	21:22	21	20:43 (WEA03)	20:24	13	19:21 (B084)	19:13			18:08	12	09:02 (B062)	16:21			16:18		
28	08:10		07:14		07:51 (B200)	07:11			06:03		19:36 (B083)	05:16		20:11 (WEA03)	05:06		20:23 (WEA03)	05:37		20:23 (WEA03)	06:26		19:06 (B084)	07:16			08:07		08:50 (B062)	08:00			08:29		
	17:02		17:58	8	07:59 (B200)	19:47			20:39	17	19:53 (B083)	21:25	25	20:36 (WEA03)	21:45	22	20:45 (B178)	21:20	20	20:43 (WEA03)	20:22	15	19:21 (B084)	19:11			18:06	12	09:02 (B062)	16:20			16:18		
29	08:08					07:09			06:01		19:35 (B083)	05:15		20:11 (WEA03)	05:07		20:23 (WEA03)	05:39		20:24 (WEA03)	06:27		19:06 (B084)	07:17			07:08		07:50 (B062)	08:01			08:29		
	17:03					19:48			20:40	19	19:54 (B083)	21:26	25	20:36 (WEA03)	21:45	23	20:46 (B178)	21:19	18	20:42 (WEA03)	20:20	16	19:22 (B084)	19:09			17:04	12	08:02 (B062)	16:19			16:19		
30	08:07					07:06			06:59		19:34 (B083)	05:14		20:12 (WEA03)	05:07		20:22 (WEA03)	05:40		20:24 (WEA03)	06:29		19:04 (B084)	07:19			07:10		07:51 (B062)	08:03			08:29		
	17:05					19:50			20:42	20	19:54 (B083)	21:27	23	20:35 (WEA03)	21:45	23	20:45 (B178)	21:17	17	20:41 (WEA03)	20:17	18	19:22 (B084)	19:06			17:02	11	08:02 (B062)	16:18			16:20		
31	08:05					07:04						05:13		20:12 (WEA03)				05:42		20:26 (WEA03)	06:31		19:04 (B084)				07:12		07:52 (B062)				08:29		
	17:07					19:52						21:28	23	20:35 (WEA03)				21:16	14	20:40 (WEA03)	20:15	19	19:23 (B084)				17:00	9	08:01 (B062)				16:21		
Sonnenscheinstunden	259		277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		161			54			314			646			681			701			428			137			214			5					
Red.Sonnenscheinwahrsch.		0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.32			0.29			0.23					
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung		0.64			0.67			0.70			0.65			0.64			0.64			0.68			0.71			0.65			0.63					
Gesamte Reduktion		0.20			0.18			0.24			0.27			0.20			0.24			0.26			0.22			0.18			0.13					
Met.wahrsch.Beschattung		32			10			76			172			139			166			110			30			38			1					

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)	

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO090 - Am Schulberg 15, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	19:31 (B083)	05:12	20:16 (B178)	05:08	20:20 (B178)	05:43	06:32	19:02 (B084)	07:21	07:14	07:53 (B062)	08:04
	16:22	17:09	18:00	19:53	20:44	22 19:53 (B083)	21:29	18 20:34 (B178)	21:44	23 20:43 (B178)	21:14	20:13	17 19:19 (B084)	19:04	16:58	11 08:04 (B062)	16:18
2	08:29	08:03	07:10	07:00	05:55	19:31 (B083)	05:11	20:16 (B178)	05:09	20:20 (B178)	05:45	06:34	19:01 (B084)	07:22	07:15	07:54 (B062)	08:06
	16:23	17:11	18:02	19:55	20:45	22 19:53 (B083)	21:31	19 20:35 (B178)	21:44	23 20:43 (B178)	21:12	20:11	19 19:20 (B084)	19:02	16:56	9 08:03 (B062)	16:17
3	08:29	08:01	07:07	06:57	05:54	19:31 (B083)	05:10	20:16 (B178)	05:09	20:20 (B178)	05:46	06:35	19:00 (B084)	07:24	08:06 (B263)	07:17	07:56 (B062)	08:07
	16:24	17:12	18:03	19:57	20:47	21 19:52 (B083)	21:32	19 20:35 (B178)	21:44	23 20:43 (B178)	21:11	20:09	19 19:19 (B084)	19:00	7 08:13 (B263)	16:55	5 08:01 (B062)	16:16
4	08:29	07:59	07:05	06:55	05:52	19:31 (B083)	05:09	20:15 (B178)	05:10	20:21 (B178)	05:48	06:37	19:01 (B084)	07:26	08:05 (B263)	07:19		08:09
	16:25	17:14	18:05	19:58	20:49	20 19:51 (B083)	21:33	21 20:36 (B178)	21:43	22 20:43 (B178)	21:09	20:06	18 19:19 (B084)	18:57	9 08:14 (B263)	16:53		16:16
5	08:29	07:58	07:03	06:53	19:09 (B084)	05:50	19:32 (B083)	05:09	20:16 (B178)	05:11	20:21 (B178)	05:49	19:47 (B083)	06:39	19:00 (B084)	07:27	08:03 (B263)	07:21		08:10
	16:26	17:16	18:07	20:00	12 19:36 (B082)	20:50	19 19:51 (B083)	21:34	21 20:37 (B178)	21:43	22 20:43 (B178)	21:07	8 19:55 (B083)	20:04	25 19:35 (B082)	18:55	11 08:14 (B263)	16:51		16:15
6	08:28	07:56	07:01	07:32 (B263)	06:50	19:06 (B084)	05:48	19:33 (B083)	05:08	20:15 (B178)	05:11	20:21 (B178)	05:51	19:45 (B083)	06:40	19:01 (B084)	07:29	08:03 (B263)	07:22		08:11
	16:28	17:18	18:09	1 07:33 (B263)	20:02	19 19:38 (B082)	20:52	17 19:50 (B083)	21:35	21 20:36 (B178)	21:42	22 20:43 (B178)	21:06	12 19:57 (B083)	20:02	24 19:36 (B082)	18:53	11 08:14 (B263)	16:49		16:15
7	08:28	07:54	06:59	07:29 (B263)	06:48	19:05 (B084)	05:46	19:33 (B083)	05:07	20:16 (B178)	05:12	20:22 (B178)	05:52	19:44 (B083)	06:42	19:01 (B084)	07:30	08:04 (B263)	07:24		08:12
	16:29	17:20	18:10	7 07:36 (B263)	20:03	25 19:40 (B082)	20:54	16 19:49 (B083)	21:36	21 20:37 (B178)	21:42	21 20:43 (B178)	21:04	15 19:59 (B083)	20:00	21 19:34 (B082)	18:51	10 08:14 (B263)	16:48		16:14
8	08:28	07:53	06:56	07:28 (B263)	06:46	19:04 (B084)	05:44	19:35 (B083)	05:07	20:15 (B178)	05:13	20:22 (B178)	05:54	19:42 (B083)	06:43	19:02 (B084)	07:32	08:04 (B263)	07:26		08:14
	16:30	17:22	18:12	9 07:37 (B263)	20:05	24 19:39 (B082)	20:55	13 19:48 (B083)	21:37	22 20:37 (B178)	21:41	21 20:43 (B178)	21:02	17 19:59 (B083)	19:57	17 19:32 (B082)	18:48	8 08:12 (B263)	16:46		16:14
9	08:27	07:51	08:29 (B062)	06:54	07:26 (B263)	06:44	19:03 (B084)	05:43	19:37 (B083)	05:06	20:16 (B178)	05:14	20:23 (B178)	05:55	19:42 (B083)	06:45	19:05 (B084)	07:34	08:06 (B263)	07:28		08:15
	16:31	17:23	2 08:31 (B062)	18:14	11 07:37 (B263)	20:07	23 19:37 (B082)	20:57	8 19:45 (B083)	21:37	22 20:38 (B178)	21:41	21 20:44 (B178)	21:00	18 20:00 (B083)	19:55	9 19:31 (B082)	18:46	3 08:09 (B263)	16:44		16:14
10	08:27	07:49	08:26 (B062)	06:52	07:26 (B263)	06:41	19:02 (B084)	05:41		05:06	20:16 (B178)	05:15	20:23 (B178)	05:57	19:40 (B083)	06:47		07:35		07:30		08:16
	16:33	17:25	8 08:34 (B062)	18:16	11 07:37 (B263)	20:08	19 19:21 (B084)	20:58		21:38	22 20:38 (B178)	21:40	20 20:43 (B178)	20:58	20 20:00 (B083)	19:53		18:44		16:43		16:13
11	08:26	07:47	08:25 (B062)	06:50	07:27 (B263)	06:39	19:02 (B084)	05:39		05:05	20:15 (B178)	05:16	20:24 (B178)	05:59	19:40 (B083)	06:48		07:37		07:31		08:17
	16:34	17:27	10 08:35 (B062)	18:17	9 07:36 (B263)	20:10	19 19:21 (B084)	21:00		21:39	23 20:38 (B178)	21:39	19 20:43 (B178)	20:57	21 20:01 (B083)	19:50		18:42		16:41		16:13
12	08:26	07:46	08:24 (B062)	06:47	07:27 (B263)	06:37	19:02 (B084)	05:38		05:05	20:16 (B178)	05:17	20:24 (B178)	06:00	19:39 (B083)	06:50		07:39		07:33		08:18
	16:35	17:29	12 08:36 (B062)	18:19	7 07:34 (B263)	20:12	18 19:20 (B084)	21:02		21:40	23 20:39 (B178)	21:39	19 20:43 (B178)	20:55	22 20:01 (B083)	19:48		18:39		16:40		16:13
13	08:25	07:44	08:24 (B062)	06:45		06:35	19:03 (B084)	05:36		05:05	20:16 (B178)	05:18	20:25 (B178)	06:02	19:40 (B083)	06:51		07:41		07:35		08:19
	16:37	17:31	12 08:36 (B062)	18:21		20:14	17 19:20 (B084)	21:03		21:40	23 20:39 (B178)	21:38	18 20:43 (B178)	20:53	21 20:01 (B083)	19:46		18:37		16:38		16:13
14	08:24	07:42	08:24 (B062)	06:43		06:33	19:04 (B084)	05:34		05:05	20:17 (B178)	05:19	20:25 (B178)	06:03	19:39 (B083)	06:53		07:42		07:37		08:20
	16:38	17:33	12 08:36 (B062)	18:23		20:15	15 19:19 (B084)	21:05		21:41	23 20:40 (B178)	21:37	17 20:42 (B178)	20:51	22 20:01 (B083)	19:43		18:35		16:37		16:13
15	08:24	07:40	08:24 (B062)	06:41		06:30	19:04 (B084)	05:33		05:04	20:17 (B178)	05:20	20:26 (B178)	06:05	19:39 (B083)	06:55		07:44		07:38		08:21
	16:40	17:34	11 08:35 (B062)	18:24		20:17	12 19:16 (B084)	21:06		21:42	23 20:40 (B178)	21:36	16 20:42 (B178)	20:49	22 20:01 (B083)	19:41		18:33		16:35		16:13
16	08:23	07:38	08:25 (B062)	06:38		06:28	19:06 (B084)	05:31		05:04	20:16 (B178)	05:22	20:27 (B178)	06:07	19:39 (B083)	06:56		07:46	08:29 (B200)	07:40		08:22
	16:41	17:36	10 08:35 (B062)	18:26		20:19	8 19:14 (B084)	21:08		21:42	23 20:39 (B178)	21:35	14 20:41 (B178)	20:47	21 20:00 (B083)	19:39		18:31	4 08:33 (B200)	16:34		16:13
17	08:22	07:36	08:26 (B062)	06:36		06:26		05:30		05:04	20:16 (B178)	05:23	20:28 (B178)	06:08	19:40 (B083)	06:58		07:47	08:26 (B200)	07:42		08:23
	16:43	17:38	7 08:33 (B062)	18:28		20:20		21:09		21:43	23 20:39 (B178)	21:34	12 20:40 (B178)	20:45	20 20:00 (B083)	19:37		18:29	9 08:35 (B200)	16:32		16:13
18	08:21	07:34		06:34		06:24		05:28		05:04	20:17 (B178)	05:24	20:29 (B178)	06:10	19:40 (B083)	07:00		07:49	08:25 (B200)	07:44		08:24
	16:45	17:40		18:30		20:22		21:11		21:43	23 20:40 (B178)	21:33	10 20:39 (B178)	20:43	18 19:58 (B083)	19:34		18:26	11 08:36 (B200)	16:31		16:13
19	08:20	07:32	07:59 (B200)	06:32		06:22		05:27		05:04	20:18 (B178)	05:25	20:31 (B178)	06:11	19:41 (B083)	07:01		07:51	08:24 (B200)	07:45		08:24
	16:46	17:42	3 08:02 (B200)	18:31		20:24		21:12		21:44	23 20:41 (B178)	21:32	5 20:36 (B178)	20:41	17 19:58 (B083)	19:32		18:24	13 08:37 (B200)	16:30		16:13
20	08:19	07:30	07:57 (B200)	06:29		06:20		05:26		05:04	20:18 (B178)	05:26		06:13	19:41 (B083)	07:03		07:53	08:24 (B200)	07:47		08:25
	16:48	17:44	7 08:04 (B200)	18:33		20:25		21:14		21:44	23 20:41 (B178)	21:31		20:39	15 19:56 (B083)	19:30		18:22	13 08:37 (B200)	16:28		16:14
21	08:18	07:28	07:55 (B200)	06:27		06:18		05:24		05:04	20:18 (B178)	05:28		06:15	19:44 (B083)	07:04		07:54	08:24 (B200)	07:49		08:26
	16:49	17:45	11 08:06 (B200)	18:35		20:27		21:15		21:44	23 20:41 (B178)	21:29		20:37	10 19:54 (B083)	19:27		18:20	13 08:37 (B200)	16:27		16:14
22	08:17	07:26	07:53 (B200)	06:25		06:15		05:23		05:04	20:18 (B178)	05:29		06:16		07:06		07:56	08:25 (B200)	07:50		08:26
	16:51	17:47	12 08:05 (B200)	18:36		20:29		21:17		21:44	23 20:41 (B178)	21:28		20:35		19:25		18:18	11 08:36 (B200)	16:26		16:15
23	08:16	07:24	07:53 (B200)	06:22		06:13	19:39 (B083)	05:22		05:04	20:18 (B178)	05:30		06:18		07:08		07:58	08:26 (B200)	07:52		08:27
	16:53	17:49	12 08:05 (B200)	18:38		20:30	8 19:47 (B083)	21:18		21:45	23 20:41 (B178)	21:27		20:33		19:23		18:16	8 08:34 (B200)	16:25		16:15
24	08:15	07:22	07:53 (B200)	06:20		06:11	19:36 (B083)	05:20		05:05	20:19 (B178)	05:32		06:19		07:09		08:00	08:28 (B200)	07:54		08:27
	16:55	17:51	12 08:05 (B200)	18:40		20:32	13 19:49 (B083)	21:19		21:45	23 20:42 (B178)	21:26		20:30		19:20		18:14	5 08:33 (B200)	16:24		16:16
25	08:14	07:20	07:53 (B200)	06:18		06:09	19:35 (B083)	05:19		05:05	20:19 (B178)	05:33		06:21		07:11		08:01		07:55		08:28
	16:56	17:53	12 08:05 (B200)	18:42		20:34	16 19:51 (B083)	21:21		21:45	23 20:42 (B178)	21:24		20:28		19:18		18:12		16:23		16:16
26	08:12	07:18	07:54 (B200)	07:16		06:07	19:33 (B083)	05:18	20:22 (B178)	05:05	20:19 (B178)	05:35		06:23		07:12		08:03	08:57 (B062)	07:57		08:28
	16:58	17:54	10 08:04 (B200)	19:43		20:35	19 19:52 (B083)	21:22	5 20:27 (B178)	21:45	23 20:42 (B178)	21:23		20:26		19:16		18:10	5 09:02 (B062)	16:22		16:17
27	08:11	07:16	07:56 (B200)	07:13		06:05	19:32 (B083)	05:17	20:20 (B178)	05:06	20:19 (B178)	05:36		06:24		07:14		08:05	08:55 (B062)	07:58		08:28
	17:00	17:56	6 08:02 (B200)	19:45		20:37	20 19:52 (B083)	21:23	10 20:30 (B178)	21:45	23 20:42 (B178)	21:22		20:24		19:13		18:08	9 09:04 (B062)	16:21		16:18
28	08:10	07:14		07:11		06:03	19:31 (B083)	05:16	20:19 (B178)	05:06	20:19 (B178)	05:37		06:26	19:09 (B084)	07:16		08:07	08:54 (B062)	08:00		08:29
	17:02	17:58		19:47		20:39	21 19:52 (B083)	21:25	12 20:31 (B178)	21:45	23 20:42 (B178)	21:20		20:22	5 19:14 (B084)	19:11		18:06	11 09:05 (B062)	16:20		16:18
29	08:08			07:09		06:01	19:31 (B083)	05:15	20:18 (B178)	05:07	20:20 (B178)	05:39		06:27	19:07 (B084)	07:17		07:08	07:54 (B062)	08:01		08:29
	17:03			19:48		20:40	21 19:52 (B083)	21:26	14 20:32 (B178)	21:45	23 20:43 (B178)	21:19		20:20	10 19:17 (B084)	19:09		17:04	11 08:05 (B062)	16:19		16:19
30	08:07			07:06		05:59	19:30 (B083)	05:14	20:17 (B178)	05:07	20:20 (B178)	05:40		06:29	19:04 (B084)	07:19		07:10	07:53 (B062)	08:03		08:29
	17:05			19:50		20:42	22 19:52 (B083)	21:27	16 20:33 (B178)	21:45	22 20:42 (B178)	21:17		20:17	14 19:18 (B084)	19:06		17:02	13 08:06 (B062)	16:18		16:20
31	08:05			07:04				05:13	20:16 (B178)			05:42		06:31	19:03 (B084)			07:12	07:54 (B062)			08:29
	17:07			19:52				21:28	17 20:33 (B178)			21:16		20:15	16 19:19 (B084)			17:00	11 08:05 (B062)			16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		169	55	351	232	665	348	344	169	206	25	
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29	0.23	
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Reduktion Windrichtung		0.64	0.67	0.70	0.66	0.64	0.64	0.68	0.71	0.65	0.62	
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20	0.23	0.26	0.22	0.18	0.13	
Met.wahrsch.Beschattung		33	10	85	63	136	82	89	37	37	3	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO091 - Am Schulberg 16, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	19:34 (B083)	05:12	20:24 (B178)	05:08	20:25 (B178)	05:43	06:32	19:04 (B084)	07:21	07:14	07:52 (B062)	08:04
	16:22	17:09	18:00	19:53	20:44 22	19:56 (B083)	21:29 10	20:34 (B178)	21:44 21	20:46 (B178)	21:14	20:13 19	19:23 (B084)	19:04	16:58 8	08:00 (B062)	16:18
2	08:29	08:03	07:10	07:00	05:55	19:34 (B083)	05:11	20:24 (B178)	05:09	20:25 (B178)	05:45	19:52 (B083)	06:34	19:04 (B084)	07:22	08:04 (B263)	07:15	08:06
	16:23	17:11	18:02	19:55	20:45 22	19:56 (B083)	21:31 12	20:36 (B178)	21:44 21	20:46 (B178)	21:12 5	19:57 (B083)	20:11 19	19:23 (B084)	19:02 7	08:11 (B263)	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	19:33 (B083)	05:10	20:23 (B178)	05:09	20:26 (B178)	05:46	19:49 (B083)	06:35	19:04 (B084)	07:24	08:03 (B263)	07:17	08:07
	16:24	17:12	18:03	19:57	20:47 22	19:55 (B083)	21:32 14	20:37 (B178)	21:44 20	20:46 (B178)	21:11 11	20:00 (B083)	20:09 23	19:37 (B082)	19:00 9	08:12 (B263)	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	19:33 (B083)	05:09	20:22 (B178)	05:10	20:26 (B178)	05:48	19:47 (B083)	06:37	19:04 (B084)	07:26	08:02 (B263)	07:19	08:09
	16:25	17:14	18:05	19:58	20:49 22	19:55 (B083)	21:33 15	20:37 (B178)	21:43 20	20:46 (B178)	21:09 14	20:01 (B083)	20:06 25	19:39 (B082)	18:57 11	08:13 (B263)	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	19:34 (B083)	05:09	20:22 (B178)	05:11	20:26 (B178)	05:49	19:46 (B083)	06:39	19:04 (B084)	07:27	08:01 (B263)	07:21	08:10
	16:26	17:16	18:07	20:00	20:50 21	19:55 (B083)	21:34 16	20:38 (B178)	21:43 19	20:45 (B178)	21:07 16	20:02 (B083)	20:04 23	19:38 (B082)	18:55 11	08:12 (B263)	16:51	16:15
6	08:28	07:56	07:01	06:50 19:36 (B082)	05:48	19:34 (B083)	05:08	20:21 (B178)	05:11	20:27 (B178)	05:51	19:45 (B083)	06:40	19:06 (B084)	07:29	08:02 (B263)	07:22	08:11
	16:28	17:18	18:09	20:02 2	19:38 (B082) 20:52 21	19:55 (B083)	21:35 17	20:38 (B178)	21:42 18	20:45 (B178)	21:06 18	20:03 (B083)	20:02 19	19:37 (B082)	18:53 9	08:11 (B263)	16:49	16:15
7	08:28	07:54	06:59	06:48	19:11 (B084) 05:46	19:34 (B083)	05:07	20:21 (B178)	05:12	20:27 (B178)	05:52	19:45 (B083)	06:42	19:07 (B084)	07:30	08:03 (B263)	07:24	08:12
	16:29	17:20	18:10	20:03 16	19:40 (B082) 20:54 20	19:54 (B083)	21:36 19	20:40 (B178)	21:42 19	20:46 (B178)	21:04 19	20:04 (B083)	20:00 12	19:34 (B082)	18:51 7	08:10 (B263)	16:48	16:14
8	08:28	07:53	06:56 07:27 (B263)	06:46	19:09 (B084) 05:44	19:35 (B083)	05:07	20:21 (B178)	05:13	20:28 (B178)	05:54	19:43 (B083)	06:43		07:32		07:26	08:14
	16:30	17:22	18:12 7 07:34 (B263)	20:05 21	19:42 (B082) 20:55 19	19:54 (B083)	21:37 19	20:40 (B178)	21:41 17	20:45 (B178)	21:02 21	20:04 (B083)	19:57		18:48		16:46	16:14
9	08:27	07:51	06:54 07:25 (B263)	06:44	19:07 (B084) 05:43	19:36 (B083)	05:06	20:21 (B178)	05:14	20:29 (B178)	05:55	19:43 (B083)	06:45		07:34		07:28	08:15
	16:31	17:23	18:14 9 07:34 (B263)	20:07 24	19:41 (B082) 20:57 16	19:52 (B083)	21:37 19	20:40 (B178)	21:41 16	20:45 (B178)	21:00 22	20:05 (B083)	19:55		18:46		16:44	16:14
10	08:27	07:49	06:52 07:24 (B263)	06:41	19:06 (B084) 05:41	19:37 (B083)	05:06	20:21 (B178)	05:15	20:30 (B178)	05:57	19:43 (B083)	06:47		07:35		07:30	08:16
	16:33	17:25	18:16 11 07:35 (B263)	20:08 23	19:40 (B082) 20:58 14	19:51 (B083)	21:38 20	20:41 (B178)	21:40 15	20:45 (B178)	20:58 21	20:04 (B083)	19:53		18:44		16:43	16:13
11	08:26	07:47 08:24 (B062)	06:50	07:24 (B263)	06:39	19:05 (B084) 05:39	19:39 (B083)	05:05	20:21 (B178)	05:16	20:31 (B178)	05:59	19:43 (B083)	06:48	07:37		07:31	08:17
	16:34	17:27 6 08:30 (B062)	18:17 11 07:35 (B263)	20:10 20	19:37 (B082) 21:00 11	19:50 (B083)	21:39 20	20:41 (B178)	21:39 13	20:44 (B178)	20:57 22	20:05 (B083)	19:50		18:42		16:41	16:13
12	08:26	07:46 08:23 (B062)	06:47	07:24 (B263)	06:37	19:05 (B084) 05:38	19:41 (B083)	05:05	20:21 (B178)	05:17	20:32 (B178)	06:00	19:42 (B083)	06:50	07:39		07:33	08:18
	16:35	17:29 9 08:32 (B062)	18:19 9 07:33 (B263)	20:12 19	19:24 (B084) 21:02 6	19:47 (B083)	21:40 21	20:42 (B178)	21:39 12	20:44 (B178)	20:55 22	20:04 (B083)	19:48		18:39		16:40	16:13
13	08:25	07:44 08:22 (B062)	06:45	07:25 (B263)	06:35	19:05 (B084) 05:36		20:21 (B178)	05:18	20:33 (B178)	06:02	19:43 (B083)	06:51		07:41		07:35	08:19
	16:37	17:31 11 08:33 (B062)	18:21 7 07:32 (B263)	20:14 19	19:24 (B084) 21:03		21:40 21	20:42 (B178)	21:38 10	20:43 (B178)	20:53 21	20:04 (B083)	19:46		18:37		16:38	16:13
14	08:24	07:42 08:21 (B062)	06:43		06:33	19:05 (B084) 05:34		20:22 (B178)	05:19	20:35 (B178)	06:03	19:42 (B083)	06:53		07:42		07:37	08:20
	16:38	17:33 12 08:33 (B062)	18:23		20:15 18	19:23 (B084) 21:05		20:43 (B178)	21:37 6	20:41 (B178)	20:51 21	20:03 (B083)	19:43		18:35		16:37	16:13
15	08:24	07:40 08:21 (B062)	06:41		06:30	19:05 (B084) 05:33		20:22 (B178)	05:20		06:05	19:43 (B083)	06:55		07:44	08:25 (B200)	07:38	08:21
	16:40	17:34 12 08:33 (B062)	18:24		20:17 17	19:22 (B084) 21:06		20:43 (B178)	21:36		20:49 20	20:03 (B083)	19:41		18:33 7	08:32 (B200)	16:35	16:13
16	08:23	07:38 08:22 (B062)	06:38		06:28	19:05 (B084) 05:31		20:21 (B178)	05:22		06:07	19:43 (B083)	06:56		07:46	08:24 (B200)	07:40	08:22
	16:41	17:36 11 08:33 (B062)	18:26		20:19 16	19:21 (B084) 21:08		20:42 (B178)	21:35		20:47 19	20:02 (B083)	19:39		18:31 10	08:34 (B200)	16:34	16:13
17	08:22	07:36 08:22 (B062)	06:36		06:26	19:07 (B084) 05:30		20:21 (B178)	05:23		06:08	19:44 (B083)	06:58		07:47	08:22 (B200)	07:42	08:23
	16:43	17:38 10 08:32 (B062)	18:28		20:20 12	19:19 (B084) 21:09		20:43 (B178)	21:34		20:45 17	20:01 (B083)	19:37		18:29 12	08:34 (B200)	16:32	16:13
18	08:21	07:34 08:23 (B062)	06:34		06:24	19:08 (B084) 05:28		20:21 (B178)	05:24		06:10	19:45 (B083)	07:00		07:49	08:21 (B200)	07:44	08:24
	16:45	17:40 8 08:31 (B062)	18:30		20:22 9	19:17 (B084) 21:11		20:43 (B178)	21:33		20:43 14	19:59 (B083)	19:34		18:26 13	08:34 (B200)	16:31	16:13
19	08:20	07:32 08:26 (B062)	06:32		06:22	05:27		20:22 (B178)	05:25		06:11	19:47 (B083)	07:01		07:51	08:21 (B200)	07:45	08:24
	16:46	17:42 2 08:28 (B062)	18:31		20:24	21:12		20:44 (B178)	21:32		20:41 10	19:57 (B083)	19:32		18:24 13	08:34 (B200)	16:30	16:13
20	08:19	07:30	06:29		06:20	05:26		20:23 (B178)	05:26		06:13		07:03		07:53	08:22 (B200)	07:47	08:25
	16:48	17:44	18:33		20:25	21:14		20:44 (B178)	21:31		20:39		19:30		18:22 12	08:34 (B200)	16:28	16:14
21	08:18	07:28 07:55 (B200)	06:27		06:18	05:24		20:23 (B178)	05:28		06:15		07:04		07:54	08:23 (B200)	07:49	08:26
	16:49	17:45 6 08:01 (B200)	18:35		20:27	21:15		20:44 (B178)	21:29		20:37		19:27		18:20 10	08:33 (B200)	16:27	16:14
22	08:17	07:26 07:52 (B200)	06:25		06:15	05:23		20:23 (B178)	05:29		06:16		07:06		07:56	08:25 (B200)	07:50	08:26
	16:51	17:47 10 08:02 (B200)	18:36		20:29	21:17		20:44 (B178)	21:28		20:35		19:25		18:18 7	08:32 (B200)	16:26	16:15
23	08:16	07:24 07:50 (B200)	06:22		06:13	05:22		20:23 (B178)	05:30		06:18		07:08		07:58	08:26 (B200)	07:52	08:27
	16:53	17:49 12 08:02 (B200)	18:38		20:30	21:18		20:44 (B178)	21:27		20:33		19:23		18:16 2	08:28 (B200)	16:25	16:15
24	08:15	07:22 07:50 (B200)	06:20		06:11	05:20		20:24 (B178)	05:32		06:19		07:09		08:00		07:54	08:27
	16:55	17:51 13 08:03 (B200)	18:40		20:32	21:19		20:45 (B178)	21:26		20:30		19:20		18:14		16:24	16:16
25	08:14	07:20 07:50 (B200)	06:18		06:09 19:42 (B083)	05:19		20:23 (B178)	05:33		06:21		07:11		08:01	08:53 (B062)	07:55	08:28
	16:56	17:53 13 08:03 (B200)	18:42		20:34 8 19:50 (B083)	21:21		20:45 (B178)	21:24		20:28		19:18		18:12 7	09:00 (B062)	16:23	16:16
26	08:12	07:18 07:50 (B200)	07:16		06:07 19:39 (B083)	05:18		20:23 (B178)	05:35		06:23 19:13 (B084)		07:12		08:03	08:52 (B062)	07:57	08:28
	16:58	17:54 12 08:02 (B200)	19:43		20:35 13 19:52 (B083)	21:22		20:45 (B178)	21:23		20:26 5 19:18 (B084)		19:16		18:10 10	09:02 (B062)	16:22	16:17
27	08:11	07:16 07:51 (B200)	07:13		06:05 19:37 (B083)	05:17		20:24 (B178)	05:36		06:24 19:10 (B084)		07:14		08:05	08:51 (B062)	07:58	08:28
	17:00	17:56 11 08:02 (B200)	19:45		20:37 16 19:53 (B083)	21:23		20:46 (B178)	21:22		20:24 11 19:21 (B084)		19:13		18:08 12	09:03 (B062)	16:21	16:18
28	08:10	07:14 07:52 (B200)	07:11		06:03 19:36 (B083)	05:16		20:24 (B178)	05:37		06:26 19:08 (B084)		07:16		08:07	08:51 (B062)	08:00	08:29
	17:02	17:58 7 07:59 (B200)	19:47		20:39 18 19:54 (B083)	21:25		20:45 (B178)	21:20		20:22 14 19:22 (B084)		19:11		18:06 12	09:03 (B062)	16:20	16:18
29	08:08		07:09		06:01 19:35 (B083)	05:15		20:25 (B178)	05:39		06:27 19:07 (B084)		07:17		07:08	07:51 (B062)	08:01	08:29
	17:03		19:48		20:40 20 19:55 (B083)	21:26		20:46 (B178)	21:19		20:20 16 19:23 (B084)		19:09		17:04 12	08:03 (B062)	16:19	16:19
30	08:07		07:06		05:59 19:34 (B083)	05:14		20:25 (B178)	05:40		06:29 19:05 (B084)		07:19		07:10	07:51 (B062)	08:03	08:29
	17:05		19:50		20:42 21 19:55 (B083)	21:27		20:46 (B178)	21:17		20:17 18 19:23 (B084)		19:06		17:02 12	08:03 (B062)	16:18	16:20
31	08:05		07:04		05:13 20:26 (B178)				05:42		06:31 19:05 (B084)				07:12	07:52 (B062)		08:29
	17:07		19:52		21:28 6 20:32 (B178)				21:16		20:15 18 19:23 (B084)				17:00 10	08:02 (B062)		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501		454		382		333		268			245
astr.max.mögl.Beschattung		165	54	312	222	586	227		395		140		215		8			
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39		0.40		0.32		0.29		0.23			
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95		0.95		0.95		0.95		0.95			
Reduktion Windrichtung		0.64	0.67	0.70	0.67	0.63	0.63		0.68		0.71		0.65		0.63			
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20	0.23		0.26		0.22		0.18		0.13			
Met.wahrsch.Beschattung		32	10	75	60	119	53		102		30		38		1			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO092 - Am Schulberg 26, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	19:30 (B083)	05:12	20:11 (B178)	05:08	20:17 (B178)	05:43	06:32	19:01 (B084)	07:21	07:14	07:55 (B062)	08:04
	16:22	17:09	18:00	19:53	20:44	21	19:51 (B083)	21:29	22	20:33 (B178)	21:44	23	20:40 (B178)	21:14	20:13	15	19:16 (B084)	19:04	16:58	11	08:06 (B062)	16:18
2	08:29	08:03	07:10	07:00	05:55	19:30 (B083)	05:11	20:12 (B178)	05:09	20:17 (B178)	05:45	06:34	19:01 (B084)	07:22	07:15	07:55 (B062)	08:06
	16:23	17:11	18:02	19:55	20:45	20	19:50 (B083)	21:31	22	20:34 (B178)	21:44	23	20:40 (B178)	21:12	20:11	16	19:17 (B084)	19:02	16:56	11	08:06 (B062)	16:17
3	08:29	08:01	07:07	06:57	05:54	19:30 (B083)	05:10	20:12 (B178)	05:09	20:17 (B178)	05:46	06:35	18:59 (B084)	07:24	07:17	07:56 (B062)	08:07
	16:24	17:12	18:03	19:57	20:47	19	19:49 (B083)	21:32	22	20:34 (B178)	21:44	23	20:40 (B178)	21:11	20:09	18	19:17 (B084)	19:00	16:55	9	08:05 (B062)	16:16
4	08:29	07:59	07:05	06:55	05:52	19:30 (B083)	05:09	20:11 (B178)	05:10	20:18 (B178)	05:48	06:37	18:59 (B084)	07:26	08:07 (B263)	07:19	07:58 (B062)	08:09
	16:25	17:14	18:05	19:58	14	19:35 (B082)	20:49	18	19:48 (B083)	21:33	23	20:34 (B178)	21:43	23	20:41 (B178)	21:09	20:06	18	19:17 (B084)	18:57	8	08:15 (B263)	16:53	6	08:04 (B062)	16:16
5	08:29	07:58	07:03	06:53	19:05 (B084)	05:50	19:32 (B083)	05:09	20:12 (B178)	05:11	20:17 (B178)	05:49	06:39	18:58 (B084)	07:27	08:05 (B263)	07:21	08:10
	16:26	17:16	18:07	20:00	19	19:36 (B082)	20:50	16	19:48 (B083)	21:34	23	20:35 (B178)	21:43	23	20:40 (B178)	21:07	20:04	18	19:16 (B084)	18:55	10	08:15 (B263)	16:51	08:15
6	08:28	07:56	07:01	07:30 (B263)	06:50	19:03 (B084)	05:48	19:33 (B083)	05:08	20:12 (B178)	05:11	20:18 (B178)	05:51	06:40	18:58 (B084)	07:29	08:05 (B263)	07:22	08:11
	16:28	17:18	18:09	8	07:38 (B263)	20:02	24	19:38 (B082)	20:52	13	19:46 (B083)	21:35	22	20:34 (B178)	21:42	23	20:41 (B178)	21:06	20:02	24	19:33 (B082)	18:53	10	08:15 (B263)	16:49	08:15
7	08:28	07:54	06:59	07:29 (B263)	06:48	19:03 (B084)	05:46	19:35 (B083)	05:07	20:12 (B178)	05:12	20:18 (B178)	05:52	19:46 (B083)	06:42	18:58 (B084)	07:30	08:05 (B263)	07:24	08:12
	16:29	17:20	18:10	10	07:39 (B263)	20:03	25	19:38 (B082)	20:54	8	19:43 (B083)	21:36	23	20:35 (B178)	21:42	23	20:41 (B178)	21:04	7	19:53 (B083)	20:00	25	19:33 (B082)	18:51	10	08:15 (B263)	16:48	08:14
8	08:28	07:53	08:29 (B062)	06:56	07:29 (B263)	06:46	19:02 (B084)	05:44	05:07	20:12 (B178)	05:13	20:19 (B178)	05:54	19:43 (B083)	06:43	18:59 (B084)	07:32	08:04 (B263)	07:26	08:14
	16:30	17:22	4	08:33 (B062)	18:12	10	07:39 (B263)	20:05	22	19:36 (B082)	20:55	21:37	23	20:35 (B178)	21:41	22	20:41 (B178)	21:02	12	19:55 (B083)	19:57	22	19:32 (B082)	18:48	10	08:14 (B263)	16:46	08:14
9	08:27	07:51	08:28 (B062)	06:54	07:28 (B263)	06:44	19:01 (B084)	05:43	05:06	20:12 (B178)	05:14	20:19 (B178)	05:55	19:42 (B083)	06:45	19:00 (B084)	07:34	08:05 (B263)	07:28	08:15
	16:31	17:23	8	08:36 (B062)	18:14	10	07:38 (B263)	20:07	18	19:19 (B084)	20:57	21:37	23	20:35 (B178)	21:41	22	20:41 (B178)	21:00	15	19:57 (B083)	19:55	18	19:31 (B082)	18:46	8	08:13 (B263)	16:44	08:14
10	08:27	07:49	08:27 (B062)	06:52	07:28 (B263)	06:41	19:01 (B084)	05:41	05:06	20:13 (B178)	05:15	20:19 (B178)	05:57	19:40 (B083)	06:47	19:02 (B084)	07:35	07:30	08:16
	16:33	17:25	10	08:37 (B062)	18:16	10	07:38 (B263)	20:08	18	19:19 (B084)	20:58	21:38	23	20:36 (B178)	21:40	23	20:42 (B178)	20:58	17	19:57 (B083)	19:53	10	19:28 (B082)	18:44	16:43	08:13
11	08:26	07:47	08:26 (B062)	06:50	07:29 (B263)	06:39	19:01 (B084)	05:39	05:05	20:12 (B178)	05:16	20:20 (B178)	05:59	19:40 (B083)	06:48	07:37	07:31	08:17
	16:34	17:27	12	08:38 (B062)	18:17	8	07:37 (B263)	20:10	18	19:19 (B084)	21:00	21:39	23	20:35 (B178)	21:39	22	20:42 (B178)	20:57	18	19:58 (B083)	19:50	18:42	16:41	08:13
12	08:26	07:46	08:26 (B062)	06:47	06:37	19:02 (B084)	05:38	05:05	20:13 (B178)	05:17	20:20 (B178)	06:00	19:38 (B083)	06:50	07:39	07:33	08:18
	16:35	17:29	12	08:38 (B062)	18:19	20:12	16	19:18 (B084)	21:02	21:40	23	20:36 (B178)	21:39	22	20:42 (B178)	20:55	20	19:58 (B083)	19:48	18:39	16:40	08:13
13	08:25	07:44	08:26 (B062)	06:45	06:35	19:03 (B084)	05:36	05:05	20:13 (B178)	05:18	20:20 (B178)	06:02	19:38 (B083)	06:51	07:41	07:35	08:19
	16:37	17:31	12	08:38 (B062)	18:21	20:14	14	19:17 (B084)	21:03	21:40	23	20:36 (B178)	21:38	22	20:42 (B178)	20:53	21	19:59 (B083)	19:46	18:37	16:38	08:13
14	08:24	07:42	08:26 (B062)	06:43	06:33	19:04 (B084)	05:34	05:05	20:14 (B178)	05:19	20:21 (B178)	06:03	19:37 (B083)	06:53	07:42	07:37	08:20
	16:38	17:33	11	08:37 (B062)	18:23	20:15	11	19:15 (B084)	21:05	21:41	23	20:37 (B178)	21:37	20	20:41 (B178)	20:51	22	19:59 (B083)	19:43	18:35	16:37	08:13
15	08:24	07:40	08:27 (B062)	06:41	06:30	19:06 (B084)	05:33	05:04	20:14 (B178)	05:20	20:21 (B178)	06:05	19:37 (B083)	06:55	07:44	07:38	08:21
	16:40	17:34	10	08:37 (B062)	18:24	20:17	5	19:11 (B084)	21:06	21:42	23	20:37 (B178)	21:36	20	20:41 (B178)	20:49	22	19:59 (B083)	19:41	18:33	16:35	08:13
16	08:23	07:38	08:28 (B062)	06:38	06:28	05:31	05:04	20:14 (B178)	05:22	20:22 (B178)	06:07	19:37 (B083)	06:56	07:46	07:40	08:22
	16:41	17:36	7	08:35 (B062)	18:26	20:19	21:08	21:42	22	20:36 (B178)	21:35	19	20:41 (B178)	20:47	21	19:58 (B083)	19:39	18:31	16:34	08:13
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18	08:21	07:34	08:01 (B200)	06:34	06:24	05:28	05:04	20:14 (B178)	05:24	20:23 (B178)	06:10	19:37 (B083)	07:00	07:49	08:28 (B200)	07:44	08:24
	16:45	17:40	4	08:05 (B200)	18:30	20:22	21:11	21:43	23	20:37 (B178)	21:33	17	20:40 (B178)	20:43	20	19:57 (B083)	19:34	18:26	9	08:37 (B200)	16:31	08:13
19	08:20	07:32	07:59 (B200)	06:32	06:22	05:27	05:04	20:15 (B178)	05:25	20:23 (B178)	06:11	19:38 (B083)	07:01	07:51	08:27 (B200)	07:45	08:24
	16:46	17:42	8	08:07 (B200)	18:31	20:24	21:12	21:44	23	20:38 (B178)	21:32	16	20:39 (B178)	20:41	19	19:57 (B083)	19:32	18:24	11	08:38 (B200)	16:30	08:13
20	08:19	07:30	07:57 (B200)	06:29	06:20	05:26	05:04	20:15 (B178)	05:26	20:24 (B178)	06:13	19:38 (B083)	07:03	07:53	08:26 (B200)	07:47	08:25
	16:48	17:44	11	08:08 (B200)	18:33	20:25	21:14	21:44	23	20:38 (B178)	21:31	14	20:38 (B178)	20:39	18	19:56 (B083)	19:30	18:22	13	08:39 (B200)	16:28	08:14
21	08:18	07:28	07:56 (B200)	06:27	06:18	19:40 (B083)	05:24	05:04	20:15 (B178)	05:28	20:26 (B178)	06:15	19:39 (B083)	07:04	07:54	08:26 (B200)	07:49	08:26
	16:49	17:45	12	08:08 (B200)	18:35	20:27	3	19:43 (B083)	21:15	21:44	23	20:38 (B178)	21:29	11	20:37 (B178)	20:37	16	19:55 (B083)	19:27	18:20	13	08:39 (B200)	16:27	08:14
22	08:17	07:26	07:54 (B200)	06:25	06:15	19:36 (B083)	05:23	05:04	20:15 (B178)	05:29	20:28 (B178)	06:16	19:40 (B083)	07:06	07:56	08:26 (B200)	07:50	08:26
	16:51	17:47	13	08:07 (B200)	18:36	20:29	11	19:47 (B083)	21:17	21:44	23	20:38 (B178)	21:28	7	20:35 (B178)	20:35	12	19:52 (B083)	19:25	18:18	13	08:39 (B200)	16:26	08:15
23	08:16	07:24	07:55 (B200)	06:22	06:13	19:34 (B083)	05:22	20:18 (B178)	05:04	20:15 (B178)	05:30	06:18	19:43 (B083)	07:08	07:58	08:26 (B200)	07:52	08:27
	16:53	17:49	12	08:07 (B200)	18:38	20:30	15	19:49 (B083)	21:18	7	20:25 (B178)	21:45	23	20:38 (B178)	21:27	20:33	7	19:50 (B083)	19:23	18:16	11	08:37 (B200)	16:25	08:15
24	08:15	07:22	07:55 (B200)	06:20	06:11	19:32 (B083)	05:20	20:16 (B178)	05:05	20:16 (B178)	05:32	06:19	07:09	08:00	08:28 (B200)	07:54	08:27
	16:55	17:51	12	08:07 (B200)	18:40	20:32	18	19:50 (B083)	21:19	11	20:27 (B178)	21:45	23	20:39 (B178)	21:26	20:30	19:20	18:14	8	08:36 (B200)	16:24	08:16
25	08:14	07:20	07:56 (B200)	06:18	06:09	19:31 (B083)	05:19	20:15 (B178)	05:05	20:16 (B178)	05:33	06:21	07:11	08:01	08:30 (B200)	07:55	08:28
	16:56	17:53	10	08:06 (B200)	18:42	20:34	19	19:50 (B083)	21:21	14	20:29 (B178)	21:45	23	20:39 (B178)	21:24	20:28	19:18	18:12	5	08:35 (B200)	16:23	08:16
26	08:12	07:18	07:58 (B200)	07:16	06:07	19:30 (B083)	05:18	20:14 (B178)	05:05	20:16 (B178)	05:35	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	6	08:04 (B200)	19:43	20:35	21	19:51 (B083)	21:22	16	20:30 (B178)	21:45	23	20:39 (B178)	21:23	20:26	19:16	18:10	16:22	08:17
27	08:11	07:16	07:13	06:05	19:30 (B083)	05:17	20:14 (B178)	05:06	20:17 (B178)	05:36	06:24	07:14	08:05	08:59 (B062)	07:58	08:28
	17:00	17:56	19:45	20:37	21	19:51 (B083)	21:23	17	20:31 (B178)	21:45	22	20:39 (B178)	21:22	20:24	19:13	18:08	5	09:04 (B062)	16:21	08:18
28	08:10	07:14	07:11	06:03	19:29 (B083)	05:16	20:13 (B178)	05:06	20:16 (B178)	05:37	06:26	07:16	08:07	08:57 (B062)	08:00	08:29
	17:02	17:58	19:47	20:39	22	19:51 (B083)	21:25	18	20:31 (B178)	21:45	23	20:39 (B178)	21:20	20:22	19:11	18:06	9	09:06 (B062)	16:20	08:18
29	08:08	07:09	06:01	19:29 (B083)	05:15	20:13 (B178)	05:07	20:17 (B178)	05:39	06:27	07:17	07:08	07:56 (B062)	08:01	08:29
	17:03	19:48	20:40	22	19:51 (B083)	21:26	19	20:32 (B178)	21:45	23	20:40 (B178)	21:19	20:20	19:09	17:04	11	08:07 (B062)	16:19	08:19
30	08:07	07:06	05:59	19:29 (B083)	05:14	20:12 (B178)	05:07	20:17 (B178)	05:40	06:29	19:05 (B084)	07:19	07:10	07:56 (B062)	08:03	08:29
	17:05	19:50	20:42	21	19:50 (B083)	21:27	20	20:32 (B178)	21:45	23	20:40 (B178)	21:17	20:17	9	19:14 (B084)	19:06	17:02	11	08:07 (B062)	16:18	08:20
31	08:05	07:04	05:13	20:12 (B178)	05:42	06:31	19:03 (B084)	07:12	07:55 (B062)	08:29
	17:07	19:52	21:28	20	20:32 (B178)	21:16	06:31	13	19:16 (B084)	07:00	13	08:08 (B062)	16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		174	56	377	257	683	436	310	184	192	37
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40	0.32	0.29	0.23
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Reduktion Windrichtung		0.63	0.67	0.70	0.66	0.64	0.64	0.68	0.71	0.65	0.62
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.21	0.24	0.26	0.22	0.18	0.13
Met.wahrsch.Beschattung		34	10	91	69	140	103	80	40	34	5

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO093 - Dorfstr. 11, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29			10:37 (B093)	08:04			07:12			07:02			05:57			19:16 (B084)	05:12			19:53 (B083)	05:08			20:32 (WEA03)	05:43			20:00 (B083)	06:32			07:21			07:14			08:04		
	16:22	8		10:45 (B093)	17:09			18:00			19:53			20:44	15		19:31 (B084)	21:29	29		20:45 (WEA03)	21:44	23		20:55 (WEA03)	21:14	18		20:18 (B083)	20:13			19:04			16:58			16:18		
2	08:29			10:39 (B093)	08:03			07:10		07:39 (B200)	07:00			05:55			19:18 (B084)	05:11			19:53 (B083)	05:09			20:32 (WEA03)	05:45			20:01 (B083)	06:34			07:22			07:15			08:06		
	16:23	5		10:44 (B093)	17:11			18:02	8	07:47 (B200)	19:55			20:45	11		19:29 (B084)	21:31	30		20:46 (WEA03)	21:44	23		20:55 (WEA03)	21:12	16		20:17 (B083)	20:11			19:02			16:56			16:17		
3	08:29				08:01			07:07		07:38 (B200)	06:57			05:54			19:20 (B084)	05:10			19:54 (B083)	05:09			20:33 (WEA03)	05:46			20:02 (B083)	06:35			07:24			07:17			08:07		
	16:24				17:12			18:03	10	07:48 (B200)	19:57			20:47	6		19:26 (B084)	21:32	29		20:46 (WEA03)	21:44	22		20:55 (WEA03)	21:11	13		20:15 (B083)	20:09			19:00			16:55			16:16		
4	08:29				07:59			07:05		07:37 (B200)	06:55			05:52				05:09			19:55 (B083)	05:10			20:34 (WEA03)	05:48			20:03 (B083)	06:37			07:26			07:19			08:08		
	16:25				17:14			18:05	12	07:49 (B200)	19:58			20:49				21:33	28		20:47 (WEA03)	21:43	21		20:55 (WEA03)	21:09	10		20:13 (B083)	20:06			18:57			16:53			16:16		
5	08:29				07:58			07:03		07:36 (B200)	06:53			05:50				05:09			19:57 (B083)	05:11			20:33 (WEA03)	05:49				06:39			07:27			07:21			08:10		
	16:26				17:16			18:07	12	07:48 (B200)	20:00			20:50				21:34	27		20:48 (WEA03)	21:43	22		20:55 (WEA03)	21:07				20:04			18:55			16:51			16:15		
6	08:28				07:56			07:01		07:36 (B200)	06:50			05:48				05:08			19:58 (B083)	05:11			20:34 (WEA03)	05:51				06:40	07:29		08:16 (B200)	07:22		08:11					
	16:28				17:18			18:09	12	07:48 (B200)	20:02			20:52				21:35	25		20:48 (WEA03)	21:42	21		20:55 (WEA03)	21:06				20:02	18:53	5	08:21 (B200)	16:49		16:15					
7	08:28				07:54			06:59		07:37 (B200)	06:48			05:46				05:07			20:29 (WEA03)	05:12			20:35 (WEA03)	05:52				06:42	07:30		08:14 (B200)	07:24		08:12					
	16:29				17:20			18:10	11	07:48 (B200)	20:03			20:54				21:36	20		20:49 (WEA03)	21:42	20		20:55 (WEA03)	21:04				20:00	18:51	9	08:23 (B200)	16:48		16:14					
8	08:28				07:53			06:56		07:38 (B200)	06:46			05:44				05:07			20:28 (WEA03)	05:13			20:05 (B083)	05:54				06:43	07:32		08:12 (B200)	07:26		08:14					
	16:30				17:22			18:12	9	07:47 (B200)	20:05			20:55				21:37	21		20:49 (WEA03)	21:41	25		20:55 (WEA03)	21:02				19:57	18:48	11	08:23 (B200)	16:46		16:14					
9	08:27				07:51			06:54		07:39 (B200)	06:44			05:43				05:06			20:28 (WEA03)	05:14			20:04 (B083)	05:56				06:45	07:34		08:11 (B200)	07:28		08:15					
	16:31				17:23			18:14	5	07:44 (B200)	20:07			20:57				21:37	22		20:50 (WEA03)	21:41	27		20:55 (WEA03)	21:00				19:55	18:46	13	08:24 (B200)	16:44		16:14					
10	08:27				07:49			06:52			06:41			05:41			19:54 (B083)	05:06			20:29 (WEA03)	05:15			20:03 (B083)	05:57				06:47	07:35		08:11 (B200)	07:30		08:16					
	16:33				17:25			18:16			20:09			20:58	8		20:02 (B083)	21:38	21		20:50 (WEA03)	21:40	27		20:54 (WEA03)	20:58				19:53	18:44	13	08:24 (B200)	16:43		16:13					
11	08:26				07:47			06:50			06:39			05:39			19:52 (B083)	05:05			20:28 (WEA03)	05:16			20:02 (B083)	05:59			19:30 (B084)	06:48	07:37		08:11 (B200)	07:31		08:17					
	16:34				17:27			18:17			20:10			21:00	13		20:05 (B083)	21:39	22		20:50 (WEA03)	21:39	29		20:54 (WEA03)	20:57	4		19:34 (B084)	19:50	18:42	12	08:23 (B200)	16:41		16:13					
12	08:26				07:46			06:47			06:37			05:38			19:50 (B083)	05:05			20:28 (WEA03)	05:17			20:01 (B083)	06:00			19:27 (B084)	06:50	07:39		08:11 (B200)	07:33		08:18			10:28 (B093)		
	16:35				17:29			18:19			20:12			21:02	16		20:06 (B083)	21:40	23		20:51 (WEA03)	21:39	30		20:54 (WEA03)	20:55	10		19:37 (B084)	19:48	18:39	11	08:22 (B200)	16:40		16:13	6		10:34 (B093)		
13	08:25				07:44			06:45			06:35			05:36			19:50 (B083)	05:05			20:28 (WEA03)	05:18			20:01 (B083)	06:02			19:25 (B084)	06:51	07:41		08:12 (B200)	07:35		08:19			10:27 (B093)		
	16:37				17:31			18:21			20:14			21:03	17		20:07 (B083)	21:40	23		20:51 (WEA03)	21:38	29		20:53 (WEA03)	20:53	14		19:39 (B084)	19:46	18:37	8	08:20 (B200)	16:38		16:13	9		10:36 (B092)		
14	08:24				07:42			06:43			06:33			05:34			19:48 (B083)	05:05			20:29 (WEA03)	05:19			20:00 (B083)	06:03			19:23 (B084)	06:53	07:42			07:37		08:20			10:27 (B093)		
	16:38				17:33			18:23			20:15			21:05	19		20:07 (B083)	21:41	23		20:52 (WEA03)	21:37	29		20:52 (WEA03)	20:51	16		19:39 (B084)	19:44	18:35			16:37		16:13	10		10:37 (B093)		
15	08:24				07:40			06:41			06:30			05:33			19:48 (B083)	05:04			20:29 (WEA03)	05:20			20:00 (B083)	06:05			19:23 (B084)	06:55	07:44			07:38		08:21			10:27 (B092)		
	16:40				17:34			18:24			20:17			21:06	21		20:09 (B083)	21:42	23		20:52 (WEA03)	21:36	25		20:50 (WEA03)	20:49	17		19:40 (B084)	19:41	18:33			16:35		16:13	11		10:38 (B093)		
16	08:23				07:38			06:38			06:28			05:31			19:48 (B083)	05:04			20:28 (WEA03)	05:22			19:59 (B083)	06:07			19:22 (B084)	06:56	07:46		08:44 (B062)	07:40		08:22			10:27 (B093)		
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17	08:22				07:36			06:36			06:26			05:30			19:47 (B083)	05:04			20:28 (WEA03)	05:23			19:59 (B083)	06:08			19:21 (B084)	06:58	07:47		08:41 (B062)	07:42		08:23			10:27 (B093)		
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18	08:21				07:34			06:34			06:24			05:28			19:47 (B083)	05:04			20:29 (WEA03)	05:24			19:58 (B083)	06:10			19:20 (B084)	07:00	07:49		08:40 (B062)	07:44		08:24			10:27 (B093)		
	16:45				17:40			18:30			20:22			21:11	23		20:10 (B083)	21:43	23		20:52 (WEA03)	21:33	21		20:19 (B083)	20:43	20		19:40 (B084)	19:34	18:26	11	08:51 (B062)	16:31		16:13	15		10:42 (B093)		
19	08:20				07:32			06:32			06:22		19:22 (B084)	05:27			19:47 (B083)	05:04			20:30 (WEA03)	05:25			19:58 (B083)	06:11			19:21 (B084)	07:01	07:51		08:40 (B062)	07:45		08:24			10:28 (B093)		
	16:46				17:42			18:31			20:24	7	19:29 (B084)	21:12	23		20:10 (B083)	21:44	23		20:53 (WEA03)	21:32	21		20:19 (B083)	20:41	19		19:40 (B084)	19:32	18:24	11	08:51 (B062)	16:30		16:13	15		10:43 (B093)		
20	08:19				07:30		08:12 (B062)	06:29			06:20		19:19 (B084)	05:26			19:47 (B083)	05:04			20:30 (WEA03)	05:26			19:57 (B083)	06:13			19:20 (B084)	07:03	07:53		08:39 (B062)	07:47		08:25			10:27 (B093)		
	16:48				17:44	6	08:18 (B062)	18:33			20:25	12	19:31 (B084)	21:14	23		20:10 (B083)	21:44	24		20:54 (WEA03)	21:31	22		20:19 (B083)	20:39	20		19:40 (B084)	19:30	18:22	12	08:51 (B062)	16:28		16:14	16		10:43 (B093)		
21	08:18				07:28		08:10 (B062)	06:27			06:18		19:17 (B084)	05:24			19:47 (B083)	05:04			20:30 (WEA03)	05:28			19:58 (B083)	06:15			19:21 (B084)	07:04	07:54		08:40 (B062)	07:49		08:26			10:28 (B093)		
	16:50				17:45	10	08:20 (B062)	18:35			20:27	15	19:32 (B084)	21:15	23		20:10 (B083)	21:44	24		20:54 (WEA03)	21:29	22		20:20 (B083)	20:37	18		19:39 (B084)	19:27	18:20	11	08:51 (B062)	16:27		16:14	15		10:43 (B093)		
22	08:17				07:26		08:08 (B062)	06:25			06:15		19:16 (B084)	05:23			19:47 (B083)	05:04			20:30 (WEA03)	05:29			19:58 (B083)	06:16			19:21 (B084)	07:06	07:56		08:41 (B062)	07:50		08:26			10:28 (B093)		
	16:51				17:47	11	08:19 (B062)	18:36			20:29	17	19:33 (B084)	21:17	23		20:10 (B083)	21:44	24		20:54 (WEA03)	21:28	22		20:20 (B083)	20:35	17		19:38 (B084)	19:25	18:18	9	08:50 (B062)	16:26		16:15	15		10:43 (B093)		
23	08:16				07:24		08:08 (B062)	06:22			06:13		19:15 (B084)	05:22			19:47 (B083)	05:05			20:30 (WEA03)	05:30			19:57 (B083)	06:18			19:22 (B084)	07:08	07:58		08:41 (B062)	07:52		08:27			10:29 (B093)		
	16:53				17:49	12	08:20 (B062)	18:38			20:30	19	19:34 (B084)	21:18	23		20:10 (B083)	21:45	24		20:54 (WEA03)	21:27	23		20:20 (B083)	20:33	15		19:37 (B084)	19:23	18:16	7	08:48 (B062)	16:25		16:15	15		10:44 (B093)		
24	08:15				07:22		08:08 (B062)	06:20			06:11		19:15 (B084)	05:20			19:48 (B083)	05:05			20:31 (WEA03)	05:32			19:57 (B083)	06:19			19:22 (B084)	07:09	08:00			07:54		08:27			10:29 (B093)		
	16:55				17:51	12	08:20 (B062)	18:40			20:32	19	19:34 (B084)	21:19	22		20:10 (B083)	21:45	24		20:55 (WEA03)	21:26	23		20:20 (B083)	20:30	13		19:35 (B084)	19:20	18:14			16:24		16:16	15		10:44 (B093)		
25	08:14				07:20		08:09 (B062)	06:18			06:09		19:14 (B084)	05:19			19:48 (B083)	05:05			20:31 (WEA03)	05:33			19:58 (B083)	06:21			19:24 (B084)	07:11	08:01			07:55		08:28			10:30 (B093)		
	16:56				17:53	10	08:19 (B062)	18:42			20:34	20	19:34 (B084)	21:21	22		20:10 (B083)	21:45	23		20:54 (WEA03)	21:24	23		20:21 (B083)	20:28	10		19:34 (B084)	19:18	18:12			16:23		16:16	16		10:46 (B093)		
26	08:12				07:18		08:09 (B062)	07:16			06:07		19:14 (B084)	05:18			19:49 (B083)	05:05			20:31 (WEA03)	05:35			19:57 (B083)	06:23				07:12	08:03			07:57		08:28			10:31 (B093)		
	16:58				17:54	10	08:19 (B062)	19:43			20:35	20	19:34 (B084)	21:22	21		20:10 (B083)	21:45	23		20:54 (WEA03)	21:23	23		20:20 (B083)	20:26				19:16	18:10			16:22		16:17	15		10:45 (B093)		
27	08:11				07:16		08:11 (B062)	07:13			06:05		19:14 (B084)	05:17			19:49 (B083)	05:06			20:31 (WEA03)	05:36			19:57 (B083)	06:24				07:14	08:05			07:58		08:28			10:31 (B093)		
	17:00				17:56	6	08:17 (B062)	19:45			20:37	19	19:33 (B084)	21:23	21		20:10 (B083)	21:45	24		20:55 (WEA03)	21:22	23		20:20 (B083)	20:24				19:13	18:08			16:21		16:18	15		10:46 (B093)		
28	08:10				07:14			07:11			06:03		19:14 (B084)	05:16			19:50 (B083)	05:06			20:31 (WEA03)	05:37			19:58 (B083)	06:26				07:16	08:07			08:00		08:29			10:32 (B093)		
	17:02				17:58			19:47			20:39	19	19:33 (B084)	21:25	19		20:09 (B083)	21:45	24		20:55 (WEA03)	21:20	22		20:20 (B083)	20:22				19:11	18:06			16:20		16:18	14		10:46 (B093)		
29	08:08							07:09			06:01		19:14 (B084)	05:15			19:50 (B083)	05:07			20:32 (WEA03)	05:39			19:58 (B083)	06:27				07:17	07:08			08:01		08:29			10:33 (B093)		
	17:03							19:48			20:40	18	19:32 (B084)	21:26	21		20:38 (WEA03)	21:45	23		20:55 (WEA03)	21:19	22		20:20 (B083)	20:20				19:09	17:04			16:19		16:19	12		10:45 (B093)		
30	08:07							07:06			05:59		19:16 (B084)	05:14			19:51 (B083)	05:07			20:32 (WEA03)	05:40			19:58 (B083)	06:29				07:19	07:10			08:03		08:29			10:34 (B093)		
	17:05							19:50			20:42	16	19:32 (B084)	21:27	25		20:41 (WEA03)	21:45	23		20:55 (WEA03)	21:17	21		20:19 (B083)	20:17				19:06	17:02			16:18		16:20	11		10:45 (B093)		
31	08:05							07:04						05:13			19:51 (B083)								05:42			19:59 (B083)	06:31						07:12			08:29			10:35 (B093)		
	17:07							19:52						21:28	29		20:43 (WEA03)								21:16	20		20:19 (B083)	20:15						17:00			16:21	10		10:45 (B093)		
Sonnenscheinstunden	259				277			366			414			483				497			501			454				382		333				268		245					
astr. max.mögl.Beschattung		13				77				79			201			487			720			721			288							157			261					
Red.Sonnenscheinwahrsch.		0.19				0.32				0.28			0.36			0.43			0.34			0.39			0.40							0.29			0.17					
Reduktion Betriebsdauer		0.95				0.95				0.95			0.95			0.95			0.95			0.95			0.95							0.95			0.95					
Reduktion Windrichtung		0.52				0.64				0.66			0.69			0.66			0.63			0.64			0.69							0.65			0.52					
Gesamte Reduktion		0.09				0.20				0.18			0.24			0.27			0.20			0.24			0.26							0.18			0.08					
Met.wahrsch.Beschattung		1				15				14			48			130			145			172			75							28			22					

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO094 - Dorfstr. 11a, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		10:34 (B093)	08:04			07:12		07:41 (B200)	07:02			05:57		19:15 (B084)	05:12		19:51 (B083)	05:08		20:32 (WEA03)	05:43		19:58 (B083)	06:32			07:21			07:14			08:04		
	16:22	6	10:40 (B093)	17:09			18:00	5	07:46 (B200)	19:53			20:44	12	19:27 (B084)	21:29	29	20:44 (WEA03)	21:44	23	20:55 (WEA03)	21:14	18	20:16 (B083)	20:13			19:04			16:58			16:18		
2	08:29			08:03			07:10		07:39 (B200)	07:00			05:55		19:16 (B084)	05:11		19:51 (B083)	05:09		20:32 (WEA03)	05:45		19:59 (B083)	06:34			07:22			07:15			08:06		
	16:23			17:11			18:02	9	07:48 (B200)	19:55			20:45	9	19:25 (B084)	21:31	30	20:45 (WEA03)	21:44	22	20:54 (WEA03)	21:12	17	20:16 (B083)	20:11			19:02			16:56			16:17		
3	08:29			08:01			07:07		07:38 (B200)	06:57			05:54			05:10		19:52 (B083)	05:09		20:32 (WEA03)	05:46		20:00 (B083)	06:35			07:24			07:17			08:07		
	16:24			17:12			18:03	11	07:49 (B200)	19:57			20:47			21:32	30	20:46 (WEA03)	21:44	23	20:55 (WEA03)	21:11	14	20:14 (B083)	20:09			19:00			16:55			16:16		
4	08:29			07:59			07:05		07:38 (B200)	06:55			05:52			05:09		19:53 (B083)	05:10		20:33 (WEA03)	05:48		20:01 (B083)	06:37			07:26			07:19			08:09		
	16:25			17:14			18:05	12	07:50 (B200)	19:58			20:49			21:33	29	20:46 (WEA03)	21:43	22	20:55 (WEA03)	21:09	11	20:12 (B083)	20:06			18:57			16:53			16:16		
5	08:29			07:58			07:03		07:37 (B200)	06:53			05:50			05:09		19:55 (B083)	05:11		20:33 (WEA03)	05:49		20:05 (B083)	06:39			07:27			07:21			08:10		
	16:26			17:16			18:07	12	07:49 (B200)	20:00			20:50			21:34	28	20:47 (WEA03)	21:43	21	20:54 (WEA03)	21:07	5	20:10 (B083)	20:04			18:55			16:51			16:15		
6	08:28			07:56			07:01		07:37 (B200)	06:50			05:48			05:08		19:56 (B083)	05:11		20:33 (WEA03)	05:51			06:40			07:29			07:22			08:11		
	16:28			17:18			18:09	11	07:48 (B200)	20:02			20:52			21:35	26	20:48 (WEA03)	21:42	21	20:54 (WEA03)	21:06			20:02			18:53			16:49			16:15		
7	08:28			07:54			06:59		07:38 (B200)	06:48			05:46			05:07		20:28 (WEA03)	05:12		20:34 (WEA03)	05:52			06:42			07:30		08:16 (B200)	07:24			08:12		
	16:29			17:20			18:10	10	07:48 (B200)	20:03			20:54			21:36	21	20:49 (WEA03)	21:42	21	20:55 (WEA03)	21:04			20:00			18:51	6	08:22 (B200)	16:48			16:14		
8	08:28			07:53			06:56		07:40 (B200)	06:46			05:44			05:07		20:27 (WEA03)	05:13		20:03 (B083)	05:54			06:43			07:32		08:13 (B200)	07:26			08:14		
	16:30			17:22			18:12	6	07:46 (B200)	20:05			20:55			21:37	22	20:49 (WEA03)	21:41	25	20:54 (WEA03)	21:02			19:57			18:48	10	08:23 (B200)	16:46			16:14		
9	08:27			07:51			06:54			06:44			05:43		19:55 (B083)	05:06		20:28 (WEA03)	05:14		20:02 (B083)	05:56			06:45			07:34		08:12 (B200)	07:28			08:15		
	16:31			17:23			18:14			20:07			20:57	3	19:58 (B083)	21:37	21	20:49 (WEA03)	21:41	28	20:54 (WEA03)	21:00			19:55			18:46	12	08:24 (B200)	16:44			16:14		
10	08:27			07:49			06:52			06:41			05:41		19:51 (B083)	05:06		20:28 (WEA03)	05:15		20:01 (B083)	05:57			06:47			07:36		08:12 (B200)	07:30			08:16		
	16:33			17:25			18:16			20:09			20:58	11	20:02 (B083)	21:38	22	20:50 (WEA03)	21:40	29	20:54 (WEA03)	20:58			19:53			18:44	12	08:24 (B200)	16:43			16:13		
11	08:26			07:47			06:50			06:39			05:39		19:50 (B083)	05:05		20:27 (WEA03)	05:16		20:00 (B083)	05:59			06:48			07:37		08:12 (B200)	07:31			08:17		
	16:34			17:27			18:17			20:10			21:00	14	20:04 (B083)	21:39	23	20:50 (WEA03)	21:39	30	20:54 (WEA03)	20:57			19:50			18:42	12	08:24 (B200)	16:41			16:13		
12	08:26			07:46			06:47			06:37			05:38		19:48 (B083)	05:05		20:28 (WEA03)	05:17		19:59 (B083)	06:00		19:25 (B084)	06:50			07:39		08:11 (B200)	07:33			08:18		10:26 (B093)
	16:35			17:29			18:19			20:12			21:02	17	20:05 (B083)	21:40	23	20:51 (WEA03)	21:39	30	20:53 (WEA03)	20:55	8	19:33 (B084)	19:48	18	18:39	12	08:23 (B200)	16:40		16:13	3	10:29 (B093)
13	08:25			07:44			06:45			06:35			05:36		19:48 (B083)	05:05		20:28 (WEA03)	05:18		19:59 (B083)	06:02		19:23 (B084)	06:51			07:41		08:12 (B200)	07:35			08:19		10:24 (B093)
	16:37			17:31			18:21			20:14			21:03	18	20:06 (B083)	21:40	23	20:51 (WEA03)	21:38	29	20:52 (WEA03)	20:53	12	19:35 (B084)	19:46		18:37	10	08:22 (B200)	16:38		16:13	7	10:31 (B093)
14	08:24			07:42			06:43			06:33			05:34		19:46 (B083)	05:05		20:28 (WEA03)	05:19		19:58 (B083)	06:03		19:21 (B084)	06:53			07:42		08:14 (B200)	07:37			08:20		10:24 (B093)
	16:38			17:33			18:23			20:15			21:05	20	20:06 (B083)	21:41	24	20:52 (WEA03)	21:37	29	20:51 (WEA03)	20:51	15	19:36 (B084)	19:44		18:35	6	08:20 (B200)	16:37		16:13	9	10:33 (B093)
15	08:24			07:40			06:41			06:30			05:33		19:46 (B083)	05:04		20:28 (WEA03)	05:20		19:58 (B083)	06:05		19:21 (B084)	06:55			07:44			07:38			08:21		10:23 (B093)
	16:40			17:34			18:24			20:17			21:06	21	20:07 (B083)	21:42	24	20:52 (WEA03)	21:36	26	20:50 (WEA03)	20:49	16	19:37 (B084)	19:41		18:33				16:35		16:13	11	10:34 (B093)
16	08:23			07:38			06:38			06:28			05:31		19:46 (B083)	05:04		20:28 (WEA03)	05:22		19:57 (B083)	06:07		19:19 (B084)	06:56			07:46			07:40			08:22		10:23 (B093)
	16:41			17:36			18:26			20:19			21:08	22	20:08 (B083)	21:42	23	20:51 (WEA03)	21:35	20	20:17 (B083)	20:47	18	19:37 (B084)	19:39		18:31				16:34		16:13	12	10:35 (B093)
17	08:22			07:36			06:36			06:26			05:30		19:45 (B083)	05:04		20:28 (WEA03)	05:23		19:57 (B083)	06:08		19:19 (B084)	06:58			07:47		08:42 (B062)	07:42			08:23		10:24 (B093)
	16:43			17:38			18:28			20:20			21:09	23	20:08 (B083)	21:43	24	20:52 (WEA03)	21:34	20	20:17 (B083)	20:45	19	19:38 (B084)	19:37		18:29	7	08:49 (B062)	16:32		16:13	12	10:36 (B093)
18	08:21			07:34			06:34			06:24		19:20 (B084)	05:28		19:45 (B083)	05:04		20:28 (WEA03)	05:24		19:56 (B083)	06:10		19:18 (B084)	07:00			07:49		08:41 (B062)	07:44			08:24		10:24 (B093)
	16:45			17:40			18:30			20:22	6	19:26 (B084)	21:11	24	20:09 (B083)	21:43	24	20:52 (WEA03)	21:33	21	20:17 (B083)	20:43	20	19:38 (B084)	19:34		18:26	9	08:50 (B062)	16:31		16:13	13	10:37 (B093)
19	08:20			07:32			06:32			06:22		19:17 (B084)	05:27		19:46 (B083)	05:04		20:29 (WEA03)	05:25		19:56 (B083)	06:11		19:18 (B084)	07:01			07:51		08:40 (B062)	07:45			08:24		10:24 (B093)
	16:46			17:42			18:31			20:24	11	19:28 (B084)	21:12	23	20:09 (B083)	21:44	24	20:53 (WEA03)	21:32	22	20:18 (B083)	20:41	20	19:38 (B084)	19:32		18:24	11	08:51 (B062)	16:30		16:13	14	10:38 (B093)
20	08:19			07:30		08:11 (B062)	06:29			06:20		19:15 (B084)	05:26		19:45 (B083)	05:04		20:29 (WEA03)	05:26		19:56 (B083)	06:13		19:17 (B084)	07:03			07:53		08:40 (B062)	07:47			08:25		10:24 (B093)
	16:48			17:44	8	08:19 (B062)	18:33			20:25	15	19:30 (B084)	21:14	23	20:08 (B083)	21:44	24	20:53 (WEA03)	21:31	22	20:18 (B083)	20:39	20	19:37 (B084)	19:30		18:22	11	08:51 (B062)	16:28		16:14	14	10:38 (B093)
21	08:18			07:28		08:10 (B062)	06:27			06:18		19:14 (B084)	05:24		19:45 (B083)	05:04		20:29 (WEA03)	05:28		19:56 (B083)	06:15		19:18 (B084)	07:04			07:54		08:40 (B062)	07:49			08:26		10:25 (B093)
	16:50			17:45	10	08:20 (B062)	18:35			20:27	17	19:31 (B084)	21:15	24	20:09 (B083)	21:44	24	20:53 (WEA03)	21:29	23	20:19 (B083)	20:37	19	19:37 (B084)	19:27		18:20	11	08:51 (B062)	16:27		16:14	14	10:39 (B093)
22	08:17			07:26		08:08 (B062)	06:25			06:15		19:13 (B084)	05:23		19:45 (B083)	05:04		20:29 (WEA03)	05:29		19:56 (B083)	06:16		19:17 (B084)	07:06			07:56		08:40 (B062)	07:50			08:26		10:25 (B093)
	16:51			17:47	12	08:20 (B062)	18:36			20:29	18	19:31 (B084)	21:17	24	20:09 (B083)	21:44	24	20:53 (WEA03)	21:28	23	20:19 (B083)	20:35	19	19:36 (B084)	19:25		18:18	11	08:51 (B062)	16:26		16:15	14	10:39 (B093)
23	08:16			07:24		08:08 (B062)	06:22			06:13		19:12 (B084)	05:22		19:46 (B083)	05:05		20:29 (WEA03)	05:30		19:55 (B083)	06:18		19:18 (B084)	07:08			07:58		08:40 (B062)	07:52			08:27		10:26 (B093)
	16:53			17:49	12	08:20 (B062)	18:38			20:30	20	19:32 (B084)	21:18	23	20:09 (B083)	21:45	24	20:53 (WEA03)	21:27	24	20:19 (B083)	20:33	18	19:36 (B084)	19:23		18:16	9	08:49 (B062)	16:25		16:15	14	10:40 (B093)
24	08:15			07:22		08:08 (B062)	06:20			06:11		19:12 (B084)	05:20		19:46 (B083)	05:05		20:30 (WEA03)	05:32		19:55 (B083)	06:19		19:18 (B084)	07:09			08:00		08:42 (B062)	07:54			08:27		10:26 (B093)
	16:55			17:51	12	08:20 (B062)	18:40			20:32	20	19:32 (B084)	21:19	23	20:09 (B083)	21:45	24	20:54 (WEA03)	21:26	24	20:19 (B083)	20:30	16	19:34 (B084)	19:20		18:14	4	08:46 (B062)	16:24		16:16	14	10:40 (B093)
25	08:14			07:20		08:09 (B062)	06:18			06:09		19:11 (B084)	05:19		19:46 (B083)	05:05		20:30 (WEA03)	05:33		19:56 (B083)	06:21		19:20 (B084)	07:11			08:01			07:55			08:28		10:27 (B093)
	16:56			17:53	10	08:19 (B062)	18:42			20:34	21	19:32 (B084)	21:21	23	20:09 (B083)	21:45	24	20:54 (WEA03)	21:24	23	20:19 (B083)	20:28	13	19:33 (B084)	19:18		18:12				16:23		16:16	14	10:41 (B093)
26	08:12			07:18		08:10 (B062)	07:16			06:07		19:11 (B084)	05:18		19:47 (B083)	05:05		20:30 (WEA03)	05:35		19:56 (B083)	06:23		19:21 (B084)	07:12			08:03			07:57			08:28		10:27 (B093)
	16:58			17:54	8	08:18 (B062)	19:43			20:35	20	19:31 (B084)	21:22	22	20:09 (B083)	21:45	24	20:54 (WEA03)	21:23	23	20:19 (B083)	20:26	9	19:30 (B084)	19:16		18:10				16:22		16:17	14	10:41 (B093)
27	08:11			07:16			07:13			06:05		19:11 (B084)	05:17		19:47 (B083)	05:06		20:31 (WEA03)	05:36		19:55 (B083)	06:24			07:14			08:05			07:58			08:28		10:28 (B093)
	17:00			17:56			19:45			20:37	20	19:31 (B084)	21:23	21	20:08 (B083)	21:45	24	20:55 (WEA03)	21:22	24	20:19 (B083)	20:24			19:13			18:08			16:21		16:18	13	10:41 (B093)
28	08:10			07:14			07:11			06:03		19:12 (B084)	05:16		19:48 (B083)	05:06		20:31 (WEA03)	05:37		19:56 (B083)	06:26			07:16			08:07			08:00			08:29		10:29 (B093)
	17:02			17:58			19:47			20:39	18	19:30 (B084)	21:25	20	20:08 (B083)	21:45	23	20:54 (WEA03)	21:20	23	20:19 (B083)	20:22			19:11			18:06			16:20		16:18	12	10:41 (B093)
29	08:08						07:09			06:01		19:12 (B084)	05:15		19:48 (B083)	05:07		20:31 (WEA03)	05:39		19:56 (B083)	06:27			07:17			07:08			08:01			08:29		10:29 (B093)
	17:03						19:48			20:40	17	19:29 (B084)	21:26	20	20:08 (B083)	21:45	24	20:55 (WEA03)	21:19	22	20:18 (B083)	20:20			19:09			17:04			16:19		16:19	12	10:41 (B093)
30	08:07						07:06			05:59		19:14 (B084)	05:14		19:49 (B083)	05:07		20:31 (WEA03)	05:40		19:56 (B083)	06:29			07:19			07:10			08:03			08:29		10:30 (B093)
	17:05						19:50			20:42	15	19:29 (B084)	21:27	26	20:41 (WEA03)	21:45	24	20:55 (WEA03)	21:17	22	20:18 (B083)	20:17			19:06			17:02			16:18		16:20	11	10:41 (B093)
31	08:06						07:04						05:13		19:49 (B083)						19:57 (B083)	06:31						07:12					08:29			10:32 (B093)
	17:07						19:52						21:28	29	20:42 (WEA03)				21:16	21	20:18 (B083)	20:15						17:00					16:21	9		10:41 (B093)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		6			72			76			218			495			733			736			307			153			236					
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.29			0.17					
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95					
Reduktion Windrichtung		0.52			0.64			0.66			0.70			0.66			0.63			0.65			0.69			0.65			0.52					
Gesamte Reduktion		0.09			0.20			0.18			0.24			0.27			0.20			0.24			0.26			0.18			0.08					
Met.wahrsch.Beschattung		1			14			14			53			133			148			175			81			27			20					

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO095 - Dorfstr. 13, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September		Oktober		November		Dezember	
1	08:29		08:04		07:12		07:40 (B200)		07:02		05:57		19:14 (B084)		05:12		19:49 (B083)		05:08		20:31 (WEA03)		05:43		19:55 (B083)		06:32		07:21		07:14		08:04	
	16:22		17:09		18:00	9	07:49 (B200)		19:53		20:44	8	19:22 (B084)		21:29	30	20:44 (WEA03)		21:44	24	20:55 (WEA03)		21:14	20	20:15 (B083)		20:13		19:04		16:58		16:18	
2	08:29		08:03		07:10		07:39 (B200)		07:00		05:55				05:11		19:50 (B083)		05:09		20:31 (WEA03)		05:45		19:56 (B083)		06:34		07:22		07:15		08:06	
	16:23		17:11		18:02	11	07:50 (B200)		19:55		20:45				21:31	30	20:45 (WEA03)		21:44	23	20:54 (WEA03)		21:12	19	20:15 (B083)		20:11		19:02		16:56		16:17	
3	08:29		08:01		07:07		07:38 (B200)		06:57		05:54				05:10		19:50 (B083)		05:09		20:31 (WEA03)		05:46		19:57 (B083)		06:35		07:24		07:17		08:07	
	16:24		17:12		18:03	12	07:50 (B200)		19:57		20:47				21:32	30	20:45 (WEA03)		21:44	24	20:55 (WEA03)		21:11	17	20:14 (B083)		20:09		19:00		16:55		16:16	
4	08:29		07:59		07:05		07:38 (B200)		06:55		05:52				05:09		19:51 (B083)		05:10		20:32 (WEA03)		05:48		19:57 (B083)		06:37		07:26		07:19		08:09	
	16:25		17:14		18:05	12	07:50 (B200)		19:58		20:49				21:33	30	20:46 (WEA03)		21:43	23	20:55 (WEA03)		21:09	15	20:12 (B083)		20:06		18:57		16:53		16:16	
5	08:29		07:58		07:03		07:38 (B200)		06:53		05:50				05:09		19:53 (B083)		05:11		20:32 (WEA03)		05:49		20:00 (B083)		06:39		07:27		07:21		08:10	
	16:26		17:16		18:07	11	07:49 (B200)		20:00		20:50				21:34	28	20:47 (WEA03)		21:43	22	20:54 (WEA03)		21:07	11	20:11 (B083)		20:04		18:55		16:51		16:15	
6	08:28		07:56		07:01		07:39 (B200)		06:50		05:48				05:08		19:55 (B083)		05:11		20:32 (WEA03)		05:51		20:03 (B083)		06:40		07:29		07:22		08:11	
	16:28		17:18		18:09	9	07:48 (B200)		20:02		20:52				21:35	24	20:47 (WEA03)		21:42	22	20:54 (WEA03)		21:06	3	20:06 (B083)		20:02		18:53		16:49		16:15	
7	08:28		07:54		06:59		07:41 (B200)		06:48		05:46				05:07		20:27 (WEA03)		05:12		20:33 (WEA03)		05:52				06:42		07:30		07:24		08:12	
	16:29		17:20		18:10	5	07:46 (B200)		20:03		20:54				21:36	21	20:48 (WEA03)		21:42	21	20:54 (WEA03)		21:04				20:00		18:51		16:48		16:14	
8	08:28		07:53		06:56				06:46		05:44				05:07		20:26 (WEA03)		05:13		20:02 (B083)		05:54				06:43		07:32		08:16 (B200)		07:26		08:14	
	16:30		17:22		18:12				20:05		20:55				21:37	22	20:48 (WEA03)		21:41	24	20:54 (WEA03)		21:02				19:57		18:48	5	08:21 (B200)		16:46		16:14	
9	08:27		07:51		06:54				06:44		05:43		19:50 (B083)		05:06		20:27 (WEA03)		05:14		20:00 (B083)		05:56				06:45		07:34		08:14 (B200)		07:28		08:15	
	16:31		17:23		18:14				20:07		20:57	10	20:00 (B083)		21:37	22	20:49 (WEA03)		21:41	28	20:54 (WEA03)		21:00				19:55		18:46	9	08:23 (B200)		16:44		16:14	
10	08:27		07:49		06:52				06:41		05:41		19:47 (B083)		05:06		20:27 (WEA03)		05:15		19:59 (B083)		05:57				06:47		07:36		08:13 (B200)		07:30		08:16	
	16:33		17:25		18:16				20:09		20:58	14	20:01 (B083)		21:38	23	20:50 (WEA03)		21:40	30	20:54 (WEA03)		20:58				19:53		18:44	11	08:24 (B200)		16:43		16:13	
11	08:26		07:47		06:50				06:39		05:39		19:47 (B083)		05:05		20:26 (WEA03)		05:16		19:58 (B083)		05:59				06:48		07:37		08:13 (B200)		07:31		08:17	
	16:34		17:27		18:17				20:10		21:00	16	20:03 (B083)		21:39	24	20:50 (WEA03)		21:39	30	20:53 (WEA03)		20:57				19:50		18:42	12	08:25 (B200)		16:41		16:13	
12	08:26		07:46		06:47				06:37		05:38		19:45 (B083)		05:05		20:27 (WEA03)		05:17		19:58 (B083)		06:00				06:50		07:39		08:12 (B200)		07:33		08:18	
	16:35		17:29		18:19				20:12		21:02	19	20:04 (B083)		21:40	23	20:50 (WEA03)		21:39	30	20:53 (WEA03)		20:55				19:48		18:39	12	08:24 (B200)		16:40		16:13	
13	08:25		07:44		06:45				06:35		05:36		19:45 (B083)		05:05		20:27 (WEA03)		05:18		19:57 (B083)		06:02		19:23 (B084)		06:51		07:41		08:12 (B200)		07:35		08:19	
	16:37		17:31		18:21				20:14		21:03	20	20:05 (B083)		21:40	24	20:51 (WEA03)		21:38	30	20:52 (WEA03)		20:53	7	19:30 (B084)		19:46		18:37	11	08:23 (B200)		16:38		16:13	
14	08:24		07:42		06:43				06:33		05:34		19:44 (B083)		05:04		20:27 (WEA03)		05:19		19:56 (B083)		06:03		19:20 (B084)		06:53		07:42		08:13 (B200)		07:37		08:20		10:22 (B093)
	16:38		17:33		18:23				20:15		21:05	21	20:05 (B083)		21:41	24	20:51 (WEA03)		21:37	30	20:51 (WEA03)		20:51	12	19:32 (B084)		19:44		18:35	9	08:22 (B200)		16:37		16:13	4	10:26 (B093)
15	08:24		07:40		06:41				06:30		05:33		19:44 (B083)		05:04		20:27 (WEA03)		05:20		19:56 (B083)		06:05		19:18 (B084)		06:55		07:44		08:14 (B200)		07:38		08:21		10:21 (B093)
	16:40		17:34		18:24				20:17		21:06	22	20:06 (B083)		21:42	25	20:52 (WEA03)		21:36	27	20:50 (WEA03)		20:49	15	19:33 (B084)		19:41		18:33	7	08:21 (B200)		16:35		16:13	7	10:28 (B093)
16	08:23		07:38		06:38				06:28		05:31		19:44 (B083)		05:04		20:27 (WEA03)		05:22		19:55 (B083)		06:07		19:17 (B084)		06:56		07:46				07:40		08:22		10:21 (B093)
	16:41		17:36		18:26				20:19		21:08	23	20:07 (B083)		21:42	24	20:51 (WEA03)		21:35	24	20:47 (WEA03)		20:47	17	19:34 (B084)		19:39		18:31				16:34		16:13	8	10:29 (B093)
17	08:22		07:36		06:36				06:26		05:30		19:43 (B083)		05:04		20:27 (WEA03)		05:23		19:55 (B083)		06:08		19:16 (B084)		06:58		07:47				07:42		08:23		10:21 (B093)
	16:43		17:38		18:28				20:20	9	19:24 (B084)		21:09	24	20:07 (B083)		21:43	24	20:51 (WEA03)		21:34	20	20:15 (B083)		20:45	19	19:35 (B084)		19:37		18:29				16:32		16:13	10	10:31 (B093)
18	08:21		07:34		06:34				06:24		19:13 (B084)		05:28		19:43 (B083)		05:04		20:27 (WEA03)		05:24		19:54 (B083)		06:10		19:15 (B084)		07:00		07:49		08:42 (B062)		07:44		08:24		10:21 (B093)
	16:45		17:40		18:30				20:22	13	19:26 (B084)		21:11	24	20:07 (B083)		21:43	25	20:52 (WEA03)		21:33	22	20:16 (B083)		20:43	20	19:35 (B084)		19:34		18:26	7	08:49 (B062)		16:31		16:13	11	10:32 (B093)
19	08:20		07:32		08:12 (B062)		06:32		06:22		19:11 (B084)		05:27		19:43 (B083)		05:04		20:28 (WEA03)		05:25		19:54 (B083)		06:11		19:15 (B084)		07:01		07:51		08:41 (B062)		07:45		08:24		10:22 (B093)
	16:46		17:42	6	08:18 (B062)		18:31		20:24	17	19:28 (B084)		21:12	24	20:07 (B083)		21:44	25	20:53 (WEA03)		21:32	22	20:16 (B083)		20:41	20	19:35 (B084)		19:32		18:24	9	08:50 (B062)		16:30		16:13	11	10:33 (B093)
20	08:19		07:30		08:10 (B062)		06:29		06:20		19:10 (B084)		05:26		19:42 (B083)		05:04		20:28 (WEA03)		05:26		19:53 (B083)		06:13		19:14 (B084)		07:03		07:53		08:40 (B062)		07:47		08:25		10:21 (B093)
	16:48		17:44	10	08:20 (B062)		18:33		20:25	18	19:28 (B084)		21:14	25	20:07 (B083)		21:44	25	20:53 (WEA03)		21:31	23	20:16 (B083)		20:39	21	19:35 (B084)		19:30		18:22	11	08:51 (B062)		16:28		16:14	12	10:33 (B093)
21	08:18		07:28		08:09 (B062)		06:27		06:18		19:09 (B084)		05:24		19:43 (B083)		05:04		20:28 (WEA03)		05:28		19:54 (B083)		06:15		19:14 (B084)		07:04		07:54		08:40 (B062)		07:49		08:26		10:22 (B093)
	16:50		17:45	11	08:20 (B062)		18:35		20:27	20	19:29 (B084)		21:15	24	20:07 (B083)		21:44	25	20:53 (WEA03)		21:29	23	20:17 (B083)		20:37	21	19:35 (B084)		19:27		18:20	11	08:51 (B062)		16:27		16:14	12	10:34 (B093)
22	08:17		07:26		08:08 (B062)		06:25		06:15		19:09 (B084)		05:23		19:43 (B083)		05:04		20:28 (WEA03)		05:29		19:54 (B083)		06:16		19:13 (B084)		07:06		07:56		08:40 (B062)		07:50		08:26		10:22 (B093)
	16:51		17:47	12	08:20 (B062)		18:36		20:29	20	19:29 (B084)		21:17	24	20:07 (B083)		21:44	25	20:53 (WEA03)		21:28	23	20:17 (B083)		20:35	21	19:34 (B084)		19:25		18:18	11	08:51 (B062)		16:26		16:15	12	10:34 (B093)
23	08:16		07:24		08:08 (B062)		06:22		06:13		19:08 (B084)		05:22		19:43 (B083)		05:05		20:28 (WEA03)		05:30		19:53 (B083)		06:18		19:14 (B084)		07:08		07:58		08:39 (B062)		07:52		08:27		10:23 (B093)
	16:53		17:49	11	08:19 (B062)		18:38		20:30	21	19:29 (B084)		21:18	24	20:07 (B083)		21:45	25	20:53 (WEA03)		21:27	24	20:17 (B083)		20:33	20	19:34 (B084)		19:23		18:16	10	08:49 (B062)		16:25		16:15	12	10:35 (B093)
24	08:15		07:22		08:09 (B062)		06:20		06:11		19:08 (B084)		05:20		19:44 (B083)		05:05		20:29 (WEA03)		05:32		19:53 (B083)		06:19		19:14 (B084)		07:09		08:00		08:41 (B062)		07:54		08:27		10:23 (B093)
	16:55		17:51	10	08:19 (B062)		18:40		20:32	21	19:29 (B084)		21:19	23	20:07 (B083)		21:45	25	20:54 (WEA03)		21:26	24	20:17 (B083)		20:30	18	19:32 (B084)		19:20		18:14	7	08:48 (B062)		16:24		16:16	12	10:35 (B093)
25	08:14		07:20		08:10 (B062)		06:18		06:09		19:08 (B084)		05:19		19:44 (B083)		05:05		20:29 (WEA03)		05:33		19:53 (B083)		06:21		19:15 (B084)		07:11		08:01		08:44 (B062)		07:55		08:28		10:24 (B093)
	16:56		17:53	8	08:18 (B062)		18:42		20:34	21	19:29 (B084)		21:21	23	20:07 (B083)		21:45	25	20:54 (WEA03)		21:24	25	20:18 (B083)		20:28	17	19:32 (B084)		19:18		18:12	1	08:45 (B062)		16:23		16:16	12	10:36 (B093)
26	08:12		07:18				07:16		06:07		19:08 (B084)		05:18		19:45 (B083)		05:05		20:29 (WEA03)		05:35		19:53 (B083)		06:23		19:15 (B084)		07:12		08:03				07:57		08:28		10:25 (B093)
	16:58		17:55				19:43		20:35	20	19:28 (B084)		21:22	22	20:07 (B083)		21:45	25	20:54 (WEA03)		21:23	25	20:18 (B083)		20:26	15	19:30 (B084)		19:16		18:10				16:22		16:17	11	10:36 (B093)
27	08:11		07:16				07:13		06:05		19:08 (B084)		05:17		19:45 (B083)		05:06		20:30 (WEA03)		05:36		19:53 (B083)		06:24		19:17 (B084)		07:14		08:05				07:58		08:28		10:25 (B093)
	17:00		17:56				19:45		20:37	19	19:27 (B084)		21:23	22	20:07 (B083)		21:45	24	20:54 (WEA03)		21:22	24	20:17 (B083)		20:24	11	19:28 (B084)		19:13		18:08				16:21		16:18	11	10:36 (B093)
28	08:10		07:14		07:42 (B200)		07:11		06:03		19:09 (B084)		05:16		19:46 (B083)		05:06		20:30 (WEA03)		05:37		19:54 (B083)		06:26		19:20 (B084)		07:16		08:07				08:00		08:29		10:26 (B093)
	17:02		17:58	5	07:47 (B200)		19:47		20:39	17	19:26 (B084)		21:25	20	20:06 (B083)		21:45	24	20:54 (WEA03)		21:20	24	20:18 (B083)		20:22	3	19:23 (B084)		19:11		18:06				16:20		16:18	10	10:36 (B093)
29	08:08						07:09		06:01		19:10 (B084)		05:15		19:46 (B083)		05:07		20:30 (WEA03)		05:39		19:54 (B083)		06:27				07:17		07:08				08:01		08:29		10:27 (B093)
	17:03						19:48		20:40	15	19:25 (B084)		21:26	24	20:38 (WEA03)		21:45	25	20:55 (WEA03)		21:19	23	20:17 (B083)		20:20				19:09		17:04				16:19		16:19	8	10:35 (B093)
30	08:07						07:06		05:59		19:12 (B084)		05:14		19:47 (B083)		05:07		20:30 (WEA03)		05:40		19:54 (B083)		06:29				07:19		07:10				08:03		08:29		10:28 (B093)
	17:05						19:50		20:42	13	19:25 (B084)		21:27	27	20:41 (WEA03)		21:45	24	20:54 (WEA03)		21:17	22	20:16 (B083)		20:17				19:06		17:02				16:18		16:20	7	10:35 (B093)
31	08:06						07:04						05:13		19:47 (B083)						05:42		19:55 (B083)		06:31						07:12						08:29		10:30 (B093)
	17:07						19:52						21:28	30	20:42 (WEA03)						21:16	21	20:16 (B083)		20:15						17:00						16:21	4	10:34 (B093)
Sonnenscheinstunden	259		277		366		414		483		497		501		454		382		333								268		245			
astr.max.mögl.Beschattung			73		69		244		513		750		757		342				143										174			
Red.Sonnenscheinwahrsch.			0.32		0.28		0.36		0.43		0.34		0.39		0.40				0.29										0.17			
Reduktion Betriebsdauer			0.95		0.95		0.95		0.95		0.95		0.95		0.95				0.95										0.95			
Reduktion Windrichtung			0.64		0.66		0.70		0.66		0.63		0.65		0.69				0.65										0.53			
Gesamte Reduktion			0.20		0.18		0.24		0.27		0.20		0.24		0.26				0.18										0.09			
Met.wahrsch.Beschattung			14		12		59		137		151		181		90				26										15			

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO096 - Ecke 1, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

Januar			Februar			März			April			Mai			Juni			Juli			August			September	Oktober		November			Dezember		
1	08:29		10:17 (B093)	08:04		07:12		07:58 (B062)	07:02			05:57		19:27 (B084)	05:12		20:02 (B083)	05:08		20:08 (B083)	05:43		19:43 (B084)	06:32	07:21		07:14	08:04		10:12 (B093)
	16:22	36	14:32 (B222)	17:09		18:00	11	08:09 (B062)	19:53			20:44	18	19:45 (B084)	21:29	23	20:25 (B083)	21:44	23	20:31 (B083)	21:14	6	19:49 (B084)	20:13	19:04		16:58	16:18	7	10:19 (B093)
2	08:29		10:18 (B093)	08:03		07:10		07:58 (B062)	07:00			05:55		19:26 (B084)	05:11		20:02 (B083)	05:09		20:08 (B083)	05:45		19:41 (B084)	06:34	07:22	08:05 (B200)	07:15	08:06		10:10 (B093)
	16:23	33	14:31 (B222)	17:11		18:02	11	08:09 (B062)	19:55			20:45	20	19:46 (B084)	21:31	23	20:25 (B083)	21:44	22	20:30 (B083)	21:12	11	19:52 (B084)	20:11	19:02	08:13 (B200)	16:56	16:17	11	10:21 (B093)
3	08:29		10:19 (B093)	08:01		07:07		08:00 (B062)	06:57			05:54		19:26 (B084)	05:10		20:02 (B083)	05:09		20:08 (B083)	05:46		19:39 (B084)	06:35	07:24	08:04 (B200)	07:17	08:07		10:10 (B093)
	16:24	30	14:31 (B222)	17:12		18:03	7	08:07 (B062)	19:57			20:47	20	19:46 (B084)	21:32	23	20:25 (B083)	21:44	23	20:31 (B083)	21:11	13	19:52 (B084)	20:09	19:00	08:15 (B200)	16:55	16:16	14	10:24 (B093)
4	08:29		10:19 (B093)	07:59		07:05			06:55			05:52		19:25 (B084)	05:09		20:01 (B083)	05:10		20:09 (B083)	05:48		19:37 (B084)	06:37	07:26	08:03 (B200)	07:19	08:08		10:08 (B093)
	16:25	24	14:28 (B222)	17:14		18:05			19:58			20:49	20	19:45 (B084)	21:33	24	20:25 (B083)	21:43	22	20:31 (B083)	21:09	16	19:53 (B084)	20:06	18:57	08:15 (B200)	16:53	16:16	17	10:25 (B093)
5	08:29		10:20 (B093)	07:58		07:03			06:53			05:50		19:26 (B084)	05:09		20:02 (B083)	05:11		20:08 (B083)	05:49		19:37 (B084)	06:39	07:27	08:02 (B200)	07:21	08:10		10:09 (B093)
	16:26	22	10:42 (B093)	17:16		18:07			20:00			20:50	20	19:46 (B084)	21:34	24	20:26 (B083)	21:43	23	20:31 (B083)	21:07	17	19:54 (B084)	20:04	18:55	08:15 (B200)	16:51	16:15	17	10:26 (B093)
6	08:28		10:21 (B093)	07:56		07:01			06:50			05:48		19:26 (B084)	05:08		20:02 (B083)	05:11		20:08 (B083)	05:51		19:36 (B084)	06:40	07:29	08:02 (B200)	07:22	08:11		10:08 (B093)
	16:28	22	10:43 (B093)	17:18		18:09			20:02			20:52	20	19:46 (B084)	21:35	23	20:25 (B083)	21:42	23	20:31 (B083)	21:06	18	19:54 (B084)	20:02	18:53	08:14 (B200)	16:49	16:15	19	10:27 (B093)
7	08:28		10:22 (B093)	07:54		06:59		07:28 (B200)	06:48			05:46		19:25 (B084)	05:07		20:03 (B083)	05:12		20:09 (B083)	05:52		19:36 (B084)	06:42	07:30	08:03 (B200)	07:24	08:12		10:07 (B093)
	16:29	20	10:42 (B093)	17:20		18:10	8	07:36 (B200)	20:03			20:54	20	19:45 (B084)	21:36	23	20:26 (B083)	21:42	23	20:32 (B083)	21:04	19	19:55 (B084)	20:00	18:51	08:14 (B200)	16:48	16:14	21	10:28 (B093)
8	08:28		10:23 (B093)	07:53		06:56		07:27 (B200)	06:46			05:44		19:26 (B084)	05:07		20:02 (B083)	05:13		20:09 (B083)	05:54		19:35 (B084)	06:43	07:32	08:03 (B200)	07:26	08:14		10:08 (B093)
	16:30	19	10:42 (B093)	17:22		18:12	11	07:38 (B200)	20:05			20:55	19	19:45 (B084)	21:37	23	20:25 (B083)	21:41	23	20:32 (B083)	21:02	20	19:55 (B084)	19:57	18:48	08:12 (B200)	16:46	16:14	22	10:30 (B093)
9	08:27		10:24 (B093)	07:51		06:54		07:25 (B200)	06:44			05:43		19:27 (B084)	05:06		20:03 (B083)	05:14		20:09 (B083)	05:56		19:35 (B084)	06:45	07:34	08:07 (B200)	07:28	08:15		10:08 (B093)
	16:31	18	10:42 (B093)	17:23		18:14	12	07:37 (B200)	20:07			20:57	17	19:44 (B084)	21:37	23	20:26 (B083)	21:41	24	20:33 (B083)	21:00	20	19:55 (B084)	19:55	18:46	08:08 (B200)	16:44	16:14	22	10:30 (B093)
10	08:27		10:25 (B093)	07:49		06:52		07:25 (B200)	06:41			05:41		19:27 (B084)	05:06		20:04 (B083)	05:15		20:09 (B083)	05:57		19:34 (B084)	06:47	07:36		07:30	08:16		10:08 (B093)
	16:33	16	10:41 (B093)	17:25		18:16	13	07:38 (B200)	20:09			20:58	16	19:43 (B084)	21:38	23	20:27 (B083)	21:40	24	20:33 (B083)	20:58	21	19:55 (B084)	19:53	18:44		16:43	16:13	27	14:18 (B222)
11	08:26		10:27 (B093)	07:47		06:50		07:25 (B200)	06:39			05:39		19:28 (B084)	05:05		20:03 (B083)	05:16		20:10 (B083)	05:59		19:35 (B084)	06:48	07:37		07:31	08:17		10:07 (B093)
	16:34	14	10:41 (B093)	17:27		18:17	12	07:37 (B200)	20:10			21:00	14	19:42 (B084)	21:39	23	20:26 (B083)	21:39	23	20:33 (B083)	20:57	20	19:55 (B084)	19:50	18:42		16:41	16:13	31	14:20 (B222)
12	08:26		10:29 (B093)	07:46		06:47		07:25 (B200)	06:37			05:38		19:29 (B084)	05:05		20:04 (B083)	05:17		20:10 (B083)	06:00		19:35 (B084)	06:50	07:39	08:33 (B062)	07:33	08:18		10:08 (B093)
	16:36	10	10:39 (B093)	17:29		18:19	11	07:36 (B200)	20:12			21:02	12	19:41 (B084)	21:40	22	20:26 (B083)	21:39	23	20:33 (B083)	20:55	19	19:54 (B084)	19:48	18:39	08:40 (B062)	16:40	16:13	33	14:21 (B222)
13	08:25		10:32 (B093)	07:44		06:45		07:26 (B200)	06:35			05:36		19:32 (B084)	05:05		20:04 (B083)	05:18		20:10 (B083)	06:02		19:35 (B084)	06:51	07:41	08:32 (B062)	07:35	08:19		10:08 (B093)
	16:37	4	10:36 (B093)	17:31		18:21	8	07:34 (B200)	20:14			21:03	7	19:39 (B084)	21:40	23	20:27 (B083)	21:38	23	20:33 (B083)	20:53	19	19:54 (B084)	19:46	18:37	08:42 (B062)	16:38	16:13	37	14:23 (B222)
14	08:24			07:42		06:43			06:33			05:34			05:05		20:05 (B083)	05:19		20:10 (B083)	06:03		19:35 (B084)	06:53	07:42	08:31 (B062)	07:37	08:20		10:08 (B093)
	16:38			17:33		18:23			20:15			21:05			21:41	22	20:27 (B083)	21:37	23	20:33 (B083)	20:51	18	19:53 (B084)	19:44	18:35	08:42 (B062)	16:37	16:13	38	14:24 (B222)
15	08:24			07:40		06:41			06:30			05:33			05:04		20:05 (B083)	05:20		20:10 (B083)	06:05		19:37 (B084)	06:55	07:44	08:31 (B062)	07:38	08:21		10:08 (B093)
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16	08:23			07:38		06:38			06:28			05:31			05:04		20:04 (B083)	05:22		20:11 (B083)	06:07		19:37 (B084)	06:56	07:46	08:31 (B062)	07:40	08:22		10:09 (B093)
	16:41			17:36		18:26			20:19			21:08			21:42	22	20:26 (B083)	21:35	22	20:33 (B083)	20:47	13	19:50 (B084)	19:39	18:31	08:43 (B062)	16:34	16:13	41	14:26 (B222)
17	08:22			07:36		06:36			06:26			05:30			05:04		20:05 (B083)	05:23		20:11 (B083)	06:08		19:40 (B084)	06:58	07:47	08:31 (B062)	07:42	08:23		10:09 (B093)
	16:43			17:38		18:28			20:20			21:09			21:43	22	20:27 (B083)	21:34	21	20:32 (B083)	20:45	8	19:48 (B084)	19:37	18:29	08:41 (B062)	16:32	16:13	41	14:27 (B222)
18	08:21			07:34		06:34			06:24			05:28			05:04		20:05 (B083)	05:24		20:11 (B083)	06:10			07:00	07:49	08:32 (B062)	07:44	08:24		10:10 (B093)
	16:45			17:40		18:30			20:22			21:11			21:43	22	20:27 (B083)	21:33	21	20:32 (B083)	20:43			19:34	18:26	08:40 (B062)	16:31	16:13	41	14:27 (B222)
19	08:20			07:32		06:32			06:22			05:27			05:04		20:06 (B083)	05:25		20:12 (B083)	06:11			07:01	07:51	08:35 (B062)	07:45	08:24		10:11 (B093)
	16:46			17:42		18:31			20:24			21:12			21:44	22	20:28 (B083)	21:32	20	20:32 (B083)	20:41			19:32	18:24	08:37 (B062)	16:30	16:14	41	14:28 (B222)
20	08:19			07:30		06:29			06:20			05:26		20:08 (B083)	05:04		20:06 (B083)	05:26		20:12 (B083)	06:13			07:03	07:53		07:47	08:25		10:10 (B093)
	16:48			17:44		18:33			20:25			21:14	7	20:15 (B083)	21:44	22	20:28 (B083)	21:31	19	20:31 (B083)	20:39			19:30	18:22		16:28	16:14	43	14:28 (B222)
21	08:18			07:28		06:27			06:18			05:24		20:06 (B083)	05:04		20:06 (B083)	05:28		20:13 (B083)	06:15			07:04	07:54		07:49	08:26		10:11 (B093)
	16:50			17:45		18:35			20:27			21:15	11	20:17 (B083)	21:44	22	20:28 (B083)	21:29	18	20:31 (B083)	20:37			19:27	18:20		16:27	16:14	43	14:29 (B222)
22	08:17			07:26		06:25			06:15			05:23		20:05 (B083)	05:04		20:06 (B083)	05:29		20:14 (B083)	06:16			07:06	07:56		07:50	08:26		10:11 (B093)
	16:51			17:47		18:36			20:29			21:17	14	20:19 (B083)	21:44	22	20:28 (B083)	21:28	16	20:30 (B083)	20:35			19:25	18:18		16:26	16:15	43	14:29 (B222)
23	08:16			07:24		06:22			06:13			05:22		20:04 (B083)	05:05		20:06 (B083)	05:30		20:15 (B083)	06:18			07:08	07:58		07:52	08:27		10:12 (B093)
	16:53			17:49		18:38			20:30			21:18	16	20:20 (B083)	21:45	22	20:28 (B083)	21:27	14	20:29 (B083)	20:33			19:23	18:16		16:25	16:15	43	14:30 (B222)
24	08:15			07:22		06:20			06:11			05:20		20:03 (B083)	05:05		20:07 (B083)	05:32		20:16 (B083)	06:19			07:09	08:00		07:54	08:27		10:12 (B093)
	16:55			17:51		18:40			20:32			21:19	18	20:21 (B083)	21:45	22	20:29 (B083)	21:26	11	20:27 (B083)	20:30			19:20	18:14		16:24	16:16	43	14:30 (B222)
25	08:14			07:20	08:01 (B062)	06:18			06:09			05:19		20:03 (B083)	05:05		20:07 (B083)	05:33		20:19 (B083)	06:21			07:11	08:01		07:55	08:28		10:13 (B093)
	16:56			17:53	7 08:08 (B062)	18:42			20:34			21:21	19	20:22 (B083)	21:45	22	20:29 (B083)	21:24	7	20:26 (B083)	20:28			19:18	18:12		16:23	16:16	43	14:31 (B222)
26	08:12			07:18	07:59 (B062)	07:16			06:07			05:18		20:03 (B083)	05:05		20:07 (B083)	05:35			06:23			07:12	08:03		07:57	08:28		10:14 (B093)
	16:58			17:55	10 08:09 (B062)	19:43			20:35			21:22	20	20:23 (B083)	21:45	22	20:29 (B083)	21:23			20:26			19:16	18:10		16:22	16:17	41	14:31 (B222)
27	08:11			07:16	07:58 (B062)	07:13			06:05		19:33 (B084)	05:17		20:02 (B083)	05:06		20:08 (B083)	05:36			06:24			07:14	08:05		07:58	08:28		10:14 (B093)
	17:00			17:56	11 08:10 (B062)	19:45			20:37	7	19:40 (B084)	21:23	21	20:23 (B083)	21:45	22	20:30 (B083)	21:22			20:24			19:13	18:08		16:21	16:18	41	14:31 (B222)
28	08:10			07:14	07:58 (B062)	07:11			06:03		19:30 (B084)	05:16		20:02 (B083)	05:06		20:07 (B083)	05:37			06:26			07:16	08:07		08:00	08:29		10:14 (B093)
	17:02			17:58	11 08:09 (B062)	19:47			20:39	12	19:42 (B084)	21:25	21	20:23 (B083)	21:45	22	20:29 (B083)	21:20			20:22			19:11	18:06		16:20	16:18	41	14:32 (B222)
29	08:08					07:09			06:01		19:29 (B084)	05:15		20:02 (B083)	05:07		20:08 (B083)	05:39			06:27			07:17	07:58		08:01	08:29		10:15 (B093)
	17:03					19:48			20:40	14	19:43 (B084)	21:26	22	20:24 (B083)	21:45	22	20:30 (B083)	21:19			20:20			19:09	17:04		16:19	16:19	41	14:32 (B222)
30	08:07					07:06			05:59		19:28 (B084)	05:14		20:01 (B083)	05:07		20:08 (B083)	05:40			06:29			07:19	07:10		08:03	08:29		10:15 (B093)
	17:05					19:50			20:42	17	19:45 (B084)	21:27	23	20:24 (B083)	21:45	22	20:30 (B083)	21:17			20:17			19:06	17:02		16:18	16:20	40	14:32 (B222)
31	08:05					07:04						05:13		20:01 (B083)				05:42			06:31				07:12			16:19		10:16 (B093)
	17:07					19:52						21:28	23	20:24 (B083)				21:16			20:15				17:00			16:21	38	14:32 (B222)
Sonnenscheinstunden	259			277		366			414			483			497			501			454			382	333		268	245		
astr.max.mögl.Beschattung		268			39			104			50			438			674			514			273			149			1020
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.29			0.17
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95
Reduktion Windrichtung		0.54			0.65			0.66			0.67			0.66			0.65			0.65			0.67			0.66			0.57
Gesamte Reduktion		0.10			0.20			0.18			0.23			0.27			0.21			0.24			0.26			0.18			0.09
Met.wahrsch.Beschattung		26			8			19			12			118			140			123			70			27			94

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO097 - Ecke 2, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September			Oktober			November			Dezember		
1	08:29		10:26 (B093)	08:04			07:12		08:03 (B062)	07:02			05:57		19:22 (B084)	05:12		19:57 (B083)	05:08		20:06 (B083)	05:43			06:32			07:21			07:14			08:04		
	16:22	20	10:46 (B093)	17:09			18:00	9	08:12 (B062)	19:53			20:44	20	19:42 (B084)	21:29	23	20:20 (B083)	21:44	17	20:23 (B083)	21:14			20:13			19:04			16:58			16:18		
2	08:29		10:27 (B093)	08:03			07:10		08:05 (B062)	07:00			05:55		19:22 (B084)	05:11		19:57 (B083)	05:09		20:05 (B083)	05:45			06:34			07:22			07:15			08:06		
	16:23	19	10:46 (B093)	17:11			18:02	5	08:10 (B062)	19:55			20:45	19	19:41 (B084)	21:31	23	20:20 (B083)	21:44	18	20:23 (B083)	21:12			20:11			19:02			16:56			16:17		
3	08:29		10:28 (B093)	08:01			07:07			06:57			05:54		19:22 (B084)	05:10		19:57 (B083)	05:09		20:06 (B083)	05:46			06:35			07:24		08:10 (B200)	07:17			08:07		
	16:24	18	10:46 (B093)	17:12			18:03			19:57			20:47	19	19:41 (B084)	21:32	22	20:19 (B083)	21:44	18	20:24 (B083)	21:11			20:09			19:00	6	08:16 (B200)	16:55			16:16		
4	08:29		10:28 (B093)	07:59			07:05			06:55			05:52		19:22 (B084)	05:09		19:57 (B083)	05:10		20:06 (B083)	05:48			06:37			07:26		08:08 (B200)	07:19			08:08		
	16:25	18	10:46 (B093)	17:14			18:05			19:58			20:49	18	19:40 (B084)	21:33	22	20:19 (B083)	21:43	18	20:24 (B083)	21:09			20:06			18:57	10	08:18 (B200)	16:53			16:16		
5	08:29		10:30 (B093)	07:58			07:03		07:33 (B200)	06:53			05:50		19:23 (B084)	05:09		19:58 (B083)	05:11		20:05 (B083)	05:49		19:40 (B084)	06:39			07:27		08:06 (B200)	07:21		10:20 (B093)	08:10		10:20 (B093)
	16:26	16	10:46 (B093)	17:16			18:07	7	07:40 (B200)	20:00			20:50	17	19:40 (B084)	21:34	21	20:19 (B083)	21:43	19	20:24 (B083)	21:07	3	19:43 (B084)	20:04			18:55	12	08:18 (B200)	16:51	7	10:27 (B093)	16:15	7	10:27 (B093)
6	08:28		10:31 (B093)	07:56			07:01		07:31 (B200)	06:50			05:48		19:23 (B084)	05:08		19:58 (B083)	05:11		20:05 (B083)	05:51		19:36 (B084)	06:40			07:29		08:06 (B200)	07:22		10:19 (B093)	08:11		10:19 (B093)
	16:28	15	10:46 (B093)	17:18			18:09	10	07:41 (B200)	20:02			20:52	16	19:39 (B084)	21:35	21	20:19 (B083)	21:42	20	20:25 (B083)	21:06	9	19:45 (B084)	20:02			18:53	12	08:18 (B200)	16:49	10	10:29 (B093)	16:15	10	10:29 (B093)
7	08:28		10:32 (B093)	07:54			06:59		07:30 (B200)	06:48			05:46		19:24 (B084)	05:07		19:59 (B083)	05:12		20:05 (B083)	05:52		19:35 (B084)	06:42			07:30		08:06 (B200)	07:24		10:18 (B093)	08:12		10:18 (B093)
	16:29	13	10:45 (B093)	17:20			18:10	12	07:42 (B200)	20:03			20:54	14	19:38 (B084)	21:36	20	20:19 (B083)	21:42	20	20:25 (B083)	21:04	13	19:48 (B084)	20:00			18:51	12	08:18 (B200)	16:48	13	10:31 (B093)	16:14	13	10:31 (B093)
8	08:28		10:35 (B093)	07:53			06:56		07:30 (B200)	06:46			05:44		19:26 (B084)	05:07		19:59 (B083)	05:13		20:05 (B083)	05:54		19:33 (B084)	06:43			07:32		08:05 (B200)	07:26		10:18 (B093)	08:14		10:18 (B093)
	16:30	9	10:44 (B093)	17:22			18:12	12	07:42 (B200)	20:05			20:55	11	19:37 (B084)	21:37	20	20:19 (B083)	21:41	21	20:26 (B083)	21:02	15	19:48 (B084)	19:57			18:48	12	08:17 (B200)	16:46		10:33 (B093)	16:14	15	10:33 (B093)
9	08:27		10:37 (B093)	07:51			06:54		07:29 (B200)	06:44			05:43		19:29 (B084)	05:06		20:00 (B083)	05:14		20:05 (B083)	05:56		19:33 (B084)	06:45			07:34		08:06 (B200)	07:28		10:17 (B093)	08:15		10:17 (B093)
	16:31	5	10:42 (B093)	17:23			18:14	12	07:41 (B200)	20:07			20:57	4	19:33 (B084)	21:37	19	20:19 (B083)	21:41	21	20:26 (B083)	21:00	16	19:49 (B084)	19:55			18:46	10	08:16 (B200)	16:44		10:34 (B093)	16:14	17	10:34 (B093)
10	08:27			07:49			06:52		07:29 (B200)	06:41			05:41			05:06		20:01 (B083)	05:15		20:05 (B083)	05:57		19:31 (B084)	06:47			07:35		08:08 (B200)	07:30		10:16 (B093)	08:16		10:17 (B093)
	16:33			17:25			18:16	12	07:41 (B200)	20:08			20:58			21:38	18	20:19 (B083)	21:40	22	20:27 (B083)	20:58	18	19:49 (B084)	19:53			18:44	7	08:15 (B200)	16:43		10:35 (B093)	16:13	18	10:35 (B093)
11	08:26			07:47			06:50		07:31 (B200)	06:39			05:39			05:05		20:01 (B083)	05:16		20:05 (B083)	05:59		19:31 (B084)	06:48			07:37			07:31		10:16 (B093)	08:17		10:16 (B093)
	16:34			17:27			18:17	9	07:40 (B200)	20:10			21:00			21:39	18	20:19 (B083)	21:39	22	20:27 (B083)	20:57	19	19:50 (B084)	19:50			18:42			16:41		10:35 (B093)	16:13	19	10:35 (B093)
12	08:26			07:46			06:47		07:32 (B200)	06:37			05:38			05:05		20:01 (B083)	05:17		20:05 (B083)	06:00		19:30 (B084)	06:50			07:39			07:33		10:16 (B093)	08:18		10:16 (B093)
	16:35			17:29			18:19	5	07:37 (B200)	20:12			21:02			21:40	18	20:19 (B083)	21:39	23	20:28 (B083)	20:55	20	19:50 (B084)	19:48			18:39			16:40		10:36 (B093)	16:13	20	10:36 (B093)
13	08:25			07:44			06:45			06:35			05:36			05:05		20:02 (B083)	05:18		20:05 (B083)	06:02		19:30 (B084)	06:51			07:41		08:39 (B062)	07:35		10:16 (B093)	08:19		10:16 (B093)
	16:37			17:31			18:21			20:14			21:03			21:40	17	20:19 (B083)	21:38	23	20:28 (B083)	20:53	20	19:50 (B084)	19:46			18:37	3	08:42 (B062)	16:38		10:37 (B093)	16:13	21	10:37 (B093)
14	08:24			07:42			06:43			06:33			05:34			05:05		20:03 (B083)	05:19		20:05 (B083)	06:03		19:30 (B084)	06:53			07:42		08:36 (B062)	07:37		10:17 (B093)	08:20		10:17 (B093)
	16:38			17:33			18:23			20:15			21:05			21:41	16	20:19 (B083)	21:37	23	20:28 (B083)	20:51	20	19:50 (B084)	19:44			18:35	9	08:45 (B062)	16:37		10:38 (B093)	16:13	21	10:38 (B093)
15	08:24			07:40			06:41			06:30			05:33		20:05 (B083)	05:04		20:03 (B083)	05:20		20:05 (B083)	06:05		19:30 (B084)	06:55			07:44		08:35 (B062)	07:38		10:17 (B093)	08:21		10:17 (B093)
	16:40			17:34			18:24			20:17			21:06	3	20:08 (B083)	21:42	16	20:19 (B083)	21:36	23	20:28 (B083)	20:49	20	19:50 (B084)	19:41			18:33	11	08:46 (B062)	16:35		10:38 (B093)	16:13	21	10:38 (B093)
16	08:23			07:38			06:38			06:28			05:31		20:02 (B083)	05:04		20:03 (B083)	05:22		20:05 (B083)	06:07		19:30 (B084)	06:56			07:46		08:35 (B062)	07:40		10:17 (B093)	08:22		10:17 (B093)
	16:41			17:36			18:26			20:19			21:08	10	20:12 (B083)	21:42	15	20:18 (B083)	21:35	23	20:28 (B083)	20:47	19	19:49 (B084)	19:39			18:31	12	08:47 (B062)	16:34		10:39 (B093)	16:13	22	10:39 (B093)
17	08:22			07:36			06:36			06:26			05:30		20:00 (B083)	05:04		20:03 (B083)	05:23		20:05 (B083)	06:08		19:31 (B084)	06:58			07:47		08:34 (B062)	07:42		10:18 (B093)	08:23		10:18 (B093)
	16:43			17:38			18:28			20:20			21:09	13	20:13 (B083)	21:43	15	20:18 (B083)	21:34	23	20:28 (B083)	20:45	17	19:48 (B084)	19:37			18:29	12	08:46 (B062)	16:32		10:40 (B093)	16:13	22	10:40 (B093)
18	08:21			07:34			06:34			06:24			05:28		19:59 (B083)	05:04		20:04 (B083)	05:24		20:05 (B083)	06:10		19:31 (B084)	07:00			07:49		08:34 (B062)	07:44		10:18 (B093)	08:24		10:18 (B093)
	16:45			17:40			18:30			20:22			21:11	16	20:15 (B083)	21:43	14	20:18 (B083)	21:33	23	20:28 (B083)	20:43	16	19:47 (B084)	19:34			18:26	11	08:45 (B062)	16:31		10:41 (B093)	16:13	23	10:41 (B093)
19	08:20			07:32			06:32			06:22			05:27		19:58 (B083)	05:04		20:05 (B083)	05:25		20:05 (B083)	06:11		19:32 (B084)	07:01			07:51		08:35 (B062)	07:45		10:19 (B093)	08:24		10:19 (B093)
	16:46			17:42			18:31			20:24			21:12	18	20:16 (B083)	21:44	14	20:19 (B083)	21:32	23	20:28 (B083)	20:41	14	19:46 (B084)	19:32			18:24	10	08:45 (B062)	16:30		10:42 (B093)	16:14	23	10:42 (B093)
20	08:19			07:30			06:29			06:20			05:26		19:57 (B083)	05:04		20:05 (B083)	05:26		20:05 (B083)	06:13		19:34 (B084)	07:03			07:53		08:36 (B062)	07:47		10:18 (B093)	08:25		10:18 (B093)
	16:48			17:44			18:33			20:25			21:14	19	20:16 (B083)	21:44	14	20:19 (B083)	21:31	23	20:28 (B083)	20:39	9	19:43 (B084)	19:30			18:22	7	08:43 (B062)	16:28		10:42 (B093)	16:14	24	10:42 (B093)
21	08:18			07:28			06:27			06:18			05:24		19:57 (B083)	05:04		20:05 (B083)	05:28		20:06 (B083)	06:15			07:04			07:54			07:49		10:19 (B093)	08:26		10:19 (B093)
	16:50			17:45			18:35			20:27			21:15	20	20:17 (B083)	21:44	15	20:20 (B083)	21:29	22	20:28 (B083)	20:37			19:27			18:20			16:27		10:43 (B093)	16:14	24	10:43 (B093)
22	08:17			07:26			06:25			06:15			05:23		19:56 (B083)	05:04		20:05 (B083)	05:29		20:06 (B083)	06:16			07:06			07:56			07:50		10:19 (B093)	08:26		10:19 (B093)
	16:51			17:47			18:36			20:29			21:17	21	20:17 (B083)	21:44	15	20:20 (B083)	21:28	22	20:28 (B083)	20:35			19:25			18:18			16:26		10:43 (B093)	16:15	24	10:43 (B093)
23	08:16			07:24		08:05 (B062)	06:22			06:13			05:22		19:56 (B083)	05:05		20:05 (B083)	05:30		20:06 (B083)	06:18			07:08			07:58			07:52		10:20 (B093)	08:27		10:20 (B093)
	16:53			17:49	6	08:11 (B062)	18:38			20:30			21:18	22	20:18 (B083)	21:45	15	20:20 (B083)	21:27	21	20:27 (B083)	20:33			19:23			18:16			16:25		10:44 (B093)	16:15	24	10:44 (B093)
24	08:15			07:22		08:04 (B062)	06:20			06:11		19:29 (B084)	05:20		19:56 (B083)	05:05		20:06 (B083)	05:32		20:07 (B083)	06:19			07:09			08:00			07:54		10:20 (B093)	08:27		10:20 (B093)
	16:55			17:51	9	08:13 (B062)	18:40			20:32	8	19:37 (B084)	21:19	22	20:18 (B083)	21:45	14	20:20 (B083)	21:26	20	20:27 (B083)	20:30			19:20			18:14			16:24		10:44 (B093)	16:16	24	10:44 (B093)
25	08:14			07:20		08:03 (B062)	06:18			06:09		19:26 (B084)	05:19		19:56 (B083)	05:05		20:06 (B083)	05:33		20:08 (B083)	06:21			07:11			08:01			07:55		10:22 (B093)	08:28		10:22 (B093)
	16:56			17:53	11	08:14 (B062)	18:42			20:34	13	19:39 (B084)	21:21	23	20:19 (B083)	21:45	14	20:20 (B083)	21:24	19	20:27 (B083)	20:28			19:18			18:12			16:23		10:45 (B093)	16:16	23	10:45 (B093)
26	08:12			07:18		08:02 (B062)	07:16			06:07		19:25 (B084)	05:18		19:56 (B083)	05:05		20:06 (B083)	05:35		20:08 (B083)	06:23			07:12			08:03			07:57		10:22 (B093)	08:28		10:22 (B093)
	16:58			17:54	12	08:14 (B062)	19:43			20:35	15	19:40 (B084)	21:22	23	20:19 (B083)	21:45	14	20:20 (B083)	21:23	18	20:26 (B083)	20:26			19:16			18:10			16:22		10:45 (B093)	16:17	23	10:45 (B093)
27	08:11			07:16		08:02 (B062)	07:13			06:05		19:24 (B084)	05:17		19:56 (B083)	05:06		20:06 (B083)	05:36		20:09 (B083)	06:24			07:14			08:05			07:58		10:22 (B093)	08:28		10:22 (B093)
	17:00			17:56	12	08:14 (B062)	19:45			20:37	17	19:41 (B084)	21:23	23	20:19 (B083)	21:45	15	20:21 (B083)	21:22	16	20:25 (B083)	20:24			19:13			18:08			16:21		10:45 (B093)	16:18	23	10:45 (B093)
28	08:10			07:14		08:02 (B062)	07:11			06:03		19:23 (B084)	05:16		19:56 (B083)	05:06		20:06 (B083)	05:37		20:11 (B083)	06:26			07:16			08:07			08:00		10:23 (B093)	08:29		10:23 (B093)
	17:02			17:58	11	08:13 (B062)	19:47			20:39	18	19:41 (B084)	21:25	23	20:19 (B083)	21:45	15	20:21 (B083)	21:20	13	20:24 (B083)	20:22			19:11			18:06			16:20		10:45 (B093)	16:18	22	10:45 (B093)
29	08:08						07:09			06:01		19:22 (B084)	05:15		19:56 (B083)	05:07		20:06 (B083)	05:39		20:12 (B083)	06:27			07:17			07:08			08:01		10:23 (B093)	08:29		
	17:03						19:48			20:40	19	19:41 (B084)	21:26	23	20:19 (B083)	21:45	16	20:22 (B083)	21:19	10	20:22 (B083)	20:20			19:09			17:04			16:19		10:45 (B093)	16:19	22	10:45 (B093)
30	08:07						07:06			05:59		19:22 (B084)	05:14		19:56 (B083)	05:07		20:06 (B083)	05:40		20:15 (B083)	06:29			07:19			07:10			08:03		10:24 (B093)	08:29		
	17:05						19:50			20:42	20	19:42 (B084)	21:27	23	20:19 (B083)	21:45	16	20:22 (B083)	21:17	4	20:19 (B083)	20:17			19:06			17:02			16:18		10:45 (B093)	16:20	21	10:45 (B093)
31	08:05						07:04						05:13		19:56 (B083)					05:42			06:31			07:12						08:29		10:25 (B093)			
	17:07						19:52						21:28	23	20:19 (B083)					21:16			20:15			17:00						16:21	21	10:46 (B093)			
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382			333			268			245		
astr.max.mögl.Beschattung		133			61			93			110			463			515			588			248			156				547					
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40			0.29				0.17					
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95				0.95					
Reduktion Windrichtung		0.53			0.65			0.66			0.68			0.66			0.65			0.65			0.68			0.66				0.53					
Gesamte Reduktion		0.09			0.20			0.18			0.24			0.27			0.21			0.24			0.26			0.18				0.08					
Met.wahrsch.Beschattung		13			12			17			26			125			107			141			65			28				46					

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO098 - Ecke 3, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September	Oktober		November	Dezember	
1	08:29		10:17 (B093)	08:04			07:12		07:59 (B062)	07:02			05:57		19:26 (B084)	05:12		20:01 (B083)	05:08		20:07 (B083)	05:43			06:32	07:21		07:14	08:04		10:14 (B093)
	16:22	32	14:29 (B222)	17:09			18:00	11	08:10 (B062)	19:53			20:44	19	19:45 (B084)	21:29	23	20:24 (B083)	21:44	23	20:30 (B083)	21:14			20:13	19:04		16:58	16:18	3	10:17 (B093)
2	08:29		10:18 (B093)	08:03			07:10		07:59 (B062)	07:00			05:55		19:25 (B084)	05:11		20:01 (B083)	05:09		20:07 (B083)	05:45		19:41 (B084)	06:34	07:22	08:07 (B200)	07:15	08:06		10:11 (B093)
	16:23	29	14:28 (B222)	17:11			18:02	10	08:09 (B062)	19:55			20:45	20	19:45 (B084)	21:31	23	20:24 (B083)	21:44	22	20:29 (B083)	21:12	8	19:49 (B084)	20:11	19:02	08:13 (B200)	16:56	16:17	9	10:20 (B093)
3	08:29		10:19 (B093)	08:01			07:07		08:01 (B062)	06:57			05:54		19:24 (B084)	05:10		20:00 (B083)	05:09		20:07 (B083)	05:46		19:38 (B084)	06:35	07:24	08:05 (B200)	07:17	08:07		10:10 (B093)
	16:24	23	10:42 (B093)	17:12			18:03	6	08:07 (B062)	19:57			20:47	21	19:45 (B084)	21:32	24	20:24 (B083)	21:44	23	20:30 (B083)	21:11	13	19:51 (B084)	20:09	19:00	08:15 (B200)	16:55	16:16	13	10:23 (B093)
4	08:29		10:19 (B093)	07:59			07:05			06:55			05:52		19:24 (B084)	05:09		20:00 (B083)	05:10		20:08 (B083)	05:48		19:37 (B084)	06:37	07:26	08:04 (B200)	07:19	08:08		10:09 (B093)
	16:25	22	10:41 (B093)	17:14			18:05			19:58			20:49	20	19:44 (B084)	21:33	24	20:24 (B083)	21:43	22	20:30 (B083)	21:09	14	19:51 (B084)	20:06	18:57	08:16 (B200)	16:53	16:16	15	10:24 (B093)
5	08:29		10:20 (B093)	07:58			07:03			06:53			05:50		19:25 (B084)	05:09		20:01 (B083)	05:11		20:07 (B083)	05:49		19:36 (B084)	06:39	07:27	08:03 (B200)	07:21	08:10		10:09 (B093)
	16:26	22	10:42 (B093)	17:16			18:07			20:00			20:50	20	19:45 (B084)	21:34	24	20:25 (B083)	21:43	23	20:30 (B083)	21:07	17	19:53 (B084)	20:04	18:55	08:15 (B200)	16:51	16:15	17	10:26 (B093)
6	08:28		10:22 (B093)	07:56			07:01		07:30 (B200)	06:50			05:48		19:24 (B084)	05:08		20:01 (B083)	05:11		20:07 (B083)	05:51		19:35 (B084)	06:40	07:29	08:03 (B200)	07:22	08:11		10:08 (B093)
	16:28	20	10:42 (B093)	17:18			18:09	6	07:36 (B200)	20:02			20:52	20	19:44 (B084)	21:35	23	20:24 (B083)	21:42	23	20:30 (B083)	21:06	18	19:53 (B084)	20:02	18:53	08:15 (B200)	16:49	16:15	19	10:27 (B093)
7	08:28		10:22 (B093)	07:54			06:59		07:28 (B200)	06:48			05:46		19:24 (B084)	05:07		20:02 (B083)	05:12		20:08 (B083)	05:52		19:35 (B084)	06:42	07:30	08:03 (B200)	07:24	08:12		10:08 (B093)
	16:29	19	10:41 (B093)	17:20			18:10	10	07:38 (B200)	20:03			20:54	20	19:44 (B084)	21:36	23	20:25 (B083)	21:42	23	20:31 (B083)	21:04	19	19:54 (B084)	20:00	18:51	08:15 (B200)	16:48	16:14	19	10:27 (B093)
8	08:28		10:24 (B093)	07:53			06:56		07:27 (B200)	06:46			05:44		19:26 (B084)	05:07		20:01 (B083)	05:13		20:08 (B083)	05:54		19:34 (B084)	06:43	07:32	08:03 (B200)	07:26	08:14		10:08 (B093)
	16:30	18	10:42 (B093)	17:22			18:12	12	07:39 (B200)	20:05			20:55	18	19:44 (B084)	21:37	24	20:25 (B083)	21:41	23	20:31 (B083)	21:02	20	19:54 (B084)	19:57	18:48	08:13 (B200)	16:46	16:14	21	10:29 (B093)
9	08:27		10:25 (B093)	07:51			06:54		07:26 (B200)	06:44			05:43		19:26 (B084)	05:06		20:02 (B083)	05:14		20:08 (B083)	05:56		19:34 (B084)	06:45	07:34	08:05 (B200)	07:28	08:15		10:08 (B093)
	16:31	16	10:41 (B093)	17:23			18:14	12	07:38 (B200)	20:07			20:57	17	19:43 (B084)	21:37	23	20:25 (B083)	21:41	24	20:32 (B083)	21:00	20	19:54 (B084)	19:55	18:46	08:11 (B200)	16:44	16:14	22	10:30 (B093)
10	08:27		10:26 (B093)	07:49			06:52		07:26 (B200)	06:41			05:41		19:26 (B084)	05:06		20:03 (B083)	05:15		20:08 (B083)	05:57		19:33 (B084)	06:47	07:36		07:30	08:16		10:08 (B093)
	16:33	14	10:40 (B093)	17:25			18:16	12	07:38 (B200)	20:09			20:58	15	19:41 (B084)	21:38	22	20:25 (B083)	21:40	24	20:32 (B083)	20:58	21	19:54 (B084)	19:53	18:44		16:43	16:13	22	10:30 (B093)
11	08:26		10:28 (B093)	07:47			06:50		07:26 (B200)	06:39			05:39		19:28 (B084)	05:05		20:02 (B083)	05:16		20:08 (B083)	05:59		19:34 (B084)	06:48	07:37		07:31	08:17		10:08 (B093)
	16:34	12	10:40 (B093)	17:27			18:17	12	07:38 (B200)	20:10			21:00	13	19:41 (B084)	21:39	23	20:25 (B083)	21:39	24	20:32 (B083)	20:57	20	19:54 (B084)	19:50	18:42		16:41	16:13	25	14:16 (B222)
12	08:26		10:30 (B093)	07:46			06:47		07:26 (B200)	06:37			05:38		19:29 (B084)	05:05		20:03 (B083)	05:17		20:09 (B083)	06:00		19:33 (B084)	06:50	07:39	08:35 (B062)	07:33	08:18		10:08 (B093)
	16:36	8	10:38 (B093)	17:29			18:19	10	07:36 (B200)	20:12			21:02	9	19:38 (B084)	21:40	22	20:25 (B083)	21:39	23	20:32 (B083)	20:55	20	19:53 (B084)	19:48	18:39	5	08:40 (B062)	16:40	16:13	30	14:19 (B222)
13	08:25			07:44			06:45		07:28 (B200)	06:35			05:36			05:05		20:03 (B083)	05:18		20:09 (B083)	06:02		19:34 (B084)	06:51	07:41		08:33 (B062)	07:35	08:19		10:08 (B093)
	16:37			17:31			18:21	6	07:34 (B200)	20:14			21:03			21:40	23	20:26 (B083)	21:38	23	20:32 (B083)	20:53	19	19:53 (B084)	19:46	18:37	9	08:42 (B062)	16:38	16:13	32	14:20 (B222)
14	08:24			07:42			06:43			06:33			05:34			05:05		20:04 (B083)	05:19		20:09 (B083)	06:03		19:34 (B084)	06:53	07:42		08:32 (B062)	07:37	08:20		10:08 (B093)
	16:38			17:33			18:23			20:15			21:05			21:41	22	20:26 (B083)	21:37	23	20:32 (B083)	20:51	18	19:52 (B084)	19:44	18:35	11	08:43 (B062)	16:37	16:13	35	14:21 (B222)
15	08:24			07:40			06:41			06:30			05:33			05:04		20:04 (B083)	05:20		20:09 (B083)	06:05		19:35 (B084)	06:55	07:44		08:31 (B062)	07:38	08:21		10:08 (B093)
	16:40			17:34			18:24			20:17			21:06			21:42	22	20:26 (B083)	21:36	23	20:32 (B083)	20:49	16	19:51 (B084)	19:41	18:33	12	08:43 (B062)	16:35	16:13	36	14:22 (B222)
16	08:23			07:38			06:38			06:28			05:31			05:04		20:04 (B083)	05:22		20:09 (B083)	06:07		19:35 (B084)	06:56	07:46		08:31 (B062)	07:40	08:22		10:09 (B093)
	16:41			17:36			18:26			20:19			21:08			21:42	21	20:25 (B083)	21:35	23	20:32 (B083)	20:47	15	19:50 (B084)	19:39	18:31	12	08:43 (B062)	16:34	16:13	38	14:24 (B222)
17	08:22			07:36			06:36			06:26			05:30			05:04		20:04 (B083)	05:23		20:10 (B083)	06:08		19:37 (B084)	06:58	07:47		08:31 (B062)	07:42	08:23		10:09 (B093)
	16:43			17:38			18:28			20:20			21:09			21:43	22	20:26 (B083)	21:34	22	20:32 (B083)	20:45	11	19:48 (B084)	19:37	18:29	11	08:42 (B062)	16:32	16:13	39	14:24 (B222)
18	08:21			07:34			06:34			06:24			05:28			05:04		20:04 (B083)	05:24		20:10 (B083)	06:10		19:40 (B084)	07:00	07:49		08:32 (B062)	07:44	08:24		10:10 (B093)
	16:45			17:40			18:30			20:22			21:11			21:43	22	20:26 (B083)	21:33	21	20:31 (B083)	20:43	5	19:45 (B084)	19:34	18:26	9	08:41 (B062)	16:31	16:13	39	14:25 (B222)
19	08:20			07:32			06:32			06:22			05:27		20:09 (B083)	05:04		20:05 (B083)	05:25		20:10 (B083)	06:11			07:01	07:51		08:34 (B062)	07:45	08:24		10:11 (B093)
	16:46			17:42			18:31			20:24			21:12	4	20:13 (B083)	21:44	22	20:27 (B083)	21:32	21	20:31 (B083)	20:41			19:32	18:24	5	08:39 (B062)	16:30	16:14	40	14:26 (B222)
20	08:19			07:30			06:29			06:20			05:26		20:05 (B083)	05:04		20:06 (B083)	05:26		20:11 (B083)	06:13			07:03	07:53			07:47	08:25		10:10 (B093)
	16:48			17:44			18:33			20:25			21:14	10	20:15 (B083)	21:44	21	20:27 (B083)	21:31	19	20:30 (B083)	20:39			19:30	18:22			16:28	16:14	40	14:26 (B222)
21	08:18			07:28			06:27			06:18			05:24		20:04 (B083)	05:04		20:06 (B083)	05:28		20:12 (B083)	06:15			07:04	07:54			07:49	08:26		10:11 (B093)
	16:50			17:45			18:35			20:27			21:15	13	20:17 (B083)	21:44	21	20:27 (B083)	21:29	19	20:31 (B083)	20:37			19:27	18:20			16:27	16:14	40	14:27 (B222)
22	08:17			07:26			06:25			06:15			05:23		20:03 (B083)	05:04		20:06 (B083)	05:29		20:12 (B083)	06:16			07:06	07:56			07:50	08:26		10:11 (B093)
	16:51			17:47			18:36			20:29			21:17	16	20:19 (B083)	21:44	21	20:27 (B083)	21:28	18	20:30 (B083)	20:35			19:25	18:18			16:26	16:15	40	14:27 (B222)
23	08:16			07:24			06:22			06:13			05:22		20:02 (B083)	05:05		20:06 (B083)	05:30		20:13 (B083)	06:18			07:08	07:58			07:52	08:27		10:12 (B093)
	16:53			17:49			18:38			20:30			21:18	18	20:20 (B083)	21:45	21	20:27 (B083)	21:27	16	20:29 (B083)	20:33			19:23	18:16			16:25	16:15	40	14:28 (B222)
24	08:15			07:22	08:03 (B062)	06:20				06:11			05:20		20:02 (B083)	05:05		20:07 (B083)	05:32		20:14 (B083)	06:19			07:09	08:00			07:54	08:27		10:12 (B093)
	16:55			17:51	4 08:07 (B062)	18:40				20:32			21:19	19	20:21 (B083)	21:45	21	20:28 (B083)	21:26	13	20:27 (B083)	20:30			19:20	18:14			16:24	16:16	40	14:28 (B222)
25	08:14			07:20	08:01 (B062)	06:18				06:09			05:19		20:02 (B083)	05:05		20:06 (B083)	05:33		20:16 (B083)	06:21			07:11	08:01			07:55	08:28		10:13 (B093)
	16:56			17:53	8 08:09 (B062)	18:42				20:34			21:21	19	20:21 (B083)	21:45	22	20:28 (B083)	21:24	11	20:27 (B083)	20:28			19:18	18:12			16:23	16:16	40	14:29 (B222)
26	08:12			07:18	08:00 (B062)	07:16				06:07			05:18		20:01 (B083)	05:05		20:06 (B083)	05:35		20:19 (B083)	06:23			07:12	08:03			07:57	08:28		10:14 (B093)
	16:58			17:55	10 08:10 (B062)	19:43				20:35			21:22	21	20:22 (B083)	21:45	22	20:28 (B083)	21:23	5	20:24 (B083)	20:26			19:16	18:10			16:22	16:17	40	14:29 (B222)
27	08:11			07:16	07:59 (B062)	07:13				06:05		19:30 (B084)	05:17		20:01 (B083)	05:06		20:07 (B083)	05:36			06:24			07:14	08:05			07:58	08:28		10:14 (B093)
	17:00			17:56	12 08:11 (B062)	19:45				20:37	10	19:40 (B084)	21:23	21	20:22 (B083)	21:45	22	20:29 (B083)	21:22			20:24			19:13	18:08			16:21	16:18	39	14:29 (B222)
28	08:10			07:14	07:58 (B062)	07:11				06:03		19:28 (B084)	05:16		20:01 (B083)	05:06		20:07 (B083)	05:37			06:26			07:16	08:07			08:00	08:29		10:14 (B093)
	17:02			17:58	12 08:10 (B062)	19:47				20:39	14	19:42 (B084)	21:25	22	20:23 (B083)	21:45	21	20:28 (B083)	21:20			20:22			19:11	18:06			16:20	16:18	39	14:29 (B222)
29	08:08					07:09				06:01		19:27 (B084)	05:15		20:00 (B083)	05:07		20:07 (B083)	05:39			06:27			07:17	07:08			08:01	08:29		10:15 (B093)
	17:03					19:48				20:40	16	19:43 (B084)	21:26	23	20:23 (B083)	21:45	22	20:29 (B083)	21:19			20:20			19:09	17:04			16:19	16:19	38	14:30 (B222)
30	08:07					07:06				05:59		19:27 (B084)	05:14		20:00 (B083)	05:07		20:07 (B083)	05:40			06:29			07:19	07:10			08:03	08:29		10:15 (B093)
	17:05					19:50				20:42	17	19:44 (B084)	21:27	23	20:23 (B083)	21:45	22	20:29 (B083)	21:17			20:17			19:06	17:02			16:18	16:20	37	14:29 (B222)
31	08:05					07:04							05:13		20:00 (B083)				05:42			06:31				07:12				08:29		10:16 (B093)
	17:07					19:52							21:28	23	20:23 (B083)				21:16			20:15				17:00				16:21	35	14:29 (B222)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382	333		268	245	
astr.max.mögl.Beschattung		235			46			107			57			444			668			534			274				154			942	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40				0.29			0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95				0.95			0.95	
Reduktion Windrichtung		0.54			0.65			0.66			0.68			0.66			0.65			0.65			0.68				0.66			0.56	
Gesamte Reduktion		0.10			0.20			0.18			0.23			0.27			0.21			0.24			0.26				0.18			0.09	
Met.wahrsch.Beschattung		23			9			19			13			120			139			128			71				28			86	

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO099 - Ecke 6, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar			Februar			März			April			Mai			Juni			Juli			August			September		Oktober			November		Dezember		
1	08:29			10:22 (B093)	08:04		07:12		08:05 (B062)	07:02			05:57		19:18 (B084)	05:12		19:55 (B083)	05:08		20:04 (B083)	05:43			06:32		07:21			07:14		08:04		
	16:22	20		10:42 (B093)	17:09		18:00	6	08:11 (B062)	19:53			20:44	21	19:39 (B084)	21:29	23	20:18 (B083)	21:44	33	20:58 (WEA03)	21:14			20:13		19:04			16:58		16:18		
2	08:29			10:23 (B093)	08:03		07:10			19:53			05:55		19:18 (B084)	05:11		19:55 (B083)	05:09		20:03 (B083)	05:45			06:34		07:22			07:15		08:06		
	16:23	19		10:42 (B093)	17:11		18:02			19:55			20:45	20	19:38 (B084)	21:31	23	20:18 (B083)	21:44	33	20:57 (WEA03)	21:12			20:11		19:02			16:56		16:17		
3	08:29			10:24 (B093)	08:01		07:07			06:57			05:54		19:18 (B084)	05:10		19:55 (B083)	05:09		20:03 (B083)	05:46			06:35		07:24			07:17		08:07		
	16:24	18		10:42 (B093)	17:12		18:03			19:57			20:47	20	19:38 (B084)	21:32	22	20:17 (B083)	21:44	33	20:57 (WEA03)	21:11			20:09		19:00			16:55		16:16		
4	08:29			10:25 (B093)	07:59		07:05		07:35 (B200)	06:55			05:52		19:19 (B084)	05:09		19:55 (B083)	05:10		20:03 (B083)	05:48			06:37		07:26	08:12 (B200)		07:19		08:09		
	16:25	16		10:41 (B093)	17:14		18:05	6	07:41 (B200)	19:58			20:49	18	19:37 (B084)	21:33	22	20:17 (B083)	21:43	32	20:57 (WEA03)	21:09			20:06		18:57	5 08:17 (B200)		16:53		16:16		
5	08:29			10:26 (B093)	07:58		07:03		07:32 (B200)	06:53			05:50		19:20 (B084)	05:09		19:56 (B083)	05:11		20:03 (B083)	05:49			06:39		07:27	08:09 (B200)		07:21		08:10		10:18 (B093)
	16:26	15		10:41 (B093)	17:16		18:07	10	07:42 (B200)	20:00			20:50	17	19:37 (B084)	21:34	22	20:18 (B083)	21:43	29	20:55 (WEA03)	21:07			20:04		18:55	9 08:18 (B200)		16:51	4	16:15	4	10:22 (B093)
6	08:28			10:28 (B093)	07:56		07:01		07:32 (B200)	06:50			05:48		19:21 (B084)	05:08		19:56 (B083)	05:11		20:03 (B083)	05:51		19:35 (B084)	06:40		07:29	08:08 (B200)		07:22		08:11		10:16 (B093)
	16:28	13		10:41 (B093)	17:18		18:09	11	07:43 (B200)	20:02			20:52	14	19:35 (B084)	21:35	21	20:17 (B083)	21:42	29	20:55 (WEA03)	21:06	5	19:40 (B084)	20:02		18:53	11 08:19 (B200)		16:49		16:15	9	10:25 (B093)
7	08:28			10:29 (B093)	07:54		06:59		07:31 (B200)	06:48			05:46		19:22 (B084)	05:07		19:57 (B083)	05:12		20:03 (B083)	05:52		19:32 (B084)	06:42		07:30	08:07 (B200)		07:24		08:12		10:14 (B093)
	16:29	11		10:40 (B093)	17:20		18:10	12	07:43 (B200)	20:03			20:54	11	19:33 (B084)	21:36	27	20:48 (WEA03)	21:42	27	20:54 (WEA03)	21:04	11	19:43 (B084)	20:00		18:51	12 08:19 (B200)		16:48		16:14	12	10:26 (B093)
8	08:28			10:32 (B093)	07:53		06:56		07:31 (B200)	06:46			05:44		19:25 (B084)	05:07		19:57 (B083)	05:13		20:03 (B083)	05:54		19:30 (B084)	06:43		07:32	08:06 (B200)		07:26		08:14		10:14 (B093)
	16:30	7		10:39 (B093)	17:22		18:12	12	07:43 (B200)	20:05			20:55	7	19:32 (B084)	21:37	29	20:49 (WEA03)	21:41	21	20:24 (B083)	21:02	14	19:44 (B084)	19:57		18:48	13 08:19 (B200)		16:46		16:14	14	10:28 (B093)
9	08:27				07:51		06:54		07:31 (B200)	06:44			05:43			05:06		19:58 (B083)	05:14		20:03 (B083)	05:56		19:30 (B084)	06:45		07:34	08:07 (B200)		07:28		08:15		10:14 (B093)
	16:31				17:23		18:14	11	07:42 (B200)	20:07			20:57			21:37	30	20:51 (WEA03)	21:41	22	20:25 (B083)	21:00	16	19:46 (B084)	19:55		18:46	11 08:18 (B200)		16:44		16:14	15	10:29 (B093)
10	08:27				07:49		06:52		07:32 (B200)	06:41			05:41			05:06		19:58 (B083)	05:15		20:03 (B083)	05:57		19:28 (B084)	06:47		07:36	08:07 (B200)		07:30		08:16		10:13 (B093)
	16:33				17:25		18:16	9	07:41 (B200)	20:09			20:58			21:38	32	20:52 (WEA03)	21:40	22	20:25 (B083)	20:58	18	19:46 (B084)	19:53		18:44	10 08:17 (B200)		16:43		16:13	17	10:30 (B093)
11	08:26				07:47		06:50		07:34 (B200)	06:39			05:39			05:05		19:58 (B083)	05:16		20:03 (B083)	05:59		19:28 (B084)	06:48		07:37	08:09 (B200)		07:31		08:17		10:13 (B093)
	16:34				17:27		18:17	5	07:39 (B200)	20:10			21:00			21:39	33	20:52 (WEA03)	21:39	22	20:25 (B083)	20:57	19	19:47 (B084)	19:50		18:42	7 08:16 (B200)		16:41		16:13	18	10:31 (B093)
12	08:26				07:46		06:47			06:37			05:38			05:05		19:59 (B083)	05:17		20:03 (B083)	06:00		19:27 (B084)	06:50		07:39			07:33		08:18		10:13 (B093)
	16:36				17:29		18:19			20:12			21:02			21:40	33	20:53 (WEA03)	21:39	23	20:26 (B083)	20:55	20	19:47 (B084)	19:48		18:39			16:40		16:13	19	10:32 (B093)
13	08:25				07:44		06:45			06:35			05:36			05:05		20:00 (B083)	05:18		20:03 (B083)	06:02		19:27 (B084)	06:51		07:41			07:35		08:19		10:13 (B093)
	16:37				17:31		18:21			20:14			21:03			21:40	33	20:54 (WEA03)	21:38	23	20:26 (B083)	20:53	20	19:47 (B084)	19:46		18:37			16:38		16:13	20	10:32 (B093)
14	08:24				07:42		06:43			06:33			05:34			05:05		20:00 (B083)	05:19		20:03 (B083)	06:03		19:26 (B084)	06:53		07:42		08:39 (B062)	07:37		08:20		10:13 (B093)
	16:38				17:33		18:23			20:15			21:05			21:41	32	20:54 (WEA03)	21:37	23	20:26 (B083)	20:51	21	19:47 (B084)	19:44		18:35	5 08:44 (B062)		16:37		16:13	20	10:33 (B093)
15	08:24				07:40		06:41			06:30			05:33		20:01 (B082)	05:04		20:01 (B083)	05:20		20:03 (B083)	06:05		19:27 (B084)	06:55		07:44		08:37 (B062)	07:38		08:21		10:13 (B093)
	16:40				17:34		18:24			20:17			21:06	7	20:08 (B083)	21:42	33	20:55 (WEA03)	21:36	23	20:26 (B083)	20:49	20	19:47 (B084)	19:41		18:33	9 08:46 (B062)		16:35		16:13	21	10:34 (B093)
16	08:23				07:38		06:38			06:28			05:31		19:59 (B083)	05:04		20:00 (B083)	05:22		20:03 (B083)	06:07		19:26 (B084)	06:56		07:46		08:36 (B062)	07:40		08:22		10:14 (B093)
	16:41				17:36		18:26			20:19			21:08	12	20:11 (B083)	21:42	34	20:55 (WEA03)	21:35	23	20:26 (B083)	20:47	20	19:46 (B084)	19:39		18:31	11 08:47 (B062)		16:34		16:13	21	10:35 (B093)
17	08:22				07:36		06:36			06:26			05:30		19:57 (B083)	05:04		20:01 (B083)	05:23		20:03 (B083)	06:08		19:27 (B084)	06:58		07:47		08:34 (B062)	07:42		08:23		10:14 (B093)
	16:43				17:38		18:28			20:20			21:09	15	20:12 (B083)	21:43	33	20:55 (WEA03)	21:34	23	20:26 (B083)	20:45	19	19:46 (B084)	19:37		18:29	12 08:46 (B062)		16:32		16:13	22	10:36 (B093)
18	08:21				07:34		06:34			06:24			05:28		19:56 (B083)	05:04		20:01 (B083)	05:24		20:03 (B083)	06:10		19:27 (B084)	07:00		07:49		08:34 (B062)	07:44		08:24		10:15 (B093)
	16:45				17:40		18:30			20:22			21:11	17	20:13 (B083)	21:43	33	20:55 (WEA03)	21:33	23	20:26 (B083)	20:43	17	19:44 (B084)	19:34		18:26	12 08:46 (B062)		16:31		16:13	22	10:37 (B093)
19	08:20				07:32		06:32			06:22			05:27		19:56 (B083)	05:04		20:02 (B083)	05:25		20:03 (B083)	06:11		19:28 (B084)	07:01		07:51		08:35 (B062)	07:45		08:24		10:15 (B093)
	16:46				17:42		18:31			20:24			21:12	18	20:14 (B083)	21:44	34	20:57 (WEA03)	21:32	23	20:26 (B083)	20:41	16	19:44 (B084)	19:32		18:24	11 08:46 (B062)		16:30		16:14	23	10:38 (B093)
20	08:19				07:30		06:29			06:20			05:26		19:54 (B083)	05:04		20:03 (B083)	05:26		20:03 (B083)	06:13		19:28 (B084)	07:03		07:53		08:36 (B062)	07:47		08:25		10:15 (B093)
	16:48				17:44		18:33			20:25			21:14	20	20:14 (B083)	21:44	33	20:57 (WEA03)	21:31	23	20:26 (B083)	20:39	14	19:42 (B084)	19:30		18:22	9 08:45 (B062)		16:28		16:14	22	10:37 (B093)
21	08:18				07:28		06:27			06:18			05:24		19:54 (B083)	05:04		20:03 (B083)	05:28		20:04 (B083)	06:15		19:30 (B084)	07:04		07:54		08:37 (B062)	07:49		08:26		10:16 (B093)
	16:50				17:45		18:35			20:27			21:15	21	20:15 (B083)	21:44	33	20:57 (WEA03)	21:29	23	20:27 (B083)	20:37	10	19:40 (B084)	19:27		18:20	6 08:43 (B062)		16:27		16:14	22	10:38 (B093)
22	08:17				07:26		08:07 (B062)			06:25			05:23		19:54 (B083)	05:04		20:03 (B083)	05:29		20:04 (B083)	06:16			07:06		07:56			07:50		08:26		10:16 (B093)
	16:51				17:47	4	08:11 (B062)			18:36			20:29			21:17	22	20:16 (B083)	21:44	33	20:57 (WEA03)	21:28	22		19:25		18:18			16:26		16:15	22	10:38 (B093)
23	08:16				07:24		08:05 (B062)			06:22			06:13		19:26 (B084)	05:22		19:54 (B083)	05:05		20:03 (B083)	05:30			07:08		07:58			07:52		08:27		10:17 (B093)
	16:53				17:49	8	08:13 (B062)			18:38			20:30	7	19:33 (B084)	21:18	22	20:16 (B083)	21:45	33	20:57 (WEA03)	21:27	22		19:23		18:16			16:25		16:15	22	10:39 (B093)
24	08:15				07:22		08:04 (B062)			06:20			06:11		19:23 (B084)	05:20		19:54 (B083)	05:05		20:04 (B083)	05:32			07:09		08:00			07:54		08:27		10:17 (B093)
	16:55				17:51	10	08:14 (B062)			18:40			20:32	13	19:36 (B084)	21:19	23	20:17 (B083)	21:45	33	20:58 (WEA03)	21:26	21		19:20		18:14			16:24		16:16	22	10:39 (B093)
25	08:14				07:20		08:03 (B062)			06:18			06:09		19:22 (B084)	05:19		19:54 (B083)	05:05		20:03 (B083)	05:33			07:11		08:01			07:55		08:28		10:18 (B093)
	16:56				17:53	12	08:15 (B062)			18:42			20:34	15	19:37 (B084)	21:21	23	20:17 (B083)	21:45	34	20:58 (WEA03)	21:24	20		19:18		18:12			16:23		16:16	22	10:40 (B093)
26	08:12				07:18		08:03 (B062)			07:16			06:07		19:20 (B084)	05:18		19:54 (B083)	05:05		20:03 (B083)	05:35			07:12		08:03			07:57		08:28		10:18 (B093)
	16:58				17:55	12	08:15 (B062)			19:43			20:35	18	19:38 (B084)	21:22	23	20:17 (B083)	21:45	33	20:57 (WEA03)	21:23	18		19:16		18:10			16:22		16:17	23	10:41 (B093)
27	08:11				07:16		08:03 (B062)			07:13			06:05		19:19 (B084)	05:17		19:54 (B083)	05:06		20:04 (B083)	05:36			07:14		08:05			07:58		08:28		10:19 (B093)
	17:00				17:56	11	08:14 (B062)			19:45			20:37	19	19:38 (B084)	21:23	23	20:17 (B083)	21:45	33	20:58 (WEA03)	21:22	17		19:13		18:08			16:21		16:18	22	10:41 (B093)
28	08:10				07:14		08:03 (B062)			07:11			06:03		19:19 (B084)	05:16		19:54 (B083)	05:06		20:03 (B083)	05:37			07:16		08:07			08:00		08:29		10:19 (B093)
	17:02				17:58	10	08:13 (B062)			19:47			20:39	19	19:38 (B084)	21:25	23	20:17 (B083)	21:45	34	20:58 (WEA03)	21:20	15		20:23 (B083)		20:22			19:11		18:06			16:20		16:18	22	10:41 (B093)
29	08:08									07:09			06:01		19:18 (B084)	05:15		19:54 (B083)	05:07		20:04 (B083)	05:39			20:09 (B083)		06:27			07:17		07:08			08:01		08:29		10:20 (B093)
	17:03									19:48			20:40	20	19:38 (B084)	21:26	23	20:17 (B083)	21:45	33	20:58 (WEA03)	21:19	12		20:21 (B083)		20:20			19:09		17:04			16:19		16:19	21	10:41 (B093)
30	08:07									07:06			05:59		19:19 (B084)	05:14		19:54 (B083)	05:07		20:03 (B083)	05:40			20:11 (B083)		06:29			07:19		07:10			08:03		08:29		10:20 (B093)
	17:05									19:50			20:42	20	19:39 (B084)	21:27	23	20:17 (B083)	21:45	32	20:57 (WEA03)	21:17	7		20:18 (B083)		20:17			19:06		17:02			16:18		16:20	21	10:41 (B093)
31	08:05									07:04						05:13		19:54 (B083)				05:42					06:31					07:12				08:29		10:21 (B093)
	17:07									19:52						21:28	23	20:17 (B083)				21:16					20:15					17:00				16:21	20	10:41 (B093)
Sonnenscheinstunden	259			277			366			414			483			497			501			454			382		333			268		245		
astr.max.mögl.Beschattung		119			67			82			131			466			913			687			260						153					518	
Red.Sonnenscheinwahrsch.		0.19			0.32			0.28			0.36			0.43			0.34			0.39			0.40						0.29					0.17	
Reduktion Betriebsdauer		0.95			0.95			0.95			0.95			0.95			0.95			0.95			0.95						0.95					0.95	
Reduktion Windrichtung		0.53			0.65			0.66			0.69			0.66			0.64			0.65			0.69						0.65					0.53	
Gesamte Reduktion		0.09			0.20			0.18			0.24			0.27			0.20			0.24			0.26						0.18					0.09	
Met.wahrsch.Beschattung		11			13			15			31			126			187			164			68						27					44	

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: Dörenhagen GB Schattenrezeptor: IO100 - Futterweg 1, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 17:09	07:12 18:00 11 07:52 (B200)	07:02 19:53	05:57 20:44	05:12 21:29 21 20:45 (WEA03)	05:08 21:44 25 20:53 (WEA03)	05:43 21:14 23 20:16 (B083)	06:32 20:13	07:21 19:04	07:14 16:58	08:04 16:18
2	08:29 16:23	08:03 17:11	07:10 18:02 12 07:52 (B200)	07:00 19:55	05:55 20:45	05:11 21:31 22 20:45 (WEA03)	20:23 (WEA03) 05:09 21:44 25 20:52 (WEA03)	20:27 (WEA03) 05:45 21:12 22 20:16 (B083)	06:34 20:11	07:22 19:02	07:15 16:56	08:06 16:17
3	08:29 16:24	08:01 17:12	07:07 18:03 13 07:53 (B200)	07:00 19:57	05:54 20:47	05:10 21:32 22 20:45 (WEA03)	20:23 (WEA03) 05:09 21:44 25 20:53 (WEA03)	20:28 (WEA03) 05:46 21:11 21 20:15 (B083)	06:35 20:09	07:24 19:00	07:17 16:55	08:07 16:16
4	08:29 16:25	07:59 17:14	07:05 18:05 13 07:53 (B200)	07:00 19:58	05:52 20:49	05:09 21:33 23 20:45 (WEA03)	20:22 (WEA03) 05:10 21:43 25 20:53 (WEA03)	20:28 (WEA03) 05:48 21:09 20 20:14 (B083)	06:37 20:06	07:26 18:57	07:19 16:53	08:09 16:16
5	08:29 16:26	07:58 17:16	07:03 18:07 11 07:51 (B200)	06:53 20:00	05:50 20:50	05:09 21:34 23 20:46 (WEA03)	20:23 (WEA03) 05:11 21:43 24 20:52 (WEA03)	20:28 (WEA03) 05:49 21:07 17 20:13 (B083)	06:39 20:04	07:27 18:55	07:21 16:51	08:10 16:15
6	08:28 16:28	07:56 17:18	07:01 18:09 9 07:50 (B200)	06:50 20:02	05:48 20:52 7 19:58 (B083)	19:51 (B083) 05:08 21:35 24 20:46 (WEA03)	20:22 (WEA03) 05:11 21:42 25 20:53 (WEA03)	20:28 (WEA03) 05:51 21:06 16 20:12 (B083)	06:40 20:02	07:29 18:53	07:22 16:49	08:11 16:15
7	08:28 16:29	07:54 17:20	06:59 18:10 5 07:48 (B200)	06:48 20:03	05:46 20:54 12 20:00 (B083)	19:48 (B083) 05:07 21:36 24 20:47 (WEA03)	20:23 (WEA03) 05:12 21:42 24 20:53 (WEA03)	20:29 (WEA03) 05:52 21:04 13 20:11 (B083)	06:42 20:00	07:30 18:51	07:24 16:48	08:12 16:14
8	08:28 16:30	07:53 17:22	06:56 18:12	06:46 20:05	05:44 20:55 15 20:02 (B083)	19:47 (B083) 05:07 21:37 24 20:47 (WEA03)	20:23 (WEA03) 05:13 21:41 24 20:53 (WEA03)	20:29 (WEA03) 05:54 21:02 8 20:08 (B083)	20:00 (B083) 06:43 19:57	07:32 18:48 5 08:23 (B200)	08:18 (B200) 07:26 16:46	08:14 16:14
9	08:27 16:31	07:51 17:23	06:54 18:14	06:44 20:07	05:43 20:57 17 20:03 (B083)	19:46 (B083) 05:06 21:37 24 20:47 (WEA03)	20:23 (WEA03) 05:14 21:41 23 20:53 (WEA03)	20:30 (WEA03) 05:56 21:00	06:45 19:55	07:34 18:46 9 08:25 (B200)	08:16 (B200) 07:28 16:44	08:15 16:14
10	08:27 16:33	07:49 17:25	06:52 18:16	06:41 20:08	05:41 20:58 19 20:03 (B083)	19:44 (B083) 05:06 21:38 25 20:48 (WEA03)	20:23 (WEA03) 05:15 21:40 23 20:53 (WEA03)	20:30 (WEA03) 05:57 20:58	06:47 19:53	07:35 18:44 11 08:26 (B200)	08:15 (B200) 07:30 16:43	08:16 16:13
11	08:26 16:34	07:47 17:27	06:50 18:17	06:39 20:10	05:39 21:00 21 20:05 (B083)	19:44 (B083) 05:05 21:39 25 20:48 (WEA03)	20:23 (WEA03) 05:16 21:39 22 20:53 (WEA03)	20:31 (WEA03) 05:59 20:57	06:48 19:50	07:37 18:42 13 08:27 (B200)	08:14 (B200) 07:31 16:41	08:17 16:13
12	08:26 16:35	07:46 17:29	06:47 18:19	06:37 20:12	05:38 21:02 22 20:05 (B083)	19:43 (B083) 05:05 21:40 25 20:48 (WEA03)	20:23 (WEA03) 05:17 21:39 22 20:53 (WEA03)	20:31 (WEA03) 06:00 20:55	06:50 19:48	07:39 18:39 13 08:26 (B200)	08:13 (B200) 07:33 16:40	08:18 16:13
13	08:25 16:37	07:44 17:31	06:45 18:21	06:35 20:14	05:36 21:03 22 20:05 (B083)	19:43 (B083) 05:05 21:40 25 20:49 (WEA03)	20:24 (WEA03) 05:18 21:38 21 20:53 (WEA03)	20:32 (WEA03) 06:02 20:53	06:51 19:46	07:41 18:37 12 08:26 (B200)	08:14 (B200) 07:35 16:38	08:19 16:13
14	08:24 16:38	07:42 17:33	06:43 18:23	06:33 20:15	05:34 21:05 22 20:05 (B083)	19:43 (B083) 05:05 21:41 25 20:49 (WEA03)	20:24 (WEA03) 05:19 21:37 20 20:52 (WEA03)	20:32 (WEA03) 06:03 20:51	06:53 19:44	07:42 18:35 11 08:25 (B200)	08:14 (B200) 07:37 16:37	08:20 16:13
15	08:24 16:40	07:40 17:34	06:41 18:24	06:30 20:17	05:33 21:06 23 20:06 (B083)	19:43 (B083) 05:04 21:42 25 20:49 (WEA03)	20:24 (WEA03) 05:20 21:36 19 20:52 (WEA03)	20:33 (WEA03) 06:05 20:49 6 19:31 (B084)	19:25 (B084) 06:55 19:41	07:44 18:33 8 08:24 (B200)	08:16 (B200) 07:38 16:35	08:21 16:13
16	08:23 16:41	07:38 17:36	06:38 18:26	06:28 20:19 8 19:26 (B084)	05:31 21:08 23 20:06 (B083)	19:43 (B083) 05:04 21:42 25 20:49 (WEA03)	20:24 (WEA03) 05:22 21:35 22 20:51 (WEA03)	20:02 (B083) 06:07 20:47 12 19:33 (B084)	19:21 (B084) 06:56 19:39	07:46 18:31	07:40 16:34	08:22 16:13
17	08:22 16:43	07:36 17:38	06:36 18:28	06:26 20:20 13 19:28 (B084)	19:15 (B084) 05:30 21:09 22 20:05 (B083)	19:43 (B083) 05:04 21:43 25 20:49 (WEA03)	20:24 (WEA03) 05:23 21:34 25 20:50 (WEA03)	20:00 (B083) 06:08 20:45 14 19:34 (B084)	19:20 (B084) 06:58 19:37	07:47 18:29	07:42 16:32	08:23 16:13
18	08:21 16:45	07:34 08:15 (B062) 17:40 6 08:21 (B062)	06:34 18:30	06:24 20:22 15 19:29 (B084)	19:14 (B084) 05:28 21:11 23 20:06 (B083)	19:43 (B083) 05:04 21:43 25 20:49 (WEA03)	20:24 (WEA03) 05:24 21:33 27 20:49 (WEA03)	19:58 (B083) 06:10 20:43 17 19:35 (B084)	19:18 (B084) 07:00 19:34	07:49 18:26 5 08:51 (B062)	08:46 (B062) 07:44 16:31	08:24 16:13
19	08:20 16:46	07:32 17:42 10 08:23 (B062)	08:13 (B062) 06:32 18:31	06:22 20:24 17 19:30 (B084)	19:13 (B084) 05:27 21:12 22 20:06 (B083)	19:44 (B083) 05:04 21:44 25 20:50 (WEA03)	20:25 (WEA03) 05:25 21:32 25 20:48 (WEA03)	19:57 (B083) 06:11 20:41 18 19:36 (B084)	19:18 (B084) 07:01 19:32	07:51 18:24 9 08:53 (B062)	08:44 (B062) 07:45 16:30	08:24 16:13
20	08:19 16:48	07:30 08:13 (B062) 17:44 11 08:24 (B062)	06:29 18:33	06:20 20:25 18 19:30 (B084)	19:12 (B084) 05:26 21:14 22 20:05 (B083)	19:43 (B083) 05:04 21:44 25 20:50 (WEA03)	20:25 (WEA03) 05:26 21:31 24 20:46 (WEA03)	19:56 (B083) 06:13 20:39 18 19:35 (B084)	19:17 (B084) 07:03 19:30	07:53 18:22 11 08:54 (B062)	08:43 (B062) 07:47 16:28	08:25 16:14
21	08:18 16:50	07:28 08:12 (B062) 17:45 12 08:24 (B062)	06:27 18:35	06:18 20:27 20 19:31 (B084)	19:11 (B084) 05:24 21:15 21 20:05 (B083)	19:44 (B083) 05:04 21:44 26 20:51 (WEA03)	20:25 (WEA03) 05:28 21:29 18 20:14 (B083)	19:56 (B083) 06:15 20:37 19 19:36 (B084)	19:17 (B084) 07:04 19:27	07:54 18:20 11 08:54 (B062)	08:43 (B062) 07:49 16:27	08:26 16:14
22	08:17 16:51	07:26 08:11 (B062) 17:47 12 08:23 (B062)	06:25 18:36	06:15 20:29 20 19:31 (B084)	19:11 (B084) 05:23 21:17 20 20:05 (B083)	19:45 (B083) 05:04 21:44 26 20:51 (WEA03)	20:25 (WEA03) 05:29 21:28 19 20:14 (B083)	19:55 (B083) 06:16 20:35 19 19:35 (B084)	19:16 (B084) 07:06 19:25	07:56 18:18 11 08:54 (B062)	08:43 (B062) 07:50 16:26	08:26 16:15
23	08:16 16:53	07:24 17:49 11 08:23 (B062)	08:12 (B062) 06:22 18:38	06:13 20:30 19 19:30 (B084)	19:11 (B084) 05:22 21:18 19 20:04 (B083)	19:45 (B083) 05:05 21:45 26 20:51 (WEA03)	20:25 (WEA03) 05:30 21:27 20 20:15 (B083)	19:55 (B083) 06:18 20:33 19 19:35 (B084)	19:16 (B084) 07:08 19:23	07:58 18:16 11 08:53 (B062)	08:42 (B062) 07:52 16:25	08:27 16:15
24	08:15 16:55	07:22 17:51 10 08:22 (B062)	08:12 (B062) 06:20 18:40	06:11 20:32 19 19:30 (B084)	19:11 (B084) 05:20 21:19 18 20:04 (B083)	19:46 (B083) 05:05 21:45 25 20:51 (WEA03)	20:26 (WEA03) 05:32 21:26 21 20:15 (B083)	19:54 (B083) 06:19 20:30 19 19:34 (B084)	19:15 (B084) 07:09 19:20	08:00 18:14 9 08:52 (B062)	08:43 (B062) 07:54 16:24	08:27 16:16
25	08:14 16:56	07:20 08:14 (B062) 17:53 6 08:20 (B062)	06:18 18:42	06:09 20:34 18 19:29 (B084)	19:11 (B084) 05:19 21:21 24 20:37 (WEA03)	19:47 (B083) 05:05 21:45 25 20:51 (WEA03)	20:26 (WEA03) 05:33 21:24 22 20:16 (B083)	19:54 (B083) 06:21 20:28 18 19:34 (B084)	19:16 (B084) 07:11 19:18	08:01 18:12 7 08:51 (B062)	08:44 (B062) 07:55 16:23	08:28 16:16
26	08:12 16:58	07:18 17:54	07:16 19:43	06:07 20:35 16 19:28 (B084)	19:12 (B084) 05:18 21:22 25 20:39 (WEA03)	19:48 (B083) 05:05 21:45 25 20:51 (WEA03)	20:26 (WEA03) 05:35 21:23 22 20:16 (B083)	19:54 (B083) 06:23 20:26 16 19:32 (B084)	19:16 (B084) 07:12 19:16	08:03 18:10	07:57 16:22	08:28 16:17
27	08:11 17:00	07:16 17:56	07:13 19:45	06:05 20:37 15 19:27 (B084)	19:12 (B084) 05:17 21:23 27 20:40 (WEA03)	19:49 (B083) 05:06 21:45 25 20:52 (WEA03)	20:27 (WEA03) 05:36 21:22 23 20:16 (B083)	19:53 (B083) 06:24 20:24 13 19:31 (B084)	19:18 (B084) 07:14 19:13	08:05 18:08	07:58 16:21	08:28 16:18
28	08:10 17:02	07:14 07:43 (B200) 17:58 7 07:50 (B200)	07:11 19:47	06:03 20:39 13 19:26 (B084)	19:13 (B084) 05:16 21:25 25 20:41 (WEA03)	19:51 (B083) 05:06 21:45 25 20:52 (WEA03)	20:27 (WEA03) 05:37 21:20 23 20:17 (B083)	19:54 (B083) 06:26 20:22 10 19:29 (B084)	19:19 (B084) 07:16 19:11	08:07 18:06	08:00 16:20	08:29 16:18
29	08:08 17:03		07:09 19:48	06:01 20:40 8 19:23 (B084)	19:15 (B084) 05:15 21:26 22 20:42 (WEA03)	19:53 (B083) 05:07 21:45 25 20:52 (WEA03)	20:27 (WEA03) 05:39 21:19 23 20:16 (B083)	19:53 (B083) 06:27 20:20	07:17 19:09	07:08 17:04	08:01 16:19	08:29 16:19
30	08:07 17:05		07:06 19:50	05:59 20:42	05:14 21:27 19 20:43 (WEA03)	20:24 (WEA03) 05:07 21:45 25 20:52 (WEA03)	20:27 (WEA03) 05:40 21:17 23 20:16 (B083)	19:53 (B083) 06:29 20:17	07:19 19:06	07:10 17:02	08:03 16:18	08:29 16:20
31	08:05 17:07		07:04 19:52		05:13 21:28 20 20:43 (WEA03)	20:23 (WEA03)	05:42 21:16 22 20:16 (B083)	19:54 (B083) 06:31 20:15		07:12 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		85	74	219	532	735	706	358		156		
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40		0.29		
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95		0.95		
Reduktion Windrichtung		0.64	0.66	0.70	0.65	0.63	0.64	0.68		0.65		
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20	0.24	0.26		0.18		
Met.wahrsch.Beschattung		17	13	53	142	149	167	93		28		

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

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

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO101 - Futterweg 3, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:41 (B200)	07:02	05:57	05:12	20:23 (WEA03)	05:08	20:27 (WEA03)	05:43	19:52 (B083)	06:32	07:21	07:14	08:04
	16:22	17:09	18:00 12	07:53 (B200)	19:53	20:44	21:29 21	20:44 (WEA03)	21:44 25	20:52 (WEA03)	21:14 22	20:14 (B083)	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:41 (B200)	07:00	05:55	05:11	20:22 (WEA03)	05:09	20:26 (WEA03)	05:45	19:52 (B083)	06:34	07:22	07:15	08:06
	16:23	17:11	18:02 12	07:53 (B200)	19:55	20:45	21:31 23	20:45 (WEA03)	21:44 26	20:52 (WEA03)	21:12 23	20:15 (B083)	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	07:41 (B200)	06:57	05:54	05:10	20:22 (WEA03)	05:09	20:27 (WEA03)	05:46	19:52 (B083)	06:35	07:24	07:17	08:07
	16:24	17:12	18:03 12	07:53 (B200)	19:57	20:47	21:32 23	20:45 (WEA03)	21:44 25	20:52 (WEA03)	21:11 22	20:14 (B083)	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	07:41 (B200)	06:55	05:52	05:09	20:21 (WEA03)	05:10	20:27 (WEA03)	05:48	19:52 (B083)	06:37	07:26	07:19	08:09
	16:25	17:14	18:05 12	07:53 (B200)	19:58	20:49	21:33 24	20:45 (WEA03)	21:43 25	20:52 (WEA03)	21:09 21	20:13 (B083)	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	07:41 (B200)	06:53	05:50	19:51 (B083)	05:09	20:22 (WEA03)	05:11	20:27 (WEA03)	05:49	19:53 (B083)	06:39	07:27	07:21	08:10
	16:26	17:16	18:07 10	07:51 (B200)	20:00	20:50 5	19:56 (B083)	21:34 24	20:46 (WEA03)	21:43 25	20:52 (WEA03)	21:07 20	20:13 (B083)	20:04	18:55	16:51	16:15
6	08:28	07:56	07:01	07:43 (B200)	06:50	05:48	19:47 (B083)	05:08	20:21 (WEA03)	05:11	20:27 (WEA03)	05:51	19:54 (B083)	06:40	07:29	07:22	08:11
	16:28	17:18	18:09 6	07:49 (B200)	20:02	20:52 12	19:59 (B083)	21:35 25	20:46 (WEA03)	21:42 25	20:52 (WEA03)	21:06 17	20:11 (B083)	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59		06:48	05:46	19:45 (B083)	05:07	20:22 (WEA03)	05:12	20:28 (WEA03)	05:52	19:55 (B083)	06:42	07:30	07:24	08:12
	16:29	17:20	18:10		20:03	20:54 15	20:00 (B083)	21:36 24	20:46 (WEA03)	21:42 24	20:52 (WEA03)	21:04 16	20:11 (B083)	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56		06:46	05:44	19:45 (B083)	05:07	20:21 (WEA03)	05:13	20:28 (WEA03)	05:54	19:56 (B083)	06:43	07:32	07:26	08:14
	16:30	17:22	18:12		20:05	20:55 17	20:02 (B083)	21:37 25	20:46 (WEA03)	21:41 25	20:53 (WEA03)	21:02 13	20:09 (B083)	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54		06:44	05:43	19:43 (B083)	05:06	20:22 (WEA03)	05:14	20:29 (WEA03)	05:56	19:59 (B083)	06:45	07:34	08:18 (B200)	07:28	08:15
	16:31	17:23	18:14		20:07	20:57 19	20:02 (B083)	21:37 25	20:47 (WEA03)	21:41 24	20:53 (WEA03)	21:00 8	20:07 (B083)	19:55	18:46 6	08:24 (B200)	16:44	16:14
10	08:27	07:49	06:52		06:41	05:41	19:42 (B083)	05:06	20:22 (WEA03)	05:15	20:29 (WEA03)	05:57		06:47	07:35	08:16 (B200)	07:30	08:16
	16:33	17:25	18:16		20:09	20:58 21	20:03 (B083)	21:38 25	20:47 (WEA03)	21:40 24	20:53 (WEA03)	20:58		19:53	18:44 10	08:26 (B200)	16:43	16:13
11	08:26	07:47	06:50		06:39	05:39	19:42 (B083)	05:05	20:22 (WEA03)	05:16	20:30 (WEA03)	05:59		06:48	07:37	08:16 (B200)	07:31	08:17
	16:34	17:27	18:17		20:10	21:00 22	20:04 (B083)	21:39 25	20:47 (WEA03)	21:39 23	20:53 (WEA03)	20:57		19:50	18:42 11	08:27 (B200)	16:41	16:13
12	08:26	07:46	06:47		06:37	05:38	19:41 (B083)	05:05	20:22 (WEA03)	05:17	20:30 (WEA03)	06:00		06:50	07:39	08:14 (B200)	07:33	08:18
	16:35	17:29	18:19		20:12	21:02 23	20:04 (B083)	21:40 26	20:48 (WEA03)	21:39 23	20:53 (WEA03)	20:55		19:48	18:39 12	08:26 (B200)	16:40	16:13
13	08:25	07:44	06:45		06:35	05:36	19:41 (B083)	05:05	20:23 (WEA03)	05:18	20:31 (WEA03)	06:02		06:51	07:41	08:14 (B200)	07:35	08:19
	16:37	17:31	18:21		20:14	21:03 23	20:04 (B083)	21:40 25	20:48 (WEA03)	21:38 21	20:52 (WEA03)	20:53		19:46	18:37 12	08:26 (B200)	16:38	16:13
14	08:24	07:42	06:43		06:33	05:34	19:41 (B083)	05:05	20:23 (WEA03)	05:19	20:31 (WEA03)	06:03		06:53	07:42	08:14 (B200)	07:37	08:20
	16:38	17:33	18:23		20:15	21:05 23	20:04 (B083)	21:41 25	20:48 (WEA03)	21:37 21	20:52 (WEA03)	20:51		19:44	18:35 12	08:26 (B200)	16:37	16:13
15	08:24	07:40	06:41	19:16 (B084)	05:33	19:41 (B083)	05:04	20:23 (WEA03)	05:20	20:32 (WEA03)	06:05			06:55	07:44	08:15 (B200)	07:38	08:21
	16:40	17:34	18:24	20:17 8	19:24 (B084)	21:06 23	20:04 (B083)	21:42 26	20:49 (WEA03)	21:36 20	20:52 (WEA03)	20:49		19:41	18:33 10	08:25 (B200)	16:35	16:13
16	08:23	07:38	06:38	06:28	19:13 (B084)	05:31	19:42 (B083)	05:04	20:23 (WEA03)	05:22	20:32 (WEA03)	06:07	19:22 (B084)	06:56	07:46	08:17 (B200)	07:40	08:22
	16:41	17:36	18:26	20:19 13	19:26 (B084)	21:08 23	20:05 (B083)	21:42 25	20:48 (WEA03)	21:35 19	20:51 (WEA03)	20:47 6	19:28 (B084)	19:39	18:31 7	08:24 (B200)	16:34	16:13
17	08:22	07:36	08:17 (B062)	06:36	06:26	19:12 (B084)	05:30	19:41 (B083)	05:04	20:23 (WEA03)	05:23	20:00 (B083)	06:08	19:20 (B084)	06:58	07:47	07:42	08:23
	16:43	17:38 3	08:20 (B062)	18:28	20:20 15	19:27 (B084)	21:09 23	20:04 (B083)	21:43 25	20:48 (WEA03)	21:34 23	20:50 (WEA03)	20:45 11	19:31 (B084)	19:37	18:29	16:32	16:13
18	08:21	07:34	08:14 (B062)	06:34	06:24	19:11 (B084)	05:28	19:42 (B083)	05:04	20:23 (WEA03)	05:24	19:58 (B083)	06:10	19:17 (B084)	07:00	07:49	07:44	08:24
	16:45	17:40 8	08:22 (B062)	18:30	20:22 17	19:28 (B084)	21:11 22	20:04 (B083)	21:43 26	20:49 (WEA03)	21:33 26	20:50 (WEA03)	20:43 15	19:32 (B084)	19:34	18:26	16:31	16:13
19	08:20	07:32	08:13 (B062)	06:32	06:22	19:10 (B084)	05:27	19:42 (B083)	05:04	20:24 (WEA03)	05:25	19:57 (B083)	06:11	19:17 (B084)	07:01	07:51	08:46 (B062)	07:45	08:24
	16:46	17:42 11	08:24 (B062)	18:31	20:24 19	19:29 (B084)	21:12 22	20:04 (B083)	21:44 26	20:50 (WEA03)	21:32 25	20:48 (WEA03)	20:41 16	19:33 (B084)	19:32	18:24 6	08:52 (B062)	16:30	16:13
20	08:19	07:30	08:13 (B062)	06:29	06:20	19:09 (B084)	05:26	19:42 (B083)	05:04	20:24 (WEA03)	05:26	19:55 (B083)	06:13	19:15 (B084)	07:03	07:53	08:44 (B062)	07:47	08:25
	16:48	17:44 11	08:24 (B062)	18:33	20:25 20	19:29 (B084)	21:14 21	20:03 (B083)	21:44 26	20:50 (WEA03)	21:31 26	20:47 (WEA03)	20:39 18	19:33 (B084)	19:30	18:22 10	08:54 (B062)	16:28	16:14
21	08:18	07:28	08:13 (B062)	06:27	06:18	19:09 (B084)	05:24	19:43 (B083)	05:04	20:24 (WEA03)	05:28	19:55 (B083)	06:15	19:15 (B084)	07:04	07:54	08:43 (B062)	07:49	08:26
	16:50	17:45 11	08:24 (B062)	18:35	20:27 20	19:29 (B084)	21:15 20	20:03 (B083)	21:44 26	20:50 (WEA03)	21:29 24	20:46 (WEA03)	20:37 19	19:34 (B084)	19:27	18:20 11	08:54 (B062)	16:27	16:14
22	08:17	07:26	08:12 (B062)	06:25	06:15	19:09 (B084)	05:23	19:44 (B083)	05:04	20:24 (WEA03)	05:29	19:55 (B083)	06:16	19:14 (B084)	07:06	07:56	08:43 (B062)	07:50	08:26
	16:51	17:47 11	08:23 (B062)	18:36	20:29 20	19:29 (B084)	21:17 19	20:03 (B083)	21:44 26	20:50 (WEA03)	21:28 17	20:12 (B083)	20:35 19	19:33 (B084)	19:25	18:18 12	08:55 (B062)	16:26	16:15
23	08:16	07:24	08:12 (B062)	06:22	06:13	19:09 (B084)	05:22	19:44 (B083)	05:05	20:24 (WEA03)	05:30	19:54 (B083)	06:18	19:14 (B084)	07:08	07:58	08:42 (B062)	07:52	08:27
	16:53	17:49 10	08:22 (B062)	18:38	20:30 19	19:28 (B084)	21:18 18	20:02 (B083)	21:45 26	20:50 (WEA03)	21:27 19	20:13 (B083)	20:33 20	19:34 (B084)	19:23	18:16 12	08:54 (B062)	16:25	16:15
24	08:15	07:22	08:14 (B062)	06:20	06:11	19:09 (B084)	05:20	19:45 (B083)	05:05	20:25 (WEA03)	05:32	19:53 (B083)	06:19	19:13 (B084)	07:09	08:00	08:43 (B062)	07:54	08:27
	16:55	17:51 7	08:21 (B062)	18:40	20:32 19	19:28 (B084)	21:19 24	20:36 (WEA03)	21:45 26	20:51 (WEA03)	21:26 20	20:13 (B083)	20:30 20	19:33 (B084)	19:20	18:14 10	08:53 (B062)	16:24	16:16
25	08:14	07:20	06:18		06:09	19:10 (B084)	05:19	19:46 (B083)	05:05	20:25 (WEA03)	05:33	19:53 (B083)	06:21	19:14 (B084)	07:11	08:01	08:44 (B062)	07:55	08:28
	16:56	17:53	18:42		20:34 17	19:27 (B084)	21:21 26	20:38 (WEA03)	21:45 26	20:51 (WEA03)	21:24 21	20:14 (B083)	20:28 19	19:33 (B084)	19:18	18:12 8	08:52 (B062)	16:23	16:16
26	08:12	07:18	07:16		06:07	19:10 (B084)	05:18	19:48 (B083)	05:05	20:25 (WEA03)	05:35	19:52 (B083)	06:23	19:13 (B084)	07:12	08:03	08:45 (B062)	07:57	08:28
	16:58	17:54	19:43		20:35 16	19:26 (B084)	21:22 25	20:39 (WEA03)	21:45 26	20:51 (WEA03)	21:23 22	20:14 (B083)	20:26 18	19:31 (B084)	19:16	18:10 6	08:51 (B062)	16:22	16:17
27	08:11	07:16	07:45 (B200)	07:13	06:05	19:12 (B084)	05:17	19:49 (B083)	05:06	20:26 (WEA03)	05:36	19:52 (B083)	06:24	19:14 (B084)	07:14	08:05		07:58	08:28
	17:00	17:56 6	07:51 (B200)	19:45	20:37 12	19:24 (B084)	21:23 26	20:41 (WEA03)	21:45 25	20:51 (WEA03)	21:22 22	20:14 (B083)	20:24 17	19:31 (B084)	19:13	18:08		16:21	16:18
28	08:10	07:14	07:42 (B200)	07:11	06:03	19:13 (B084)	05:16	19:51 (B083)	05:06	20:26 (WEA03)	05:37	19:52 (B083)	06:26	19:15 (B084)	07:16	08:07		08:00	08:29
	17:02	17:58 10	07:52 (B200)	19:47	20:39 9	19:22 (B084)	21:25 23	20:41 (WEA03)	21:45 25	20:51 (WEA03)	21:20 23	20:15 (B083)	20:22 14	19:29 (B084)	19:11	18:06		16:20	16:18
29	08:08			07:09		06:01	05:15	20:23 (WEA03)	05:07	20:26 (WEA03)	05:39	19:52 (B083)	06:27	19:17 (B084)	07:17	07:08		08:01	08:29
	17:03			19:48		20:40	21:26 19	20:42 (WEA03)	21:45 26	20:52 (WEA03)	21:19 23	20:15 (B083)	20:20 10	19:27 (B084)	19:09	17:04		16:19	16:19
30	08:07			07:06		05:59	05:14	20:23 (WEA03)	05:07	20:26 (WEA03)	05:40	19:51 (B083)	06:29	19:20 (B084)	07:19	07:10		08:03	08:29
	17:05			19:50		20:42	21:27 20	20:43 (WEA03)	21:45 25	20:51 (WEA03)	21:17 24	20:15 (B083)	20:17 2	19:22 (B084)	19:06	17:02		16:18	16:20
31	08:05			07:04			05:13	20:22 (WEA03)			05:42	19:52 (B083)	06:31			07:12			08:29
	17:07			19:52			21:28 21	20:43 (WEA03)			21:16 23	20:15 (B083)	20:15			17:00			16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
astr.max.mögl.Beschattung		88	64	224	555	751	713	386		155		
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39	0.40		0.29		
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95	0.95		0.95		
Reduktion Windrichtung		0.64	0.66	0.70	0.65	0.63	0.64	0.68		0.65		
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20	0.24	0.26		0.18		
Met.wahrsch.Beschattung		17	11	54	148	152	169	101		28		

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO102 - Futterweg 4, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar		März		April		Mai		Juni		Juli		August		September	Oktober		November	Dezember
1	08:29		08:04		07:12		07:43 (B200)		07:02		05:57		05:12		20:18 (WEA03)		05:08		20:25 (WEA03)		05:43		19:50 (B083)		06:32		07:21		07:14		08:04	
	16:22		17:09		18:00	12	07:55 (B200)		19:53		20:44		21:29	24	20:42 (WEA03)		21:44	25	20:50 (WEA03)		21:14	22	20:12 (B083)		20:13		19:04		16:58		16:18	
2	08:29		08:03		07:10		07:43 (B200)		07:00		05:55		05:11		20:19 (WEA03)		05:09		20:24 (WEA03)		05:45		19:50 (B083)		06:34		07:22		07:15		08:06	
	16:23		17:11		18:02	12	07:55 (B200)		19:55		20:45		21:31	24	20:43 (WEA03)		21:44	25	20:49 (WEA03)		21:12	23	20:13 (B083)		20:11		19:02		16:56		16:17	
3	08:29		08:01		07:07		07:43 (B200)		06:57		05:54		19:47 (B083)		05:10		20:19 (WEA03)		05:09		20:25 (WEA03)		05:46		19:50 (B083)		06:35		07:24		07:17		08:07	
	16:24		17:12		18:03	12	07:55 (B200)		19:57		20:47	8	19:55 (B083)		21:32	24	20:43 (WEA03)		21:44	25	20:50 (WEA03)		21:11	22	20:12 (B083)		20:09		19:00		16:55		16:16	
4	08:29		07:59		07:05		07:44 (B200)		06:55		05:52		19:44 (B083)		05:09		20:18 (WEA03)		05:10		20:25 (WEA03)		05:48		19:49 (B083)		06:37		07:26		07:19		08:09	
	16:25		17:14		18:05	10	07:54 (B200)		19:58		20:49	13	19:57 (B083)		21:33	25	20:43 (WEA03)		21:43	25	20:50 (WEA03)		21:09	23	20:12 (B083)		20:06		18:57		16:53		16:16	
5	08:29		07:58		07:03		07:45 (B200)		06:53		05:50		19:44 (B083)		05:09		20:19 (WEA03)		05:11		20:25 (WEA03)		05:49		19:50 (B083)		06:39		07:27		07:21		08:10	
	16:26		17:16		18:07	6	07:51 (B200)		20:00		20:50	15	19:59 (B083)		21:34	25	20:44 (WEA03)		21:43	25	20:50 (WEA03)		21:07	22	20:12 (B083)		20:04		18:55		16:51		16:15	
6	08:28		07:56		07:01				06:50		05:48		19:42 (B083)		05:08		20:19 (WEA03)		05:11		20:25 (WEA03)		05:51		19:50 (B083)		06:40		07:29		07:22		08:11	
	16:28		17:18		18:09				20:02		20:52	18	20:00 (B083)		21:35	25	20:44 (WEA03)		21:42	25	20:50 (WEA03)		21:06	21	20:11 (B083)		20:02		18:53		16:49		16:15	
7	08:28		07:54		06:59				06:48		05:46		19:41 (B083)		05:07		20:19 (WEA03)		05:12		20:25 (WEA03)		05:52		19:51 (B083)		06:42		07:30		07:24		08:12	
	16:29		17:20		18:10				20:03		20:54	19	20:00 (B083)		21:36	26	20:45 (WEA03)		21:42	26	20:51 (WEA03)		21:04	20	20:11 (B083)		20:00		18:51		16:48		16:14	
8	08:28		07:53		06:56				06:46		05:44		19:41 (B083)		05:07		20:19 (WEA03)		05:13		20:26 (WEA03)		05:54		19:51 (B083)		06:43		07:32		07:26		08:14	
	16:30		17:22		18:12				20:05		20:55	21	20:02 (B083)		21:37	25	20:44 (WEA03)		21:41	25	20:51 (WEA03)		21:02	19	20:10 (B083)		19:57		18:48		16:46		16:14	
9	08:27		07:51		06:54				06:44		05:43		19:40 (B083)		05:06		20:20 (WEA03)		05:14		20:26 (WEA03)		05:56		19:53 (B083)		06:45		07:34		07:28		08:15	
	16:31		17:23		18:14				20:07		20:57	22	20:02 (B083)		21:37	25	20:45 (WEA03)		21:41	25	20:51 (WEA03)		21:00	16	20:09 (B083)		19:55		18:46		16:44		16:14	
10	08:27		07:49		06:52				06:41		05:41		19:39 (B083)		05:06		20:20 (WEA03)		05:15		20:26 (WEA03)		05:57		19:53 (B083)		06:47		07:35		08:21 (B200)		07:30		08:16	
	16:33		17:25		18:16				20:09		20:58	23	20:02 (B083)		21:38	25	20:45 (WEA03)		21:40	25	20:51 (WEA03)		20:58	14	20:07 (B083)		19:53		18:44	5	08:26 (B200)		16:43		16:13	
11	08:26		07:47		06:50				06:39		05:39		19:39 (B083)		05:05		20:20 (WEA03)		05:16		20:27 (WEA03)		05:59		19:56 (B083)		06:48		07:37		08:18 (B200)		07:31		08:17	
	16:34		17:27		18:17				20:10		21:00	23	20:02 (B083)		21:39	25	20:45 (WEA03)		21:39	24	20:51 (WEA03)		20:57	9	20:05 (B083)		19:50		18:42	10	08:28 (B200)		16:41		16:13	
12	08:26		07:46		06:47				06:37		05:38		19:39 (B083)		05:05		20:20 (WEA03)		05:17		20:27 (WEA03)		06:00				06:50		07:39		08:16 (B200)		07:33		08:18	
	16:35		17:29		18:19				20:12		21:02	23	20:02 (B083)		21:40	25	20:45 (WEA03)		21:39	24	20:51 (WEA03)		20:55				19:48		18:39	12	08:28 (B200)		16:40		16:13	
13	08:25		07:44		06:45				06:35		19:16 (B084)		05:36		19:39 (B083)		05:05		20:21 (WEA03)		05:18		20:27 (WEA03)		06:02				06:51		07:41		08:16 (B200)		07:35		08:19	
	16:37		17:31		18:21				20:14	7	19:23 (B084)		21:03	23	20:02 (B083)		21:40	25	20:46 (WEA03)		21:38	24	20:51 (WEA03)		20:53				19:46		18:37	12	08:28 (B200)		16:38		16:13	
14	08:24		07:42		06:43				06:33		19:13 (B084)		05:34		19:39 (B083)		05:05		20:21 (WEA03)		05:19		20:28 (WEA03)		06:03				06:53		07:42		08:16 (B200)		07:37		08:20	
	16:38		17:33		18:23				20:15	12	19:25 (B084)		21:05	23	20:02 (B083)		21:41	25	20:46 (WEA03)		21:37	23	20:51 (WEA03)		20:51				19:44		18:35	12	08:28 (B200)		16:37		16:13	
15	08:24		07:40		06:41				06:30		19:11 (B084)		05:33		19:40 (B083)		05:04		20:21 (WEA03)		05:20		20:28 (WEA03)		06:05				06:55		07:44		08:16 (B200)		07:38		08:21	
	16:40		17:34		18:24				20:17	15	19:26 (B084)		21:06	22	20:02 (B083)		21:42	25	20:46 (WEA03)		21:36	23	20:51 (WEA03)		20:49				19:41		18:33	12	08:28 (B200)		16:35		16:13	
16	08:23		07:38		06:38		08:18 (B062)		06:28		19:10 (B084)		05:31		19:40 (B083)		05:04		20:21 (WEA03)		05:22		20:28 (WEA03)		06:07				06:56		07:46		08:17 (B200)		07:40		08:22	
	16:41		17:36	5	08:23 (B062)		18:26		20:19	17	19:27 (B084)		21:08	22	20:02 (B083)		21:42	25	20:46 (WEA03)		21:35	23	20:51 (WEA03)		20:47				19:39		18:31	10	08:27 (B200)		16:34		16:13	
17	08:22		07:36		08:16 (B062)		06:36		06:26		19:09 (B084)		05:30		19:40 (B083)		05:04		20:21 (WEA03)		05:23		20:29 (WEA03)		06:08				06:58		07:47		08:17 (B200)		07:42		08:23	
	16:43		17:38	9	08:25 (B062)		18:28		20:20	18	19:27 (B084)		21:09	21	20:01 (B083)		21:43	25	20:46 (WEA03)		21:34	21	20:50 (WEA03)		20:45				19:37		18:29	8	08:25 (B200)		16:32		16:13	
18	08:21		07:34		08:15 (B062)		06:34		06:24		19:08 (B084)		05:28		19:41 (B083)		05:04		20:21 (WEA03)		05:24		20:29 (WEA03)		06:10		19:21 (B084)		07:00		07:49				07:44		08:24	
	16:45		17:40	11	08:26 (B062)		18:30		20:22	19	19:27 (B084)		21:11	20	20:01 (B083)		21:43	25	20:46 (WEA03)		21:33	21	20:50 (WEA03)		20:43	4	19:25 (B084)		19:34		18:26				16:31		16:13	
19	08:20		07:32		08:15 (B062)		06:32		06:22		19:08 (B084)		05:27		19:42 (B083)		05:04		20:22 (WEA03)		05:25		20:30 (WEA03)		06:11		19:18 (B084)		07:01		07:51				07:45		08:24	
	16:46		17:42	11	08:26 (B062)		18:31		20:24	20	19:28 (B084)		21:12	19	20:01 (B083)		21:44	25	20:47 (WEA03)		21:32	19	20:49 (WEA03)		20:41	11	19:29 (B084)		19:32		18:24				16:30		16:13	
20	08:19		07:30		08:14 (B062)		06:29		06:20		19:08 (B084)		05:26		19:42 (B083)		05:04		20:23 (WEA03)		05:26		20:30 (WEA03)		06:13		19:15 (B084)		07:03		07:53		08:48 (B062)		07:47		08:25	
	16:48		17:44	12	08:26 (B062)		18:33		20:25	19	19:27 (B084)		21:14	17	19:59 (B083)		21:44	24	20:47 (WEA03)		21:31	18	20:48 (WEA03)		20:39	14	19:29 (B084)		19:30		18:22	6	08:54 (B062)		16:28		16:14	
21	08:18		07:28		08:15 (B062)		06:27		06:18		19:08 (B084)		05:24		19:43 (B083)		05:04		20:23 (WEA03)		05:28		19:59 (B083)		06:15		19:15 (B084)		07:04		07:54		08:46 (B062)		07:49		08:26	
	16:50		17:45	11	08:26 (B062)		18:35		20:27	19	19:27 (B084)		21:15	20	20:32 (WEA03)		21:44	24	20:47 (WEA03)		21:29	21	20:48 (WEA03)		20:37	16	19:31 (B084)		19:27		18:20	9	08:55 (B062)		16:27		16:14	
22	08:17		07:26		08:14 (B062)		06:25		06:15		19:08 (B084)		05:23		19:45 (B083)		05:04		20:23 (WEA03)		05:29		19:56 (B083)		06:16		19:13 (B084)		07:06		07:56		08:45 (B062)		07:50		08:26	
	16:51		17:47	10	08:24 (B062)		18:36		20:29	18	19:26 (B084)		21:17	24	20:35 (WEA03)		21:44	24	20:47 (WEA03)		21:28	24	20:47 (WEA03)		20:35	18	19:31 (B084)		19:25		18:18	11	08:56 (B062)		16:26		16:15	
23	08:16		07:24		08:16 (B062)		06:22		06:13		19:09 (B084)		05:22		19:46 (B083)		05:05		20:23 (WEA03)		05:30		19:55 (B083)		06:18		19:13 (B084)		07:08		07:58		08:44 (B062)		07:52		08:27	
	16:53		17:49	7	08:23 (B062)		18:38		20:30	16	19:25 (B084)		21:18	24	20:37 (WEA03)		21:45	24	20:47 (WEA03)		21:27	24	20:45 (WEA03)		20:33	18	19:31 (B084)		19:23		18:16	12	08:56 (B062)		16:25		16:15	
24	08:15		07:22				06:20		06:11		19:09 (B084)		05:20		19:49 (B083)		05:05		20:24 (WEA03)		05:32		19:53 (B083)		06:19		19:12 (B084)		07:09		08:00		08:44 (B062)		07:54		08:27	
	16:55		17:51				18:40		20:32	15	19:24 (B084)		21:19	21	20:38 (WEA03)		21:45	24	20:48 (WEA03)		21:26	20	20:42 (WEA03)		20:30	19	19:31 (B084)		19:20		18:14	12	08:56 (B062)		16:24		16:16	
25	08:14		07:20				06:18		06:09		19:11 (B084)		05:19		20:21 (WEA03)		05:05		20:23 (WEA03)		05:33		19:53 (B083)		06:21		19:12 (B084)		07:11		08:01		08:44 (B062)		07:55		08:28	
	16:56		17:53				18:42		20:34	12	19:23 (B084)		21:21	18	20:39 (WEA03)		21:45	25	20:48 (WEA03)		21:24	17	20:10 (B083)		20:28	19	19:31 (B084)		19:18		18:12	11	08:55 (B062)		16:23		16:16	
26	08:12		07:18		07:46 (B200)		07:16		06:07		19:13 (B084)		05:18		20:21 (WEA03)		05:05		20:23 (WEA03)		05:35		19:52 (B083)		06:23		19:11 (B084)		07:12		08:03		08:45 (B062)		07:57		08:28	
	16:58		17:54	7	07:53 (B200)		19:43		20:35	7	19:20 (B084)		21:22	19	20:40 (WEA03)		21:45	25	20:48 (WEA03)		21:23	19	20:11 (B083)		20:26	19	19:30 (B084)		19:16		18:10	10	08:55 (B062)		16:22		16:17	
27	08:11		07:16		07:45 (B200)		07:13		06:05				05:17		20:20 (WEA03)		05:06		20:24 (WEA03)		05:36		19:51 (B083)		06:24		19:11 (B084)		07:14		08:05		08:47 (B062)		07:58		08:28	
	17:00		17:56	10	07:55 (B200)		19:45		20:37				21:23	21	20:41 (WEA03)		21:45	25	20:49 (WEA03)		21:22	20	20:11 (B083)		20:24	19	19:30 (B084)		19:13		18:08	6	08:53 (B062)		16:21		16:18	
28	08:10		07:14		07:43 (B200)		07:11		06:03				05:16		20:20 (WEA03)		05:06		20:24 (WEA03)		05:37		19:51 (B083)		06:26		19:11 (B084)		07:16		08:07				08:00		08:29	
	17:02		17:58	12	07:55 (B200)		19:47		20:39				21:25	21	20:41 (WEA03)		21:45	25	20:49 (WEA03)		21:20	21	20:12 (B083)		20:22	18	19:29 (B084)		19:11		18:06				16:20		16:18	
29	08:08						07:09		06:01				05:15		20:19 (WEA03)		05:07		20:24 (WEA03)		05:39		19:51 (B083)		06:27		19:12 (B084)		07:17		07:08				08:01		08:29	
	17:03						19:48		20:40				21:26	23	20:42 (WEA03)		21:45	25	20:49 (WEA03)		21:19	21	20:12 (B083)		20:20	16	19:28 (B084)		19:09		17:04				16:19		16:19	
30	08:07						07:06		05:59				05:14		20:19 (WEA03)		05:07		20:24 (WEA03)		05:40		19:50 (B083)		06:29		19:13 (B084)		07:19		07:10				08:03		08:29	
	17:05						19:50		20:42				21:27	23	20:42 (WEA03)		21:45	25	20:49 (WEA03)		21:17	22	20:12 (B083)		20:17	13	19:26 (B084)		19:06		17:02				16:18		16:20	
31	08:05						07:04						05:13		20:19 (WEA03)						05:42		19:50 (B083)		06:31		19:15 (B084)				07:12						08:29	
	17:07						19:52						21:28	23	20:42 (WEA03)						21:16	23	20:13 (B083)		20:15	9	19:24 (B084)				17:00						16:21	
Sonnenscheinstunden	259		277		366				414		483		497				501				454						382		333				268		245	
astr.max.mögl.Beschattung				105		52				214		589		743				703				424								158						
Red.Sonnenscheinwahrsch.				0.32		0.28				0.36		0.43		0.34				0.39				0.40								0.29						
Reduktion Betriebsdauer				0.95		0.95				0.95		0.95		0.95				0.95				0.95								0.95						
Reduktion Windrichtung				0.64		0.66				0.70		0.65		0.63				0.64				0.68								0.65						
Gesamte Reduktion				0.20		0.18				0.24		0.27		0.20				0.24				0.26								0.18						
Met.wahrsch.Beschattung				21		9				52		157		151				166				110								28						

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)

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de
Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO103 - Futterweg 6, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:43 (B200)	07:02	05:57	05:12	20:19 (WEA03)	05:08	20:24 (WEA03)	05:43	19:47 (B083)	06:32	19:10 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00 12	07:55 (B200)	19:53	20:44	21:29 24	20:43 (WEA03)	21:44 26	20:50 (WEA03)	21:14 24	20:11 (B083)	20:13 11	19:21 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:43 (B200)	07:00	05:55	05:11	20:19 (WEA03)	05:09	20:24 (WEA03)	05:45	19:48 (B083)	06:34		07:22	07:15	08:06
	16:23	17:11	18:02 12	07:55 (B200)	19:55	20:45	21:31 25	20:44 (WEA03)	21:44 26	20:50 (WEA03)	21:12 24	20:12 (B083)	20:11		19:02	16:56	16:17
3	08:29	08:01	07:07	07:44 (B200)	06:57	05:54 19:45 (B083)	05:10	20:18 (WEA03)	05:09	20:24 (WEA03)	05:46	19:48 (B083)	06:35		07:24	07:17	08:07
	16:24	17:12	18:03 10	07:54 (B200)	19:57	20:47 10 19:55 (B083)	21:32 26	20:44 (WEA03)	21:44 26	20:50 (WEA03)	21:11 23	20:11 (B083)	20:09		19:00	16:55	16:16
4	08:29	07:59	07:05	07:46 (B200)	06:55	05:52 19:42 (B083)	05:09	20:18 (WEA03)	05:10	20:25 (WEA03)	05:48	19:47 (B083)	06:37		07:26	07:19	08:09
	16:25	17:14	18:05 6	07:52 (B200)	19:58	20:49 14 19:56 (B083)	21:33 26	20:44 (WEA03)	21:43 26	20:51 (WEA03)	21:09 24	20:11 (B083)	20:06		18:57	16:53	16:16
5	08:29	07:58	07:03		06:53	05:50 19:41 (B083)	05:09	20:19 (WEA03)	05:11	20:24 (WEA03)	05:49	19:48 (B083)	06:39		07:27	07:21	08:10
	16:26	17:16	18:07		20:00	20:50 17 19:58 (B083)	21:34 25	20:44 (WEA03)	21:43 26	20:50 (WEA03)	21:07 23	20:11 (B083)	20:04		18:55	16:51	16:15
6	08:28	07:56	07:01		06:50	05:48 19:40 (B083)	05:08	20:18 (WEA03)	05:11	20:25 (WEA03)	05:51	19:48 (B083)	06:40		07:29	07:22	08:11
	16:28	17:18	18:09		20:02	20:52 19 19:59 (B083)	21:35 26	20:44 (WEA03)	21:42 26	20:51 (WEA03)	21:06 22	20:10 (B083)	20:02		18:53	16:49	16:15
7	08:28	07:54	06:59		06:48	05:46 19:39 (B083)	05:07	20:19 (WEA03)	05:12	20:25 (WEA03)	05:52	19:49 (B083)	06:42		07:30	07:24	08:12
	16:29	17:20	18:10		20:03	20:54 20 19:59 (B083)	21:36 26	20:45 (WEA03)	21:42 26	20:51 (WEA03)	21:04 21	20:10 (B083)	20:00		18:51	16:48	16:14
8	08:28	07:53	06:56		06:46	05:44 19:39 (B083)	05:07	20:19 (WEA03)	05:13	20:25 (WEA03)	05:54	19:49 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12		20:05	20:55 21 20:00 (B083)	21:37 26	20:45 (WEA03)	21:41 26	20:51 (WEA03)	21:02 19	20:08 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54		06:44	05:43 19:38 (B083)	05:06	20:19 (WEA03)	05:14	20:26 (WEA03)	05:56	19:50 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14		20:07	20:57 22 20:00 (B083)	21:37 26	20:45 (WEA03)	21:41 25	20:51 (WEA03)	21:00 18	20:08 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52		06:41	05:41 19:37 (B083)	05:06	20:20 (WEA03)	05:15	20:26 (WEA03)	05:57	19:51 (B083)	06:47		07:36	07:30	08:16
	16:33	17:25	18:16		20:09	20:58 23 20:00 (B083)	21:38 26	20:46 (WEA03)	21:40 25	20:51 (WEA03)	20:58 15	20:06 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50		06:39	05:39 19:37 (B083)	05:05	20:19 (WEA03)	05:16	20:26 (WEA03)	05:59	19:53 (B083)	06:48		07:37	08:20 (B200)	07:31	08:17
	16:34	17:27	18:17		20:10	21:00 24 20:01 (B083)	21:39 26	20:45 (WEA03)	21:39 26	20:52 (WEA03)	20:57 11	20:04 (B083)	19:50		18:42 6	08:26 (B200)	16:41	16:13
12	08:26	07:46	06:47		06:37 19:13 (B084)	05:38 19:37 (B083)	05:05	20:20 (WEA03)	05:17	20:27 (WEA03)	06:00	19:56 (B083)	06:50		07:39	08:17 (B200)	07:33	08:18
	16:35	17:29	18:19		20:12 7 19:20 (B084)	21:02 24 20:01 (B083)	21:40 26	20:46 (WEA03)	21:39 25	20:52 (WEA03)	20:55 4	20:00 (B083)	19:48		18:39 10	08:27 (B200)	16:40	16:13
13	08:25	07:44	06:45		06:35 19:10 (B084)	05:36 19:37 (B083)	05:05	20:20 (WEA03)	05:18	20:27 (WEA03)	06:02		06:51		07:41	08:16 (B200)	07:35	08:19
	16:37	17:31	18:21		20:14 13 19:23 (B084)	21:03 24 20:01 (B083)	21:40 26	20:46 (WEA03)	21:38 24	20:51 (WEA03)	20:53		19:46		18:37 12	08:28 (B200)	16:38	16:13
14	08:24	07:42	06:43		06:33 19:08 (B084)	05:34 19:37 (B083)	05:05	20:20 (WEA03)	05:19	20:28 (WEA03)	06:03		06:53		07:42	08:16 (B200)	07:37	08:20
	16:38	17:33	18:23		20:15 16 19:24 (B084)	21:05 23 20:00 (B083)	21:41 27	20:47 (WEA03)	21:37 23	20:51 (WEA03)	20:51		19:44		18:35 12	08:28 (B200)	16:37	16:13
15	08:24	07:40	06:41		06:30 19:06 (B084)	05:33 19:37 (B083)	05:04	20:21 (WEA03)	05:20	20:28 (WEA03)	06:05		06:55		07:44	08:16 (B200)	07:38	08:21
	16:40	17:34	18:24		20:17 18 19:24 (B084)	21:06 24 20:01 (B083)	21:42 26	20:47 (WEA03)	21:36 23	20:51 (WEA03)	20:49		19:41		18:33 12	08:28 (B200)	16:35	16:13
16	08:23	07:38 08:16 (B062)	06:38		06:28 19:05 (B084)	05:31 19:38 (B083)	05:04	20:20 (WEA03)	05:22	20:28 (WEA03)	06:07		06:56		07:46	08:16 (B200)	07:40	08:22
	16:41	17:36 7 08:23 (B062)	18:26		20:19 20 19:25 (B084)	21:08 23 20:01 (B083)	21:42 26	20:46 (WEA03)	21:35 23	20:51 (WEA03)	20:47		19:39		18:31 12	08:28 (B200)	16:34	16:13
17	08:22	07:36 08:15 (B062)	06:36		06:26 19:05 (B084)	05:30 19:38 (B083)	05:04	20:20 (WEA03)	05:23	20:29 (WEA03)	06:08		06:58		07:47	08:16 (B200)	07:42	08:23
	16:43	17:38 9 08:24 (B062)	18:28		20:20 20 19:25 (B084)	21:09 22 20:00 (B083)	21:43 26	20:46 (WEA03)	21:34 21	20:50 (WEA03)	20:45		19:37		18:29 10	08:26 (B200)	16:32	16:13
18	08:21	07:34 08:14 (B062)	06:34		06:24 19:05 (B084)	05:28 19:39 (B083)	05:04	20:21 (WEA03)	05:24	20:29 (WEA03)	06:10		07:00		07:49	08:18 (B200)	07:44	08:24
	16:45	17:40 11 08:25 (B062)	18:30		20:22 20 19:25 (B084)	21:11 21 20:00 (B083)	21:43 26	20:47 (WEA03)	21:33 21	20:50 (WEA03)	20:43		19:34		18:26 6	08:24 (B200)	16:31	16:13
19	08:20	07:32 08:14 (B062)	06:32		06:22 19:04 (B084)	05:27 19:40 (B083)	05:04	20:22 (WEA03)	05:25	20:30 (WEA03)	06:11	19:16 (B084)	07:01		07:51		07:45	08:24
	16:46	17:42 11 08:25 (B062)	18:31		20:24 21 19:25 (B084)	21:12 19 19:59 (B083)	21:44 26	20:48 (WEA03)	21:32 19	20:49 (WEA03)	20:41 8	19:24 (B084)	19:32		18:24		16:30	16:13
20	08:19	07:30 08:14 (B062)	06:29		06:20 19:04 (B084)	05:26 19:40 (B083)	05:04	20:22 (WEA03)	05:26	19:58 (B083)	06:13	19:13 (B084)	07:03		07:53		07:47	08:25
	16:48	17:44 11 08:25 (B062)	18:33		20:25 20 19:24 (B084)	21:14 18 19:58 (B083)	21:44 26	20:48 (WEA03)	21:31 20	20:48 (WEA03)	20:39 12	19:25 (B084)	19:30		18:22		16:28	16:14
21	08:18	07:28 08:14 (B062)	06:27		06:18 19:05 (B084)	05:24 19:41 (B083)	05:04	20:22 (WEA03)	05:28	19:55 (B083)	06:15	19:12 (B084)	07:04		07:54	08:46 (B062)	07:49	08:26
	16:50	17:45 11 08:25 (B062)	18:35		20:27 19 19:24 (B084)	21:15 17 19:58 (B083)	21:44 26	20:48 (WEA03)	21:29 25	20:48 (WEA03)	20:37 15	19:27 (B084)	19:27		18:20 8	08:54 (B062)	16:27	16:14
22	08:17	07:26 08:14 (B062)	06:25		06:15 19:05 (B084)	05:23 19:42 (B083)	05:04	20:22 (WEA03)	05:29	19:54 (B083)	06:16	19:10 (B084)	07:06		07:56	08:45 (B062)	07:50	08:26
	16:51	17:47 9 08:23 (B062)	18:36		20:29 18 19:23 (B084)	21:17 24 20:34 (WEA03)	21:44 26	20:48 (WEA03)	21:28 24	20:46 (WEA03)	20:35 17	19:27 (B084)	19:25		18:18 10	08:55 (B062)	16:26	16:15
23	08:16	07:24 08:17 (B062)	06:22		06:13 19:06 (B084)	05:22 19:44 (B083)	05:05	20:22 (WEA03)	05:30	19:52 (B083)	06:18	19:10 (B084)	07:08		07:58	08:43 (B062)	07:52	08:27
	16:53	17:49 3 08:20 (B062)	18:38		20:30 16 19:22 (B084)	21:18 24 20:35 (WEA03)	21:45 26	20:48 (WEA03)	21:27 24	20:44 (WEA03)	20:33 18	19:28 (B084)	19:23		18:16 12	08:55 (B062)	16:25	16:15
24	08:15	07:22	06:20		06:11 19:07 (B084)	05:20 19:45 (B083)	05:05	20:23 (WEA03)	05:32	19:51 (B083)	06:19	19:08 (B084)	07:09		08:00	08:43 (B062)	07:54	08:27
	16:55	17:51	18:40		20:32 13 19:20 (B084)	21:19 25 20:38 (WEA03)	21:45 26	20:49 (WEA03)	21:26 17	20:08 (B083)	20:30 20	19:28 (B084)	19:20		18:14 12	08:55 (B062)	16:24	16:16
25	08:14	07:20 07:47 (B200)	06:18		06:09 19:09 (B084)	05:19 19:48 (B083)	05:05	20:23 (WEA03)	05:33	19:51 (B083)	06:21	19:08 (B084)	07:11		08:01	08:43 (B062)	07:55	08:28
	16:56	17:53 5 07:52 (B200)	18:42		20:34 9 19:18 (B084)	21:21 21 20:39 (WEA03)	21:45 26	20:49 (WEA03)	21:24 18	20:09 (B083)	20:28 20	19:28 (B084)	19:18		18:12 12	08:55 (B062)	16:23	16:16
26	08:12	07:18 07:45 (B200)	07:16		06:07	05:18 20:21 (WEA03)	05:05	20:23 (WEA03)	05:35	19:50 (B083)	06:23	19:07 (B084)	07:12		08:03	08:44 (B062)	07:57	08:28
	16:58	17:54 9 07:54 (B200)	19:43		20:35	21:22 19 20:40 (WEA03)	21:45 26	20:49 (WEA03)	21:23 20	20:10 (B083)	20:26 21	19:28 (B084)	19:16		18:10 10	08:54 (B062)	16:22	16:17
27	08:11	07:16 07:44 (B200)	07:13		06:05	05:17 20:20 (WEA03)	05:06	20:23 (WEA03)	05:36	19:49 (B083)	06:24	19:08 (B084)	07:14		08:05	08:45 (B062)	07:58	08:28
	17:00	17:56 11 07:55 (B200)	19:45		20:37	21:23 21 20:41 (WEA03)	21:45 26	20:49 (WEA03)	21:22 21	20:10 (B083)	20:24 20	19:28 (B084)	19:13		18:08 8	08:53 (B062)	16:21	16:18
28	08:10	07:14 07:43 (B200)	07:11		06:03	05:16 20:20 (WEA03)	05:06	20:23 (WEA03)	05:37	19:49 (B083)	06:26	19:07 (B084)	07:16		08:07	08:48 (B062)	08:00	08:29
	17:02	17:58 12 07:55 (B200)	19:47		20:39	21:25 21 20:41 (WEA03)	21:45 26	20:49 (WEA03)	21:20 22	20:11 (B083)	20:22 20	19:27 (B084)	19:11		18:06 2	08:50 (B062)	16:20	16:18
29	08:08		07:09		06:01	05:15 20:19 (WEA03)	05:07	20:24 (WEA03)	05:39	19:48 (B083)	06:27	19:08 (B084)	07:17		07:08		08:01	08:29
	17:03		19:48		20:40	21:26 23 20:42 (WEA03)	21:45 26	20:50 (WEA03)	21:19 23	20:11 (B083)	20:20 18	19:26 (B084)	19:09		17:04		16:19	16:19
30	08:07		07:06		05:59	05:14 20:19 (WEA03)	05:07	20:23 (WEA03)	05:40	19:48 (B083)	06:29	19:08 (B084)	07:19		07:10		08:03	08:29
	17:05		19:50		20:42	21:27 23 20:42 (WEA03)	21:45 27	20:50 (WEA03)	21:17 23	20:11 (B083)	20:17 16	19:24 (B084)	19:06		17:02		16:18	16:20
31	08:06		07:04		05:13 20:19 (WEA03)		05:42	19:48 (B083)	06:31	19:09 (B084)			07:12			08:29
	17:07		19:52		21:28 23 20:42 (WEA03)		21:16 24	20:12 (B083)	20:15 14	19:23 (B084)			17:00			16:21
Sonnenscheinstunden	259	277	366	414	483	497	501		454		382		333		268	245
astr.max.mögl.Beschattung		109	40	230	609	778	724		447	11		154				
Red.Sonnenscheinwahrsch.		0.32	0.28	0.36	0.43	0.34	0.39		0.40	0.32		0.29				
Reduktion Betriebsdauer		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95		0.95				
Reduktion Windrichtung		0.64	0.66	0.71	0.65	0.63	0.64		0.68	0.71		0.65				
Gesamte Reduktion		0.20	0.18	0.24	0.27	0.20	0.24		0.26	0.21		0.18				
Met.wahrsch.Beschattung		22	7	56	162	158	172		117	2		27				

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)

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender

Berechnung: Dörenhagen GB Schattenrezeptor: IO104 - Futterweg 8, Grundsteinheim

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:44 (B200)	07:02	05:57	19:44 (B083)	05:12	20:17 (WEA03)	05:08	20:22 (WEA03)	05:43	19:45 (B083)	06:32	19:03 (B084)	07:21	07:14	08:04
	16:22	17:09	18:00	11 07:55 (B200)	19:53	20:44	7 19:51 (B083)	21:29	26 20:43 (WEA03)	21:44	27 20:49 (WEA03)	21:14	24 20:09 (B083)	20:13	17 19:20 (B084)	19:04	16:58	16:18
2	08:29	08:03	07:10	07:45 (B200)	07:00	05:55	19:41 (B083)	05:11	20:17 (WEA03)	05:09	20:22 (WEA03)	05:45	19:45 (B083)	06:34	19:05 (B084)	07:22	07:15	08:06
	16:23	17:11	18:02	10 07:55 (B200)	19:55	20:45	12 19:53 (B083)	21:31	26 20:43 (WEA03)	21:44	27 20:49 (WEA03)	21:12	24 20:09 (B083)	20:11	14 19:19 (B084)	19:02	16:56	16:17
3	08:29	08:01	07:07	07:47 (B200)	06:57	05:54	19:39 (B083)	05:10	20:17 (WEA03)	05:09	20:22 (WEA03)	05:46	19:44 (B083)	06:35	19:06 (B084)	07:24	07:17	08:07
	16:24	17:12	18:03	6 07:53 (B200)	19:57	20:47	16 19:55 (B083)	21:32	26 20:43 (WEA03)	21:44	27 20:49 (WEA03)	21:11	25 20:09 (B083)	20:09	10 19:16 (B084)	19:00	16:55	16:16
4	08:29	07:59	07:05		06:55	05:52	19:37 (B083)	05:09	20:16 (WEA03)	05:10	20:23 (WEA03)	05:48	19:44 (B083)	06:37		07:26	07:19	08:09
	16:25	17:14	18:05		19:58	20:49	19 19:56 (B083)	21:33	26 20:42 (WEA03)	21:43	27 20:50 (WEA03)	21:09	24 20:08 (B083)	20:06		18:57	16:53	16:16
5	08:29	07:58	07:03		06:53	05:50	19:37 (B083)	05:09	20:17 (WEA03)	05:11	20:22 (WEA03)	05:49	19:45 (B083)	06:39		07:27	07:21	08:10
	16:26	17:16	18:07		20:00	20:50	20 19:57 (B083)	21:34	26 20:43 (WEA03)	21:43	27 20:49 (WEA03)	21:07	24 20:09 (B083)	20:04		18:55	16:51	16:15
6	08:28	07:56	07:01		06:50	05:48	19:36 (B083)	05:08	20:17 (WEA03)	05:11	20:23 (WEA03)	05:51	19:44 (B083)	06:40		07:29	07:22	08:11
	16:28	17:18	18:09		20:02	20:52	21 19:57 (B083)	21:35	26 20:43 (WEA03)	21:42	26 20:49 (WEA03)	21:06	24 20:08 (B083)	20:02		18:53	16:49	16:15
7	08:28	07:54	06:59		06:48	05:46	19:35 (B083)	05:07	20:17 (WEA03)	05:12	20:23 (WEA03)	05:52	19:45 (B083)	06:42		07:30	07:24	08:12
	16:29	17:20	18:10		20:03	20:54	23 19:58 (B083)	21:36	27 20:44 (WEA03)	21:42	27 20:50 (WEA03)	21:04	23 20:08 (B083)	20:00		18:51	16:48	16:14
8	08:28	07:53	06:56		06:46	05:44	19:35 (B083)	05:07	20:17 (WEA03)	05:13	20:24 (WEA03)	05:54	19:45 (B083)	06:43		07:32	07:26	08:14
	16:30	17:22	18:12		20:05	20:55	24 19:59 (B083)	21:37	26 20:43 (WEA03)	21:41	26 20:50 (WEA03)	21:02	22 20:07 (B083)	19:57		18:48	16:46	16:14
9	08:27	07:51	06:54		06:44	05:43	19:34 (B083)	05:06	20:17 (WEA03)	05:14	20:24 (WEA03)	05:56	19:46 (B083)	06:45		07:34	07:28	08:15
	16:31	17:23	18:14		20:07	20:57	24 19:58 (B083)	21:37	27 20:44 (WEA03)	21:41	26 20:50 (WEA03)	21:00	21 20:07 (B083)	19:55		18:46	16:44	16:14
10	08:27	07:49	06:52		06:41	19:10 (B084)	05:41	19:34 (B083)	05:06	20:18 (WEA03)	05:15	20:24 (WEA03)	05:57	19:46 (B083)	06:47		07:36	07:30	08:16
	16:33	17:25	18:16		20:09	6 19:16 (B084)	20:58	24 19:58 (B083)	21:38	27 20:45 (WEA03)	21:40	26 20:50 (WEA03)	20:58	19 20:05 (B083)	19:53		18:44	16:43	16:13
11	08:26	07:47	06:50		06:39	19:07 (B084)	05:39	19:34 (B083)	05:05	20:17 (WEA03)	05:16	20:25 (WEA03)	05:59	19:48 (B083)	06:48		07:37	07:31	08:17
	16:34	17:27	18:17		20:10	12 19:19 (B084)	21:00	25 19:59 (B083)	21:39	27 20:44 (WEA03)	21:39	26 20:51 (WEA03)	20:57	16 20:04 (B083)	19:50		18:42	16:41	16:13
12	08:26	07:46	06:47		06:37	19:05 (B084)	05:38	19:34 (B083)	05:05	20:18 (WEA03)	05:17	20:25 (WEA03)	06:00	19:49 (B083)	06:50		07:39	08:21 (B200)	07:33	08:18
	16:35	17:29	18:19		20:12	15 19:20 (B084)	21:02	24 19:58 (B083)	21:40	27 20:45 (WEA03)	21:39	26 20:51 (WEA03)	20:55	13 20:02 (B083)	19:48		18:39	4 08:25 (B200)	16:40	16:13
13	08:25	07:44	06:45		06:35	19:04 (B084)	05:36	19:34 (B083)	05:05	20:18 (WEA03)	05:18	20:25 (WEA03)	06:02	19:52 (B083)	06:51		07:41	08:19 (B200)	07:35	08:19
	16:37	17:31	18:21		20:14	17 19:21 (B084)	21:03	24 19:58 (B083)	21:40	27 20:45 (WEA03)	21:38	25 20:50 (WEA03)	20:53	8 20:00 (B083)	19:46		18:37	9 08:28 (B200)	16:38	16:13
14	08:24	07:42	06:43		06:33	19:03 (B084)	05:34	19:34 (B083)	05:05	20:19 (WEA03)	05:19	20:25 (WEA03)	06:03		06:53		07:42	08:18 (B200)	07:37	08:20
	16:38	17:33	18:23		20:15	19 19:22 (B084)	21:05	24 19:58 (B083)	21:41	26 20:45 (WEA03)	21:37	25 20:50 (WEA03)	20:51		19:44		18:35	11 08:29 (B200)	16:37	16:13
15	08:24	07:40	08:17 (B062)	06:41	06:30	19:01 (B084)	05:33	19:35 (B083)	05:04	20:19 (WEA03)	05:20	20:26 (WEA03)	06:05		06:55		07:44	08:17 (B200)	07:38	08:21
	16:40	17:34	6 08:23 (B062)	18:24	20:17	21 19:22 (B084)	21:06	23 19:58 (B083)	21:42	27 20:46 (WEA03)	21:36	24 20:50 (WEA03)	20:49		19:41		18:33	12 08:29 (B200)	16:35	16:13
16	08:23	07:38	08:15 (B062)	06:38	06:28	19:01 (B084)	05:31	19:36 (B083)	05:04	20:18 (WEA03)	05:22	20:26 (WEA03)	06:07		06:56		07:46	08:17 (B200)	07:40	08:22
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17	08:22	07:36	08:15 (B062)	06:36	06:26	19:01 (B084)	05:30	19:36 (B083)	05:04	20:19 (WEA03)	05:23	20:27 (WEA03)	06:08		06:58		07:47	08:17 (B200)	07:42	08:23
	16:43	17:38	10 08:25 (B062)	18:28	20:20	21 19:22 (B084)	21:09	21 19:57 (B083)	21:43	26 20:45 (WEA03)	21:34	22 20:49 (WEA03)	20:45		19:37		18:29	11 08:28 (B200)	16:32	16:13
18	08:21	07:34	08:14 (B062)	06:34	06:24	19:01 (B084)	05:28	19:37 (B083)	05:04	20:19 (WEA03)	05:24	20:27 (WEA03)	06:10		07:00		07:49	08:17 (B200)	07:44	08:24
	16:45	17:40	12 08:26 (B062)	18:30	20:22	20 19:21 (B084)	21:11	19 19:56 (B083)	21:43	26 20:45 (WEA03)	21:33	22 20:49 (WEA03)	20:43		19:34		18:26	10 08:27 (B200)	16:31	16:13
19	08:20	07:32	08:14 (B062)	06:32	06:22	19:01 (B084)	05:27	19:38 (B083)	05:04	20:20 (WEA03)	05:25	20:27 (WEA03)	06:11		07:01		07:51	08:19 (B200)	07:45	08:24
	16:46	17:42	12 08:26 (B062)	18:31	20:24	20 19:21 (B084)	21:12	18 19:56 (B083)	21:44	27 20:47 (WEA03)	21:32	21 20:48 (WEA03)	20:41		19:32		18:24	6 08:25 (B200)	16:30	16:13
20	08:19	07:30	08:15 (B062)	06:29	06:20	19:01 (B084)	05:26	19:38 (B083)	05:04	20:20 (WEA03)	05:26	20:28 (WEA03)	06:13		07:03		07:53		07:47	08:25
	16:48	17:44	10 08:25 (B062)	18:33	20:25	19 19:20 (B084)	21:14	16 19:54 (B083)	21:44	27 20:47 (WEA03)	21:31	20 20:48 (WEA03)	20:39		19:30		18:22		16:28	16:14
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	16:56	17:53	9 07:55 (B200)	18:42	20:34		21:21	19 20:38 (WEA03)	21:45	27 20:48 (WEA03)	21:24	17 20:39 (WEA03)	20:28	19 19:24 (B084)	19:18		18:12	11 08:55 (B062)	16:23	16:16
26	08:12	07:18	07:45 (B200)	07:16	06:07		05:18	20:18 (WEA03)	05:05	20:21 (WEA03)	05:35	19:48 (B083)	06:23	19:04 (B084)	07:12		08:03	08:44 (B062)	07:57	08:28
	16:58	17:55	11 07:56 (B200)	19:43	20:35		21:22	21 20:39 (WEA03)	21:45	26 20:47 (WEA03)	21:23	18 20:06 (B083)	20:26	20 19:24 (B084)	19:16		18:10	11 08:55 (B062)	16:22	16:17
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	17:00	17:56	12 07:57 (B200)	19:45	20:37		21:23	22 20:40 (WEA03)	21:45	26 20:48 (WEA03)	21:22	19 20:06 (B083)	20:24	20 19:24 (B084)	19:13		18:08	9 08:54 (B062)	16:21	16:18
28	08:10	07:14	07:44 (B200)	07:11	06:03		05:16	20:18 (WEA03)	05:06	20:21 (WEA03)	05:37	19:47 (B083)	06:26	19:03 (B084)	07:16		08:07	08:46 (B062)	08:00	08:29
	17:02	17:58	12 07:56 (B200)	19:47	20:39		21:25	22 20:40 (WEA03)	21:45	27 20:48 (WEA03)	21:20	21 20:08 (B083)	20:22	21 19:24 (B084)	19:11		18:06	7 08:53 (B062)	16:20	16:18
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	17:03			19:48	20:40		21:26	24 20:41 (WEA03)	21:45	27 20:49 (WEA03)	21:19	22 20:08 (B083)	20:20	21 19:24 (B084)	19:09		17:04		16:19	16:19
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	17:05			19:50	20:42		21:27	24 20:41 (WEA03)	21:45	26 20:48 (WEA03)	21:17	23 20:08 (B083)	20:17	19 19:22 (B084)	19:06		17:02		16:18	16:20
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Sonnenscheinstunden	259	277	366		414	483	497		501		454		382				333		268	245
astr.max.mögl.Beschattung		122	27		239	651	797		732		465		41				140			
Red.Sonnenscheinwahrsch.		0.32	0.28		0.36	0.43	0.34		0.39		0.40		0.32				0.29			
Reduktion Betriebsdauer		0.95	0.95		0.95	0.95	0.95		0.95		0.95		0.95				0.95			
Reduktion Windrichtung		0.64	0.66		0.71	0.65	0.63		0.64		0.68		0.71				0.65			
Gesamte Reduktion		0.20	0.18		0.25	0.27	0.20		0.24		0.26		0.22				0.18			
Met.wahrsch.Beschattung		24	5		59	173	162		173		121		9				25			

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

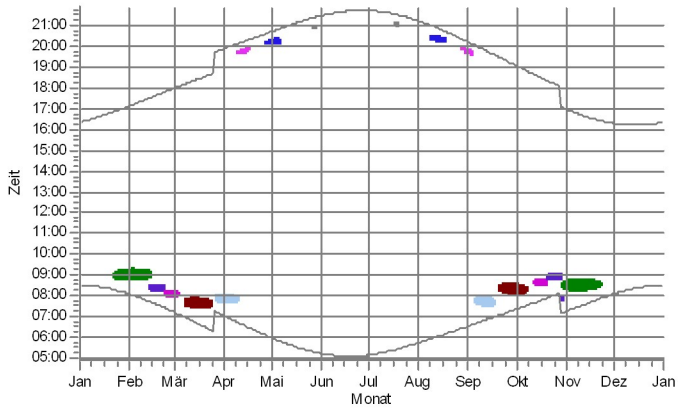
Tag im Monat	Sonnenaufgang (SS:MM)		Zeitpunkt (SS:MM) Schattenanfang	(WEA mit erstem Schatten)
	Sonnenuntergang (SS:MM)	Minuten mit Schatten	Zeitpunkt (SS:MM) Schattenende	(WEA mit letztem Schatten)

Lizenzierter Anwender:
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Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

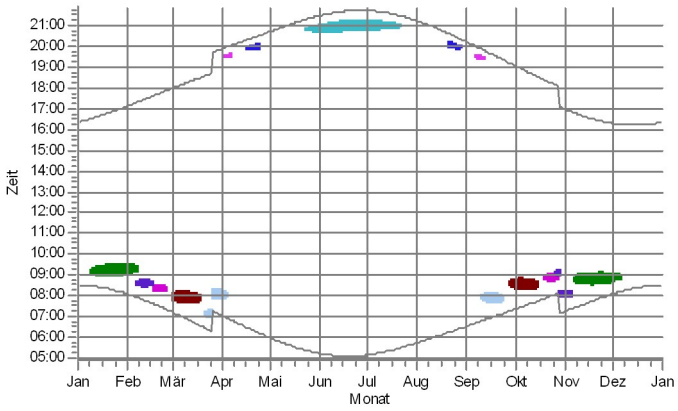
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

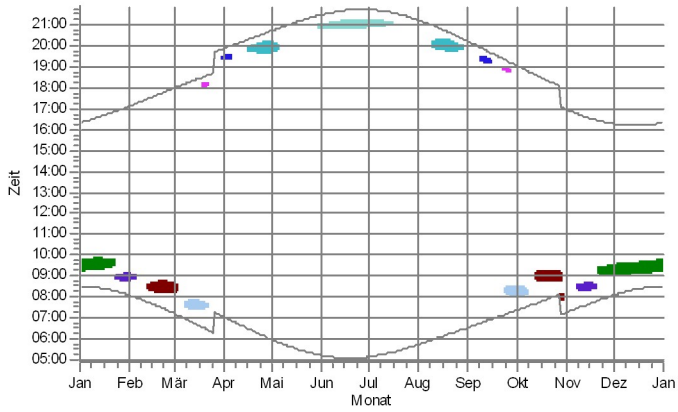
IO001: Dahler Str. 2a, Borchen



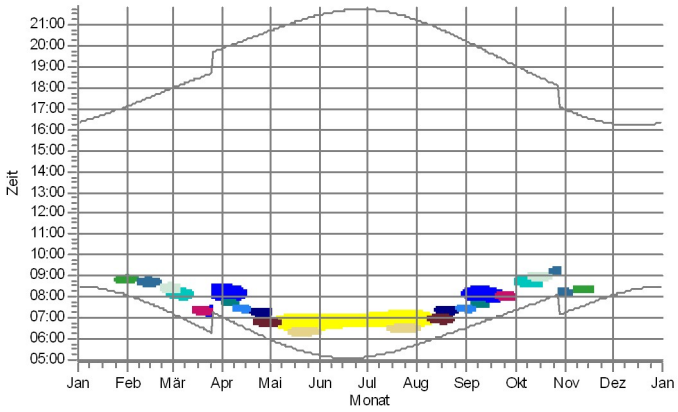
IO002: Dahler Str. 3, Borchen



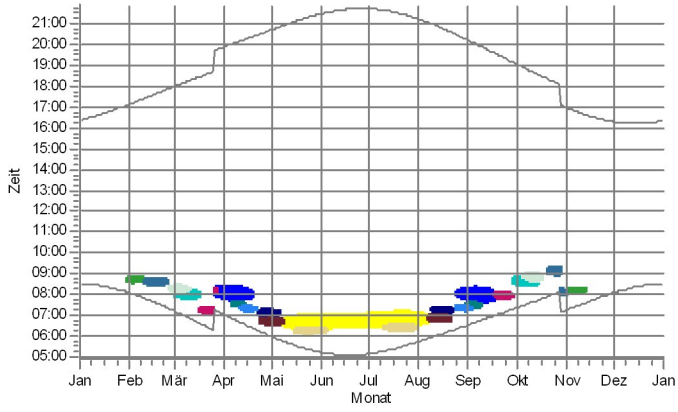
IO003: Dahler Str. 5, Borchen



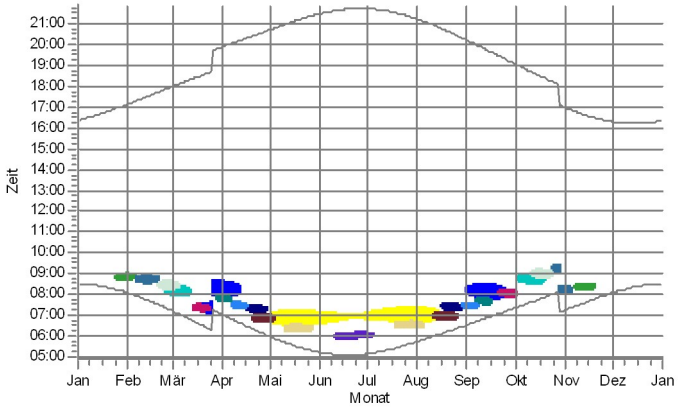
IO004: Am Bogen 11, Dörenhagen



IO005: Am Bogen 18, Dörenhagen



IO006: Am Bogen 9, 9a, Dörenhagen



WEA

WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)
WEA03: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)
B004: MICON M1500 600-150 43.0 !O! NH: 46.0 m (Ges:67.5 m) (309)
B012: ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (314)
B013: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)
B014: ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m) (511)
B050: ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (340)
B077: VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (364)
B078: VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (365)
B082: NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0 m) (367)
B083: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)
B084: ENERCON E-115 EP3 E3 4200 115.7 !O! NH: 149.0 m (Ges:206.9 m) (510)
B124: NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)
B142: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (408)
B143: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (409)
B150: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (415)
B152: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)
B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)
B172: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (435)
B173: VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (436)
B178: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)
B253: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)

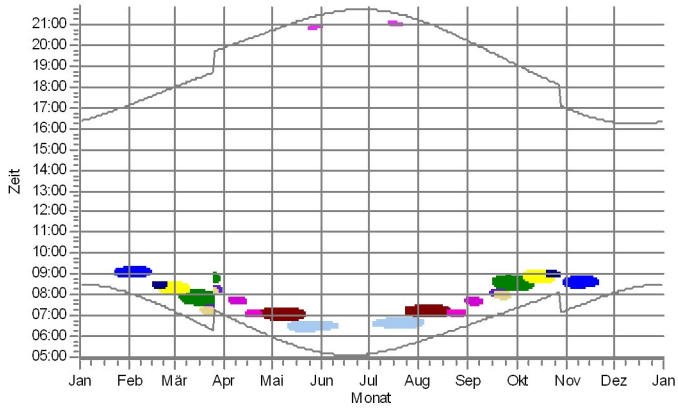
Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

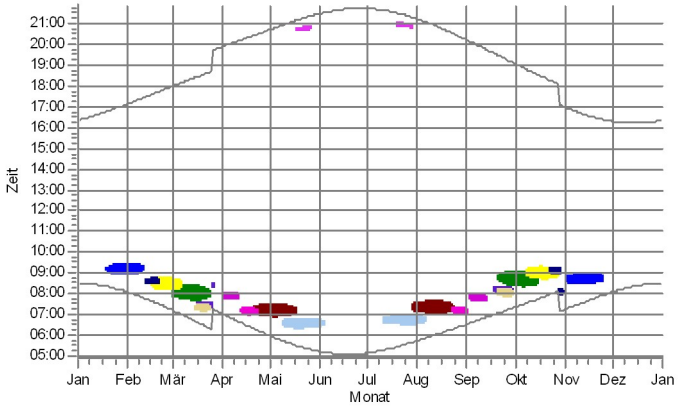
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

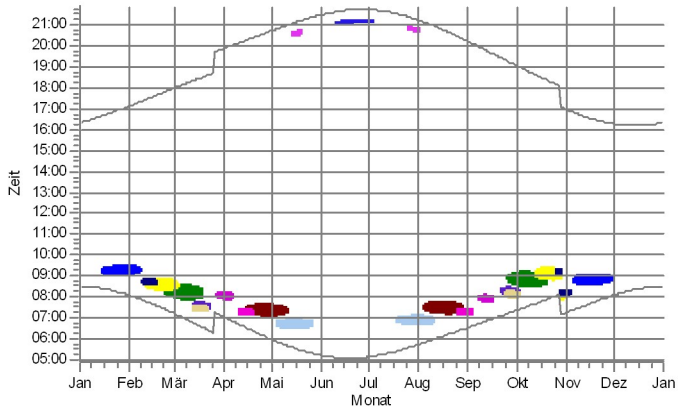
IO007: Am Dorfteich 1, Dörenhagen



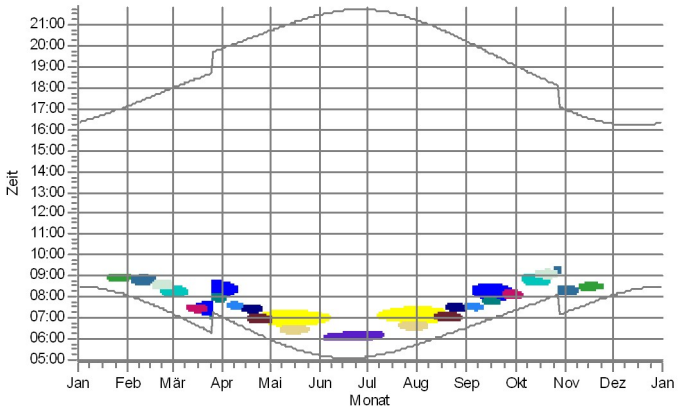
IO008: Am Dorfteich 2, Dörenhagen



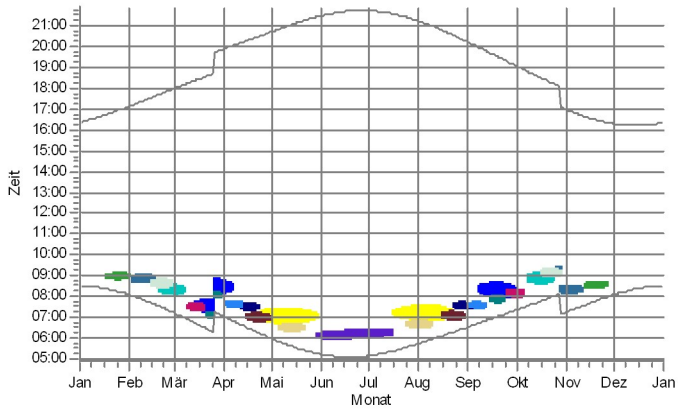
IO009: Am Dorfteich 4, Dörenhagen



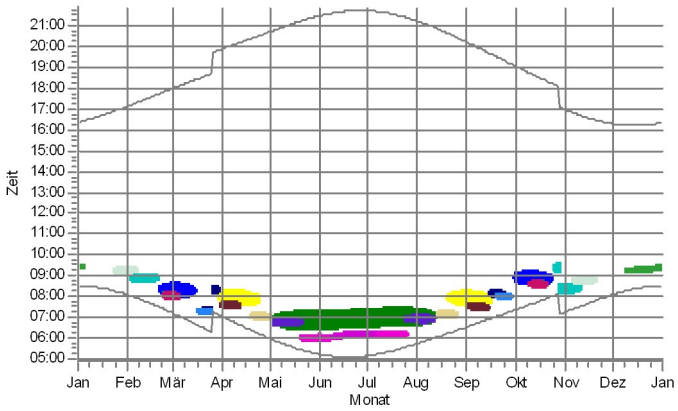
IO010: Am Rüenmarkt 4, Dörenhagen



IO011: Am Rüenmarkt 9, Dörenhagen



IO012: Am Wallgraben 2, Dörenhagen



WEA

WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)
WEA03: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)
B012: ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (314)
B013: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)
B014: ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m) (511)
B050: ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (340)
B082: NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0 m) (367)
B083: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)
B084: ENERCON E-115 EP3 E3 4200 115.7 !O! NH: 149.0 m (Ges:206.9 m) (510)
B087: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)
B124: NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)
B142: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (408)
B143: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (409)
B150: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (415)
B152: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)
B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)
B172: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (435)
B178: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)
B253: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)

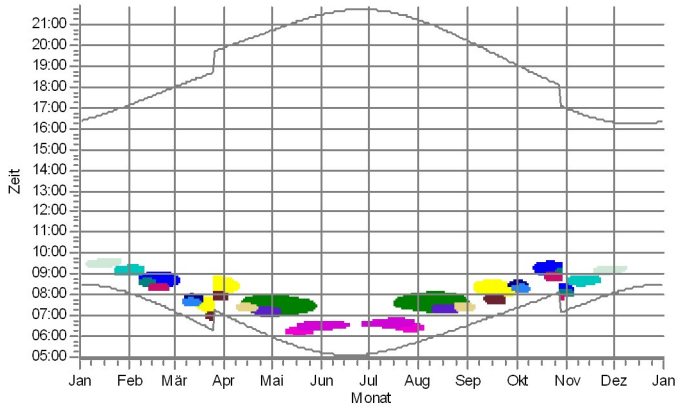
Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

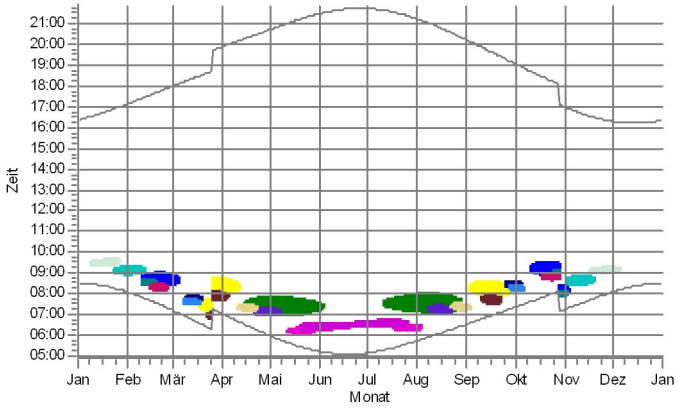
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

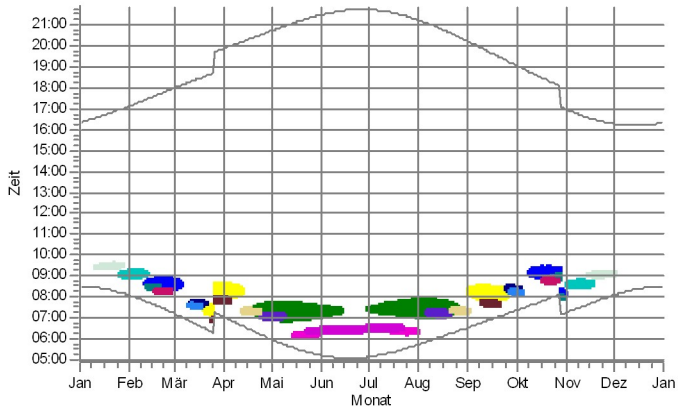
IO013: An d. Trift 23, Dörenhagen



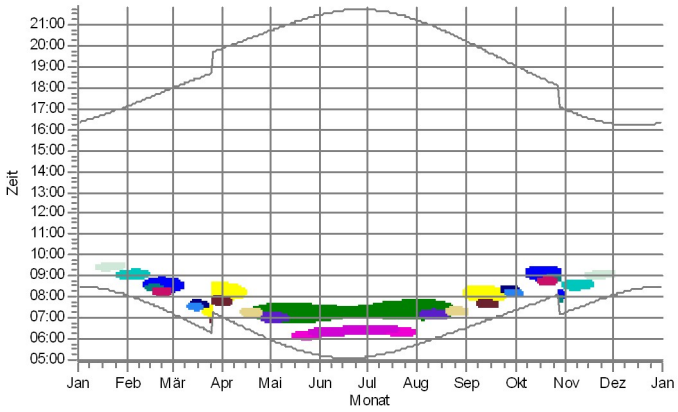
IO014: An d. Trift 25, Dörenhagen



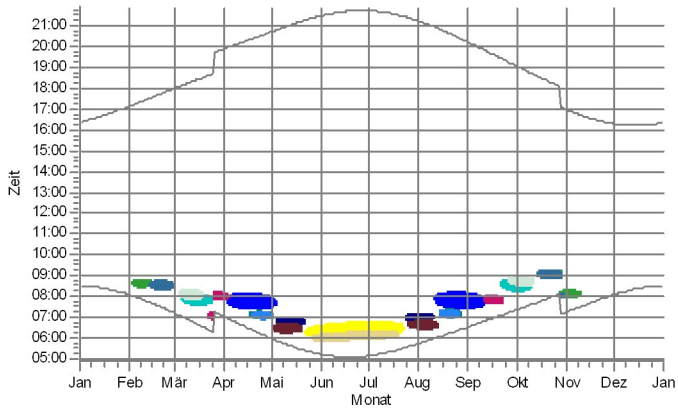
IO015: An d. Trift 27, Dörenhagen



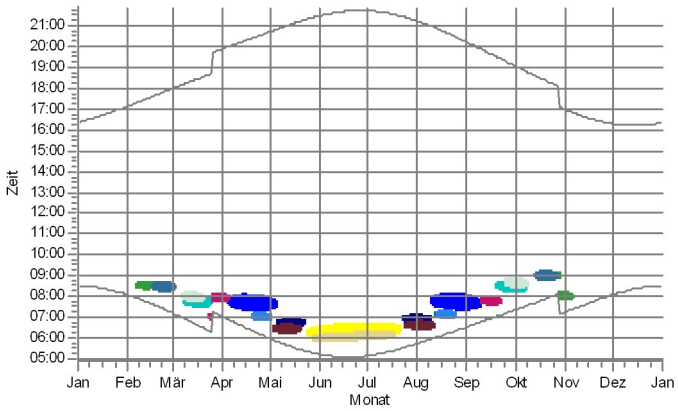
IO016: An d. Trift 30/32, Dörenhagen



IO017: Beerengrund 1, Dörenhagen



IO018: Beerengrund 3, Dörenhagen



WEA

WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)
WEA03: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)
B012: ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (314)
B013: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)
B082: NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0 m) (367)
B083: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)
B084: ENERCON E-115 EP3 E3 4200 115.7 !O! NH: 149.0 m (Ges:206.9 m) (510)
B087: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)
B124: NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)
B150: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (415)
B152: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)
B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)
B178: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)
B253: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)

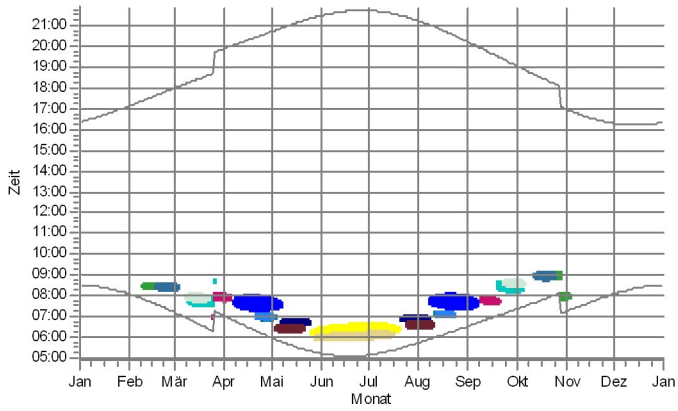
Lizenzierter Anwender:
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Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

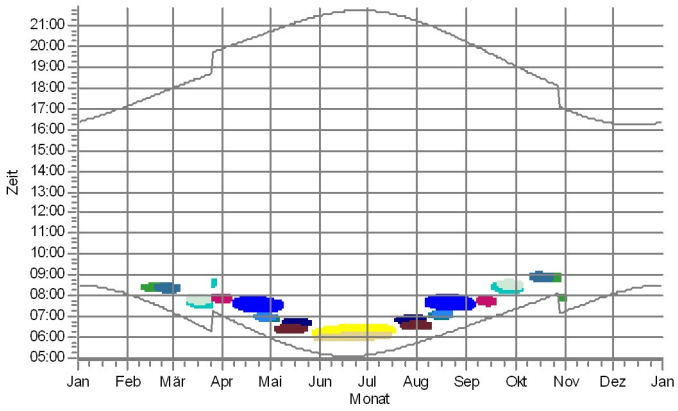
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

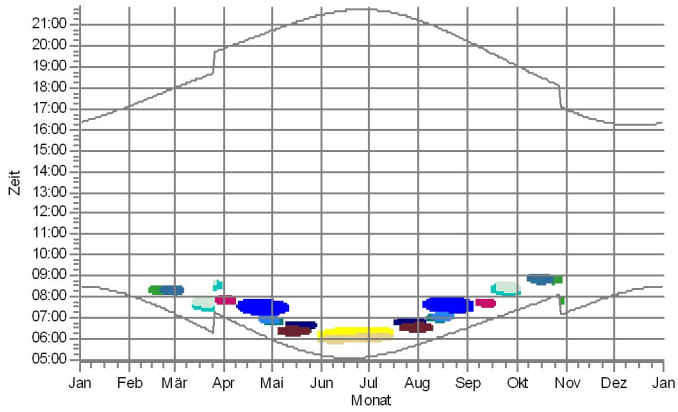
IO019: Beerengrund 5, Dörenhagen



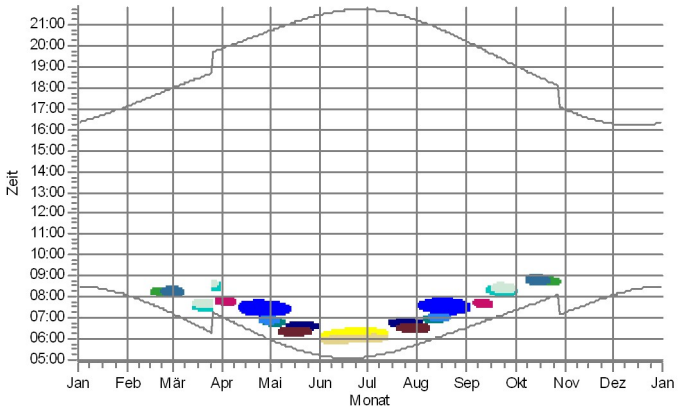
IO020: Beerengrund 7, Dörenhagen



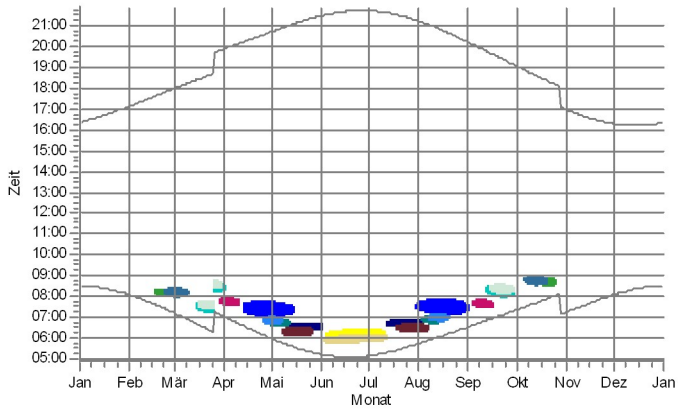
IO021: Beerengrund 9, Dörenhagen



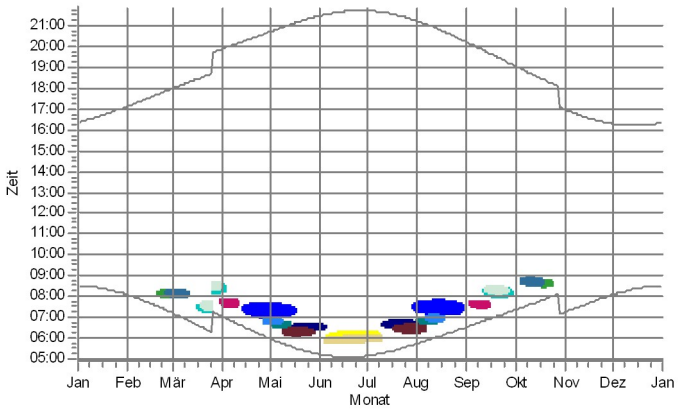
IO022: Beerengrund 11, Dörenhagen

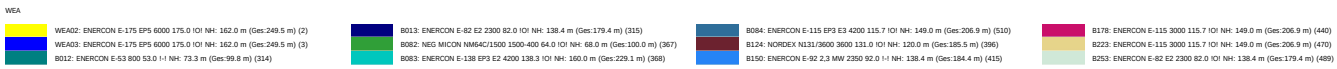


IO023: Beerengrund 13, Dörenhagen



IO024: Beerengrund 15, Dörenhagen





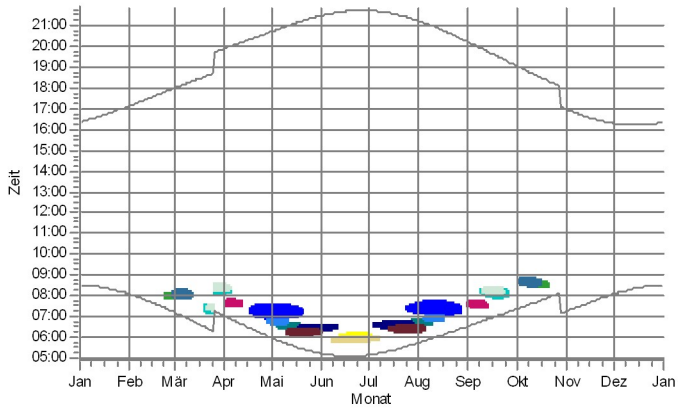
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Lena Fieckel / lena.fieckel@anemos.de

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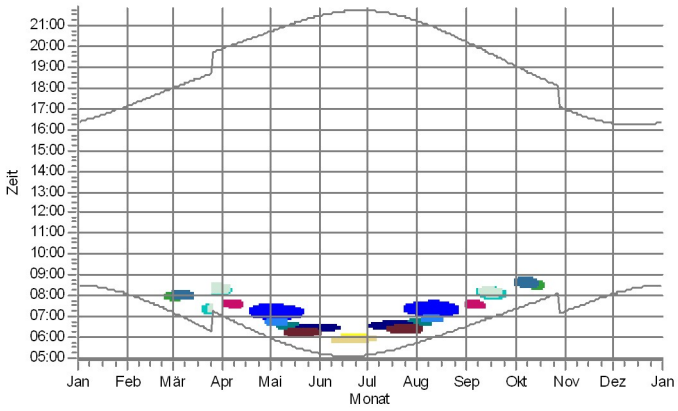
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

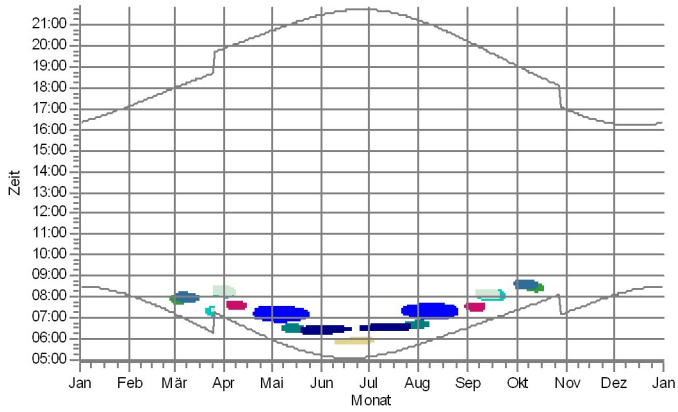
IO025: Beerengrund 17, Dörenhagen



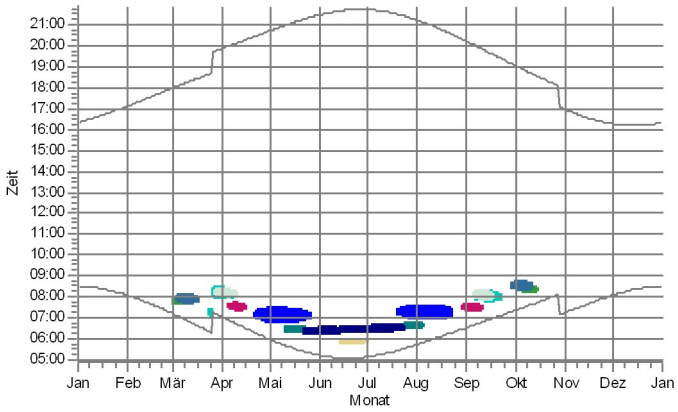
IO026: Beerengrund 19, Dörenhagen



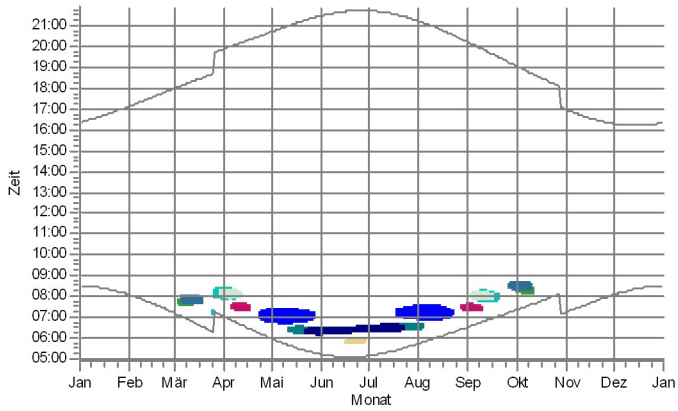
IO027: Beerengrund 21, 21a, Dörenhagen



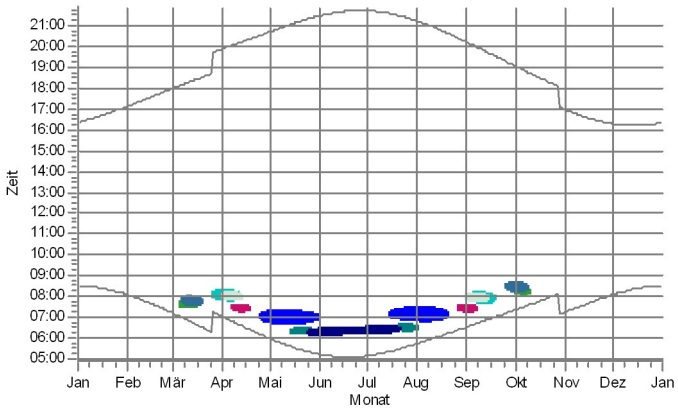
IO028: Beerengrund 23, Dörenhagen

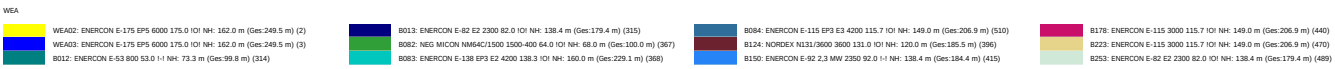


IO029: Beerengrund 25, Dörenhagen



IO030: Beerengrund 27, Dörenhagen





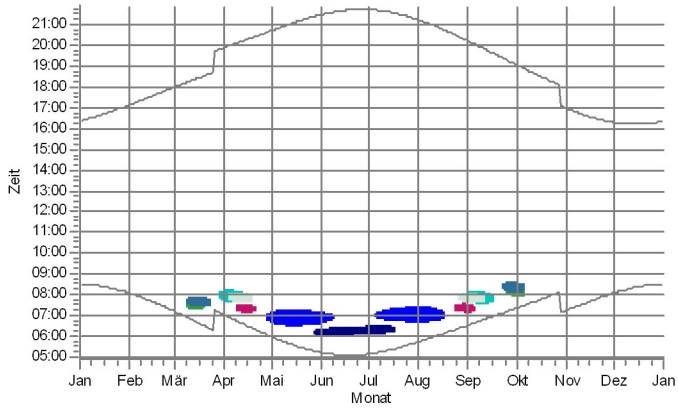
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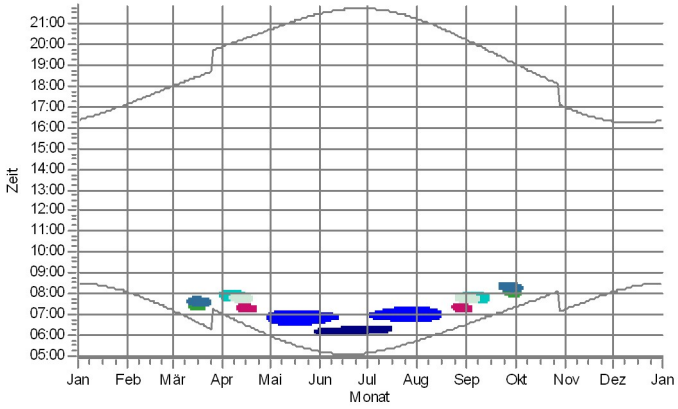
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

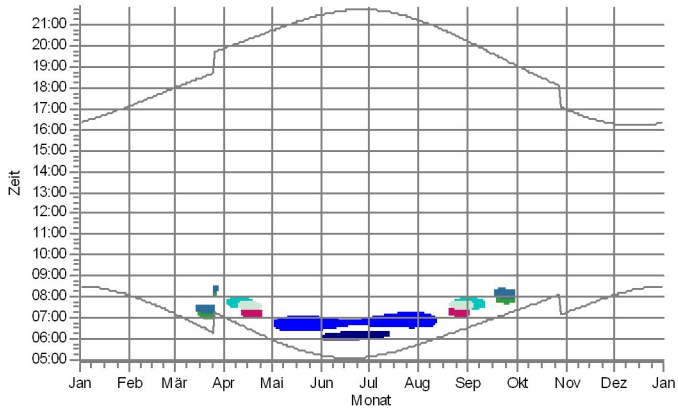
IO031: Beerengrund 31, Dörenhagen



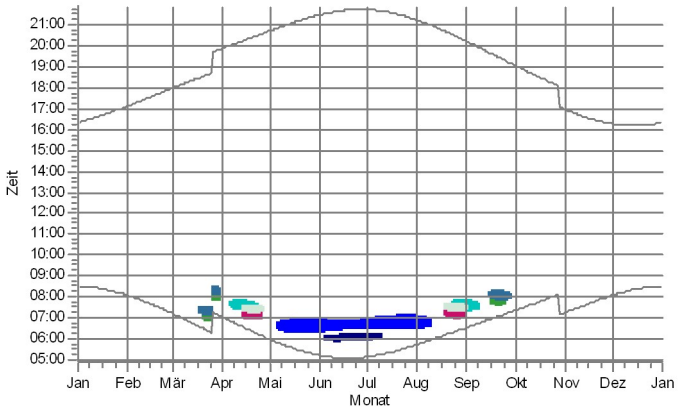
IO032: Beerengrund 33, Dörenhagen



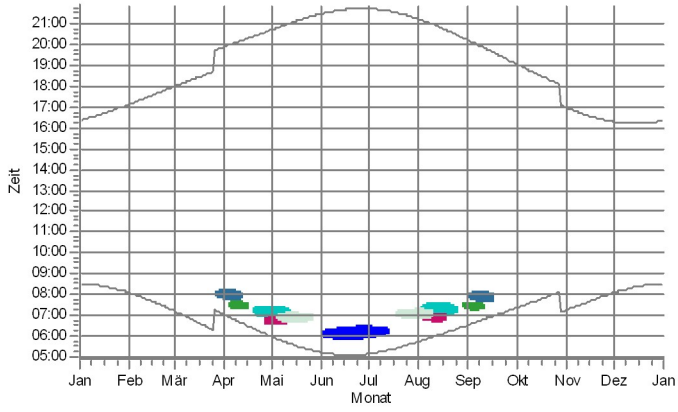
IO033: Ebbinghauser Str. 13, Dörenhagen



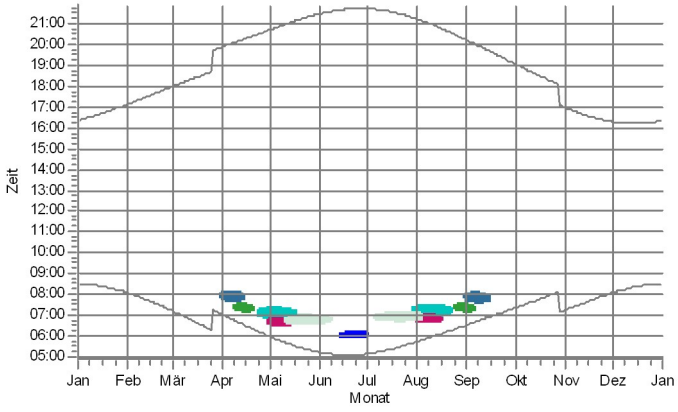
IO034: Ebbinghauser Str. 15, Dörenhagen



IO035: Ebbinghauser Str. 15a, Dörenhagen



IO036: Ebbinghauser Str. 17, Dörenhagen



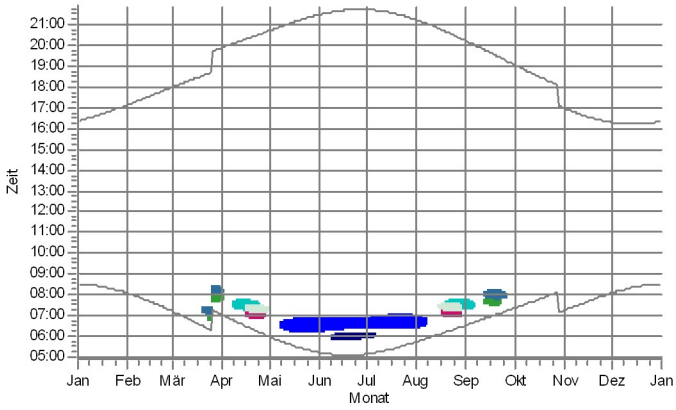


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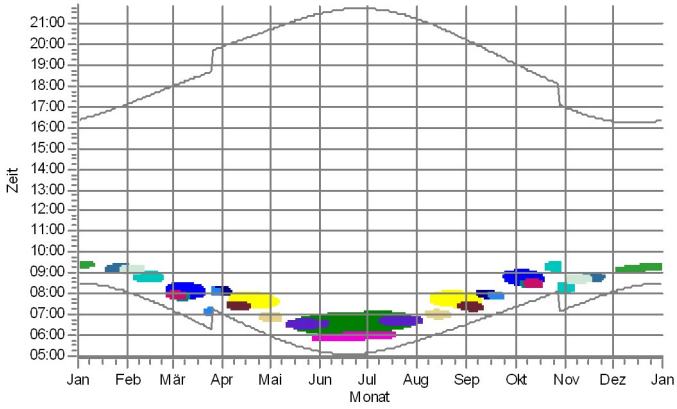
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

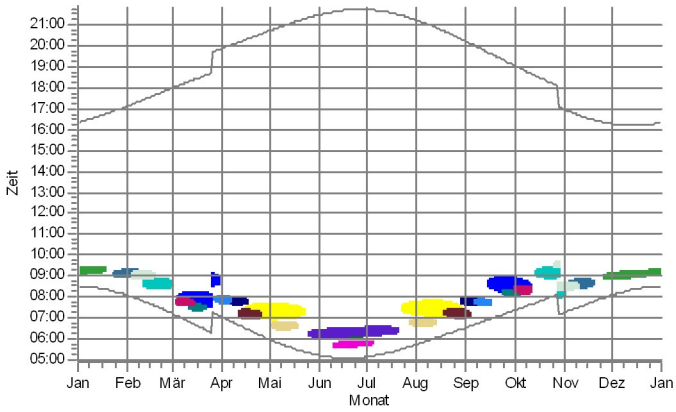
IO037: Ebbinghauser Str. 20a, Dörenhagen



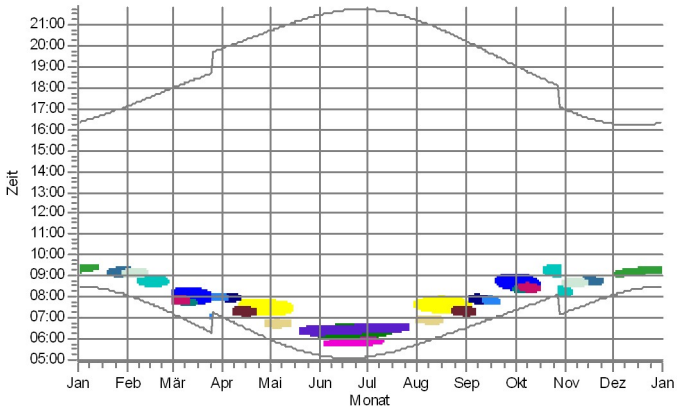
IO038: Eggestr. 15, Dörenhagen



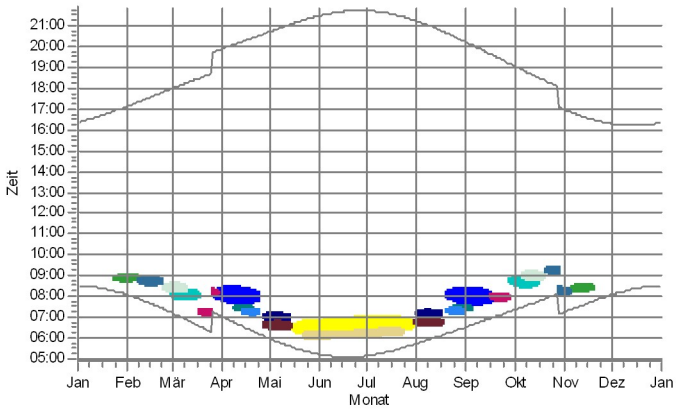
IO039: Eggestr. 16, Dörenhagen



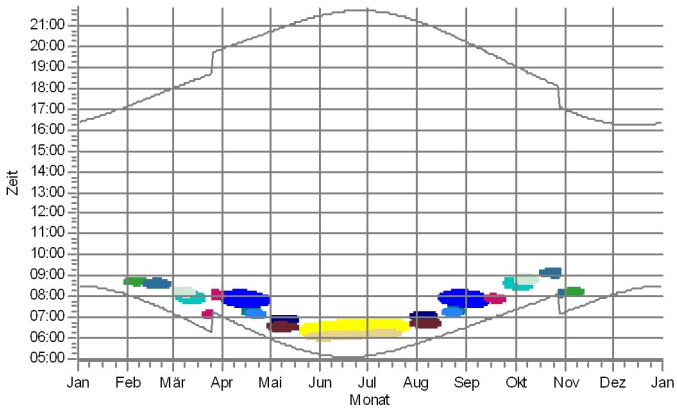
IO040: Eggestr. 17, 17a, Dörenhagen



IO041: Eggestr. 25, 25a, Dörenhagen



IO042: Eggestr. 29, Dörenhagen



WEA

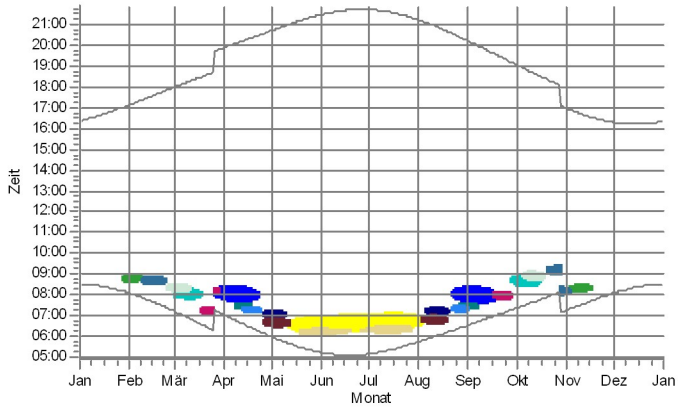
WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)
WEA03: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)
B012: ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (314)
B013: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)
B082: NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0 m) (367)
B083: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)
B084: ENERCON E-115 EP3 E3 4200 115.7 !O! NH: 149.0 m (Ges:206.9 m) (510)
B087: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)
B124: NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)
B150: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (415)
B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)
B178: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)
B253: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)

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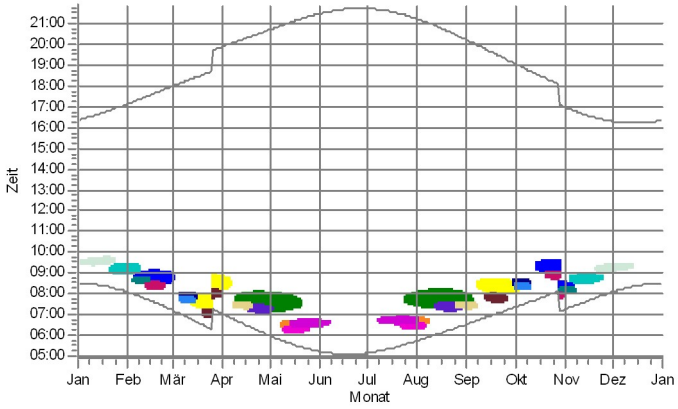
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

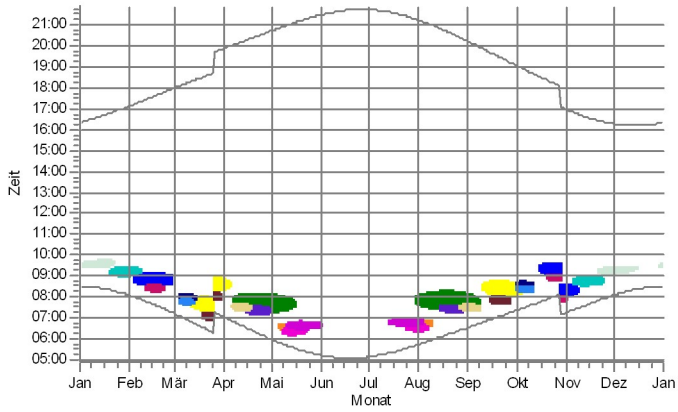
IO043: Eggestr. 30, 32, Dörenhagen



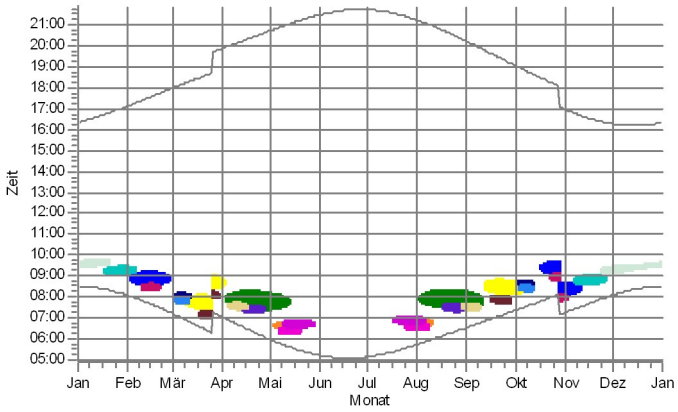
IO044: Im Kirchenfelde 22, Dörenhagen



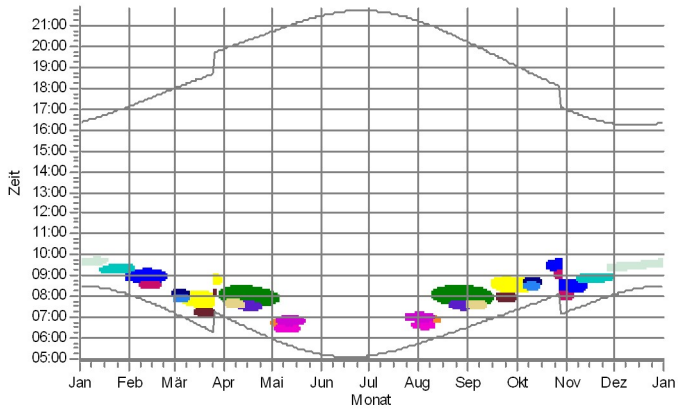
IO045: Im Kirchenfelde 24, Dörenhagen



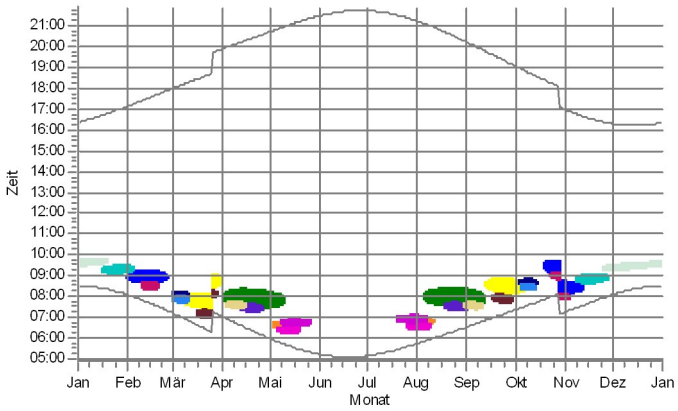
IO046: Im Kirchenfelde 26, Dörenhagen

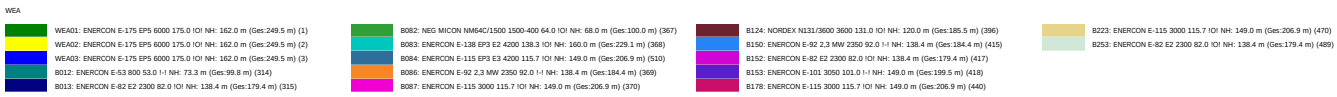


IO047: Im Kirchenfelde 30, Dörenhagen



IO048: Im Kirchenfelde 30, Dörenhagen





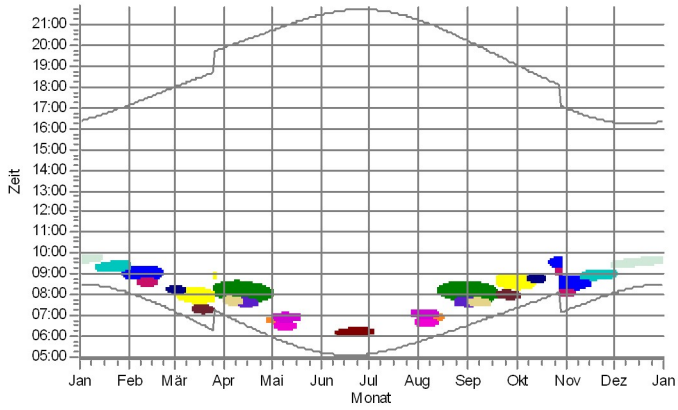
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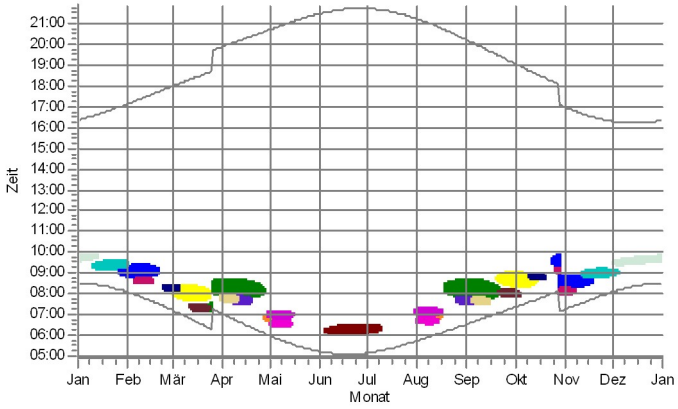
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

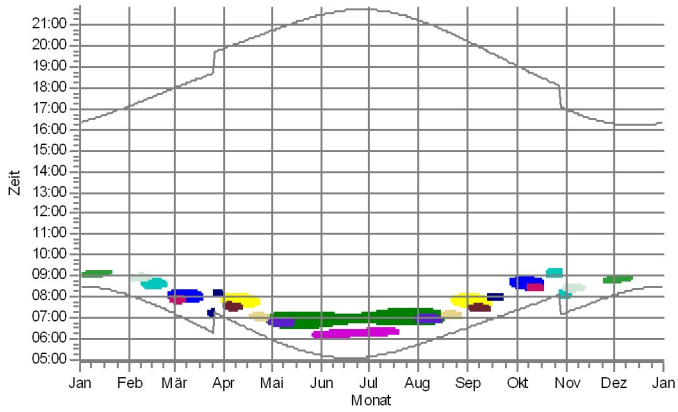
IO049: Im Kirchenfelde 32, Dörenhagen



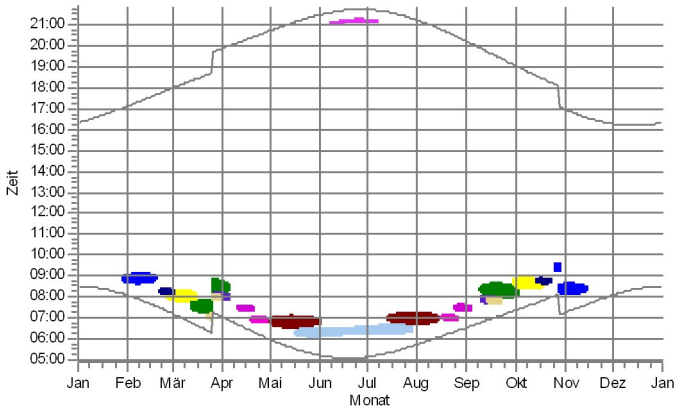
IO050: Im Kirchenfelde 34, Dörenhagen



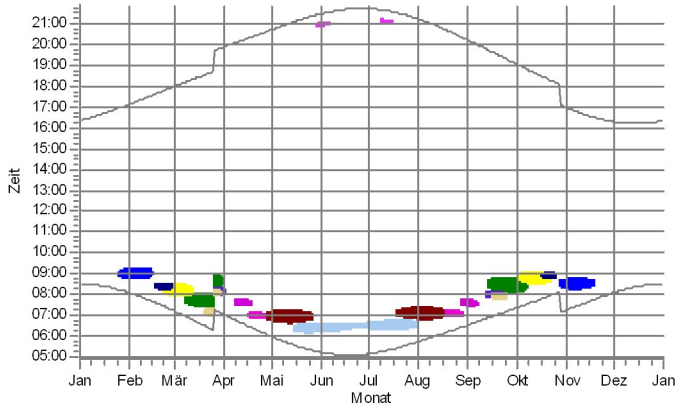
IO051: Kirchborchener Str. 28, Dörenhagen



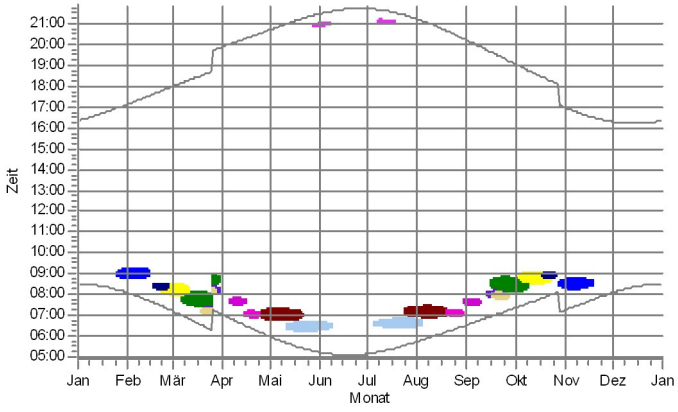
IO052: Kirchborchener Str. 52, Dörenhagen



IO053: Kirchborchener Str. 54, Dörenhagen



IO054: Kirchborchener Str. 56, Dörenhagen



WEA

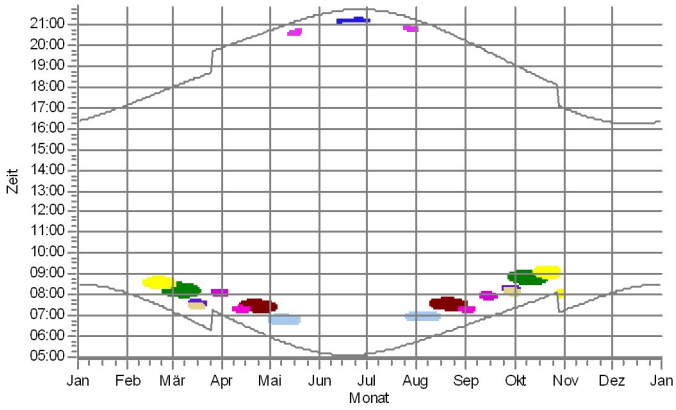
WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)
WEA03: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)
B013: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)
B014: ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m) (511)
B050: ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (340)
B082: NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0 m) (367)
B083: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)
B086: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (369)
B087: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)
B124: NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)
B152: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)
B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)
B172: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (435)
B178: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)
B253: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)

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Lena Fieckel / lena.fieckel@anemos.de

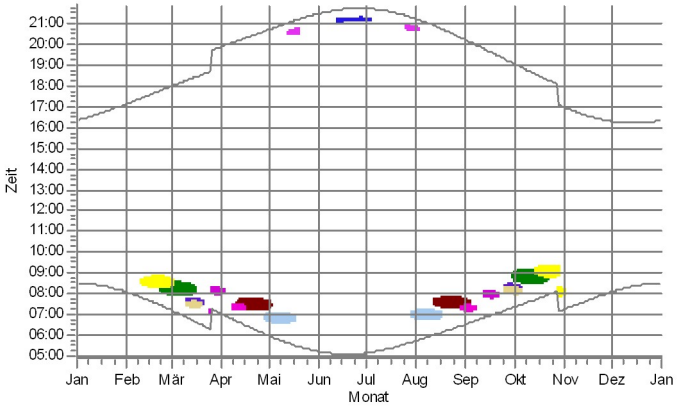
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

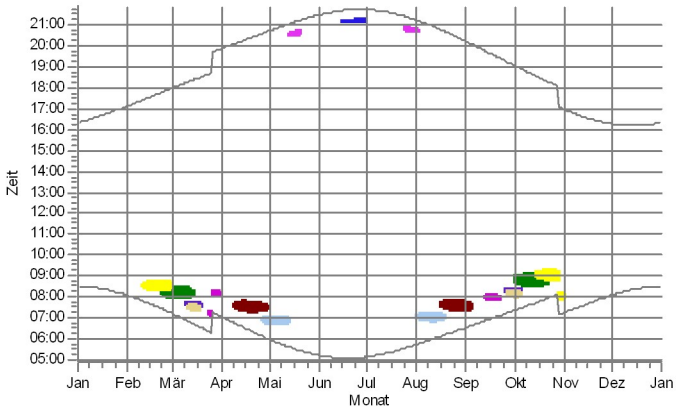
IO055: Kirchborchener Str. 58,Dörenhagen



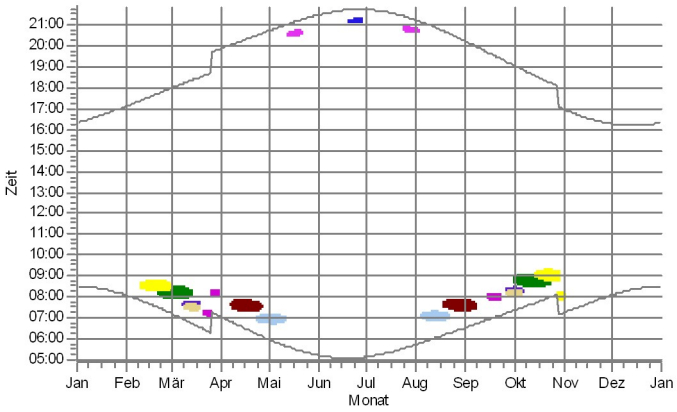
IO056: Kirchborchener Str. 60, Dörenhagen



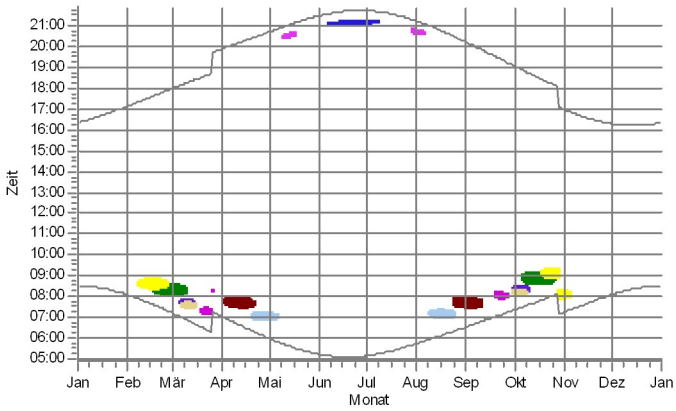
IO057: Kirchborchener Str. 60a, Dörenhagen



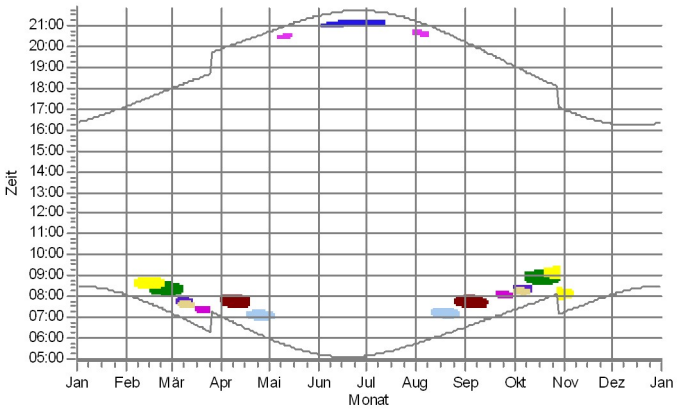
IO058: Kirchborchener Str. 62, Dörenhagen

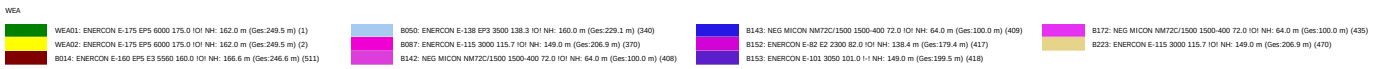


IO059: Kirchborchener Str. 64, Dörenhagen



IO060: Kirchborchener Str. 66, Dörenhagen





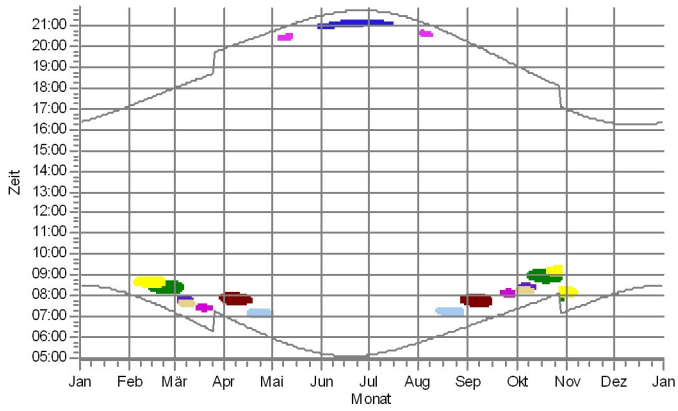
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Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

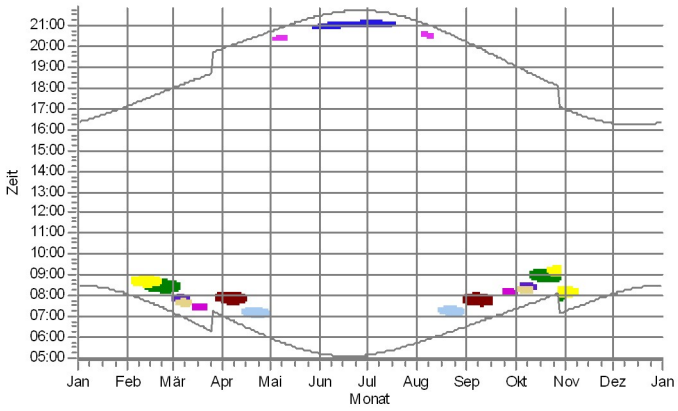
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

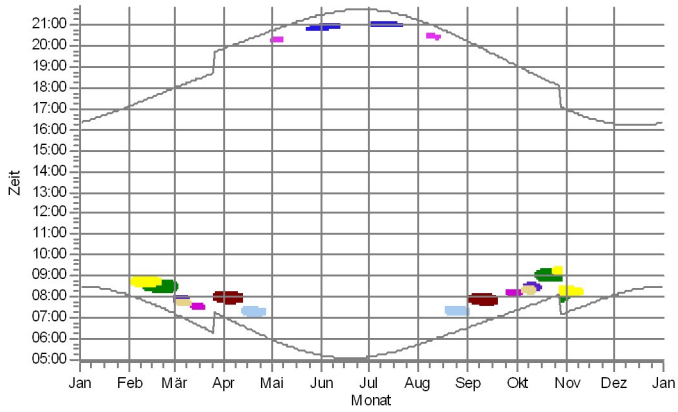
IO061: Kirchborchener Str. 68, Dörenhagen



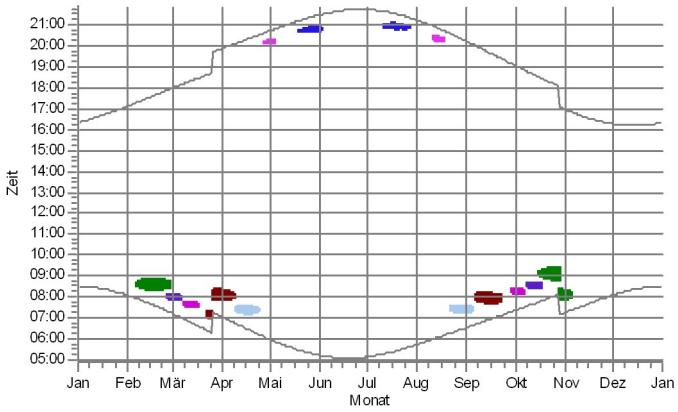
IO062: Kirchborchener Str. 70, Dörenhagen



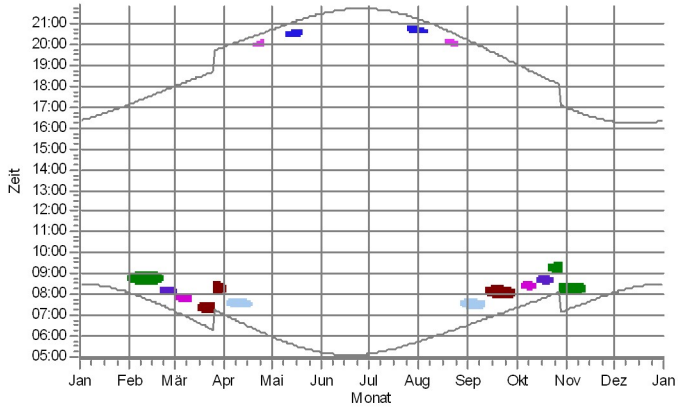
IO063: Kirchborchener Str. 72, Dörenhagen



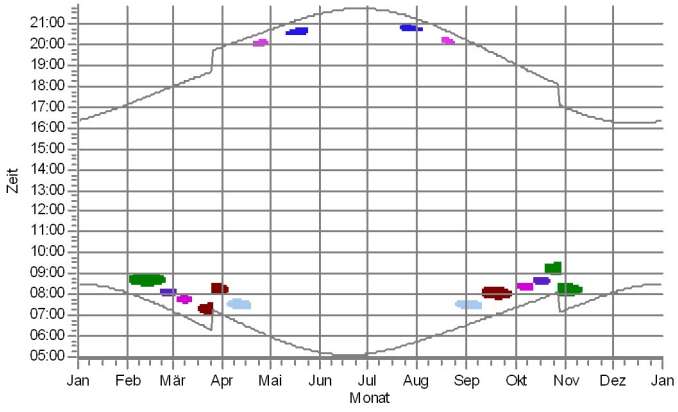
IO064: Kirchborchener Str. 74, Dörenhagen



IO065: Kirchborchener Str. 82, Dörenhagen



IO066: Kirchborchener Str. 82, Dörenhagen



WEA

WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)
B014: ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m) (511)
B050: ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (340)
B142: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (408)
B143: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (409)
B152: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)
B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)
B172: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (435)
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)

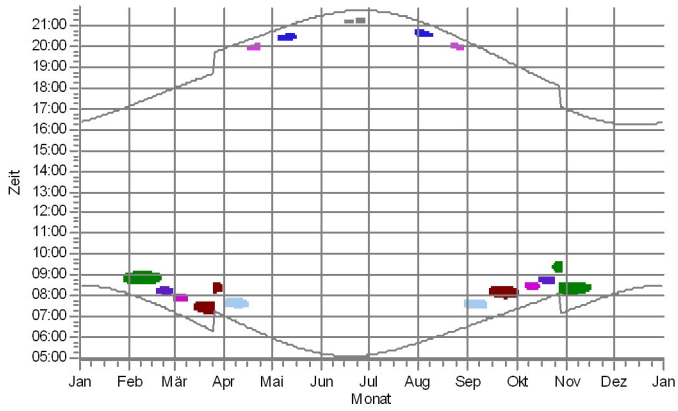
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Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

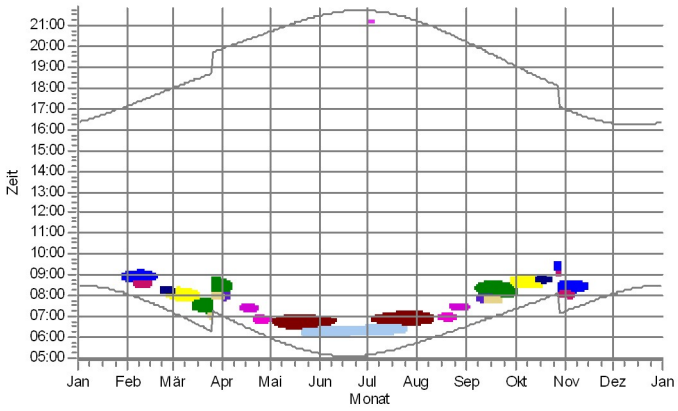
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

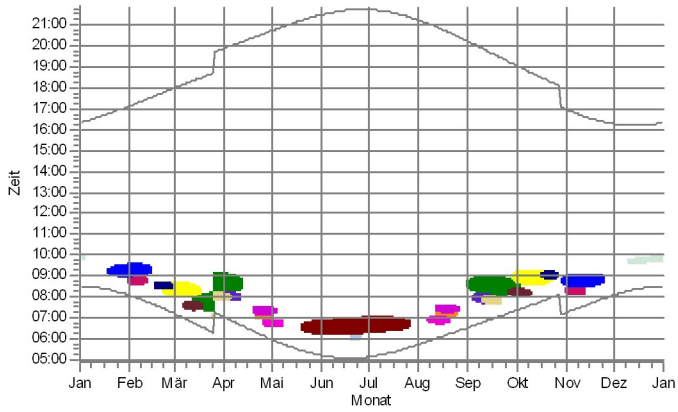
IO067: Kirchborchener Str. 84, Dörenhagen



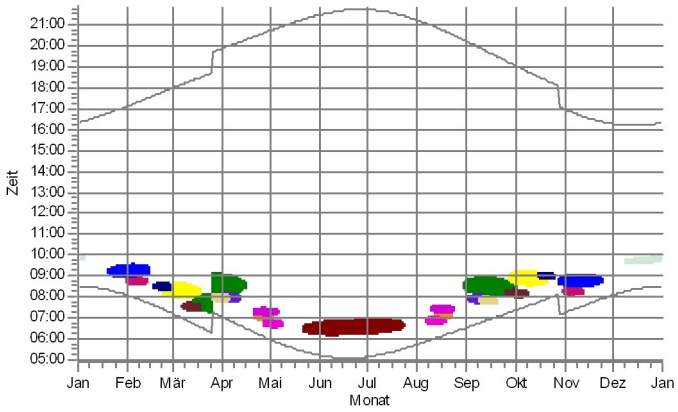
IO068: Sebastianstr. 7, Dörenhagen



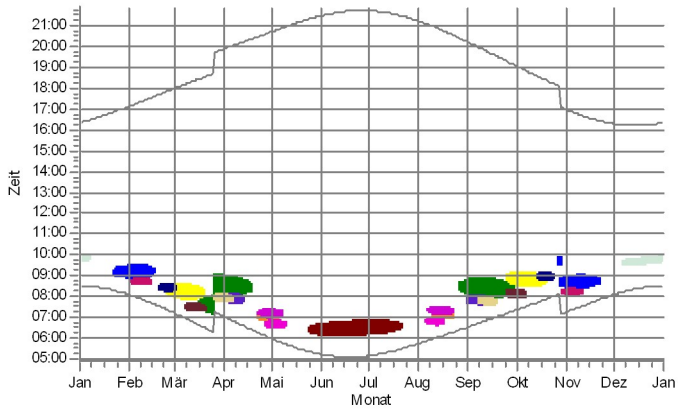
IO069: Sebastianstr. 45, Dörenhagen



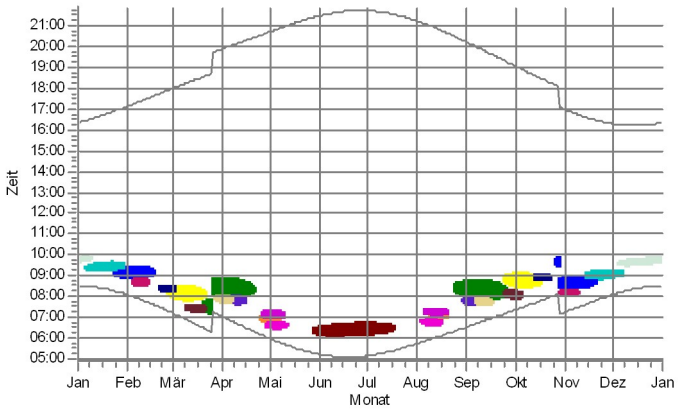
IO070: Sebastianstr. 47, Dörenhagen



IO071: Sebastianstr. 49, Dörenhagen



IO072: Sebastianstr. 51, Dörenhagen



WEA

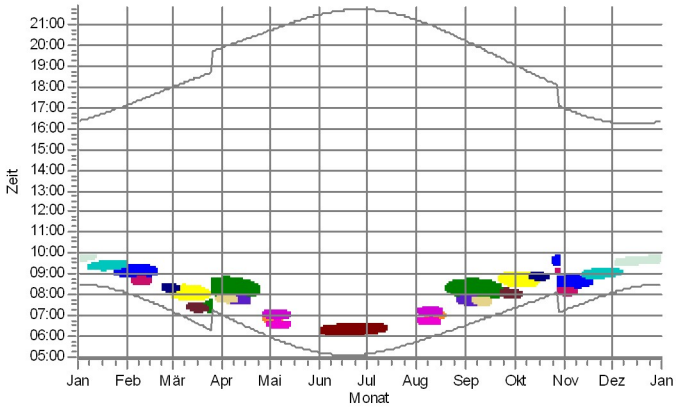
WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)
WEA03: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)
B004: MICON M1500 600-150 43.0 !O! NH: 46.0 m (Ges:67.5 m) (309)
B013: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)
B014: ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m) (511)
B050: ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (340)
B083: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)
B086: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (369)
B087: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)
B124: NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)
B142: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (408)
B143: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (409)
B152: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)
B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)
B172: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (435)
B178: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)
B253: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)

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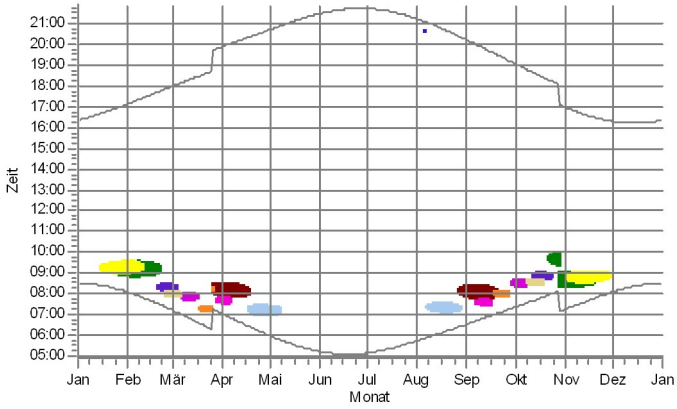
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

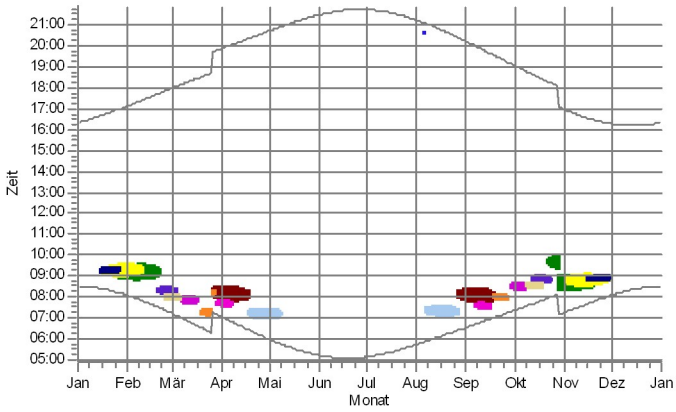
IO073: Sebastianstr. 53, Dörenhagen



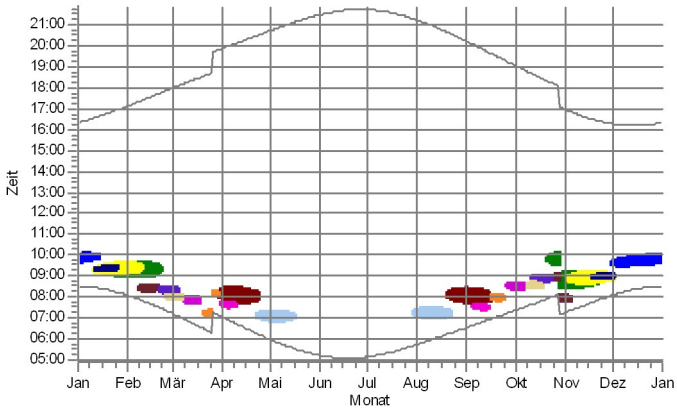
IO074: Warburger Str. 2, Dörenhagen



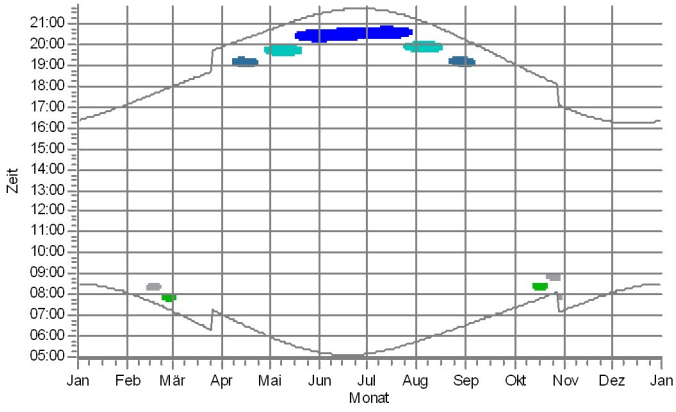
IO075: Warburger Str. 3, Dörenhagen



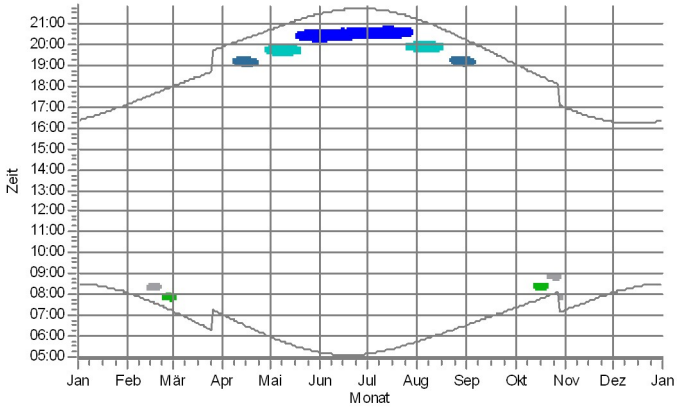
IO076: Warburger Str. 3a, Dörenhagen

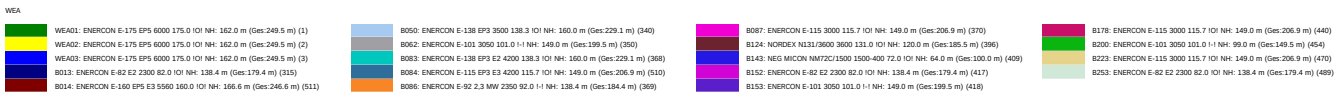


IO077: Am Schulberg 1, Grundsteinheim



IO078: Am Schulberg 2, Grundsteinheim



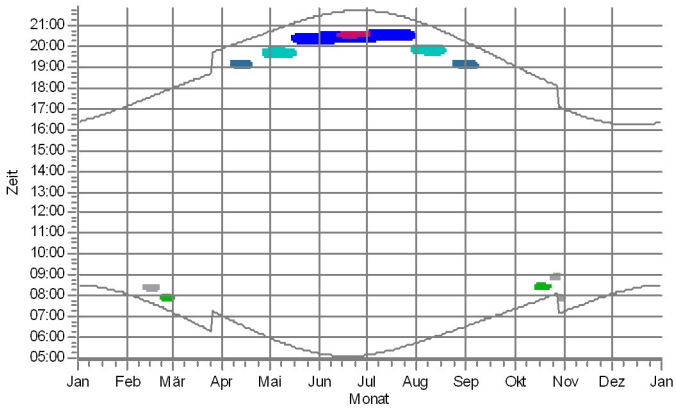


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Lena Fieckel / lena.fieckel@anemos.de

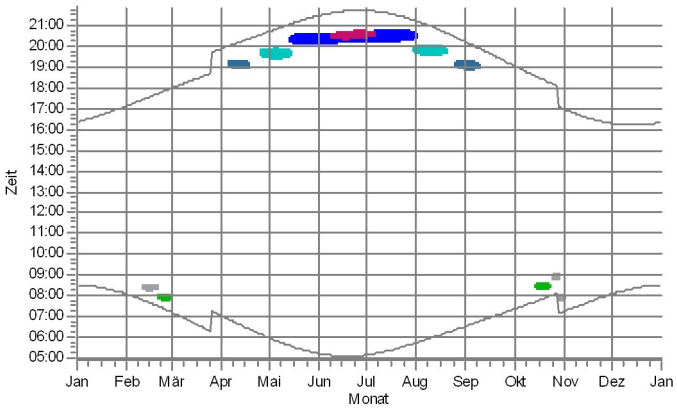
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

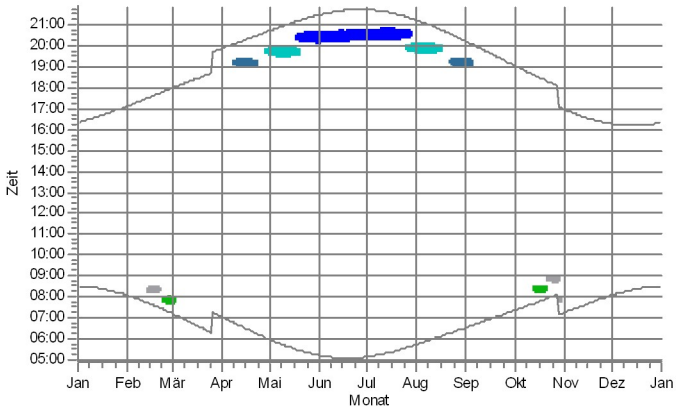
IO079: Am Schulberg 3, Grundsteinheim



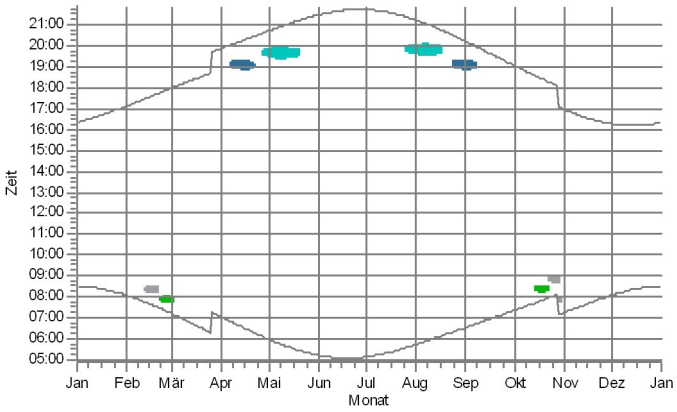
IO080: Am Schulberg 3a, Grundsteinheim



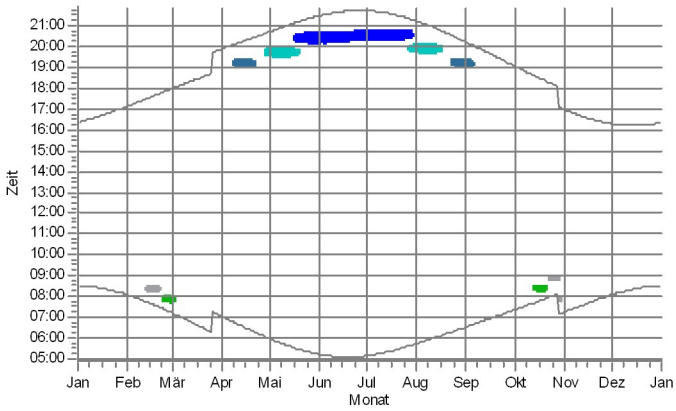
IO081: Am Schulberg 4, Grundsteinheim



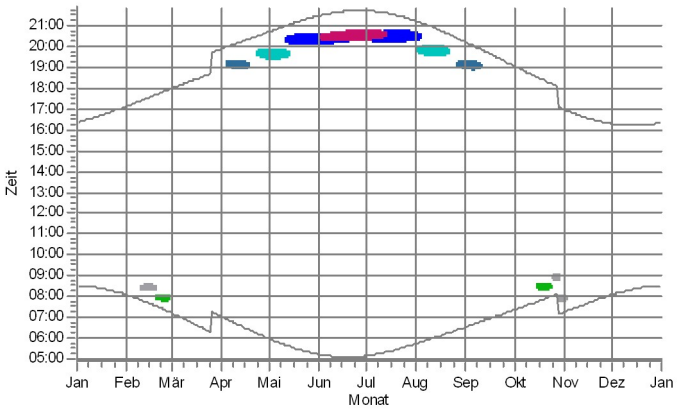
IO082: Am Schulberg 5, Grundsteinheim



IO083: Am Schulberg 6, Grundsteinheim



IO084: Am Schulberg 7, Grundsteinheim





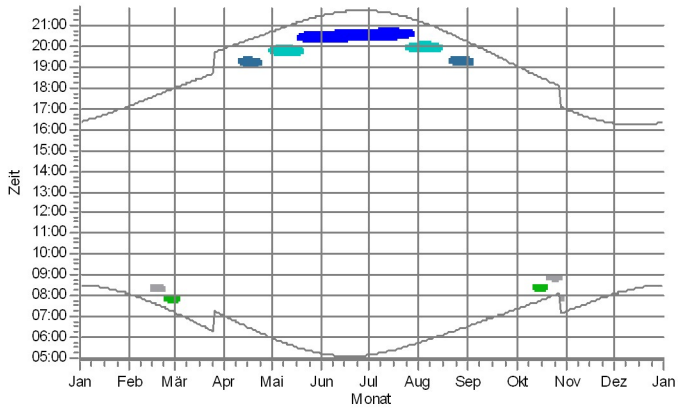
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Berechnet:
08.07.2024 18:59/4.0.540

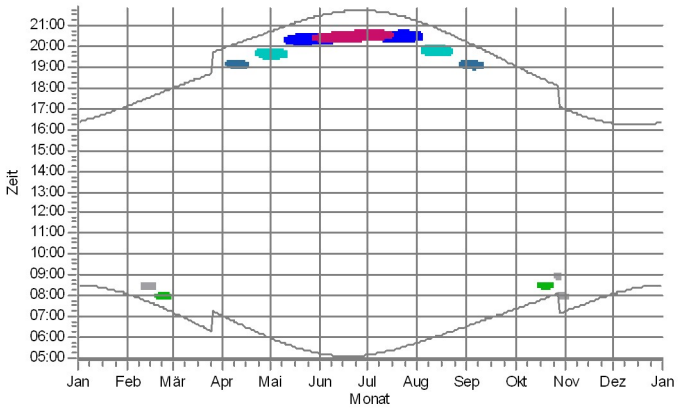
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

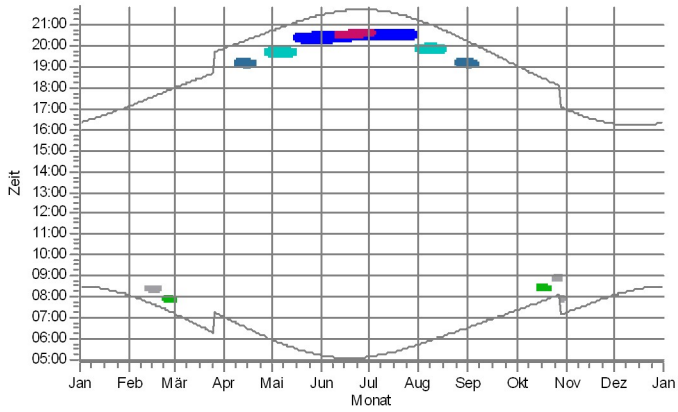
IO085: Am Schulberg 8, Grundsteinheim



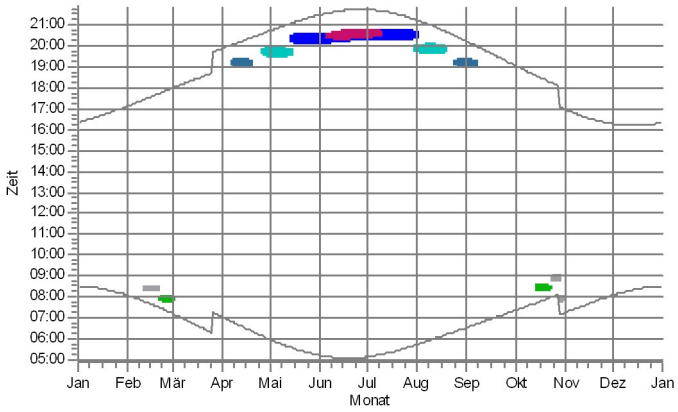
IO086: Am Schulberg 9, Grundsteinheim



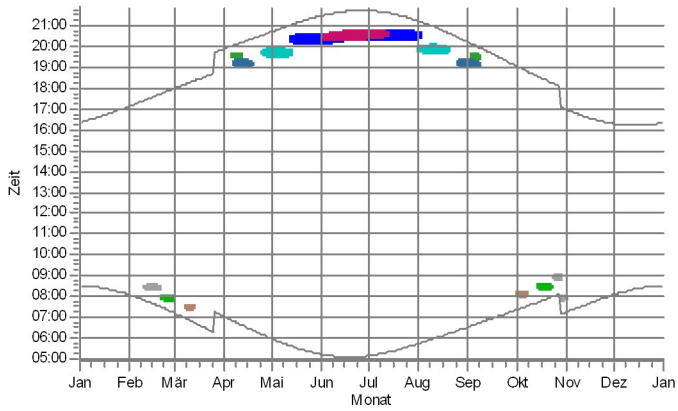
IO087: Am Schulberg 10, Grundsteinheim



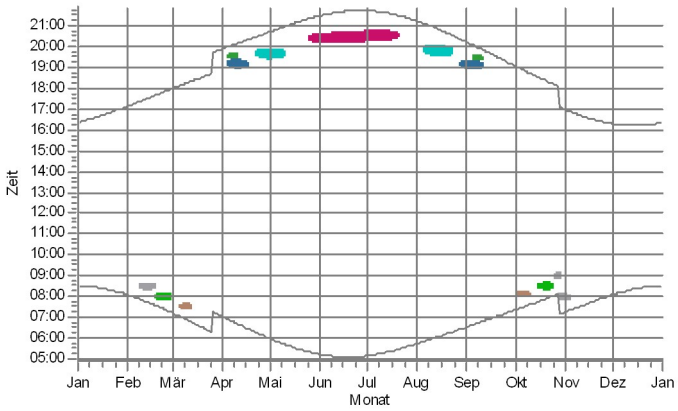
IO088: Am Schulberg 12, Grundsteinheim



IO089: Am Schulberg 14, Grundsteinheim



IO090: Am Schulberg 15, Grundsteinheim



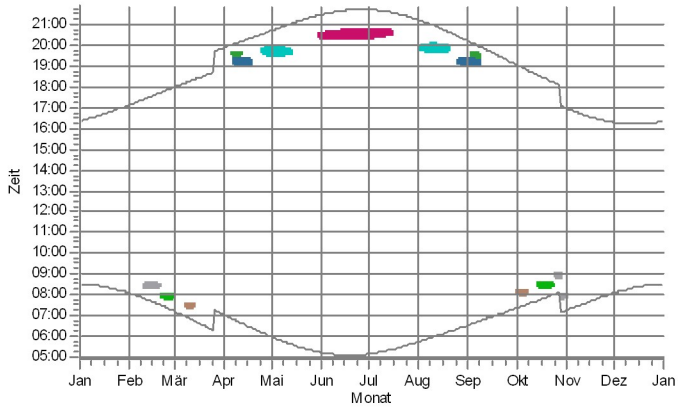


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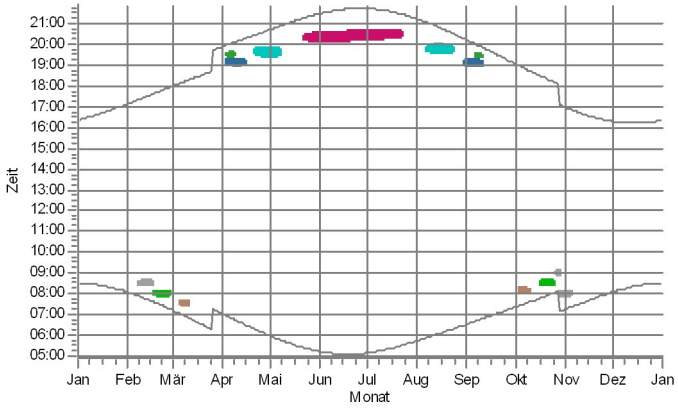
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

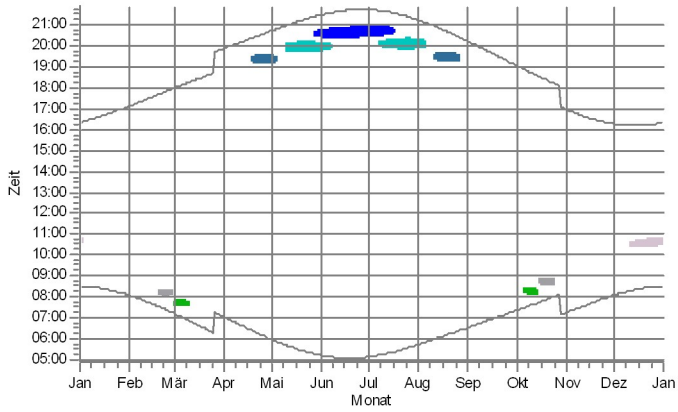
IO091: Am Schulberg 16, Grundsteinheim



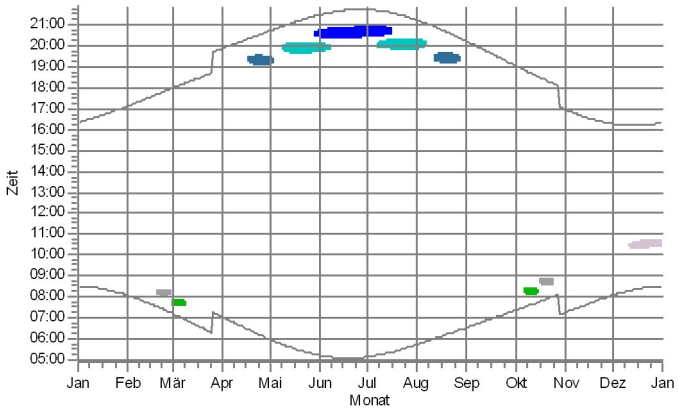
IO092: Am Schulberg 26, Grundsteinheim



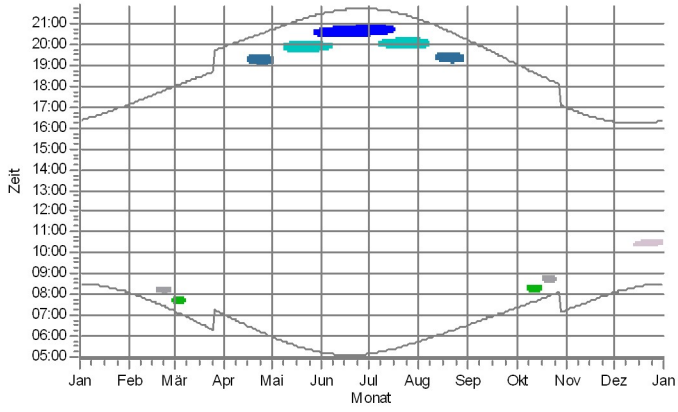
IO093: Dorfstr. 11, Grundsteinheim



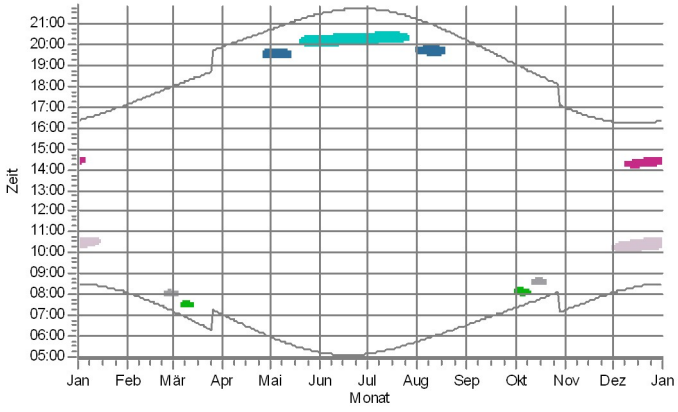
IO094: Dorfstr. 11a, Grundsteinheim



IO095: Dorfstr. 13, Grundsteinheim



IO096: Ecke 1, Grundsteinheim



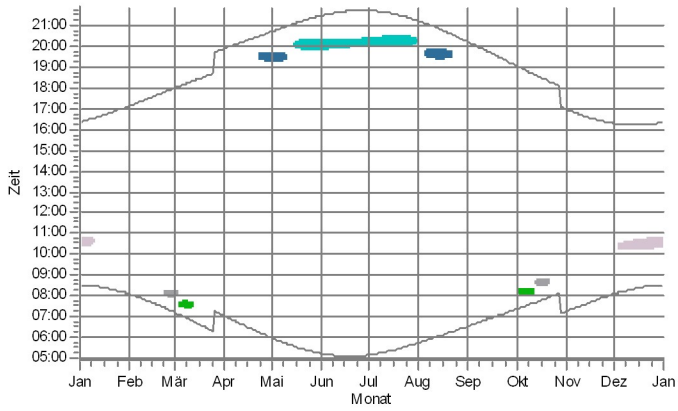


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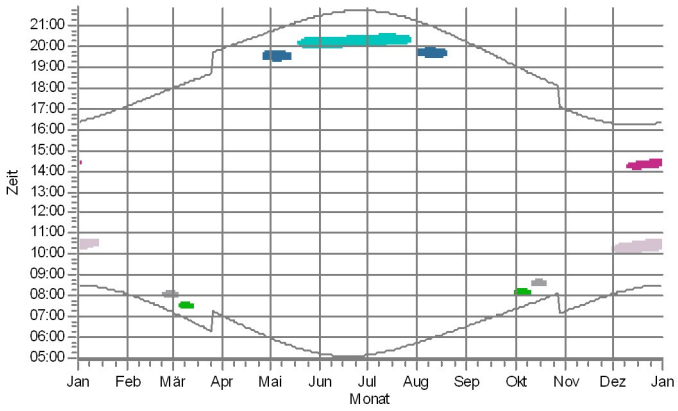
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

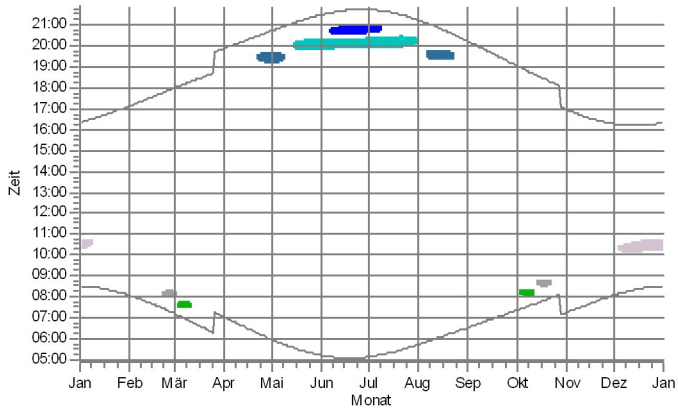
IO097: Ecke 2, Grundsteinheim



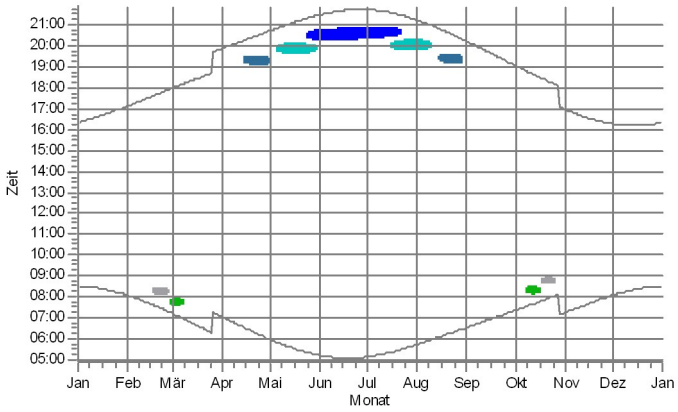
IO098: Ecke 3, Grundsteinheim



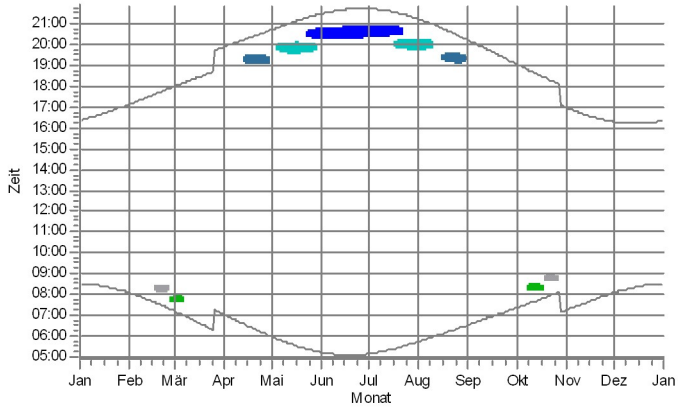
IO099: Ecke 6, Grundsteinheim



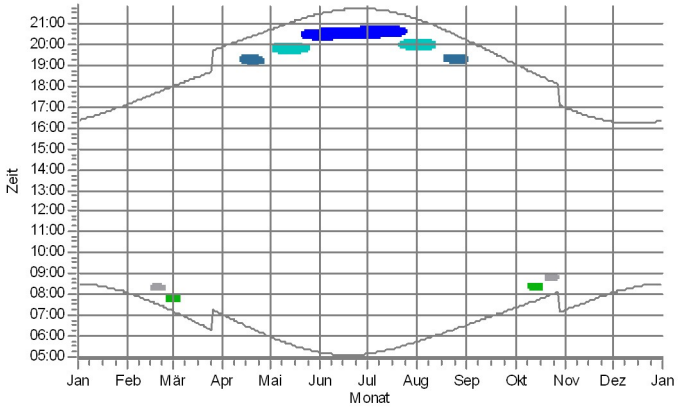
IO100: Futterweg 1, Grundsteinheim

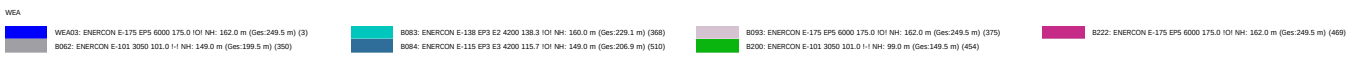


IO101: Futterweg 3, Grundsteinheim



IO102: Futterweg 4, Grundsteinheim



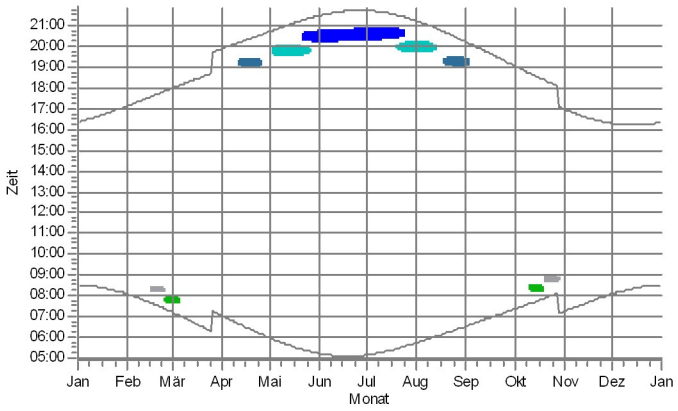


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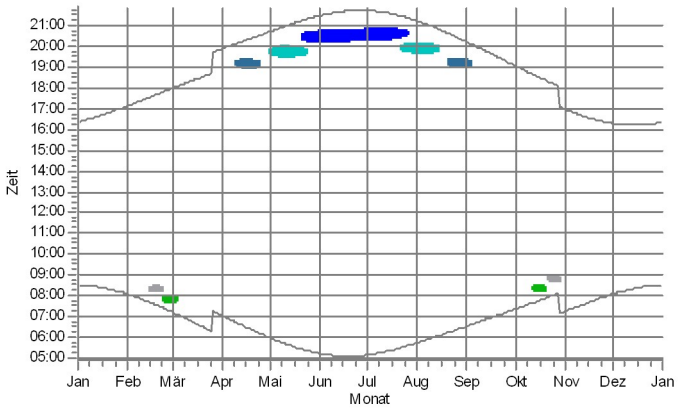
SHADOW - Grafischer Kalender

Berechnung: Dörenhagen GB

IO103: Futterweg 6, Grundsteinheim



IO104: Futterweg 8, Grundsteinheim



WEA

WEA03: ENERCON E-175 EP5 6000 175.0 IO! NH: 162.0 m (Ges:249.5 m) (3)
B062: ENERCON E-101 3050 101.0 I-! NH: 149.0 m (Ges:199.5 m) (350)
B083: ENERCON E-138 EP3 E2 4200 138.3 IO! NH: 160.0 m (Ges:229.1 m) (368)
B084: ENERCON E-115 EP3 E3 4200 115.7 IO! NH: 149.0 m (Ges:206.9 m) (510)
B200: ENERCON E-101 3050 101.0 I-! NH: 99.0 m (Ges:149.5 m) (454)

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Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: WEA01 - ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (1)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 09:18-09:44/26 16:22	08:04 08:41-09:39/58 17:09	07:12 07:59-08:38/39 18:00	07:02 07:51-09:06/75 19:53	05:57 06:41-08:12/91 20:44	05:12 06:07-07:35/88 21:30	05:08 06:04-07:34/90 21:45	05:43 06:39-08:03/84 21:14	06:32 07:25-08:47/82 20:13	07:21 08:05-09:08/63 19:04	07:14 07:55-09:10/75 16:58	08:04 09:05-09:30/25 16:18
2	08:29 09:19-09:45/26 16:23	08:03 08:39-09:39/60 17:11	07:10 07:57-08:37/40 18:02	07:00 07:49-09:05/76 19:55	05:56 06:39-08:10/91 20:46	05:11 06:06-07:34/88 21:31	05:09 06:04-07:34/90 21:44	05:45 06:40-08:05/85 21:13	06:34 07:27-08:49/82 20:11	07:22 08:07-09:08/61 19:02	07:16 07:56-09:11/75 16:57	08:06 09:06-09:31/25 16:17
3	08:29 09:19-09:46/27 16:24	08:01 08:38-09:40/62 17:12	07:08 07:55-08:36/41 18:04	06:57 07:47-09:04/77 19:57	05:54 06:38-08:09/91 20:47	05:10 06:04-07:33/89 21:32	05:09 06:05-07:35/90 21:44	05:46 06:41-08:05/84 21:11	06:36 07:28-08:50/82 20:09	07:24 08:10-09:09/59 19:00	07:17 07:58-09:11/73 16:55	08:07 09:06-09:31/25 16:16
4	08:29 09:20-09:46/26 16:25	08:00 08:36-09:41/65 17:14	07:05 07:54-08:34/40 18:05	06:55 07:46-09:04/78 19:59	05:52 06:36-08:07/91 20:49	05:09 06:04-07:33/89 21:33	05:10 06:06-07:36/90 21:44	05:48 06:41-08:06/85 21:09	06:37 07:30-08:52/82 20:06	07:26 08:12-09:10/58 18:57	07:19 07:59-09:10/71 16:53	08:08 09:06-09:32/26 16:16
5	08:29 09:20-09:46/26 16:26	07:58 08:34-09:41/67 17:16	07:03 07:52-08:34/42 18:07	06:53 07:42-09:02/80 20:00	05:50 06:36-08:06/90 20:50	05:09 06:03-07:32/89 21:34	05:11 06:07-07:37/90 21:43	05:49 06:42-08:08/86 21:07	06:39 07:32-08:54/82 20:04	07:27 08:14-09:10/56 18:55	07:21 08:01-09:10/69 16:51	08:10 09:06-09:32/26 16:15
6	08:29 09:21-09:47/26 16:28	07:56 08:33-09:41/68 17:18	07:01 07:47-08:33/46 18:09	06:51 07:40-09:00/80 20:02	05:48 06:35-08:04/89 20:52	05:08 06:02-07:31/89 21:35	05:11 06:07-07:37/90 21:43	05:51 06:43-08:10/87 21:06	06:40 07:33-08:54/81 20:02	07:29 08:15-09:09/54 18:53	07:23 08:02-09:11/69 16:49	08:11 09:06-09:33/27 16:15
7	08:28 09:21-09:47/26 16:29	07:55 08:32-09:41/69 17:20	06:59 07:44-08:34/50 18:11	06:48 07:38-08:59/81 20:04	05:46 06:33-08:02/89 20:54	05:07 06:02-07:32/90 21:36	05:12 06:08-07:38/90 21:42	05:52 06:44-08:12/88 21:04	06:42 07:35-08:56/81 20:00	07:31 08:17-09:10/53 18:51	07:24 08:04-09:11/67 16:48	08:13 09:07-09:34/27 16:14
8	08:28 09:22-09:48/26 16:30	07:53 08:31-09:42/71 17:22	06:57 07:41-08:34/53 18:12	06:46 07:36-08:57/81 20:05	05:45 06:33-08:01/88 20:55	05:07 06:02-07:31/89 21:37	05:13 06:09-07:38/89 21:42	05:54 06:44-08:13/89 21:02	06:44 07:36-08:56/80 19:57	07:32 08:20-09:10/50 18:48	07:26 08:05-09:11/66 16:46	08:14 09:07-09:34/27 16:14
9	08:27 09:22-09:48/26 16:31	07:51 08:29-09:41/72 17:23	06:54 07:38-08:32/54 18:14	06:44 07:34-08:56/82 20:07	05:43 06:32-07:58/86 20:57	05:06 06:01-07:31/90 21:38	05:14 06:10-07:39/89 21:41	05:56 06:45-08:15/90 21:00	06:45 07:38-08:57/79 19:55	07:34 08:22-09:09/47 18:46	07:28 08:07-09:10/63 16:44	08:15 09:07-09:34/27 16:14
10	08:27 09:23-09:49/26 16:33	07:49 08:27-09:41/74 17:25	06:52 07:36-08:32/56 18:16	06:42 07:30-08:53/83 20:09	05:41 06:32-07:57/85 20:59	05:06 06:01-07:31/90 21:38	05:15 06:11-07:40/89 21:40	05:57 06:45-08:16/91 20:59	06:47 07:40-08:57/77 19:53	07:36 08:26-09:08/42 18:44	07:30 08:09-09:10/61 16:43	08:16 09:08-09:34/26 16:13
11	08:26 09:23-09:49/26 16:34	07:48 08:26-09:41/75 17:27	06:50 07:34-08:32/58 18:18	06:39 07:29-08:51/82 20:10	05:39 06:30-07:55/85 21:00	05:06 06:00-07:30/90 21:39	05:16 06:12-07:41/89 21:39	05:59 06:47-08:18/91 20:57	06:48 07:41-08:58/77 19:51	07:37 08:28-09:08/40 18:42	07:31 08:11-09:10/59 16:41	08:17 09:09-09:35/26 16:13
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17	08:22 09:27-09:48/21 16:43	07:36 08:15-09:36/81 17:38	06:36 07:19-08:22/63 18:28	06:26 07:15-08:38/83 20:20	05:30 06:22-07:47/85 21:09	05:04 06:00-07:30/90 21:43	05:23 06:19-07:46/87 21:34	06:08 07:02-08:26/84 20:45	06:58 07:51-08:58/67 19:37	07:48 08:33-09:16/43 18:29	07:42 08:23-09:07/44 16:32	08:23 09:11-09:37/26 16:13
18	08:21 09:28-09:48/20 16:45	07:34 08:13-09:35/82 17:40	06:34 07:18-08:19/61 18:30	06:24 07:13-08:36/83 20:22	05:28 06:20-07:47/87 21:11	05:04 06:01-07:29/88 21:43	05:24 06:20-07:47/87 21:33	06:10 07:03-08:27/84 20:43	07:00 07:53-08:58/65 19:34	07:49 08:33-09:17/44 18:26	07:44 08:23-09:06/43 16:31	08:24 09:12-09:38/26 16:13
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20	08:19 09:01-09:28/27 16:48	07:31 09:02-09:31/29 17:44	06:29 07:15-08:16/61 18:33	06:20 07:09-08:33/84 20:25	05:26 06:17-07:44/87 21:14	05:04 06:01-07:29/88 21:44	05:26 06:22-07:50/88 21:31	06:13 07:06-08:30/84 20:39	07:03 07:57-08:56/59 19:30	07:53 08:36-09:19/43 18:22	07:47 08:26-09:05/39 16:29	08:25 09:13-09:39/26 16:14
21	08:18 09:02-09:28/26 16:50	07:28 09:05-09:28/23 17:46	06:27 07:14-08:14/60 18:35	06:18 07:07-08:31/84 20:27	05:24 06:15-07:44/89 21:15	05:04 06:01-07:29/88 21:44	05:28 06:23-07:51/88 21:30	06:15 07:08-08:32/84 20:37	07:04 07:59-08:56/57 19:27	07:54 09:47-09:53/6 18:20	07:49 08:29-09:04/35 16:27	08:26 09:13-09:39/26 16:14
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Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	1211	1826	1775	2470	2704	2674	2725	2661	2102	1782	1606	867

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: WEA02 - ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (2)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 09:03-09:39/36 17:09	07:12 07:54-08:44/50 18:00	07:02 07:44-08:48/64 19:53	05:57 06:44-07:52/68 20:44	05:12 06:02-07:09/67 21:30	05:08 05:59-07:08/69 21:44	05:43 06:34-07:45/71 21:14	06:32 07:23-08:25/62 20:13	07:21 08:09-09:10/61 19:04	07:14 07:57-08:27/30 16:58	08:04 08:54-09:06/12 16:18
2	08:29 16:23	08:03 09:03-09:39/36 17:11 08:44-08:45/1	07:10 07:53-08:41/48 18:02	07:00 07:41-08:47/66 19:55	05:56 06:41-07:50/69 20:46	05:11 06:01-07:08/67 21:31	05:09 05:59-07:08/69 21:44	05:45 06:35-07:48/73 21:13	06:34 07:25-08:26/61 20:11	07:22 08:10-09:11/61 19:02	07:15 08:46-08:52/6 16:57 07:58-08:27/29	08:06 08:56-09:04/8 16:17
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28	08:10 09:02-09:39/37 17:02	07:14 07:56-08:46/50 17:58	07:11 08:01-08:59/58 19:47	06:03 06:49-07:55/66 20:39	05:16 06:05-07:12/67 21:25	05:06 05:57-07:07/70 21:45	05:37 06:29-07:42/73 21:20	06:26 07:17-08:14/57 20:22	07:16 08:05-09:05/60 19:11	08:07 08:52-09:26/34 18:06	08:00 08:47-09:09/22 16:20	08:29 16:18
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31	08:06 09:02-09:39/37 17:07		07:04 07:48-08:52/64 19:52		05:13 06:02-07:09/67 21:28		05:42 06:33-07:45/72 21:16	06:31 07:21-08:23/62 20:15		07:12 07:55-08:27/32 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	580	1146	1780	1874	2169	2073	2123	2047	1848	1417	1073	20

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

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: WEA03 - ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (3)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 09:40-10:03/23 16:22	08:04 08:45-09:32/47 17:09	07:12 07:53-08:53/60 18:00	07:02 07:49-08:44/55 19:53	05:57 06:43-07:54/71 20:44	05:12 20:10-20:45/35 21:30 06:18-07:05/47	05:08 20:19-20:58/39 05:59-06:25/26 21:44 06:26-06:56/30	05:43 20:22-20:38/16 21:14 06:29-07:40/71	06:32 07:21-08:24/63 20:13	07:21 08:10-09:05/55 19:04	07:14 08:02-08:57/55 16:58	08:04 09:32-09:44/12 16:18
2	08:29 09:40-10:04/24 16:23	08:03 08:44-09:32/48 17:11	07:10 07:52-08:51/59 18:02	07:00 07:46-08:42/56 19:55	05:56 06:40-07:51/71 20:45	05:11 20:11-20:46/35 06:02-06:10/8 21:31 06:18-07:04/46	05:09 20:19-20:57/38 05:59-06:24/25 21:44 06:27-06:56/29	05:45 20:24-20:37/13 21:12 06:30-07:42/72	06:34 07:23-08:25/62 20:11	07:22 08:15-09:05/50 19:02	07:15 08:04-08:59/55 16:57	08:06 09:31-09:45/14 16:17
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26	08:12 08:56-09:29/33 16:58	07:18 08:01-08:59/58 17:55	06:16 08:01-09:05/64 19:43	06:07 06:54-08:03/69 20:36	05:18 20:08-20:40/32 21:22 06:16-07:11/55	05:05 20:19-20:57/38 05:56-06:24/28 21:45 06:26-06:52/26	05:35 20:18-20:44/26 21:23 06:26-07:31/65	06:23 07:12-08:22/70 20:26	07:13 08:00-09:02/62 19:16	08:03 08:52-09:46/54 18:10	07:57 08:45-09:00/15 16:22	08:28 09:36-10:01/25 16:17
27	08:11 08:54-09:30/36 17:00	07:16 07:58-08:57/59 17:56	07:13 07:58-09:03/65 19:45	06:05 06:51-08:01/70 20:37	05:17 20:09-20:41/32 21:23 06:16-07:10/54	05:06 20:19-20:58/39 05:57-06:25/28 21:45 06:26-06:53/27	05:36 20:18-20:43/25 21:22 06:26-07:32/66	06:24 07:14-08:23/69 20:24	07:14 08:01-09:02/61 19:13	08:05 08:53-09:48/55 18:08	07:58 08:46-08:59/13 16:18	08:29 09:37-10:01/24 16:18
28	08:10 08:52-09:30/38 17:02	07:14 07:56-08:56/60 17:58	07:11 07:56-09:01/65 19:47	06:03 06:49-07:59/70 20:39	05:16 20:09-20:41/32 21:25 06:16-07:08/52	05:06 20:19-20:58/39 05:57-06:25/28 21:45 06:26-06:54/28	05:37 20:19-20:43/24 21:20 06:27-07:35/68	06:26 07:15-08:23/68 20:22	07:16 08:02-09:03/61 19:11	08:07 08:54-09:50/56 18:06	08:00 08:48-08:58/10 16:20	08:29 09:37-10:02/25 16:18
29	08:08 08:52-09:31/39 17:03		07:09 07:53-08:57/64 19:48	06:01 06:47-07:58/71 20:41	05:15 20:09-20:42/33 21:26 06:16-07:07/51	05:07 20:20-20:58/38 05:58-06:25/27 21:45 06:26-06:55/29	05:39 20:19-20:42/23 21:19 06:27-07:36/69	06:28 07:17-08:24/67 20:20	07:17 08:03-09:03/60 19:09	08:07 08:56-08:52/56 17:04	08:01 08:52-08:56/4 16:19	08:29 09:39-10:03/24 16:19
30	08:07 08:49-09:31/42 17:05		07:06 07:52-08:51/59 19:50	05:59 06:46-07:57/71 20:42	05:14 20:09-20:43/34 21:27 06:16-07:06/50	05:07 20:19-20:57/38 05:58-06:25/27 21:45 06:26-06:55/29	05:40 20:20-20:41/21 21:17 06:28-07:37/69	06:29 07:18-08:24/66 20:18	07:19 08:06-09:04/58 19:07	08:03 09:33-09:41/8 17:02	08:03 09:33-09:41/8 16:18	08:29 09:39-10:03/24 16:20
31	08:06 08:46-09:31/45 17:07		07:04 07:51-08:46/55 19:52		05:13 20:10-20:43/33 21:28 06:16-07:05/49		05:42 20:21-20:40/19 21:16 06:28-07:39/71	06:31 07:20-08:25/65 20:15		07:12 08:00-08:56/56 17:00		08:29 09:39-10:03/24 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	703	1507	1820	1947	2564	2802	2806	2217	1822	1713	1056	695

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B004 - MICON M1500 600-150 43.0 !O! NH: 46.0 m (Ges:67.5 m) (309)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04 21:12-21:13/1	05:23 21:04-21:05/1	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24 21:03-21:04/1	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:34	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:31	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04 21:13-21:14/1	05:27	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:11	05:20	05:05 21:14-21:15/1	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17 20:54-20:55/1	05:06 21:14-21:15/1	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16 20:55-20:56/1	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	2	4	2	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B008 - ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (310)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:57	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:27	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:24	08:12
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
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9	08:27	07:51	06:54	06:44	05:43	05:07	05:14	05:56	06:45	07:34	07:28	08:15
	16:32	17:24	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
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	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:42	07:37	08:20
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15	08:24	07:40	06:41	06:31	05:33	05:05	05:21	06:05	06:55	07:44	07:38	08:21
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16	08:23	07:38	06:39	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:33	16:13
18	08:21	07:34	06:34	06:24	05:29	05:04	05:24	06:10	07:00	07:49	07:44	08:24
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19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:45	08:24
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20	08:19	07:30	06:29	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:25
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	16:50	17:46	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:37	20:29	21:17	21:44	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:31	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:13	08:03	07:57	08:28
	16:58	17:55	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:28	07:17	07:08	08:01	08:29
	17:04		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:19	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	269	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B012 - ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (314)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 17:09	07:12 07:58-08:11/13 18:00	07:02 07:41-08:03/22 19:53	05:57 06:38-07:04/26 20:44	05:12 21:30	05:08 21:44	05:43 06:29-06:52/23 21:14	06:32 07:19-07:36/17 20:13	07:21 08:19-08:28/9 19:04 08:05-08:18/13	07:14 07:57-08:17/20 16:58	08:04 16:18
2	08:29 16:23	08:03 17:11	07:10 07:50-07:57/7 18:02 07:59-08:10/11	07:00 07:39-08:01/22 19:55	05:56 06:36-07:02/26 20:46	05:11 21:31	05:09 21:44	05:45 06:31-06:54/23 21:13	06:34 07:19-07:37/18 20:11	07:22 08:05-08:29/24 19:02	07:15 07:59-08:17/18 16:57	08:06 16:17
3	08:29 16:24	08:01 17:12	07:08 07:48-07:59/11 18:04 08:01-08:08/7	06:57 07:38-07:56/18 19:57	05:54 06:34-07:00/26 20:47	05:10 21:32	05:09 21:44	05:46 06:32-06:55/23 21:11	06:36 07:20-07:37/17 20:09	07:24 08:15-08:30/15 19:00 08:07-08:14/7	07:17 08:00-08:16/16 16:55	08:07 16:16
4	08:29 16:25	08:00 17:14	07:05 07:47-08:00/13 18:05	06:55 07:37-07:56/19 19:59	05:52 06:33-06:58/25 20:49	05:10 21:33	05:10 21:44	05:48 06:35-06:57/22 21:09	06:37 07:21-07:43/22 20:06	07:26 08:15-08:30/15 18:57	07:19 08:02-08:16/14 16:53	08:09 16:16
5	08:29 16:26	07:58 08:40-08:41/1 17:16	07:03 07:46-08:00/14 18:07	06:53 07:36-07:54/18 20:00	05:50 06:32-06:57/25 20:50	05:09 21:34	05:11 21:43	05:49 06:35-06:59/24 21:07	06:39 07:22-07:45/23 20:04	07:27 08:14-08:32/18 18:55	07:21 08:05-08:16/11 16:51	08:10 16:15
6	08:29 16:28	07:56 08:37-08:44/7 17:18	07:01 07:42-08:00/18 18:09	06:51 07:29-07:52/23 20:02	05:48 06:29-06:55/26 20:52	05:08 21:35	05:12 21:43	05:51 06:36-07:00/24 21:06	06:40 07:23-07:45/22 20:02	07:29 08:14-08:34/20 18:53	07:23 08:06-08:15/9 16:49	08:11 16:15
7	08:28 16:29	07:55 08:35-08:45/10 17:20	06:59 07:40-07:59/19 18:11	06:48 07:27-07:50/23 20:04	05:46 06:28-06:52/24 20:54	05:08 21:36	05:12 21:42	05:52 06:38-07:02/24 21:04	06:42 07:24-07:46/22 20:00	07:31 08:15-08:35/20 18:51	07:24 08:08-08:13/5 16:48	08:13 16:14
8	08:28 16:30	07:53 08:34-08:47/13 17:22	06:57 07:39-07:59/20 18:12	06:46 07:26-07:49/23 20:05	05:45 06:27-06:51/24 20:55	05:07 21:37	05:13 21:41	05:54 06:39-07:04/25 21:02	06:44 07:25-07:48/23 19:57	07:32 08:16-08:36/20 18:48	07:26 16:46	08:14 16:14
9	08:27 16:31	07:51 08:32-08:47/15 17:23	06:54 07:37-07:57/20 18:14	06:44 07:24-07:47/23 20:07	05:43 06:25-06:49/24 20:57	05:06 21:38	05:14 21:41	05:56 06:41-07:05/24 21:00	06:45 07:31-07:49/18 19:55	07:34 08:17-08:35/18 18:46	07:28 16:44	08:15 16:14
10	08:27 16:33	07:49 08:30-08:47/17 17:25	06:52 07:37-07:55/18 18:16	06:42 07:22-07:39/17 20:09 07:40-07:43/3	05:41 06:24-06:48/24 20:59	05:06 21:38	05:15 21:40	05:57 06:42-07:07/25 20:59	06:47 07:30-07:49/19 19:53	07:36 08:21-08:35/14 18:44	07:30 16:43	08:16 16:13
11	08:26 16:34	07:48 08:28-08:47/19 17:27	06:50 07:37-07:52/15 18:18	06:39 07:21-07:39/18 20:10	05:39 06:22-06:46/24 21:00	05:06 21:39	05:16 21:39	05:59 06:43-07:09/26 20:57	06:48 07:31-07:52/21 19:51	07:37 08:21-08:34/13 18:42	07:31 16:41	08:17 16:13
12	08:26 16:36	07:46 08:26-08:47/21 17:29	06:48 07:38-07:52/14 18:19 07:29-07:36/7	06:37 07:20-07:38/18 20:12	05:38 06:20-06:43/23 21:02	05:05 21:40	05:17 21:39	06:00 06:44-07:10/26 20:55	06:50 07:32-07:54/22 19:48	07:39 08:22-08:33/11 18:39 08:35-08:42/7	07:33 16:40	08:18 16:13
13	08:25 16:37	07:44 08:24-08:46/22 17:31	06:45 07:26-07:50/24 18:21	06:35 07:19-07:37/18 20:14	05:36 06:19-06:42/23 21:03	05:05 21:41	05:18 21:38	06:02 06:47-07:12/25 20:53	06:52 07:35-07:55/20 19:46	07:41 08:23-08:31/8 18:37 08:33-08:43/10	07:35 16:38	08:19 16:13
14	08:25 16:38	07:42 08:22-08:44/22 17:33	06:43 07:25-07:48/23 18:23	06:33 07:19-07:36/17 20:15	05:34 06:17-06:40/23 21:05	05:05 21:41	05:19 21:37	06:03 06:47-07:14/27 20:51	06:53 07:35-07:55/20 19:44	07:42 08:32-08:44/12 18:35	07:37 16:37	08:20 16:13
15	08:24 16:40	07:40 08:21-08:42/21 17:35	06:41 07:43-07:45/2 18:24 07:24-07:39/15	06:31 07:12-07:35/23 20:17	05:33 06:15-06:39/24 21:06	05:04 21:42	05:20 21:36	06:05 06:50-07:16/26 20:49	06:55 07:36-07:58/22 19:41	07:44 08:31-08:44/13 18:33	07:38 16:35	08:21 16:13
16	08:23 16:42	07:38 08:20-08:40/20 17:36	06:39 07:23-07:38/15 18:26	06:28 07:09-07:34/25 20:19	05:31 06:14-06:38/24 21:08	05:04 21:42	05:22 21:35	06:07 06:51-07:18/27 20:47	06:56 07:40-08:00/20 19:39	07:46 08:31-08:44/13 18:31	07:40 16:34	08:22 16:13
17	08:22 16:43	07:36 08:20-08:38/18 17:38	06:36 07:23-07:38/15 18:28	06:26 07:08-07:33/25 20:20	05:30 06:13-06:36/23 21:09	05:04 21:43	05:23 06:28-06:30/2 21:34	06:08 06:53-07:19/26 20:45	06:58 07:41-08:00/19 19:37	07:47 08:31-08:44/13 18:29	07:42 16:32	08:23 16:13
18	08:21 16:45	07:34 08:20-08:36/16 17:40	06:34 07:24-07:38/14 18:30	06:24 07:07-07:32/25 20:22	05:28 06:13-06:35/22 21:11	05:04 21:43	05:24 06:26-06:32/6 21:33	06:10 06:54-07:20/26 20:43	07:00 07:42-08:00/18 19:34	07:49 08:31-08:43/12 18:26	07:44 16:31	08:24 16:13
19	08:20 16:46	07:32 08:20-08:34/14 17:42	06:32 07:23-07:36/13 18:31	06:22 07:03-07:31/28 20:24	05:27 06:13-06:34/21 21:12	05:04 21:44	05:25 06:25-06:33/8 21:32	06:11 06:56-07:23/27 20:41	07:01 07:42-08:00/18 19:32	07:51 08:32-08:41/9 18:24	07:45 16:30	08:25 16:14
20	08:19 16:48	07:30 08:21-08:32/11 17:44	06:29 07:25-07:35/10 18:33	06:20 07:01-07:28/27 20:25	05:26 06:14-06:33/19 21:14	05:04 21:44	05:27 06:25-06:36/11 21:31	06:13 06:57-07:24/27 20:39	07:03 07:45-07:59/14 19:30	07:53 08:34-08:39/5 18:22	07:47 16:29	08:25 16:14
21	08:18 16:50	07:28 08:22-08:31/9 17:46	06:27 07:28-07:31/3 18:35	06:18 06:58-07:22/24 20:27	05:24 06:13-06:31/18 21:15	05:04 21:44	05:28 06:24-06:38/14 21:30	06:15 06:59-07:26/27 20:37	07:04 07:47-07:59/12 19:27	07:54 18:20	07:49 16:27	08:26 16:14
22	08:17 16:51	07:26 08:25-08:28/3 17:47	06:25 07:03-07:09/6 18:37	06:16 06:57-07:21/24 20:29	05:23 06:13-06:31/18 21:17	05:04 21:45	05:29 06:24-06:39/15 21:28	06:16 07:00-07:26/26 20:35	07:06 07:47-07:56/9 19:25	07:56 08:53-09:01/8 18:18	07:50 16:26	08:26 16:15
23	08:16 16:53	07:24 08:05-08:08/3 17:49	06:23 07:01-07:11/10 18:38	06:13 06:54-07:20/26 20:31	05:22 06:14-06:29/15 21:18	05:05 21:45	05:30 06:23-06:41/18 21:27	06:18 07:02-07:27/25 20:33	07:08 07:50-07:54/4 19:23	07:58 08:51-09:02/11 18:16	07:52 16:25	08:27 16:15
24	08:15 16:55	07:22 08:01-08:10/9 17:51	06:20 07:00-07:12/12 18:40	06:11 06:52-07:19/27 20:32	05:20 06:14-06:28/14 21:19	05:05 21:45	05:32 06:24-06:42/18 21:26	06:19 07:04-07:26/22 20:31 07:28-07:30/2	07:09 08:11-08:16/5 19:20	08:00 08:50-09:03/13 18:14	07:54 16:24	08:28 16:16
25	08:14 16:56	07:20 08:00-08:11/11 17:53	06:18 06:58-07:13/15 18:42	06:09 06:50-07:17/27 20:34	05:19 06:15-06:26/11 21:21	05:05 21:45	05:33 06:24-06:43/19 21:25	06:21 07:06-07:34/28 20:28	07:11 08:08-08:19/11 19:18	08:01 08:49-09:05/16 18:12	07:55 16:23	08:28 16:16
26	08:12 16:58	07:18 07:59-08:12/13 17:55	07:16 07:54-08:12/18 19:43	06:07 06:48-07:13/25 20:36	05:18 06:16-06:24/8 21:22	05:05 21:45	05:35 06:23-06:44/21 21:23	06:23 07:07-07:34/27 20:26	07:13 08:07-08:20/13 19:16	08:03 08:49-09:07/18 18:10	07:57 16:22	08:28 16:17
27	08:11 17:00	07:16 07:59-08:12/13 17:56	07:13 07:53-08:12/19 19:45	06:05 06:46-07:12/26 20:37	05:17 06:17-06:23/6 21:23	05:06 21:45	05:36 06:23-06:45/22 21:22	06:24 07:10-07:36/26 20:24	07:14 08:05-08:20/15 19:14	08:05 08:50-09:09/19 18:08	07:58 16:21	08:29 16:18
28	08:10 17:02	07:14 07:59-08:12/13 17:58	07:11 07:52-08:11/19 19:47	06:03 06:44-07:11/27 20:39	05:16 06:19-06:21/2 21:25	05:06 21:45	05:37 06:24-06:47/23 21:20	06:26 07:10-07:36/26 20:22	07:16 08:05-08:20/15 19:11	08:07 08:50-09:11/21 18:06	08:00 16:20	08:29 16:18
29	08:08 17:03		07:09 07:48-08:09/21 19:48	06:01 06:42-07:09/27 20:41	05:15 21:26	05:07 21:45	05:39 06:24-06:48/24 21:19	06:28 07:12-07:36/24 20:20	07:17 08:04-08:19/15 19:09	07:08 07:51-08:12/21 17:04	08:01 16:19	08:29 16:19
30	08:07 17:05		07:06 07:45-08:07/22 19:50	05:59 06:41-07:07/26 20:42	05:14 21:27	05:07 21:45	05:40 06:25-06:49/24 21:17	06:29 07:19-07:35/16 20:18 07:14-07:18/4	07:19 08:22-08:25/3 19:07 08:04-08:19/15	07:10 07:53-08:15/22 17:02	08:03 16:18	08:29 16:20
31	08:06 17:07		07:04 07:44-08:05/21 19:52		05:13 21:28		05:42 06:27-06:50/23 21:16	06:31 07:19-07:36/17 20:15		07:12 07:55-08:16/21 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	321	504	694	568	0	248	770	512	489	93	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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B013 - ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12 08:03-08:28/25	07:02 07:54-08:16/22	05:57 06:54-07:18/24	05:12 06:05-06:37/32	05:08 05:59-06:35/36	05:43 06:40-07:12/32	06:32 07:39-07:55/16	07:21 08:14-08:40/26	07:14 08:07-08:18/11	08:04 08:59-09:05/6
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13 07:26-07:38/12	19:04	16:58	16:18
2	08:29	08:03	07:10 08:01-08:27/26	07:00 07:53-08:16/23	05:56 06:50-07:14/24	05:11 06:03-06:36/33	05:09 05:59-06:35/36	05:45 06:42-07:15/33	06:34 07:38-07:56/18	07:22 08:15-08:41/26	07:15 08:08-08:17/9	08:06 09:00-09:03/3
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:12	20:11 07:27-07:37/10	19:02	16:57	16:17
3	08:29	08:01	07:07 07:59-08:25/26	06:57 07:52-08:15/23	05:54 06:48-07:12/24	05:10 06:01-06:35/34	05:09 05:59-06:36/37	05:46 06:43-07:17/34	06:36 07:37-07:59/22	07:24 08:17-08:43/26	07:17 08:10-08:16/6	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05 07:57-08:23/26	06:55 07:51-08:14/23	05:52 06:46-07:11/25	05:09 06:01-06:35/34	05:10 06:01-06:37/36	05:48 06:44-07:17/33	06:37 07:37-08:02/25	07:26 08:19-08:45/26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:44	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03 07:55-08:21/26	06:53 07:45-08:11/26	05:50 06:45-07:11/26	05:09 06:00-06:34/34	05:11 06:02-06:38/36	05:49 06:46-07:19/33	06:39 07:38-08:03/25	07:27 08:20-08:46/26	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01 07:52-08:18/26	06:51 07:43-08:08/25	05:48 06:42-07:10/28	05:08 05:58-06:33/35	05:11 06:03-06:38/35	05:51 06:47-07:19/32	06:40 07:37-08:03/26	07:29 08:22-08:47/25	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59 07:50-08:15/25	06:48 07:42-08:07/25	05:46 06:40-07:09/29	05:07 05:58-06:33/35	05:12 06:04-06:39/35	05:52 06:50-07:20/30	06:42 07:38-08:04/26	07:31 08:25-08:50/25	07:24	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
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	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	220	407	730	768	940	1066	1020	847	687	750	240	9

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B014 - ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m) (511)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 17:09	07:12 08:19-08:36/17 18:00 07:53-08:04/11	07:02 07:45-08:29/44 19:53	05:57 06:47-07:37/50 20:44	05:12 06:11-06:57/46 21:30	05:08 06:08-06:58/50 21:45	05:43 06:40-07:32/52 21:14	06:32 07:22-08:25/63 20:13	07:21 08:06-08:47/41 19:04	07:14 16:58	08:04 16:18
2	08:29 16:23	08:03 17:11	07:10 08:22-08:34/12 18:02 07:50-08:06/16	07:00 07:42-08:30/48 19:55	05:55 06:43-07:36/53 20:46	05:11 06:10-06:56/46 21:31	05:08 06:08-06:58/50 21:44	05:45 06:41-07:34/53 21:13	06:34 07:24-08:25/61 20:11	07:22 08:07-08:47/40 19:02	07:16 16:57	08:06 16:17
3	08:29 16:24	08:01 17:12	07:08 07:49-08:08/19 18:04	06:57 07:40-08:30/50 19:57	05:54 06:40-07:35/55 20:47	05:10 06:09-06:55/46 21:32	05:09 06:09-06:58/49 21:44	05:46 06:41-07:35/54 21:11	06:36 07:24-08:25/61 20:09	07:24 08:07-08:47/40 19:00	07:17 16:55	08:07 16:16
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15	08:24 16:40	07:40 08:21-08:38/17 17:34	06:41 07:22-08:06/44 18:24	06:31 07:20-08:25/65 20:17	05:33 06:29-07:19/50 21:06	05:04 06:04-06:55/51 21:42	05:20 06:22-07:06/44 21:36	06:05 06:57-07:47/50 20:49	06:55 07:39-08:20/41 19:41	07:44 08:51-09:11/20 18:33	07:39 16:35	08:21 16:13
16	08:23 16:41	07:38 08:20-08:40/20 17:36	06:39 07:19-08:03/44 18:26	06:28 07:18-08:23/65 20:19	05:31 06:29-07:17/48 21:08	05:04 06:04-06:55/51 21:42	05:22 06:22-07:06/44 21:35	06:07 06:59-07:47/48 20:47	06:56 07:41-08:22/41 19:39	07:46 08:50-09:12/22 18:31	07:40 16:34	08:22 16:13
17	08:22 16:43	07:36 08:19-08:41/22 17:38	06:36 07:17-08:00/43 18:28	06:26 07:16-08:22/66 20:20	05:30 06:28-07:13/45 21:09	05:04 06:04-06:56/52 21:43	05:23 06:24-07:07/43 21:34	06:08 07:00-07:48/48 20:45	06:58 07:42-08:23/41 19:37	07:48 08:49-09:13/24 18:29	07:42 16:32	08:23 16:13
18	08:21 16:45	07:34 08:18-08:42/24 17:40	06:34 07:14-07:52/38 18:30	06:24 07:15-08:21/66 20:22	05:28 06:29-07:13/44 21:11	05:04 06:04-06:56/52 21:43	05:24 06:25-07:07/42 21:33	06:10 07:02-07:48/46 20:43	07:00 07:44-08:24/40 19:34	07:49 08:48-09:13/25 18:26	07:44 16:31	08:24 16:13
19	08:20 16:46	07:32 08:17-08:42/25 17:42	06:32 07:12-07:50/38 18:31	06:22 07:13-08:20/67 20:24	05:27 06:29-07:12/43 21:12	05:04 06:04-06:56/52 21:44	05:25 06:27-07:09/42 21:32	06:11 07:05-07:49/44 20:41	07:01 07:45-08:24/39 19:32	07:51 08:47-09:13/26 18:24	07:45 16:30	08:25 16:13
20	08:19 16:48	07:31 08:17-08:43/26 17:44	06:29 07:10-07:50/40 18:33	06:20 07:48-08:18/30 20:25 07:12-07:47/35	05:26 06:26-07:10/44 21:14	05:04 06:04-06:56/52 21:44	05:26 06:29-07:12/43 21:31	06:13 08:02-08:13/11 20:39 07:08-07:49/41	07:03 07:47-08:25/38 19:30	07:53 08:47-09:13/26 18:22	07:47 16:28	08:25 16:14
21	08:18 16:50	07:28 08:17-08:43/26 17:45	06:27 07:08-07:49/41 18:35	06:18 07:49-08:17/28 20:27 07:10-07:46/36	05:24 06:24-07:08/44 21:15	05:04 06:04-06:56/52 21:44	05:28 06:30-07:14/44 21:30	06:15 07:59-08:17/18 20:37 07:10-07:50/40	07:04 07:48-08:28/40 19:27	07:54 08:47-09:14/27 18:20	07:49 16:27	08:26 16:14
22	08:17 16:51	07:26 08:16-08:43/27 17:47	06:25 07:07-07:47/40 18:36	06:16 07:51-08:15/24 20:29 07:08-07:46/38	05:23 06:22-07:06/44 21:17	05:04 06:04-06:56/52 21:45	05:29 06:31-07:15/44 21:28	06:16 07:56-08:19/23 20:35 07:11-07:50/39	07:06 07:50-08:30/40 19:25	07:56 08:47-09:14/27 18:18	07:50 16:26	08:27 16:15
23	08:16 16:53	07:24 08:17-08:43/26 17:49	06:23 07:04-07:44/40 18:38	06:13 07:53-08:12/19 20:31 07:05-07:45/40	05:22 06:21-07:05/44 21:18	05:04 06:04-06:56/52 21:45	05:30 06:32-07:16/44 21:27	06:18 07:55-08:21/26 20:33 07:15-07:51/36	07:08 07:52-08:32/40 19:23	07:58 08:47-09:13/26 18:16	07:52 16:25	08:27 16:15
24	08:15 16:55	07:22 08:16-08:42/26 17:51	06:20 07:01-07:41/40 18:40	06:11 07:55-08:09/14 20:32 07:03-07:44/41	05:20 06:20-07:04/44 21:20	05:05 06:05-06:57/52 21:45	05:32 06:34-07:17/43 21:26	06:19 07:52-08:21/29 20:31 07:15-07:51/36	07:09 07:52-08:32/40 19:20	08:00 08:47-09:12/25 18:14	07:54 16:24	08:28 16:16
25	08:14 16:56	07:20 08:16-08:41/25 17:53	06:18 07:00-07:38/38 18:42	06:09 07:00-07:43/43 20:34	05:19 06:19-07:02/43 21:21	05:05 06:05-06:57/52 21:45	05:33 06:37-07:20/43 21:25	06:21 07:16-08:23/67 20:28	07:11 07:54-08:33/39 19:18	08:01 08:47-09:11/24 18:12	07:55 16:23	08:28 16:16
26	08:12 16:58	07:18 08:17-08:41/24 17:55	07:16 07:57-08:36/39 19:43	06:07 06:56-07:42/46 20:36	05:18 06:18-07:00/42 21:22	05:05 06:05-06:57/52 21:45	05:35 06:39-07:22/43 21:23	06:23 07:17-08:23/66 20:26	07:13 07:56-08:34/38 19:16	08:03 08:48-09:11/23 18:10	07:57 16:22	08:28 16:17
27	08:11 17:00	07:16 08:18-08:40/22 17:56	07:13 07:55-08:35/40 19:45	06:05 06:53-07:41/48 20:37	05:17 06:16-06:58/42 21:24	05:06 06:06-06:58/52 21:45	05:36 06:39-07:23/44 21:22	06:24 07:19-08:24/65 20:24	07:14 07:56-08:34/38 19:13	08:05 08:49-09:10/21 18:08	07:58 16:21	08:29 16:18
28	08:10 17:02	07:14 08:19-08:39/20 17:58	07:11 07:53-08:34/41 19:47	06:03 06:52-07:40/48 20:39	05:16 06:15-06:58/43 21:25	05:06 06:06-06:57/51 21:45	05:37 06:39-07:24/45 21:20	06:26 07:19-08:24/65 20:22	07:16 07:59-08:42/43 19:11	08:07 08:50-09:08/18 18:06	08:00 16:20	08:29 16:18
29	08:09 17:03		07:09 07:50-08:31/41 19:48	06:01 06:50-07:39/49 20:41	05:15 06:13-06:57/44 21:26	05:07 06:07-06:58/51 21:45	05:39 06:39-07:27/48 21:19	06:27 07:20-08:25/65 20:20	07:17 07:59-08:44/45 19:09	07:08 07:52-08:07/15 17:04	08:02 16:19	08:29 16:19
30	08:07 17:05		07:06 07:48-08:29/41 19:50	05:59 06:48-07:38/50 20:42	05:14 06:13-06:57/44 21:27	05:07 06:07-06:58/51 21:45	05:40 06:39-07:29/50 21:17	06:29 07:21-08:25/64 20:18	07:19 08:02-08:46/44 19:07	07:10 07:55-08:04/9 17:02	08:03 16:18	08:29 16:20
31	08:06 17:07		07:04 07:47-08:30/43 19:52		05:13 06:11-06:56/45 21:28		05:42 06:40-07:31/51 21:16	06:31 07:22-08:26/64 20:15		07:12 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	347	1135	1703	1514	1492	1416	1757	1403	801	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B020 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (320)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:17
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:53	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:13
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:39	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:36	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:28	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:44	08:24
	16:44	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:54	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:15
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:01	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B039 - NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (333)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:59	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:23	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:45	21:13	20:11	19:02	16:57	16:17
3	08:30	08:01	07:08	06:58	05:54	05:10	05:09	05:46	06:36	07:24	07:18	08:08
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:06	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:45	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:49	07:37	07:32	08:18
	16:34	17:27	18:18	20:11	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:46	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:04	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:33	16:13
18	08:22	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:56	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:27	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:57	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:21	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:18	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B040 - NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (334)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:45	21:13	20:11	19:02	16:57	16:17
3	08:30	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:08
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:06	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
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13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
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14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
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15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
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19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
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23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
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25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:56	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:21	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:18	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B041 - ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (335)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
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	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
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	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B042 - NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (336)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:08
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
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	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
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	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
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	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
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	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
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15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
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17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
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	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B045 - ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (338)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:08	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:57	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
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10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:32	08:17
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12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
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15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
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	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
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	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:13	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:17	07:09	08:02	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:29		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B050 - ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (340)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 17:09	07:12 18:00	07:02 07:43-08:14/31 19:53	05:57 06:42-07:24/42 20:44	05:12 06:04-06:42/38 21:30	05:08 06:10-06:36/26 21:45	05:43 06:31-07:23/52 21:14	06:32 07:15-07:45/30 20:13	07:21 08:07-08:28/21 19:04	07:14 16:58	08:04 16:18
2	08:29 16:23	08:03 17:11	07:10 18:02	07:00 07:38-08:11/33 19:55	05:55 06:41-07:23/42 20:46	05:11 06:03-06:41/38 21:31	05:08 06:09-06:36/27 21:44	05:45 06:34-07:25/51 21:13	06:34 07:16-07:46/30 20:11	07:22 08:06-08:27/21 19:02	07:16 16:57	08:06 16:17
3	08:29 16:24	08:01 17:12	07:08 18:03	06:57 07:35-08:09/34 19:57	05:54 06:39-07:22/43 20:47	05:10 06:03-06:39/36 21:32	05:09 06:10-06:37/27 21:44	05:46 06:37-07:26/49 21:11	06:36 07:16-07:46/30 20:09	07:24 08:07-08:26/19 19:00	07:17 16:55	08:07 16:16
4	08:29 16:25	08:00 17:14	07:05 18:05	06:55 07:33-08:01/28 19:59	05:52 06:38-07:21/43 20:49	05:09 06:04-06:38/34 21:33	05:10 06:10-06:38/28 21:44	05:48 06:38-07:26/48 21:09	06:37 07:19-07:47/28 20:06	07:26 08:07-08:26/19 18:57	07:19 16:53	08:09 16:16
5	08:29 16:26	07:58 17:16	07:03 18:07	06:53 07:30-08:00/30 20:00	05:50 06:38-07:20/42 20:50	05:09 06:04-06:37/33 21:34	05:11 06:10-06:40/30 21:43	05:49 06:41-07:27/46 21:08	06:39 07:21-07:52/31 20:04	07:27 08:08-08:25/17 18:55	07:21 16:51	08:10 16:15
6	08:29 16:28	07:56 17:18	07:01 18:09	06:51 07:28-07:59/31 20:02	05:48 06:35-07:19/44 20:52	05:08 06:03-06:36/33 21:35	05:11 06:10-06:41/31 21:43	05:51 06:42-07:27/45 21:06	06:40 07:21-07:53/32 20:02	07:29 08:09-08:22/13 18:53	07:23 16:49	08:11 16:15
7	08:28 16:29	07:55 17:20	06:59 18:11	06:48 07:26-07:58/32 20:04	05:46 06:34-07:18/44 20:54	05:07 06:04-06:36/32 21:36	05:12 06:10-06:42/32 21:42	05:52 06:44-07:28/44 21:04	06:42 07:23-07:55/32 20:00	07:31 08:12-08:19/7 18:51	07:24 16:48	08:13 16:14
8	08:28 16:30	07:53 17:22	06:57 07:36-07:43/7 18:12	06:46 07:25-07:56/31 20:05	05:44 06:33-07:18/45 20:55	05:07 06:04-06:34/30 21:37	05:13 06:10-06:43/33 21:42	05:54 06:44-07:28/44 21:02	06:44 07:24-07:55/31 19:57	07:32 18:48	07:26 16:46	08:14 16:14
9	08:28 16:31	07:51 17:23	06:54 07:32-07:45/13 18:14	06:44 07:24-07:53/29 20:07	05:43 06:31-07:17/46 20:57	05:06 06:04-06:34/30 21:38	05:14 06:11-06:44/33 21:41	05:56 06:47-07:29/42 21:00	06:45 07:26-07:55/29 19:55	07:34 18:46	07:28 16:44	08:15 16:14
10	08:27 16:33	07:49 17:25	06:52 07:30-07:47/17 18:16	06:42 07:20-07:48/28 20:09	05:41 06:29-07:17/48 20:59	05:06 06:05-06:33/28 21:38	05:15 06:11-06:45/34 21:40	05:57 06:47-07:30/43 20:59	06:47 07:27-08:00/33 19:53	07:36 18:44	07:30 16:43	08:16 16:13
11	08:26 16:34	07:48 17:27	06:50 07:29-07:48/19 18:18	06:39 07:18-07:48/30 20:10	05:39 06:27-07:15/48 21:00	05:05 06:05-06:32/27 21:39	05:16 06:11-06:47/36 21:39	05:59 06:49-07:31/42 20:57	06:48 07:29-08:03/34 19:51	07:37 18:42	07:31 16:41	08:17 16:13
12	08:26 16:35	07:46 17:29	06:48 07:29-07:48/19 18:19	06:37 07:16-07:47/31 20:12	05:38 06:23-07:14/51 21:02	05:05 06:05-06:32/27 21:40	05:17 06:11-06:49/38 21:39	06:00 06:49-07:32/43 20:55	06:50 07:34-08:04/30 19:48	07:39 18:39	07:33 16:40	08:18 16:13
13	08:25 16:37	07:44 17:31	06:45 07:27-07:48/21 18:21	06:35 07:15-07:45/30 20:14	05:36 06:21-07:13/52 21:03	05:05 06:06-06:32/26 21:41	05:18 06:12-06:50/38 21:38	06:02 06:51-07:33/42 20:53	06:52 07:34-08:05/31 19:46	07:41 18:37	07:35 16:38	08:19 16:13
14	08:25 16:38	07:42 17:33	06:43 07:27-07:48/21 18:23	06:33 07:12-07:44/32 20:15	05:34 06:20-07:11/51 21:05	05:04 06:06-06:32/26 21:41	05:19 06:12-06:51/39 21:37	06:03 06:51-07:33/42 20:51	06:53 07:35-08:05/30 19:44	07:42 18:35	07:37 16:37	08:20 16:13
15	08:24 16:40	07:40 17:34	06:41 07:27-07:48/21 18:24	06:30 07:10-07:41/31 20:17	05:33 06:58-07:10/12 21:06	05:04 06:07-06:32/25 21:42	05:20 06:12-06:52/40 21:36	06:05 06:53-07:33/40 20:49	06:55 07:35-08:06/31 19:41	07:44 18:33	07:39 16:35	08:21 16:13
16	08:23 16:41	07:38 17:36	06:39 07:26-07:47/21 18:26	06:28 07:07-07:38/31 20:19	05:31 07:01-07:08/7 21:08	05:04 06:07-06:32/25 21:42	05:22 06:12-06:53/41 21:35	06:07 06:53-07:33/40 20:47	06:56 07:37-08:06/29 19:39	07:46 18:31	07:40 16:34	08:22 16:13
17	08:22 16:43	07:36 17:38	06:36 07:27-07:46/19 18:28	06:26 07:05-07:36/31 20:20	05:30 06:15-06:54/39 21:09	05:04 06:07-06:32/25 21:43	05:23 06:13-06:53/40 21:34	06:08 06:55-07:33/38 20:45	06:58 07:38-08:05/27 19:37	07:47 18:29	07:42 16:32	08:23 16:13
18	08:21 16:45	07:34 17:40	06:34 07:28-07:46/18 18:30	06:24 07:03-07:33/30 20:22	05:28 06:12-06:53/41 21:11	05:04 06:07-06:32/25 21:43	05:24 06:13-06:54/41 21:33	06:10 06:55-07:33/38 20:43	07:00 07:44-08:05/21 19:34	07:49 18:26	07:44 16:31	08:24 16:13
19	08:20 16:46	07:32 17:42	06:32 07:28-07:43/15 18:31	06:22 07:01-07:31/30 20:24	05:27 06:11-06:53/42 21:12	05:04 06:08-06:32/24 21:44	05:25 06:13-06:55/42 21:32	06:11 06:57-07:33/36 20:41	07:01 07:44-08:04/20 19:32	07:51 18:24	07:45 16:30	08:25 16:13
20	08:19 16:48	07:30 17:44	06:29 07:30-07:41/11 18:33	06:20 06:59-07:30/31 20:25	05:26 06:10-06:51/41 21:14	05:04 06:01-06:03/2 21:44	05:26 06:15-06:58/43 21:31	06:13 06:59-07:32/33 20:39	07:03 07:45-08:03/18 19:30	07:53 18:22	07:47 16:28	08:25 16:14
21	08:18 16:49	07:28 17:45	06:27 07:33-07:38/5 18:35	06:18 06:58-07:29/31 20:27	05:24 06:09-06:51/42 21:15	05:04 06:01-06:04/3 21:44	05:28 06:16-06:59/43 21:30	06:15 07:00-07:32/32 20:37	07:04 07:46-08:02/16 19:27	07:54 18:20	07:49 16:27	08:26 16:14
22	08:17 16:51	07:26 17:47	06:25 07:04-07:13/9 18:36	06:16 06:56-07:27/31 20:29	05:23 06:07-06:51/44 21:17	05:04 06:01-06:04/3 21:45	05:29 06:16-07:00/44 21:28	06:16 07:00-07:31/31 20:35	07:06 07:46-07:59/13 19:25	07:56 18:18	07:50 16:26	08:27 16:15
23	08:16 16:53	07:24 17:49	06:23 07:00-07:14/14 18:38	06:13 06:55-07:26/31 20:31	05:22 06:06-06:50/44 21:18	05:04 06:01-06:04/3 21:45	05:30 06:17-07:01/44 21:27	06:18 07:02-07:33/31 20:33	07:08 07:49-07:57/8 19:23	07:58 18:16	07:52 16:25	08:27 16:15
24	08:15 16:55	07:22 17:51	06:20 06:59-07:16/17 18:40	06:11 06:54-07:26/32 20:32	05:20 06:06-06:49/43 21:20	05:05 06:02-06:04/2 21:45	05:32 06:19-07:01/42 21:26	06:19 07:03-07:34/31 20:31	07:09 08:16-08:22/6 19:20	08:00 18:14	07:54 16:24	08:28 16:16
25	08:14 16:56	07:20 17:53	06:18 06:58-07:17/19 18:42	06:09 06:51-07:26/35 20:34	05:19 06:05-06:48/43 21:21	05:05 06:09-06:33/24 21:45	05:33 06:20-07:02/42 21:25	06:21 07:04-07:35/31 20:28	07:11 08:13-08:26/13 19:18	08:01 18:12	07:55 16:23	08:28 16:16
26	08:12 16:58	07:18 17:55	07:16 07:56-08:16/20 19:43	06:07 06:49-07:26/37 20:36	05:18 06:04-06:46/42 21:22	05:05 06:08-06:33/25 21:45	05:35 06:21-07:03/42 21:23	06:23 07:05-07:35/30 20:26	07:13 08:11-08:27/16 19:16	08:03 18:10	07:57 16:22	08:28 16:17
27	08:11 17:00	07:16 17:56	07:13 07:56-08:17/21 19:45	06:05 06:48-07:26/38 20:37	05:17 06:04-06:45/41 21:24	05:06 06:09-06:34/25 21:45	05:36 06:22-07:03/41 21:22	06:24 07:07-07:38/31 20:24	07:14 08:09-08:27/18 19:13	08:05 18:08	07:58 16:21	08:29 16:17
28	08:10 17:02	07:14 17:58	07:11 07:49-08:17/28 19:47	06:03 06:46-07:26/40 20:39	05:16 06:04-06:44/40 21:25	05:06 06:09-06:34/25 21:45	05:37 06:26-07:05/39 21:20	06:26 07:08-07:39/31 20:22	07:16 08:08-08:28/20 19:11	08:07 18:06	08:00 16:20	08:29 16:18
29	08:09 17:03		07:09 07:46-08:16/30 19:48	06:01 06:45-07:25/40 20:41	05:15 06:03-06:44/41 21:26	05:07 06:10-06:35/25 21:45	05:39 07:11-07:17/6 21:19	06:27 07:10-07:41/31 20:20	07:17 08:07-08:28/21 19:09	07:08 17:04	08:02 16:19	08:29 16:19
30	08:07 17:05		07:06 07:44-08:15/31 19:50	05:59 06:44-07:25/41 20:42	05:14 06:03-06:43/40 21:27	05:07 06:09-06:35/26 21:45	06:27-07:06/39 21:17	06:29 07:11-07:42/31 20:18	07:19 08:07-08:28/21 19:07	07:10 17:02	08:03 16:18	08:29 16:20
31	08:06 17:07		07:04 07:43-08:15/32 19:52		05:13 06:03-06:42/39 21:28		05:42 06:30-07:22/52 21:16	06:31 07:13-07:45/32 20:15		07:12 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	448	970	1358	845	1183	1200	729	117	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B062 - ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (350)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12 07:58-08:12/14	07:02	05:57	05:12	05:08	05:43	06:32	07:20	07:13 07:51-08:06/15	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:02	07:09 07:58-08:10/12	06:59	05:55	05:11	05:08	05:45	06:34	07:22	07:15 07:54-08:06/12	08:06
	16:23	17:11	18:02	19:55	20:45	21:30	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07 08:00-08:07/7	06:57	05:53	05:10	05:09	05:46	06:35	07:24	07:17 07:56-08:05/9	08:07
	16:24	17:12	18:03	19:57	20:47	21:31	21:44	21:11	20:08	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25	07:19 07:58-08:04/6	08:08
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:28	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:22	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:42	21:05	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:53	21:35	21:42	21:04	19:59	18:50	16:48	16:14
8	08:28	07:53 08:29-08:33/4	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:36	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51 08:28-08:36/8	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49 08:26-08:37/11	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:29	08:16
	16:33	17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:47 08:23-08:38/15	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:56	19:50	18:42	16:41	16:13
12	08:26	07:46 08:21-08:38/17	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39 08:33-08:40/7	07:33	08:18
	16:35	17:29	18:19	20:12	21:01	21:40	21:38	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44 08:20-08:38/18	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:40 08:32-08:42/10	07:35	08:19
	16:37	17:31	18:21	20:13	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42 08:18-08:37/19	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42 08:31-08:45/14	07:36	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:37	16:13
15	08:23	07:40 08:17-08:37/20	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44 08:31-08:46/15	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:41	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38 08:15-08:35/20	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46 08:31-08:49/18	07:40	08:22
	16:41	17:36	18:26	20:18	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36 08:15-08:33/18	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47 08:31-08:50/19	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:36	18:28	16:32	16:13
18	08:21	07:34 08:14-08:31/17	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49 08:32-08:51/19	07:43	08:24
	16:45	17:40	18:29	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32 08:12-08:29/17	06:31	06:22	05:27	05:04	05:25	06:11	07:01	07:51 08:34-08:53/19	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:43	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30 08:10-08:28/18	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:52 08:36-08:54/18	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28 08:09-08:27/18	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54 08:37-08:55/18	07:48	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:29	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26 08:07-08:24/17	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56 08:40-08:57/17	07:50	08:26
	16:51	17:47	18:36	20:29	21:16	21:44	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24 08:05-08:23/18	06:22	06:13	05:22	05:04	05:30	06:18	07:07	07:58 08:39-08:57/18	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:44	21:27	20:32	19:23	18:16	16:25	16:15
24	08:15	07:22 08:03-08:22/19	06:20	06:11	05:20	05:05	05:32	06:19	07:09	07:59 08:41-08:58/17	07:53	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:13	07:20 08:01-08:20/19	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01 08:43-09:00/17	07:55	08:28
	16:56	17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18 07:59-08:19/20	07:15	06:07	05:18	05:05	05:34	06:23	07:12	08:03 08:44-09:02/18	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16 07:59-08:17/18	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05 08:45-09:04/19	07:58	08:28
	17:00	17:56	19:45	20:37	21:23	21:45	21:21	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14 07:58-08:13/15	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:06 08:46-09:06/20	08:00	08:29
	17:02	17:58	19:46	20:39	21:24	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08 07:47-08:07/20	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10 07:48-08:07/19	08:03	08:29
	17:05		19:50	20:42	21:27	21:44	21:17	20:17	19:06	17:02	16:18	16:20
31	08:05		07:04		05:13		05:42	06:31		07:12 07:50-08:08/18		08:29
	17:07		19:52		21:28		21:15	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	269	245
Anzahl Minuten mit Schatten	0	346	33	0	0	0	0	0	0	340	42	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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B076 - TACKE TW 600 600-200 43.0 !O! NH: 50.0 m (Ges:71.5 m) (363)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:59	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:08
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:06	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:56	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:57	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:21	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B077 - VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (364)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni		Juli		August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	21:00-21:01/1	05:08	21:07-21:14/7	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30		21:45		21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	21:00-21:01/1	05:09	21:07-21:13/6	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31		21:44		21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	21:00-21:02/2	05:09	21:07-21:13/6	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32		21:44		21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	21:01-21:04/3	05:10	21:07-21:13/6	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33		21:44		21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	21:00-21:04/4	05:11	21:07-21:13/6	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34		21:43		21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	21:00-21:04/4	05:12	21:07-21:12/5	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35		21:43		21:06	20:02	18:53	16:49	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	21:01-21:06/5	05:12	21:07-21:12/5	05:52	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36		21:42		21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	21:01-21:06/5	05:13	21:07-21:11/4	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37		21:42		21:02	19:58	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	21:02-21:07/5	05:14	21:07-21:11/4	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38		21:41		21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	21:02-21:08/6	05:15	21:08-21:10/2	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39		21:40		20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	21:02-21:08/6	05:16	21:08-21:10/2	05:59	06:48	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39		21:40		20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	21:03-21:09/6	05:17	21:08-21:09/1	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40		21:39		20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	21:03-21:10/7	05:18		06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41		21:38		20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	21:04-21:11/7	05:19		06:04	06:53	07:43	07:37	08:21
	16:38	17:33	18:23	20:16	21:05	21:41		21:37		20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	21:04-21:12/8	05:20		06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42		21:36		20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04	21:05-21:12/7	05:22		06:07	06:56	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43		21:35		20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	21:04-21:12/8	05:23		06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43		21:34		20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	21:05-21:13/8	05:24		06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44		21:33		20:43	19:34	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	21:06-21:13/7	05:25		06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:31	20:24	21:13	21:44		21:32		20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	21:06-21:14/8	05:27		06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44		21:31		20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	21:06-21:14/8	05:28		06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45		21:30		20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	21:06-21:14/8	05:29		06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45		21:29		20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	21:06-21:14/8	05:30		06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45		21:27		20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:11	05:20	05:05	21:07-21:15/8	05:32		06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45		21:26		20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	21:07-21:14/7	05:33		06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45		21:25		20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	21:06-21:14/8	05:35		06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45		21:23		20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	21:07-21:15/8	05:36		06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45		21:22		20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	21:07-21:14/7	05:37		06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45		21:20		20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	21:07-21:15/8	05:39		06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45		21:19		20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	21:07-21:14/7	05:40		06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45		21:17		20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13			05:42		06:31		07:12		08:30
	17:07		19:52		21:29			21:16		20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497		502		454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	185		54		0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B078 - VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (365)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58 19:48-20:09/21	05:12 20:46-21:01/15	05:08 20:51-21:14/23	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56 19:49-20:07/18	05:11 20:46-21:01/15	05:09 20:51-21:13/22	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54 19:51-20:05/14	05:10 20:46-21:02/16	05:09 20:51-21:13/22	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52 19:53-20:03/10	05:10 20:46-21:04/18	05:10 20:52-21:13/21	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09 20:46-21:04/18	05:11 20:52-21:13/21	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08 20:46-21:04/18	05:12 20:52-21:12/20	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:08 20:46-21:06/20	05:12 20:52-21:12/20	05:52	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07 20:46-21:06/20	05:13 20:53-21:11/18	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:58	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06 20:46-21:07/21	05:14 20:53-21:11/18	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06 20:47-21:08/21	05:15 20:53-21:10/17	05:57 20:03-20:11/8	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06 20:46-21:08/22	05:16 20:54-21:10/16	05:59 20:00-20:14/14	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05 20:47-21:09/22	05:17 20:54-21:09/15	06:00 19:58-20:15/17	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05 20:47-21:10/23	05:18 20:54-21:08/14	06:02 19:57-20:17/20	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05 20:48-21:11/23	05:19 20:55-21:08/13	06:04 19:55-20:17/22	06:53	07:42	07:37	08:21
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04 20:48-21:12/24	05:20 20:55-21:07/12	06:05 19:55-20:18/23	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04 20:48-21:12/24	05:22 20:56-21:06/10	06:07 19:54-20:18/24	06:56	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26 19:52-19:56/4	05:30	05:04 20:49-21:13/24	05:23 20:56-21:05/9	06:08 19:53-20:19/26	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24 19:51-19:57/6	05:28	05:04 20:49-21:13/24	05:24 20:57-21:04/7	06:10 19:52-20:17/25	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:27	16:31	16:13
19	08:20	07:33	06:32	06:22 19:49-19:59/10	05:27	05:04 20:49-21:13/24	05:25 20:57-21:03/6	06:12 19:52-20:16/24	07:01	07:51	07:46	08:25
	16:46	17:42	18:31	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:19	07:31	06:30	06:20 19:48-20:01/13	05:26	05:04 20:49-21:14/25	05:27 20:59-21:02/3	06:13 19:52-20:13/21	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18 19:48-20:02/14	05:24	05:04 20:49-21:14/25	05:28 21:00-21:01/1	06:15 19:52-20:12/20	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16 19:47-20:04/17	05:23	05:04 20:49-21:14/25	05:29	06:16 19:51-20:09/18	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14 19:46-20:05/19	05:22	05:05 20:49-21:14/25	05:30	06:18 19:52-20:08/16	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11 19:46-20:07/21	05:20 20:50-20:51/1	05:05 20:50-21:15/25	05:32	06:20 19:52-20:05/13	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09 19:46-20:09/23	05:19 20:49-20:52/3	05:05 20:50-21:14/24	05:33	06:21 19:53-20:03/10	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07 19:46-20:10/24	05:18 20:48-20:54/6	05:05 20:50-21:14/24	05:35	06:23 19:53-20:01/8	07:13	08:03	07:57	08:28
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05 19:46-20:12/26	05:17 20:48-20:55/7	05:06 20:51-21:15/24	05:36	06:24 19:54-19:59/5	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03 19:46-20:11/25	05:16 20:47-20:56/9	05:06 20:50-21:14/24	05:37	06:26 19:55-19:57/2	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01 19:46-20:10/24	05:15 20:47-20:57/10	05:07 20:51-21:15/24	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59 19:48-20:10/22	05:14 20:46-20:58/12	05:07 20:51-21:14/23	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13 20:46-20:59/13		05:42	06:31		07:12		08:29
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	248	124	660	308	316	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B082 - NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0 m) (367)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 09:07-09:28/21	08:04 08:37-09:02/25	07:12 07:47-08:11/24	07:02 07:50-07:54/4	05:57	05:12	05:08	05:43	06:32 07:13-07:35/22	07:21 07:57-08:23/26	07:14 07:51-08:19/28	08:04 08:45-09:06/21
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29 09:03-09:05/2	08:03 08:36-09:02/26	07:10 07:45-08:09/24	07:00	05:56	05:11	05:09	05:45	06:34 07:13-07:36/23	07:22 07:57-08:23/26	07:15 07:53-08:20/27	08:06 08:44-09:09/25
	16:23 09:07-09:28/21	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:57	16:17
3	08:29 09:03-09:07/4	08:01 08:35-09:01/26	07:07 07:44-08:07/23	06:57	05:54	05:10	05:09	05:46	06:36 19:32-19:37/5	07:24 07:59-08:26/27	07:17 07:53-08:20/27	08:07 08:45-09:11/26
	16:24 09:08-09:28/20	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09 07:13-07:36/23	19:00	16:55	16:16
4	08:29 09:03-09:29/26	07:59 08:34-09:02/28	07:05 07:41-08:06/25	06:55 19:32-19:35/3	05:52	05:10	05:10	05:48	06:37 19:31-19:39/8	07:26 08:02-08:28/26	07:19 07:55-08:21/26	08:09 08:46-09:12/26
	16:25	17:14	18:05	19:59	20:49	21:33	21:43	21:09	20:06 07:15-07:36/21	18:57	16:53	16:16
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	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	644	744	706	328	0	0	0	114	579	797	637	699

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B083 - ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (368)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 08:55-09:29/34 17:09	07:12 07:59-08:32/33 18:00	07:02 07:49-08:32/43 19:53	05:57 19:30-19:56/26 20:44 06:53-07:25/32	05:12 19:49-20:25/36 21:30	05:08 20:04-20:31/27 21:44	05:43 19:42-20:18/36 21:14 07:06-07:25/19	06:32 07:20-08:03/43 20:13	07:21 08:11-08:56/45 19:04	07:14 08:01-08:42/41 16:58	08:04 08:56-09:14/18 16:18
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Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	651	1063	1286	1313	1481	838	1110	1539	1324	1193	1009	83

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B084 - ENERCON E-115 EP3 E3 4200 115.7 !O! NH: 149.0 m (Ges:206.9 m) (510)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 08:58-09:22/24 17:09	07:12 07:59-08:33/34 18:00	07:02 07:50-08:14/24 19:53	05:57 19:14-19:45/31 20:44	05:12 21:29	05:08 21:44	05:43 19:43-19:49/6 21:14	06:32 18:57-19:24/27 20:13	07:21 08:10-08:44/34 19:04	07:14 08:02-08:30/28 16:58	08:04 16:18
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21	08:18 09:06-09:18/12 16:50	07:28 08:16-08:52/36 17:46	06:27 07:09-07:46/37 18:35	06:18 19:02-19:32/30 20:27	05:24 21:15	05:04 21:44	05:28 21:30	06:15 19:11-19:40/29 20:37	07:04 07:52-08:21/29 19:27	07:54 08:44-09:19/35 18:20	07:49 08:40-08:54/14 16:27	08:26 16:14
22	08:17 09:05-09:19/14 16:51	07:26 08:14-08:50/36 17:47	06:25 07:08-07:42/34 18:36	06:16 19:03-19:33/30 20:29	05:23 21:17	05:04 21:45	05:29 21:28	06:16 19:08-19:38/30 20:35	07:06 07:52-08:26/34 19:25	07:56 08:46-09:22/36 18:18	07:50 08:41-08:54/13 16:26	08:26 16:15
23	08:16 09:04-09:19/15 16:53	07:24 08:11-08:45/34 17:49	06:23 07:06-07:40/34 18:38	06:13 19:05-19:34/29 20:30	05:22 21:18	05:05 21:45	05:30 21:27	06:18 19:07-19:37/30 20:33	07:08 07:53-08:29/36 19:23	07:58 08:48-09:24/36 18:16	07:52 08:42-08:53/11 16:25	08:27 16:15
24	08:15 09:04-09:21/17 16:55	07:22 08:09-08:44/35 17:51	06:20 07:05-07:34/29 18:40	06:11 19:07-19:37/30 20:32	05:20 21:19	05:05 21:45	05:32 21:26	06:19 19:05-19:35/30 20:31	07:09 07:54-08:30/36 19:20	08:00 08:49-09:24/35 18:14	07:54 08:43-08:52/9 16:24	08:27 16:16
25	08:14 09:01-09:21/20 16:56	07:20 08:07-08:42/35 17:53	06:18 07:05-07:33/28 18:42	06:09 19:08-19:39/31 20:34	05:19 21:21	05:05 21:45	05:33 21:24	06:21 19:04-19:34/30 20:28	07:11 07:57-08:32/35 19:18	08:01 08:51-09:25/34 18:12	07:55 08:47-08:50/3 16:23	08:28 16:16
26	08:12 09:00-09:22/22 16:58	07:18 08:05-08:40/35 17:55	07:16 08:04-08:31/27 19:43	06:07 19:08-19:40/32 20:35	05:18 21:22	05:05 21:45	05:35 21:23	06:23 19:01-19:32/31 20:26	07:13 07:58-08:34/36 19:16	08:03 08:53-09:25/32 18:10	07:57 16:22	08:28 16:17
27	08:11 09:00-09:22/22 17:00	07:16 08:03-08:39/36 17:56	07:13 08:04-08:28/24 19:45	06:05 19:08-19:41/33 20:37	05:17 21:23	05:06 21:45	05:36 21:22	06:24 19:00-19:31/31 20:24	07:14 08:00-08:36/36 19:13	08:05 08:55-09:25/30 18:08	07:58 16:21	08:29 16:18
28	08:10 08:59-09:22/23 17:02	07:14 08:02-08:36/34 17:58	07:11 08:00-08:26/26 19:47	06:03 19:09-19:42/33 20:39	05:16 21:25	05:06 21:45	05:37 21:20	06:26 18:59-19:29/30 20:22	07:16 08:02-08:38/36 19:11	08:07 08:57-09:26/29 18:06	08:00 16:20	08:29 16:18
29	08:08 08:59-09:23/24 17:03		07:09 07:56-08:23/27 19:48	06:01 19:10-19:43/33 20:41	05:15 21:26	05:07 21:45	05:39 21:19	06:28 18:59-19:28/29 20:20	07:17 08:03-08:39/36 19:09	07:08 07:58-08:28/30 17:04	08:01 16:19	08:29 16:19
30	08:07 08:58-09:22/24 17:05		07:06 07:54-08:19/25 19:50	05:59 19:12-19:45/33 20:42	05:14 21:27	05:07 21:45	05:40 21:17	06:29 18:57-19:26/29 20:18 07:52-07:56/4	07:19 08:09-08:42/33 19:07	07:10 07:59-08:29/30 17:02	08:03 16:18	08:29 16:20
31	08:06 08:58-09:22/24 17:07		07:04 07:52-08:18/26 19:52		05:13 21:28		05:42 21:16	06:31 18:58-19:26/28 20:15 07:48-08:00/12		07:12 08:01-08:30/29 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	233	880	1001	1034	277	0	0	839	1028	1040	570	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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B086 - ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (369)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57 06:41-07:07/26	05:12	05:08	05:43 06:34-06:54/20	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55 06:38-07:05/27	05:11	05:08	05:45 06:34-06:57/23	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:07	06:57	05:54 06:37-07:02/25	05:10	05:09	05:46 06:34-06:58/24	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52 06:34-07:00/26	05:09	05:10	05:48 06:34-06:59/25	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:44	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50 06:33-06:59/26	05:09	05:11	05:49 06:36-07:01/25	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48 06:31-06:57/26	05:08	05:11	05:51 06:36-07:03/27	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46 06:29-06:55/26	05:07	05:12	05:52 06:39-07:05/26	06:42	07:31	07:24	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:44 06:28-06:54/26	05:07	05:13	05:54 06:40-07:06/26	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43 06:26-06:51/25	05:06	05:14	05:56 06:42-07:08/26	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:38	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	05:41 06:25-06:50/25	05:06	05:15	05:57 06:43-07:09/26	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:38	21:40	20:59	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39 06:24-06:48/24	05:05	05:16	05:59 06:46-07:11/25	06:48	07:37	07:31	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38 06:23-06:46/23	05:05	05:17	06:00 06:46-07:13/27	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36 06:23-06:44/21	05:05	05:18	06:02 06:49-07:15/26	06:52	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:34 06:24-06:44/20	05:05	05:19	06:03 06:50-07:16/26	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:30	05:33 06:23-06:42/19	05:04	05:20	06:05 06:52-07:18/26	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31 06:24-06:41/17	05:04	05:22	06:07 06:53-07:18/25	06:56 07:56-08:05/9	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30 06:24-06:38/14	05:04	05:23	06:08 06:55-07:19/24	06:58 07:54-08:06/12	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34 07:16-07:17/1	06:24	05:28 06:25-06:37/12	05:04	05:24	06:10 06:57-07:18/21	07:00 07:53-08:07/14	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32 07:11-07:20/9	06:22	05:27 06:26-06:36/10	05:04	05:25	06:11 06:59-07:19/20	07:01 07:51-08:06/15	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29 07:10-07:22/12	06:20	05:26 06:26-06:34/8	05:04	05:26	06:13 07:00-07:18/18	07:03 07:51-08:07/16	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27 07:09-07:22/13	06:18 07:02-07:09/7	05:24 06:28-06:33/5	05:04	05:28	06:15 07:02-07:17/15	07:04 07:52-08:08/16	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25 07:06-07:23/17	06:16 07:00-07:11/11	05:23	05:04	05:29	06:16 07:04-07:16/12	07:06 07:51-08:07/16	07:56	07:50	08:27
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:23 07:05-07:22/17	06:13 06:58-07:12/14	05:22	05:04	05:30	06:18 07:06-07:15/9	07:08 07:52-08:07/15	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20 07:05-07:21/16	06:11 06:55-07:12/17	05:20	05:05	05:32 06:38-06:43/5	06:19 07:08-07:11/3	07:09 07:52-08:06/14	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:31	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18 07:05-07:20/15	06:09 06:53-07:12/19	05:19	05:05	05:33 06:37-06:45/8	06:21	07:11 07:53-08:05/12	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16 08:04-08:19/15	06:07 06:51-07:12/21	05:18	05:05	05:35 06:36-06:46/10	06:23	07:12 07:55-08:04/9	08:03	07:57	08:28
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13 08:05-08:18/13	06:05 06:48-07:11/23	05:17	05:06	05:36 06:35-06:47/12	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:18
28	08:10	07:14	07:11 08:06-08:17/11	06:03 06:46-07:11/25	05:16	05:06	05:37 06:35-06:49/14	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09 08:07-08:14/7	06:01 06:44-07:10/26	05:15	05:07	05:39 06:34-06:51/17	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59 06:43-07:09/26	05:14	05:07	05:40 06:34-06:52/18	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42 06:34-06:54/20	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	146	189	431	0	104	525	148	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B087 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 17:09	07:12 18:00	07:02 07:33-07:49/16 19:53	05:57 06:31-06:52/21 20:44	05:12 05:47-06:12/25 21:30	05:08 05:43-06:06/23 21:45	05:43 06:18-06:46/28 21:14	06:32 07:09-07:26/17 20:13	07:21 19:04	07:14 16:58	08:04 16:18
2	08:29 16:23	08:03 17:11	07:10 18:02	07:00 07:32-07:49/17 19:55	05:55 06:28-06:52/24 20:45	05:11 05:46-06:08/22 21:31	05:08 05:43-06:09/26 21:44	05:45 06:21-06:48/27 21:12	06:34 07:10-07:26/16 20:11	07:22 19:02	07:15 16:56	08:06 16:17
3	08:29 16:24	08:01 17:12	07:07 18:03	06:57 07:31-07:49/18 19:57	05:54 06:26-06:51/25 20:47	05:10 05:46-06:08/22 21:32	05:09 05:45-06:10/25 21:44	05:46 06:22-06:49/27 21:11	06:35 07:11-07:25/14 20:09	07:24 19:00	07:17 16:55	08:07 16:16
4	08:29 16:25	07:59 17:14	07:05 18:05	06:55 07:31-07:49/18 19:58	05:52 06:24-06:50/26 20:49	05:09 05:44-06:08/24 21:33	05:10 05:46-06:11/25 21:44	05:48 06:23-06:50/27 21:09	06:37 07:32-07:36/4 20:06 07:13-07:25/12	07:26 18:57	07:19 16:53	08:09 16:16
5	08:29 16:26	07:58 17:16	07:03 18:07	06:53 07:29-07:47/18 20:00	05:50 06:23-06:50/27 20:50	05:09 05:43-06:08/25 21:34	05:11 05:47-06:12/25 21:43	05:49 06:25-06:52/27 21:07	06:39 07:29-07:39/10 20:04 07:14-07:24/10	07:27 18:55	07:21 16:51	08:10 16:15
6	08:29 16:28	07:56 17:18	07:01 18:09	06:50 07:30-07:45/15 20:02	05:48 06:21-06:48/27 20:52	05:08 05:41-06:07/26 21:35	05:11 05:47-06:12/25 21:43	05:51 06:26-06:53/27 21:06	06:40 07:27-07:40/13 20:02 07:15-07:21/6	07:29 18:53	07:23 16:49	08:11 16:15
7	08:28 16:29	07:55 17:20	06:59 18:11	06:48 07:30-07:44/14 20:04	05:46 06:18-06:46/28 20:54	05:07 05:42-06:07/25 21:36	05:12 05:48-06:13/25 21:42	05:52 06:28-06:56/28 21:04	06:42 07:26-07:41/15 20:00	07:31 18:51	07:24 16:48	08:13 16:14
8	08:28 16:30	07:53 17:22	06:56 18:12	06:46 07:31-07:43/12 20:05 07:18-07:26/8	05:44 06:17-06:44/27 20:55	05:07 05:42-06:07/25 21:37	05:13 05:48-06:14/26 21:41	05:54 06:30-06:57/27 21:02	06:43 07:25-07:41/16 19:57	07:32 18:48	07:26 16:46	08:14 16:14
9	08:27 16:31	07:51 17:23	06:54 18:14	06:44 07:33-07:41/8 20:07 07:16-07:27/11	05:43 06:15-06:42/27 20:57	05:06 05:41-06:06/25 21:38	05:14 05:50-06:15/25 21:41	05:55 06:32-06:59/27 21:00	06:45 07:25-07:42/17 19:55	07:34 18:46	07:28 16:44	08:15 16:13
10	08:27 16:33	07:49 17:25	06:52 18:16	06:42 07:14-07:27/13 20:09	05:41 06:14-06:41/27 20:59	05:06 05:41-06:06/25 21:38	05:15 05:51-06:15/24 21:40	05:57 06:33-06:59/26 20:59	06:47 07:24-07:42/18 19:53	07:36 18:44	07:30 16:43	08:16 16:13
11	08:26 16:34	07:48 17:27	06:50 18:18	06:39 07:12-07:27/15 20:10	05:39 06:12-06:39/27 21:00	05:05 05:39-06:05/26 21:39	05:16 05:54-06:16/22 21:39	05:59 06:35-07:00/25 20:57	06:48 07:24-07:43/19 19:50	07:37 18:42	07:31 16:41	08:17 16:13
12	08:26 16:35	07:46 17:29	06:48 18:19	06:37 07:11-07:27/16 20:12	05:38 06:10-06:37/27 21:02	05:05 05:39-06:05/26 21:40	05:17 05:54-06:16/22 21:39	06:00 06:36-07:00/24 20:55	06:50 07:24-07:42/18 19:48	07:39 18:39	07:33 16:40	08:18 16:13
13	08:25 16:37	07:44 17:31	06:45 18:21	06:35 07:09-07:26/17 20:14	05:36 06:08-06:36/28 21:03	05:05 05:39-06:02/23 21:41	05:18 05:55-06:20/25 21:38	06:02 06:39-07:00/21 20:53	06:52 07:26-07:42/16 19:46	07:41 18:37	07:35 16:38	08:19 16:13
14	08:25 16:38	07:42 17:33	06:43 18:23	06:33 07:06-07:26/20 20:15	05:34 06:07-06:34/27 21:05	05:04 05:39-06:02/23 21:41	05:19 05:55-06:22/27 21:37	06:03 06:40-07:00/20 20:51	06:53 07:27-07:40/13 19:44	07:42 18:35	07:37 16:37	08:20 16:13
15	08:24 16:40	07:40 17:34	06:41 18:24	06:30 07:05-07:24/19 20:17	05:33 06:05-06:32/27 21:06	05:04 05:39-06:02/23 21:42	05:20 05:56-06:23/27 21:36	06:05 06:42-07:02/20 20:49	06:55 07:28-07:39/11 19:41	07:44 18:33	07:38 16:35	08:21 16:13
16	08:23 16:41	07:38 17:36	06:38 18:26	06:28 07:00-07:22/22 20:19	05:31 06:04-06:31/27 21:08	05:04 05:39-06:03/24 21:42	05:21 05:57-06:24/27 21:35	06:07 06:43-07:03/20 20:47	06:56 07:30-07:37/7 19:39	07:46 18:31	07:40 16:34	08:22 16:13
17	08:22 16:43	07:36 17:38	06:36 18:28	06:26 06:58-07:20/22 20:20	05:30 06:02-06:29/27 21:09	05:04 05:39-06:03/24 21:43	05:23 05:58-06:25/27 21:34	06:08 06:46-07:05/19 20:45	06:58 19:37	07:47 18:29	07:42 16:32	08:23 16:13
18	08:21 16:45	07:34 17:40	06:34 18:30	06:24 06:55-07:19/24 20:22	05:28 06:02-06:28/26 21:11	05:04 05:39-06:03/24 21:43	05:24 06:03-06:26/23 21:33	06:10 06:47-07:06/19 20:43	07:00 19:34	07:49 18:26	07:44 16:31	08:24 16:13
19	08:20 16:46	07:32 17:42	06:32 18:31	06:22 06:53-07:17/24 20:24	05:27 06:02-06:27/25 21:12	05:04 05:39-06:03/24 21:44	05:25 06:03-06:27/24 21:32	06:11 06:50-07:09/19 20:41	07:01 19:32	07:51 18:24	07:45 16:30	08:25 16:13
20	08:19 16:48	07:30 17:44	06:29 18:33	06:20 06:50-07:15/25 20:25	05:25 05:59-06:24/25 21:14	05:04 05:39-06:03/24 21:44	05:26 06:04-06:29/25 21:31	06:13 06:50-07:10/20 20:39	07:03 19:30	07:53 18:22	07:47 16:28	08:25 16:14
21	08:18 16:49	07:28 17:45	06:27 18:35	06:18 06:48-07:13/25 20:27	05:24 05:56-06:23/27 21:15	05:04 05:39-06:03/24 21:44	05:28 06:04-06:30/26 21:30	06:15 06:51-07:13/22 20:37	07:04 19:27	07:54 18:20	07:49 16:27	08:26 16:14
22	08:17 16:51	07:26 17:47	06:25 18:36	06:15 06:46-07:11/25 20:29	05:23 05:55-06:22/27 21:17	05:04 05:39-06:03/24 21:45	05:29 06:05-06:31/26 21:28	06:16 06:51-07:13/22 20:35	07:06 19:25	07:56 18:18	07:50 16:26	08:27 16:15
23	08:16 16:53	07:24 17:49	06:22 18:38	06:13 06:45-07:08/23 20:30	05:22 05:55-06:21/26 21:18	05:04 05:39-06:03/24 21:45	05:30 06:05-06:32/27 21:27	06:18 06:52-07:17/25 20:33	07:08 19:23	07:58 18:16	07:52 16:25	08:27 16:15
24	08:15 16:55	07:22 17:51	06:20 18:40	06:11 06:45-07:06/21 20:32	05:20 05:54-06:20/26 21:19	05:05 05:40-06:04/24 21:45	05:32 06:06-06:33/27 21:26	06:19 06:53-07:18/25 20:31	07:09 19:20	08:00 18:14	07:54 16:24	08:28 16:16
25	08:14 16:56	07:20 17:53	06:18 18:42	06:09 06:44-07:03/19 20:34	05:19 05:54-06:19/25 21:21	05:05 05:40-06:04/24 21:45	05:33 06:09-06:35/26 21:25	06:21 06:55-07:19/24 20:28	07:11 19:18	08:01 18:12	07:55 16:23	08:28 16:16
26	08:12 16:58	07:18 17:55	07:16 19:43	06:07 06:41-07:01/20 20:36	05:18 05:54-06:18/24 21:22	05:05 05:40-06:04/24 21:45	05:34 06:12-06:37/25 21:23	06:23 06:57-07:21/24 20:26	07:12 19:16	08:03 18:10	07:57 16:22	08:28 16:17
27	08:11 17:00	07:16 17:56	07:13 19:45	06:05 06:39-06:58/19 20:37	05:17 05:54-06:17/23 21:23	05:06 05:41-06:05/24 21:45	05:36 06:12-06:38/26 21:22	06:24 06:59-07:23/24 20:24	07:14 19:13	08:05 18:08	07:58 16:21	08:29 16:17
28	08:10 17:02	07:14 17:58	07:11 19:47	06:03 06:36-06:56/20 20:39	05:16 05:49-06:16/27 21:25	05:06 05:41-06:05/24 21:45	05:37 06:13-06:40/27 21:20	06:26 07:00-07:23/23 20:22	07:16 19:11	08:07 18:06	08:00 16:20	08:29 16:18
29	08:08 17:03		07:09 07:39-07:47/8 19:48	06:01 06:34-06:54/20 20:41	05:15 05:48-06:15/27 21:26	05:07 05:42-06:05/23 21:45	05:39 06:14-06:41/27 21:19	06:27 07:03-07:25/22 20:20	07:17 19:09	07:08 17:04	08:01 16:19	08:29 16:19
30	08:07 17:05		07:06 07:37-07:49/12 19:50	05:59 06:33-06:52/19 20:42	05:14 05:47-06:14/27 21:27	05:07 05:42-06:05/23 21:45	05:40 06:15-06:42/27 21:17	06:29 07:05-07:25/20 20:18	07:19 19:07	07:10 17:02	08:03 16:18	08:29 16:20
31	08:06 17:07		07:04 07:36-07:50/14 19:52		05:13 05:46-06:13/27 21:28		05:42 06:17-06:44/27 21:16	06:31 07:07-07:26/19 20:15		07:12 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	34	583	811	723	789	728	252	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B093 - ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (375)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember	
1	08:29	10:17-10:46/29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04	10:12-10:19/7
	16:22		17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18	
2	08:29	10:18-10:46/28	08:02	07:10	07:00	05:55	05:11	05:09	05:45	06:34	07:22	07:15	08:06	10:10-10:21/11
	16:23		17:11	18:02	19:55	20:45	21:30	21:44	21:12	20:11	19:02	16:56	16:17	
3	08:29	10:19-10:46/27	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07	10:10-10:24/14
	16:24		17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16	
4	08:29	10:19-10:46/27	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25	07:19	08:08	10:08-10:25/17
	16:25		17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16	
5	08:29	10:20-10:46/26	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10	10:09-10:27/18
	16:26		17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15	
6	08:28	10:21-10:46/25	07:56	07:01	06:50	05:48	05:08	05:12	05:51	06:40	07:29	07:22	08:11	10:08-10:29/21
	16:28		17:18	18:09	20:02	20:52	21:35	21:42	21:06	20:02	18:53	16:49	16:15	
7	08:28	10:22-10:45/23	07:54	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12	10:07-10:31/24
	16:29		17:20	18:10	20:03	20:53	21:36	21:42	21:04	19:59	18:51	16:48	16:14	
8	08:28	10:23-10:44/21	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14	10:08-10:33/25
	16:30		17:22	18:12	20:05	20:55	21:36	21:41	21:02	19:57	18:48	16:46	16:14	
9	08:27	10:24-10:42/18	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15	10:08-10:34/26
	16:31		17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14	
10	08:27	10:25-10:41/16	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:29	08:16	10:08-10:35/27
	16:33		17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13	
11	08:26	10:27-10:41/14	07:47	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:31	08:17	10:07-10:35/28
	16:34		17:27	18:17	20:10	21:00	21:39	21:39	20:56	19:50	18:42	16:41	16:13	
12	08:26	10:29-10:39/10	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18	10:08-10:36/28
	16:36		17:29	18:19	20:12	21:01	21:40	21:38	20:55	19:48	18:39	16:40	16:13	
13	08:25	10:32-10:36/4	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19	10:08-10:37/29
	16:37		17:31	18:21	20:13	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13	
14	08:24		07:42	06:43	06:33	05:34	05:05	05:19	06:03	06:53	07:42	07:37	08:20	10:08-10:38/30
	16:38		17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:37	16:13	
15	08:24		07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21	10:08-10:38/30
	16:40		17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13	
16	08:23		07:38	06:38	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22	10:09-10:39/30
	16:41		17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13	
17	08:22		07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23	10:09-10:41/32
	16:43		17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13	
18	08:21		07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:43	08:24	10:10-10:42/32
	16:45		17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13	
19	08:20		07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24	10:11-10:43/32
	16:46		17:42	18:31	20:24	21:12	21:43	21:32	20:41	19:32	18:24	16:30	16:14	
20	08:19		07:30	06:29	06:20	05:26	05:04	05:26	06:13	07:03	07:53	07:47	08:25	10:10-10:43/33
	16:48		17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14	
21	08:18		07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26	10:11-10:43/32
	16:50		17:45	18:35	20:27	21:15	21:44	21:29	20:37	19:27	18:20	16:27	16:14	
22	08:17		07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26	10:11-10:43/32
	16:51		17:47	18:36	20:29	21:16	21:44	21:28	20:35	19:25	18:18	16:26	16:15	
23	08:16		07:24	06:22	06:13	05:22	05:05	05:30	06:18	07:08	07:58	07:52	08:27	10:12-10:44/32
	16:53		17:49	18:38	20:30	21:18	21:45	21:27	20:32	19:23	18:16	16:25	16:15	
24	08:15		07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	07:59	07:53	08:27	10:12-10:44/32
	16:55		17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16	
25	08:13		07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28	10:13-10:46/33
	16:56		17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16	
26	08:12		07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:12	08:03	07:57	08:28	10:14-10:46/32
	16:58		17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17	
27	08:11		07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:28	10:14-10:46/32
	17:00		17:56	19:45	20:37	21:23	21:45	21:21	20:24	19:13	18:08	16:21	16:18	
28	08:10		07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:06	08:00	08:29	10:14-10:46/32
	17:02		17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18	
29	08:08			07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29	10:15-10:45/30
	17:03			19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19	
30	08:07			07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29	10:15-10:45/30
	17:05			19:50	20:42	21:27	21:44	21:17	20:17	19:06	17:02	16:18	16:20	
31	08:05			07:04		05:13		05:42	06:31		07:12		08:29	10:16-10:46/30
	17:07			19:52		21:28		21:15	20:15		17:00		16:21	
Sonnenscheinstunden	259		277	366	414	483	497	501	454	382	333	269	245	
Anzahl Minuten mit Schatten	268		0	0	0	0	0	0	0	0	0	0	841	

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B094 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (376)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:17
2	08:29	08:03	07:10	06:59	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:53	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:22	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:50	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:30	08:16
	16:33	17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:39	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:36	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:06	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
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18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:44	08:24
	16:44	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
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21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
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Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B115 - GE WIND ENERGY GE 1.5s 1500 70.5 !O! NH: 64.7 m (Ges:99.9 m) (389)

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7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
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	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:32	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:45	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:49	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:46	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:21	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:33	16:13
18	08:21	07:35	06:34	06:24	05:29	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
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22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
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	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
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Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B116 - NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (390)

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	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
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	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
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10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
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	16:34	17:27	18:18	20:11	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
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14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
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15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:23
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:22	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:56	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:27	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:57	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:21	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:30
	17:05		19:50	20:42	21:28	21:45	21:18	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B117 - ENERCON E-48 800 48.0 !O! NH: 75.6 m (Ges:99.6 m) (391)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:59	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
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	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
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	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
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14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
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15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
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	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
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23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B118 - ENERCON E-70 E4 2,3 MW 2300 71.0 !O! NH: 64.0 m (Ges:99.5 m) (392)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:57	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:34	05:05	05:19	06:03	06:53	07:42	07:37	08:21
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:27	16:31	16:13
19	08:20	07:33	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:46	08:25
	16:46	17:42	18:31	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:19	07:31	06:29	06:20	05:26	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:28
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:17	07:09	08:02	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:29		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B119 - ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (393)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:08	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:57	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:34	05:05	05:19	06:03	06:53	07:42	07:37	08:21
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15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:21
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:27	16:31	16:13
19	08:20	07:33	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:46	08:25
	16:46	17:42	18:31	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:31	06:29	06:20	05:26	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:13	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:28
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:17	07:09	08:02	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:29		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B124 - NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (396)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02 07:30-08:02/32	05:57 06:27-06:58/31	05:12	05:08	05:43 06:17-06:52/35	06:32 07:04-07:33/29	07:21 07:53-08:23/30	07:14 07:49-08:05/16	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00 07:27-08:00/33	05:55 06:25-06:57/32	05:11	05:09	05:45 06:19-06:54/35	06:34 07:07-07:37/30	07:22 07:55-08:22/27	07:15 07:49-08:04/15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:57	16:17
3	08:29	08:01	07:07	06:57 07:26-07:58/32	05:54 06:23-06:55/32	05:10	05:09	05:46 06:20-06:54/34	06:35 07:08-07:38/30	07:24 07:57-08:22/25	07:17 07:50-08:03/13	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55 07:25-07:56/31	05:52 06:21-06:53/32	05:09	05:10	05:48 06:21-06:54/33	06:37 07:09-07:40/31	07:26 07:59-08:22/23	07:19 07:51-08:01/10	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53 07:22-07:53/31	05:50 06:20-06:52/32	05:09	05:11	05:49 06:22-06:56/34	06:39 07:11-07:41/30	07:27 08:00-08:21/21	07:21 07:55-07:58/3	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51 07:19-07:50/31	05:48 06:18-06:49/31	05:08	05:11	05:51 06:23-06:56/33	06:40 07:13-07:40/27	07:29 08:02-08:20/18	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59 07:31-07:41/10	06:48 07:18-07:45/27	05:46 06:15-06:47/32	05:07	05:12	05:52 06:26-06:57/31	06:42 07:15-07:41/26	07:31 08:04-08:19/15	07:24	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53 08:23-08:31/8	06:56 07:28-07:43/15	06:46 07:16-07:44/28	05:44 06:14-06:47/33	05:07	05:13	05:54 06:27-06:58/31	06:44 07:15-07:47/32	07:32 08:07-08:17/10	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51 08:21-08:33/12	06:54 07:25-07:43/18	06:44 07:13-07:43/30	05:43 06:12-06:46/34	05:06	05:14	05:56 06:29-07:01/32	06:45 07:18-07:49/31	07:34 08:10-08:11/1	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49 08:20-08:34/14	06:52 07:23-07:44/21	06:42 07:10-07:41/31	05:41 06:11-06:45/34	05:06	05:15	05:57 06:30-07:02/32	06:47 07:19-07:50/31	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:59	19:53	18:44	16:43	16:13
11	08:26	07:48 08:19-08:35/16	06:50 07:21-07:44/23	06:39 07:09-07:39/30	05:39 06:10-06:44/34	05:05	05:16	05:59 06:32-07:04/32	06:48 07:20-07:52/32	07:37	07:31	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46 08:18-08:36/18	06:48 07:19-07:44/25	06:37 07:06-07:36/30	05:38 06:08-06:43/35	05:05	05:17	06:00 06:33-07:05/32	06:50 07:20-07:53/33	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44 08:18-08:36/18	06:45 07:16-07:43/27	06:35 07:04-07:34/30	05:36 06:07-06:42/35	05:05	05:18	06:02 06:35-07:06/31	06:52 07:23-07:55/32	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42 08:18-08:36/18	06:43 07:13-07:43/30	06:33 07:03-07:33/30	05:34 06:06-06:40/34	05:05	05:19 06:20-06:26/6	06:03 06:36-07:08/32	06:53 07:25-07:56/31	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40 08:18-08:36/18	06:41 07:12-07:42/30	06:30 07:02-07:32/30	05:33 06:05-06:38/33	05:04	05:20 06:19-06:28/9	06:05 06:38-07:10/32	06:55 07:30-07:58/28	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38 08:18-08:35/17	06:38 07:08-07:40/32	06:28 06:57-07:29/32	05:31 06:05-06:37/32	05:04	05:22 06:18-06:29/11	06:07 06:39-07:10/31	06:56 07:30-08:00/30	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36 08:19-08:35/16	06:36 07:06-07:38/32	06:26 06:54-07:27/33	05:30 06:04-06:34/30	05:04	05:23 06:17-06:30/13	06:08 06:41-07:13/32	06:58 07:30-08:01/31	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34 08:20-08:34/14	06:34 07:04-07:36/32	06:24 06:52-07:25/33	05:28 06:04-06:34/30	05:04	05:24 06:16-06:30/14	06:10 06:42-07:13/31	07:00 07:32-08:03/31	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32 08:21-08:32/11	06:32 07:01-07:33/32	06:22 06:50-07:24/34	05:27 06:04-06:32/28	05:04	05:25 06:15-06:32/17	06:11 06:44-07:16/32	07:01 07:33-08:04/31	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30 08:24-08:29/5	06:29 06:59-07:31/32	06:20 06:49-07:22/33	05:26 06:05-06:31/26	05:04	05:26 06:16-06:34/18	06:13 06:45-07:19/34	07:03 07:35-08:06/31	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27 06:57-07:29/32	06:18 06:46-07:20/34	05:24 06:04-06:29/25	05:04	05:28 06:15-06:35/20	06:15 06:47-07:21/34	07:04 07:37-08:08/31	07:54	07:49	08:26
	16:50	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25 06:54-07:25/31	06:16 06:44-07:17/33	05:23 06:04-06:27/23	05:04	05:29 06:15-06:36/21	06:16 06:48-07:22/34	07:06 07:38-08:09/31	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:22 06:52-07:23/31	06:13 06:42-07:16/34	05:22 06:05-06:26/21	05:04	05:30 06:14-06:37/23	06:18 06:50-07:23/33	07:08 07:40-08:12/32	07:58 08:57-08:58/1	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20 06:50-07:21/31	06:11 06:40-07:14/34	05:20 06:05-06:25/20	05:05	05:32 06:15-06:40/25	06:19 06:51-07:25/34	07:09 07:41-08:13/32	08:00 08:51-09:01/10	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:31	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18 06:48-07:19/31	06:09 06:38-07:11/33	05:19 06:06-06:24/18	05:05	05:33 06:15-06:41/26	06:21 06:54-07:27/33	07:11 07:43-08:15/32	08:01 08:50-09:03/13	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16 07:45-08:16/31	06:07 06:36-07:07/31	05:18 06:06-06:23/17	05:05	05:35 06:14-06:42/28	06:23 06:54-07:27/33	07:12 07:45-08:17/32	08:03 08:49-09:04/15	07:57	08:28
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13 07:43-08:14/31	06:05 06:34-07:05/31	05:17 06:07-06:21/14	05:06	05:36 06:14-06:44/30	06:24 06:57-07:28/31	07:14 07:46-08:18/32	08:05 08:48-09:05/17	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:18
28	08:10	07:14	07:11 07:42-08:12/30	06:03 06:32-07:04/32	05:16 06:08-06:21/13	05:06	05:37 06:15-06:45/30	06:26 06:57-07:30/33	07:16 07:48-08:20/32	08:07 08:48-09:05/17	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09 07:40-08:09/29	06:01 06:30-07:02/32	05:15 06:09-06:20/11	05:07	05:39 06:15-06:47/32	06:27 07:01-07:32/31	07:17 07:49-08:21/32	07:08 07:48-08:06/18	08:01	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06 07:39-08:07/28	05:59 06:30-07:01/31	05:14 06:10-06:19/9	05:07	05:40 06:15-06:48/33	06:29 07:02-07:32/30	07:19 07:52-08:22/30	07:10 07:48-08:06/18	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04 07:34-08:05/31		05:13 06:11-06:17/6		05:42 06:16-06:50/34	06:31 07:03-07:33/30		07:12 07:48-08:05/17		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	185	695	946	817	0	390	1005	923	296	57	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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B130 - ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (401)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:02	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:30	21:44	21:12	20:11	19:02	16:57	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:08
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:28	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:22	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:42	21:06	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	05:08	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:11	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:36	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:47	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:36	17:29	18:19	20:12	21:02	21:40	21:38	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:35	05:05	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:43	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:43	21:32	20:41	19:32	18:24	16:30	16:14
20	08:19	07:30	06:29	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:50	17:45	18:35	20:27	21:15	21:44	21:29	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:44	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:22	06:13	05:22	05:05	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:53	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:12	08:03	07:57	08:28
	16:58	17:55	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:28
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:07	17:02	16:18	16:20
31	08:05		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	269	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B132 - NORDEX N149/5.X 5700 149.0 !O! NH: 164.0 m (Ges:238.5 m) (513)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	06:59	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:53	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
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	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:28	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:44	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	07:59	07:54	08:27
	16:54	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:15
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:28
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:01	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:05		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B142 - NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (408)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58 20:16-20:18/2	05:12	05:08	05:43 20:45-20:46/1	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:59	16:18
2	08:30	08:03	07:10	07:00	05:56 20:19-20:20/1	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54 20:20-20:21/1	05:10	05:09	05:46 20:42-20:44/2	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:06	06:55	05:52 20:21-20:22/1	05:10	05:10	05:48 20:40-20:42/2	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49 20:39-20:41/2	06:39	07:27	07:21	08:10
	16:27	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48 20:24-20:26/2	05:08	05:12	05:51 20:37-20:38/1	06:40	07:29	07:23	08:12
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7	08:29	07:55	06:59	06:48	05:46 20:26-20:27/1	05:08	05:12	05:53 20:36-20:37/1	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
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	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43 20:29-20:30/1	05:06	05:14	05:56 20:33-20:34/1	06:45	07:34	07:28	08:15
	16:32	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:45	16:14
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11	08:27	07:48	06:50	06:39	05:39 20:31-20:33/2	05:06	05:16	05:59 20:29-20:31/2	06:49	07:37	07:32	08:18
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13	08:25	07:44	06:45	06:35	05:36 20:35-20:36/1	05:05	05:18	06:02 20:25-20:27/2	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35 20:36-20:38/2	05:05	05:19	06:04 20:23-20:25/2	06:53	07:43	07:37	08:21
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15	08:24	07:40	06:41	06:31	05:33 20:37-20:39/2	05:04	05:21	06:05	06:55	07:44	07:39	08:22
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16	08:23	07:39	06:39	06:28 19:53-19:54/1	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
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18	08:21	07:35	06:34	06:24	05:29	05:04	05:24	06:10 20:16-20:17/1	07:00	07:49	07:44	08:24
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	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15 20:11-20:12/1	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16 20:03-20:04/1	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18 20:07-20:08/1	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12 20:06-20:07/1	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09 20:08-20:09/1	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07 20:09-20:10/1	05:18	05:06	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05 20:11-20:12/1	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:57	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38 20:52-20:53/1	06:26 19:56-19:57/1	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28 19:54-19:55/1	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59 20:15-20:17/2	05:14	05:07	05:40 20:48-20:49/1	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:19	16:20
31	08:06		07:04		05:13		05:42 20:46-20:48/2	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	8	18	0	4	26	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B143 - NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (409)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02 19:26-19:31/5	05:58 20:10-20:18/8	05:12 20:48-21:00/12	05:08 21:03-21:14/11	05:43 20:35-20:46/11	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00 19:26-19:32/6	05:56 20:10-20:20/10	05:11 20:50-21:01/11	05:09 21:02-21:13/11	05:45 20:35-20:46/11	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57 19:26-19:33/7	05:54 20:10-20:21/11	05:10 20:51-21:02/11	05:09 21:02-21:13/11	05:46 20:34-20:44/10	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55 19:28-19:35/7	05:52 20:11-20:21/10	05:10 20:52-21:03/11	05:10 21:02-21:13/11	05:48 20:33-20:42/9	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53 19:30-19:32/2	05:50 20:13-20:20/7	05:09 20:53-21:04/11	05:11 21:01-21:13/12	05:49 20:33-20:41/8	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48 20:24-20:26/2	05:08 20:53-21:04/11	05:12 21:00-21:12/12	05:51 20:33-20:38/5	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	05:46 20:23-20:27/4	05:08 20:54-21:06/12	05:12 21:00-21:12/12	05:53 20:33-20:37/4	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45 20:23-20:29/6	05:07 20:54-21:06/12	05:13 21:00-21:11/11	05:54 20:33-20:35/2	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43 20:23-20:30/7	05:06 20:55-21:07/12	05:14 21:00-21:11/11	05:56 20:23-20:29/6	06:45 19:23-19:29/6	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41 20:24-20:32/8	05:06 20:57-21:08/11	05:15 20:59-21:10/11	05:57 20:21-20:30/9	06:47 19:20-19:28/8	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39 20:23-20:33/10	05:06 20:57-21:08/11	05:16 20:59-21:10/11	05:59 20:20-20:31/11	06:48 19:19-19:26/7	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38 20:24-20:34/10	05:05 20:58-21:09/11	05:17 20:58-21:09/11	06:00 20:19-20:28/9	06:50 19:18-19:23/5	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36 20:25-20:36/11	05:05 20:59-21:10/11	05:18 20:56-21:08/12	06:02 20:18-20:27/9	06:52 19:18-19:21/3	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35 20:27-20:38/11	05:05 21:00-21:11/11	05:19 20:55-21:08/13	06:04 20:18-20:25/7	06:53 19:17-19:18/1	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33 20:29-20:39/10	05:04 21:00-21:12/12	05:20 20:54-21:07/13	06:05 20:18-20:23/5	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31 20:30-20:41/11	05:04 21:01-21:12/11	05:22 20:54-21:06/12	06:07 20:17-20:21/4	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26 19:55-19:56/1	05:30 20:30-20:41/11	05:04 21:01-21:13/12	05:23 20:53-21:05/12	06:08 20:18-20:20/2	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24 19:55-19:57/2	05:28 20:31-20:43/12	05:04 21:02-21:13/11	05:24 20:53-21:04/11	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:34	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22 19:54-19:59/5	05:27 20:33-20:45/12	05:04 21:02-21:13/11	05:25 20:52-21:03/11	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20 19:54-20:01/7	05:26 20:34-20:45/11	05:04 21:02-21:14/12	05:27 20:53-21:02/9	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18 19:55-20:02/7	05:24 20:35-20:47/12	05:04 21:02-21:14/12	05:28 20:53-21:01/8	06:15 20:03-20:10/7	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16 19:55-20:04/9	05:23 20:36-20:48/12	05:04 21:02-21:14/12	05:29 20:48-21:00/12	06:16 20:00-20:09/9	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14 19:57-20:05/8	05:22 20:38-20:50/12	05:05 21:02-21:14/12	05:31 20:46-20:58/12	06:18 20:00-20:08/8	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12 20:00-20:01/1	05:20 20:43-20:51/8	05:05 21:03-21:15/12	05:32 20:45-20:57/12	06:20 19:58-20:05/7	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19 20:43-20:52/9	05:05 21:03-21:14/11	05:33 20:45-20:56/11	06:21 19:58-20:03/5	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18 20:43-20:54/11	05:06 21:02-21:14/12	05:35 20:43-20:55/12	06:23 19:57-20:01/4	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05 20:11-20:12/1	05:17 20:44-20:55/11	05:06 21:03-21:15/12	05:36 20:41-20:53/12	06:24 19:58-19:59/1	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03 20:10-20:13/3	05:16 20:44-20:56/12	05:06 21:03-21:14/11	05:38 20:41-20:53/12	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01 20:09-20:14/5	05:15 20:45-20:57/12	05:07 21:03-21:15/12	05:39 20:40-20:51/11	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59 20:10-20:17/7	05:14 20:45-20:58/13	05:07 21:02-21:14/12	05:40 20:39-20:49/10	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04 19:26-19:29/3		05:13 20:46-20:59/13		05:42 20:37-20:48/11	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	3	83	307	345	351	163	30	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B144 - VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (410)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:58	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:42	07:37	08:21
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:27	16:31	16:13
19	08:20	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:31	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
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	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B145 - ENERCON E-101 3050 101.0 !-! NH: 135.4 m (Ges:185.9 m) (411)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:56	05:11	05:08	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:57	16:53	16:16
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	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
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23	08:16	07:25	06:23	06:13	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:28
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:17	07:09	08:02	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:29		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B150 - ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (415)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12 07:52-08:00/8	07:02 07:45-08:06/21	05:57 06:39-07:04/25	05:12	05:08	05:43	06:32 07:14-07:38/24	07:21 08:05-08:25/20	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10 07:50-08:01/11	07:00 07:44-08:04/20	05:55 06:38-07:01/23	05:11	05:09	05:45	06:34 07:16-07:39/23	07:22 08:05-08:27/22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:57	16:17
3	08:29	08:01	07:07 07:48-08:02/14	06:57 07:45-08:01/16	05:54 06:37-06:59/22	05:10	05:09	05:46	06:36 07:18-07:41/23	07:24 08:06-08:29/23	07:17	08:07
	16:24	17:12	18:03	19:57 07:36-07:44/8	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05 07:46-08:03/17	06:55 07:34-07:59/25	05:52 06:36-06:57/21	05:09	05:10	05:48 06:51-06:57/6	06:37 07:20-07:42/22	07:26 08:08-08:31/23	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03 07:44-08:03/19	06:53 07:31-07:57/26	05:50 06:37-06:56/19	05:09	05:11	05:49 06:49-06:59/10	06:39 07:22-07:43/21	07:27 08:09-08:32/23	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01 07:41-08:02/21	06:51 07:47-07:55/8	05:48 06:37-06:54/17	05:08	05:11	05:51 06:47-06:59/12	06:40 07:22-07:42/20	07:29 08:11-08:34/23	07:23	08:11
	16:28	17:18	18:09	20:02 07:30-07:46/16	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59 07:39-08:01/22	06:48 07:27-07:46/19	05:46 06:36-06:52/16	05:07	05:12	05:52 06:47-07:02/15	06:42 07:44-07:50/6	07:31 08:13-08:36/23	07:24	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00 07:25-07:43/18	18:51	16:48	16:14
8	08:28	07:53	06:56 07:37-08:00/23	06:46 07:25-07:46/21	05:44 06:38-06:50/12	05:07	05:13	05:54 06:46-07:03/17	06:44 07:25-07:51/26	07:32 08:15-08:37/22	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54 07:34-07:57/23	06:44 07:24-07:45/21	05:43 06:38-06:49/11	05:06	05:14	05:56 06:46-07:05/19	06:45 07:28-07:53/25	07:34 08:16-08:37/21	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52 07:32-07:55/23	06:42 07:21-07:43/22	05:41 06:40-06:48/8	05:06	05:15	05:57 06:46-07:06/20	06:47 07:28-07:53/25	07:36 08:18-08:37/19	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:59	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50 07:30-07:53/23	06:39 07:19-07:42/23	05:39	05:05	05:16	05:59 06:46-07:08/22	06:48 07:38-07:56/18	07:37 08:20-08:37/17	07:31	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:50 07:30-07:37/7	18:42	16:41	16:13
12	08:26	07:46	06:48 07:28-07:51/23	06:37 07:16-07:40/24	05:38	05:05	05:17	06:00 06:46-07:09/23	06:50 07:37-07:57/20	07:39 08:22-08:37/15	07:33	08:18
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45 07:26-07:48/22	06:35 07:14-07:38/24	05:36	05:05	05:18	06:02 06:47-07:12/25	06:52 07:37-07:58/21	07:41 08:23-08:35/12	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
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	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41 07:25-07:44/19	06:30 07:11-07:34/23	05:33	05:04	05:20	06:05 06:49-07:15/26	06:55 07:38-08:01/23	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38 07:24-07:41/17	06:28 07:09-07:31/22	05:31	05:04	05:22	06:07 06:50-07:16/26	06:56 07:40-08:03/23	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36 07:25-07:39/14	06:26 07:07-07:30/23	05:30	05:04	05:23	06:08 06:52-07:18/26	06:58 07:43-08:03/20	07:47	07:42	08:23
	16:43	17:38	18:28 07:16-07:22/6	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34 07:26-07:37/11	06:24 07:04-07:27/23	05:28	05:04	05:24	06:10 06:53-07:20/27	07:00 07:43-08:03/20	07:49	07:44	08:24
	16:45	17:40	18:30 07:13-07:24/11	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32 07:26-07:34/8	06:22 07:03-07:24/21	05:27	05:04	05:25	06:11 06:55-07:21/26	07:01 07:44-08:02/18	07:51	07:45	08:25
	16:46	17:42	18:31 07:11-07:24/13	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:19	07:30	06:29 07:11-07:25/14	06:20 07:00-07:23/23	05:26	05:04	05:26	06:13 06:57-07:23/26	07:03 07:46-08:07/21	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
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	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
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	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:31	19:20	18:14	16:24	16:16
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	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16 07:55-08:08/13	18:10	16:22	16:17
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	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11 07:58-08:03/5	18:06	16:20	16:18
29	08:08		07:09 07:48-08:12/24	06:01 06:41-07:08/27	05:15	05:07	05:39	06:27 07:12-07:34/22	07:17 08:05-08:22/17	07:08	08:01	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06 07:47-08:10/23	05:59 06:40-07:06/26	05:14	05:07	05:40	06:29 07:12-07:35/23	07:19 08:05-08:24/19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04 07:46-08:08/22		05:13		05:42	06:31 07:14-07:37/23		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	607	712	174	0	0	611	634	271	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B151 - ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (416)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:24	08:12
	16:29	17:20	18:11	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:05	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:26	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:22	06:13	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:12	08:03	07:57	08:28
	16:58	17:55	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B152 - ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 17:09	07:12 07:53-07:58/5 18:00 08:00-08:11/11	07:02 07:57-08:13/16 19:53 20:44	05:57 06:54-07:26/32 21:30	05:12 06:05-06:42/37 21:45	05:08 06:05-06:40/35 21:14	05:43 06:42-07:14/32 20:13	06:32 07:22-07:49/27 19:04	07:21 08:07-08:41/34 16:58	07:14 16:18	08:04 16:18
2	08:29 16:23	08:03 17:11	07:10 07:51-08:00/9 18:02 08:01-08:10/9	07:00 07:51-08:11/20 19:55 20:46	05:55 06:52-07:24/32 21:31	05:11 06:05-06:41/36 21:44	05:09 06:05-06:40/35 21:13	05:45 06:44-07:16/32 20:11	06:34 07:24-07:50/26 19:02	07:22 08:07-08:41/34 16:57	07:16 16:17	08:06 16:17
3	08:29 16:24	08:01 17:12	07:08 07:50-08:01/11 18:04 08:03-08:08/5	06:57 07:49-08:11/22 19:57 20:47	05:54 06:49-07:22/33 21:32	05:10 06:04-06:40/36 21:44	05:09 06:07-06:41/34 21:11	05:46 06:45-07:18/33 20:09	06:36 07:29-07:54/25 19:00	07:24 08:09-08:40/31 16:55	07:17 16:16	08:07 16:16
4	08:29 16:25	08:00 17:14	07:05 07:47-08:02/15 18:05	06:55 07:48-08:10/22 19:59 20:49	05:52 06:48-07:20/32 21:33	05:09 06:05-06:40/35 21:44	05:10 06:08-06:42/34 21:09	05:48 06:46-07:19/33 20:06	06:37 07:29-07:56/27 18:57	07:26 08:11-08:40/29 16:53	07:19 16:16	08:09 16:16
5	08:29 16:26	07:58 17:16	07:03 07:45-08:02/17 18:07	06:53 07:43-08:08/25 20:00 20:50	05:50 06:46-07:18/32 21:34	05:09 06:04-06:38/34 21:43	05:11 06:09-06:43/34 21:07	05:49 06:49-07:20/31 20:04	06:39 07:31-07:57/26 18:55	07:27 08:12-08:38/26 16:51	07:21 16:15	08:10 16:15
6	08:29 16:28	07:56 17:18	07:01 07:42-08:01/19 18:09	06:51 07:39-08:05/26 20:02 20:52	05:48 06:44-07:16/32 21:35	05:08 06:04-06:37/33 21:43	05:11 06:10-06:42/32 21:06	05:51 06:50-07:22/32 20:02	06:40 07:32-07:57/25 18:53	07:29 08:13-08:38/25 16:49	07:23 16:15	08:11 16:15
7	08:28 16:29	07:55 17:20	06:59 07:42-08:00/18 18:11	06:48 07:37-08:01/24 20:04 20:54	05:46 06:42-07:13/31 21:36	05:07 06:05-06:37/32 21:42	05:12 06:11-06:43/32 21:04	05:52 06:52-07:23/31 20:00	06:42 07:34-07:58/24 18:51	07:31 08:17-08:37/20 16:48	07:24 16:14	08:13 16:14
8	08:28 16:30	07:53 17:22	06:57 07:41-08:01/20 18:12	06:46 07:35-08:01/26 20:05 20:55	05:44 06:41-07:13/32 21:37	05:07 06:05-06:36/31 21:42	05:13 06:11-06:44/33 21:02	05:54 06:53-07:25/32 19:57	06:44 07:36-08:02/26 18:48	07:32 08:18-08:36/18 16:46	07:26 16:14	08:14 16:14
9	08:27 16:31	07:51 17:23	06:54 07:36-08:01/25 18:14	06:44 07:33-08:00/27 20:07 20:57	05:43 06:39-07:10/31 21:38	05:06 06:03-06:37/34 21:41	05:14 06:11-06:45/34 21:00	05:56 06:55-07:27/32 19:55	06:45 07:42-08:03/21 18:46	07:34 08:18-08:36/18 16:44	07:28 16:14	08:15 16:14
10	08:27 16:33	07:49 17:25	06:52 07:34-08:01/27 18:16	06:42 07:31-07:57/26 20:09 20:59	05:41 06:37-07:09/32 21:38	05:06 06:03-06:37/34 21:40	05:15 06:12-06:47/35 20:59	05:57 06:57-07:29/32 19:53	06:47 07:42-08:03/21 18:44	07:36 08:19-08:36/17 16:43	07:30 16:13	08:16 16:13
11	08:26 16:34	07:48 17:27	06:50 07:33-08:02/29 18:18	06:39 07:27-07:51/24 20:10 21:00	05:39 06:35-07:08/33 21:39	05:05 06:02-06:36/34 21:39	05:16 06:12-06:48/36 21:39	05:59 06:58-07:31/33 20:57	06:48 07:43-08:04/21 19:51	07:37 08:21-08:36/15 18:42	07:31 16:41	08:17 16:13
12	08:26 16:36	07:46 17:29	06:48 07:31-08:02/31 18:19	06:37 07:24-07:50/26 20:12 21:02	05:38 06:33-07:05/32 21:40	05:05 06:01-06:36/35 21:40	05:17 06:13-06:49/36 21:39	06:00 07:00-07:32/32 20:55	06:50 07:44-08:04/20 19:48	07:39 08:24-08:35/11 18:39	07:33 16:40	08:18 16:13
13	08:25 16:37	07:44 17:31	06:45 07:28-08:02/34 18:21	06:35 07:23-07:49/26 20:14 21:03	05:36 06:32-07:04/32 21:41	05:05 06:01-06:36/35 21:41	05:18 06:13-06:50/37 21:38	06:02 07:02-07:34/32 20:53	06:52 07:49-08:05/16 19:46	07:41 08:24-08:33/9 18:37	07:35 16:38	08:19 16:13
14	08:25 16:38	07:42 17:33	06:43 07:27-08:02/35 18:23	06:33 07:21-07:47/26 20:15 21:05	05:34 06:31-07:03/32 21:41	05:05 06:02-06:35/33 21:37	05:19 06:14-06:50/36 20:51	06:03 07:03-07:34/31 19:44	06:53 07:48-08:05/17 18:35	07:42 08:26-08:31/5 08:33-08:44/11	07:37 16:37	08:20 16:13
15	08:24 16:40	07:40 17:34	06:41 07:44-08:01/17 18:24 07:24-07:43/19	06:31 07:20-07:43/23 20:17 21:06	05:33 06:29-07:01/32 21:42	05:04 06:02-06:35/33 21:42	05:20 06:14-06:52/38 21:36	06:05 07:05-07:36/31 20:49	06:55 07:49-08:06/17 19:41	07:44 08:33-08:45/12 18:33	07:39 16:35	08:21 16:13
16	08:23 16:41	07:38 17:36	06:39 07:44-07:59/15 18:26 07:22-07:40/18	06:28 07:18-07:41/23 20:19 21:08	05:31 06:28-07:00/32 21:42	05:04 06:02-06:35/33 21:35	05:22 06:15-06:53/38 20:47	06:07 07:06-07:36/30 19:39	06:56 07:51-08:06/15 18:31	07:46 08:33-08:45/12 16:34	07:40 16:13	08:22 16:13
17	08:22 16:43	07:36 08:19-08:25/6 17:38	06:36 07:45-07:58/13 18:28 07:20-07:38/18	06:26 07:17-07:38/21 20:20 21:09	05:30 06:26-06:58/32 21:43	05:04 06:02-06:35/33 21:34	05:23 06:16-06:53/37 20:45	06:08 07:08-07:36/28 19:37	06:58 07:51-08:06/15 18:29	07:47 08:33-08:45/12 16:32	07:42 16:13	08:23 16:13
18	08:21 16:45	07:34 08:17-08:27/10 17:40	06:34 07:47-07:56/9 18:30 07:18-07:37/19	06:24 07:17-07:34/17 20:22 21:11	05:28 06:25-06:56/31 21:43	05:04 06:02-06:35/33 21:33	05:24 06:18-06:22/4 06:23-06:55/32	06:10 07:09-07:36/27 19:34	07:00 07:52-08:07/15 18:26	07:49 08:33-08:43/10 16:31	07:44 16:13	08:24 16:13
19	08:20 16:46	07:32 08:16-08:28/12 17:42	06:32 07:16-07:34/18 18:31	06:22 07:17-07:32/15 20:24 21:12	05:27 06:23-06:55/32 21:44	05:04 06:02-06:35/33 21:44	05:25 06:24-06:56/32 21:32	06:11 07:12-07:36/24 20:41	07:01 07:52-08:08/16 19:32	07:51 08:49-08:56/7 18:24 08:34-08:41/7	07:45 16:30	08:25 16:13
20	08:19 16:48	07:30 08:16-08:28/12 17:44	06:29 07:14-07:32/18 18:33	06:20 07:17-07:31/14 20:25 21:14	05:26 06:21-06:53/32 21:44	05:04 06:02-06:35/33 21:44	05:26 06:26-06:58/32 21:31	06:13 07:13-07:35/22 20:39	07:03 07:53-08:10/17 19:30	07:53 08:47-08:57/10 18:22	07:47 16:28	08:25 16:14
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Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	135	667	684	1018	1007	1049	817	656	454	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B153 - ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04 08:53-09:05/12	07:12 07:51-08:29/38	07:02 07:52-08:13/21	05:57 06:43-07:21/38	05:12 06:02-06:40/38	05:08 06:00-06:38/38	05:43 06:36-07:05/29	06:32 07:25-07:58/33	07:21 08:10-08:27/17	07:14 08:00-08:14/14	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03 08:53-09:04/11	07:10 08:12-08:28/16	07:00 07:50-08:13/23	05:55 06:41-07:18/37	05:11 06:01-06:39/38	05:09 06:00-06:38/38	05:45 06:39-07:06/27	06:34 07:26-08:00/34	07:22 08:10-08:28/18	07:15 08:00-08:14/14	08:06
	16:23	17:11	18:02 07:50-08:10/20	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
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	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08 08:47-08:59/12	16:21	16:18
28	08:10 08:52-09:04/12	07:14 07:55-08:30/35	07:11 07:55-08:23/28	06:03 06:52-07:26/34	05:16 06:08-06:41/33	05:06 05:58-06:37/39	05:37 06:33-07:03/30	06:26 07:18-07:52/34	07:16 08:06-08:26/20	08:07 09:02-09:11/9	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06 08:48-08:59/11	16:20	16:18
29	08:08 08:52-09:05/13		07:09 07:53-08:20/27	06:01 06:51-07:23/32	05:15 06:07-06:41/34	05:07 05:59-06:37/38	05:39 06:33-07:04/31	06:27 07:20-07:54/34	07:17 08:08-08:25/17	07:08 08:01-08:13/12	08:01	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04 07:50-07:57/7	16:19	16:19
30	08:07 08:52-09:05/13		07:06 07:53-08:17/24	05:59 06:45-07:23/38	05:14 06:04-06:40/36	05:07 05:59-06:37/38	05:40 06:34-07:04/30	06:29 07:21-07:55/34	07:19 08:09-08:25/16	07:10 08:00-08:13/13	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06 08:52-09:06/14		07:04 07:52-08:15/23		05:13 06:02-06:40/38		05:42 06:35-07:05/30	06:31 07:23-07:57/34		07:12 08:00-08:14/14		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	82	466	751	965	985	1137	1034	1033	809	712	181	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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B154 - ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (419)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:24	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:26	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:22	06:13	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:31	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:12	08:03	07:57	08:28
	16:58	17:55	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B155 - ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (420)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:24	08:13
	16:29	17:20	18:11	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
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13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
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15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
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20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
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	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:22	06:13	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
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28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
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	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B159 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (424)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:28	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B171 - TACKE TW 600 600-200 43.0 !O! NH: 50.0 m (Ges:71.5 m) (434)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:59	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:30	08:01	07:08	06:58	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:08
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:06	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:27	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:45	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:49	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:46	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:33	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:56	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:57	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:21	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:18	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B172 - NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0 m) (435)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30 16:22	08:04 17:09	07:12 18:00	07:02 19:54	05:58 20:11-20:18/7 20:44	05:12 20:57-21:00/3 21:30	05:08 21:12-21:14/2 21:45	05:43 20:39-20:46/7 21:14	06:32 19:42-19:48/6 20:13	07:21 19:04	07:14 16:59	08:05 16:18
2	08:30 16:23	08:03 17:11	07:10 18:02	07:00 19:55	05:56 20:11-20:20/9 20:46	05:11 20:57-21:01/4 21:31	05:09 21:11-21:13/2 21:44	05:45 20:38-20:45/7 21:13	06:34 19:42-19:46/4 20:11	07:22 19:02	07:16 16:57	08:06 16:17
3	08:29 16:24	08:01 17:13	07:08 18:04	06:57 19:32-19:33/1 19:57	05:54 20:12-20:21/9 20:47	05:10 20:57-21:02/5 21:32	05:09 21:12-21:13/1 21:44	05:46 20:36-20:44/8 21:11	06:36 19:41-19:43/2 20:09	07:24 19:00	07:17 16:55	08:07 16:16
4	08:29 16:25	08:00 17:14	07:05 18:05	06:55 19:32-19:35/3 19:59	05:52 20:16-20:22/6 20:49	05:10 20:59-21:03/4 21:33	05:10 21:12-21:13/1 21:44	05:48 20:34-20:42/8 21:09	06:37 20:07	07:26 18:58	07:19 16:53	08:09 16:16
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Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	8	121	204	65	133	198	35	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B173 - VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (436)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:57	05:12 20:57-21:01/4	05:08 21:00-21:14/14	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11 20:57-21:01/4	05:09 20:59-21:13/14	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10 20:56-21:02/6	05:09 21:00-21:13/13	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:09 20:56-21:04/8	05:10 21:01-21:13/12	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09 20:56-21:04/8	05:11 21:01-21:13/12	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08 20:55-21:04/9	05:12 21:01-21:12/11	05:51	06:40	07:29	07:23	08:11
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29	08:09		07:09	06:01	05:15	05:07 20:59-21:15/16	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07 20:59-21:14/15	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13 20:57-20:59/2		05:42	06:31		07:12		08:29
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	2	401	126	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B175 - ENERCON E-70 E4 2,3 MW 2300 71.0 !O! NH: 64.0 m (Ges:99.5 m) (437)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:12	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:57	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:34	05:05	05:19	06:03	06:53	07:42	07:37	08:21
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:20	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:39	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:27	16:31	16:13
19	08:20	07:33	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:46	08:25
	16:46	17:42	18:31	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:19	07:31	06:29	06:20	05:26	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:15	21:45	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:48	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:29		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B178 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04 08:43-08:51/8	07:12 07:47-08:11/24	07:02 07:37-08:07/30	05:57 06:35-06:54/19	05:12 20:11-20:34/23	05:08 20:17-20:46/29	05:43 06:45-06:55/10	06:32 07:11-07:40/29	07:21 08:20-08:28/8	07:14 07:54-08:21/27	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04 07:59-08:19/20	16:58	16:18
2	08:29	08:03 08:41-08:52/11	07:10 07:46-08:10/24	07:00 07:36-08:05/29	05:56 06:34-06:54/20	05:11 20:12-20:36/24	05:09 20:17-20:46/29	05:45 06:45-06:57/12	06:34 07:13-07:42/29	07:22 08:00-08:29/29	07:15 07:56-08:23/27	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:57	16:17
3	08:29	08:01 08:39-08:53/14	07:07 07:45-08:09/24	06:57 07:34-08:03/29	05:54 06:32-06:53/21	05:10 20:12-20:37/25	05:09 20:17-20:46/29	05:46 06:43-06:57/14	06:36 07:14-07:43/29	07:24 08:01-08:30/29	07:17 07:56-08:24/28	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59 08:38-08:55/17	07:05 07:42-08:08/26	06:55 07:32-08:01/29	05:52 06:32-06:53/21	05:09 20:11-20:37/26	05:10 20:18-20:46/28	05:48 06:43-06:59/16	06:37 07:16-07:45/29	07:26 08:03-08:32/29	07:19 07:57-08:24/27	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58 08:36-08:55/19	07:03 07:40-08:05/25	06:53 07:29-07:57/28	05:50 06:32-06:53/21	05:09 20:12-20:38/26	05:11 20:17-20:45/28	05:49 06:42-07:00/18	06:39 07:19-07:47/28	07:27 08:04-08:34/30	07:21 07:58-08:24/26	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56 08:31-08:55/24	07:01 07:38-08:03/25	06:51 07:27-07:55/28	05:48 06:31-06:53/22	05:08 20:12-20:38/26	05:11 20:18-20:45/27	05:51 06:41-07:00/19	06:40 07:20-07:48/28	07:29 08:13-08:35/22	07:23 08:00-08:25/25	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55 08:29-08:55/26	06:59 07:37-08:02/25	06:48 07:25-07:53/28	05:46 06:31-06:52/21	05:07 20:12-20:40/28	05:12 20:18-20:46/28	05:52 06:41-07:02/21	06:42 07:22-07:50/28	07:31 08:13-08:36/23	07:24 08:05-08:25/20	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53 08:29-08:55/26	06:56 07:37-08:00/23	06:46 07:23-07:51/28	05:45 06:32-06:51/19	05:07 20:12-20:40/28	05:13 20:19-20:45/26	05:54 06:41-07:02/21	06:44 07:23-07:51/28	07:32 08:13-08:38/25	07:26 08:07-08:25/18	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51 08:28-08:55/27	06:54 07:36-07:58/22	06:44 07:21-07:49/28	05:43 06:32-06:50/18	05:06 20:12-20:40/28	05:14 20:19-20:45/26	05:56 06:41-07:03/22	06:45 07:25-07:53/28	07:34 08:13-08:38/25	07:28 08:09-08:24/15	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14
10	08:27	07:49 08:26-08:54/28	06:52 07:27-07:57/30	06:42 07:17-07:46/29	05:41 06:33-06:49/16	05:06 20:13-20:41/28	05:15 20:19-20:45/26	05:57 06:41-07:02/21	06:47 07:26-07:54/28	07:36 08:14-08:39/25	07:30 08:11-08:24/13	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48 08:24-08:52/28	06:50 07:25-07:54/29	06:39 07:15-07:44/29	05:39 06:33-06:47/14	05:06 20:12-20:41/29	05:16 20:20-20:44/24	05:59 06:42-07:03/21	06:48 07:28-07:57/29	07:37 08:16-08:42/26	07:31 08:13-08:23/10	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46 08:23-08:50/27	06:48 07:23-07:52/29	06:37 07:13-07:42/29	05:38 06:33-06:46/13	05:05 20:13-20:42/29	05:17 20:20-20:44/24	06:00 06:42-07:02/20	06:50 07:29-07:58/29	07:39 08:19-08:43/24	07:33 08:15-08:21/6	08:18
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44 08:21-08:47/26	06:45 07:21-07:50/29	06:35 07:10-07:40/30	05:36 06:35-06:45/10	05:05 20:13-20:42/29	05:18 20:20-20:43/23	06:02 06:43-07:02/19	06:52 07:30-08:00/30	07:41 08:19-08:43/24	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42 08:19-08:45/26	06:43 07:40-07:47/7	06:33 07:07-07:38/31	05:34 06:38-06:43/5	05:05 20:14-20:43/29	05:19 20:21-20:42/21	06:03 06:44-07:01/17	06:53 07:31-08:01/30	07:42 08:20-08:44/24	07:37	08:20
	16:38	17:33	18:23 07:19-07:39/20	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40 08:17-08:44/27	06:41 07:17-07:39/22	06:31 07:05-07:36/31	05:33	05:04 20:14-20:43/29	05:20 20:21-20:42/21	06:05 06:46-07:01/15	06:55 07:34-08:03/29	07:44 08:21-08:44/23	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38 08:15-08:41/26	06:38 07:14-07:38/24	06:28 07:02-07:33/31	05:31	05:04 20:14-20:42/28	05:22 20:22-20:41/19	06:07 06:46-06:59/13	06:56 07:36-08:05/29	07:46 08:23-08:51/28	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36 08:13-08:39/26	06:36 07:13-07:37/24	06:26 06:59-07:30/31	05:30	05:04 20:14-20:43/29	05:23 20:22-20:40/18	06:08 07:07-07:11/4	06:58 07:37-08:07/30	07:47 08:27-08:53/26	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45 06:48-06:58/10	19:37	18:29	16:32	16:13
18	08:21	07:34 08:11-08:37/26	06:34 07:09-07:36/27	06:24 06:57-07:27/30	05:28	05:04 20:14-20:43/29	05:24 20:23-20:40/17	06:10 07:03-07:13/10	06:47 07:39-08:08/29	07:49 08:28-08:54/26	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32 08:09-08:36/27	06:32 07:07-07:34/27	06:22 06:56-07:25/29	05:27	05:04 20:15-20:44/29	05:25 20:23-20:39/16	06:11 07:02-07:16/14	07:01 07:39-08:08/29	07:51 08:29-08:56/27	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:19	07:30 08:08-08:34/26	06:29 07:06-07:32/26	06:20 06:55-07:23/28	05:26	05:04 20:15-20:44/29	05:26 20:24-20:38/14	06:13 07:01-07:17/16	07:03 07:41-08:09/28	07:53 08:31-08:58/27	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:18	07:28 08:08-08:31/23	06:27 07:04-07:30/26	06:18 06:55-07:21/26	05:24	05:04 20:15-20:44/29	05:28 20:26-20:37/11	06:15 07:00-07:20/20	07:04 07:44-08:11/27	07:54 08:38-09:00/22	07:49	08:26
	16:50	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26 08:08-08:30/22	06:25 07:01-07:27/26	06:16 06:55-07:17/22	05:23	05:04 20:15-20:44/29	05:29 20:28-20:35/7	06:16 06:59-07:21/22	07:06 07:45-08:11/26	07:56 08:38-09:02/24	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24 08:01-08:28/27	06:22 06:59-07:25/26	06:13 06:55-07:15/20	05:22 20:18-20:25/7	05:05 20:15-20:44/29	05:30	06:18 06:59-07:24/25	07:08 07:47-08:13/26	07:58 08:39-09:04/25	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22 07:58-08:25/27	06:20 06:57-07:24/27	06:11 06:55-07:12/17	05:20 20:16-20:27/11	05:05 20:16-20:45/29	05:32	06:19 06:59-07:26/27	07:09 07:48-08:14/26	08:00 08:38-09:05/27	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:31	19:20	18:14	16:24	16:16
25	08:14	07:20 07:57-08:23/26	06:18 06:54-07:22/28	06:09 06:55-07:10/15	05:19 20:15-20:29/14	05:05 20:16-20:45/29	05:33	06:21 07:00-07:29/29	07:11 07:50-08:16/26	08:01 08:40-09:06/26	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18 07:56-08:21/25	06:16 07:51-08:21/30	06:07 06:56-07:07/11	05:18 20:14-20:30/16	05:05 20:16-20:45/29	05:35	06:23 07:00-07:29/29	07:12 07:51-08:18/27	08:03 08:42-09:08/26	07:57	08:28
	16:58	17:55	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16 07:51-08:19/28	07:13 07:49-08:20/31	06:05 06:58-07:05/7	05:17 20:14-20:31/17	05:06 20:17-20:46/29	05:36	06:24 07:01-07:32/31	07:14 07:52-08:18/26	08:05 08:44-09:11/27	07:58	08:29
	17:00	17:56	19:45	20:37 06:42-06:49/7	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:18
28	08:10	07:14 07:49-08:12/23	07:11 07:48-08:18/30	06:03 06:39-06:51/12	05:16 20:13-20:31/18	05:06 20:16-20:45/29	05:37	06:26 07:03-07:33/30	07:16 07:55-08:19/24	08:07 08:46-09:13/27	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09 07:45-08:13/28	06:01 06:38-06:52/14	05:15 20:13-20:32/19	05:07 20:17-20:46/29	05:39	06:27 07:05-07:36/31	07:17 07:55-08:19/24	07:08 07:48-08:15/27	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06 07:43-08:12/29	05:59 06:37-06:53/16	05:14 20:12-20:33/21	05:07 20:17-20:46/29	05:40	06:29 07:07-07:37/30	07:19 07:57-08:19/22	07:10 07:50-08:16/26	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04 07:41-08:10/29		05:13 20:12-20:33/21		05:42 06:48-06:53/5	06:31 07:08-07:39/31		07:12 07:51-08:19/28		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	666	822	752	384	841	496	638	830	805	242	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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B185 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (443)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:22	06:13	05:22	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B186 - ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (444)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	06:59	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:53	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:22	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:30	08:16
	16:33	17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:39	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:36	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:28	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:44	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:54	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:15
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B187 - ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (445)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	06:59	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:53	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:28	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:22	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:42	21:06	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:30	08:16
	16:33	17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:47	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:36	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:28	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:44	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:28
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B200 - ENERCON E-101 3050 101.0 !-! NH: 99.0 m (Ges:149.5 m) (454)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12 07:40-07:57/17	07:02	05:57	05:12	05:08	05:43	06:32	07:20	07:13	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:02	07:09 07:39-07:56/17	06:59	05:55	05:11	05:08	05:45	06:34	07:22 08:05-08:13/8	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:30	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07 07:38-07:55/17	06:57	05:53	05:10	05:09	05:46	06:35	07:24 08:04-08:16/12	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:31	21:44	21:11	20:08	19:00	16:55	16:16
4	08:29	07:59	07:05 07:35-07:54/19	06:55	05:52	05:09	05:10	05:48	06:37	07:25 08:03-08:18/15	07:19	08:08
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03 07:32-07:51/19	06:53	05:50	05:09	05:11	05:49	06:39	07:27 08:02-08:18/16	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:28	07:56	07:01 07:30-07:50/20	06:50	05:48	05:08	05:11	05:51	06:40	07:29 08:02-08:21/19	07:22	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:42	21:05	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59 07:28-07:48/20	06:48	05:46	05:07	05:12	05:52	06:42	07:30 08:03-08:23/20	07:24	08:12
	16:29	17:20	18:10	20:03	20:53	21:35	21:42	21:04	19:59	18:50	16:48	16:14
8	08:28	07:53	06:56 07:27-07:47/20	06:46	05:44	05:07	05:13	05:54	06:43	07:32 08:03-08:23/20	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:36	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54 07:25-07:44/19	06:44	05:43	05:06	05:14	05:55	06:45	07:34 08:05-08:25/20	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52 07:25-07:41/16	06:41	05:41	05:06	05:15	05:57	06:47	07:35 08:07-08:26/19	07:29	08:16
	16:33	17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:47	06:50 07:25-07:40/15	06:39	05:39	05:05	05:16	05:59	06:48	07:37 08:09-08:28/19	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:56	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47 07:25-07:37/12	06:37	05:38	05:05	05:17	06:00	06:50	07:39 08:11-08:28/17	07:33	08:18
	16:35	17:29	18:19	20:12	21:01	21:40	21:38	20:55	19:48	18:39	16:39	16:13
13	08:25	07:44	06:45 07:26-07:34/8	06:35	05:36	05:05	05:18	06:02	06:51	07:40 08:12-08:29/17	07:35	08:19
	16:37	17:31	18:21	20:13	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42 08:13-08:30/17	07:36	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:36	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44 08:14-08:32/18	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:41	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46 08:16-08:34/18	07:40	08:22
	16:41	17:36	18:26	20:18	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47 08:16-08:35/19	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:36	18:28	16:32	16:13
18	08:21	07:34 08:01-08:05/4	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49 08:17-08:37/20	07:43	08:24
	16:45	17:40	18:29	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32 07:59-08:07/8	06:31	06:22	05:27	05:04	05:25	06:11	07:01	07:51 08:19-08:38/19	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:43	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30 07:57-08:08/11	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:52 08:21-08:39/18	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28 07:55-08:08/13	06:27	06:17	05:24	05:04	05:28	06:15	07:04	07:54 08:23-08:39/16	07:48	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:29	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26 07:52-08:07/15	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56 08:25-08:39/14	07:50	08:26
	16:51	17:47	18:36	20:29	21:16	21:44	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24 07:50-08:07/17	06:22	06:13	05:21	05:04	05:30	06:18	07:07	07:58 08:26-08:37/11	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:32	19:23	18:16	16:25	16:15
24	08:15	07:22 07:48-08:07/19	06:20	06:11	05:20	05:05	05:32	06:19	07:09	07:59 08:28-08:36/8	07:53	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:13	07:20 07:46-08:06/20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01 08:30-08:35/5	07:55	08:28
	16:56	17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18 07:45-08:04/19	07:15	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16 07:44-08:02/18	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:28
	17:00	17:56	19:45	20:37	21:23	21:45	21:21	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14 07:42-07:59/17	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:06	08:00	08:29
	17:02	17:58	19:46	20:39	21:24	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:44	21:17	20:17	19:06	17:02	16:18	16:20
31	08:05		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:15	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	161	219	0	0	0	0	0	0	385	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B217 - TACKE TW 600 600-200 43.0 !O! NH: 60.0 m (Ges:81.5 m) (466)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:59	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:58	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:08
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:06	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:27	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:32	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:45	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:49	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:46	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
	16:39	17:33	18:23	20:16	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:31	05:33	05:04	05:21	06:05	06:55	07:44	07:39	08:22
	16:40	17:35	18:25	20:17	21:07	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:39	06:39	06:28	05:31	05:04	05:22	06:07	06:57	07:46	07:40	08:22
	16:42	17:36	18:26	20:19	21:08	21:43	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:37	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:48	07:42	08:23
	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:33	16:13
18	08:21	07:35	06:34	06:24	05:29	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:35	18:27	16:31	16:13
19	08:21	07:33	06:32	06:22	05:27	05:04	05:25	06:12	07:01	07:51	07:46	08:25
	16:46	17:42	18:32	20:24	21:13	21:44	21:32	20:41	19:32	18:24	16:30	16:14
20	08:20	07:31	06:30	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:26
	16:48	17:44	18:33	20:26	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14
21	08:19	07:29	06:27	06:18	05:24	05:04	05:28	06:15	07:05	07:55	07:49	08:26
	16:50	17:46	18:35	20:27	21:16	21:45	21:30	20:37	19:28	18:20	16:27	16:14
22	08:17	07:27	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:51	08:27
	16:51	17:47	18:37	20:29	21:17	21:45	21:29	20:35	19:25	18:18	16:26	16:15
23	08:16	07:25	06:23	06:14	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:12	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:56	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:14	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:57	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:38	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:21	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:04		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	06:00	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:19	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B218 - ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (467)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:58	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:28	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:42	21:02	19:58	18:48	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:17
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
	16:36	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:40	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:25	07:42	06:43	06:33	05:35	05:05	05:19	06:04	06:53	07:43	07:37	08:21
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	16:43	17:38	18:28	20:21	21:10	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:35	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:44	21:33	20:43	19:34	18:27	16:31	16:13
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	16:53	17:49	18:38	20:31	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:23	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:28
	16:55	17:51	18:40	20:32	21:20	21:45	21:26	20:31	19:21	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:02	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:25	20:29	19:18	18:12	16:23	16:16
26	08:13	07:18	07:16	06:07	05:18	05:05	05:35	06:23	07:13	08:03	07:57	08:29
	16:58	17:55	19:43	20:36	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:59	08:29
	17:00	17:56	19:45	20:37	21:24	21:45	21:22	20:24	19:14	18:08	16:21	16:18
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:09		07:09	06:01	05:15	05:07	05:39	06:28	07:18	07:09	08:02	08:29
	17:03		19:49	20:41	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:07	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:07	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:30
	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B222 - ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (469)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar		Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember	
1	08:29	14:21-14:32/11	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04	
	16:22		17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18	
2	08:29	14:22-14:31/9	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:15	08:06	
	16:23		17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:57	16:17	
3	08:29	14:24-14:31/7	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:07	
	16:24		17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16	
4	08:29	14:27-14:28/1	07:59	07:05	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:08	
	16:25		17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16	
5	08:29		07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10	
	16:27		17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15	
6	08:28		07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:22	08:11	
	16:28		17:18	18:09	20:02	20:52	21:35	21:42	21:06	20:02	18:53	16:49	16:15	
7	08:28		07:54	06:59	06:48	05:46	05:08	05:12	05:52	06:42	07:31	07:24	08:12	
	16:29		17:20	18:11	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14	
8	08:28		07:53	06:56	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14	
	16:30		17:22	18:12	20:05	20:55	21:36	21:41	21:02	19:57	18:48	16:46	16:14	
9	08:27		07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15	
	16:31		17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:14	
10	08:27		07:49	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16	14:14-14:18/4
	16:33		17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13	
11	08:26		07:47	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:31	08:17	14:13-14:20/7
	16:34		17:27	18:18	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13	
12	08:26		07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18	14:12-14:21/9
	16:36		17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13	
13	08:25		07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:19	14:11-14:23/12
	16:37		17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13	
14	08:24		07:42	06:43	06:33	05:35	05:05	05:19	06:03	06:53	07:42	07:37	08:20	14:11-14:24/13
	16:39		17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13	
15	08:24		07:40	06:41	06:31	05:33	05:04	05:21	06:05	06:55	07:44	07:38	08:21	14:11-14:25/14
	16:40		17:35	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13	
16	08:23		07:38	06:38	06:28	05:31	05:04	05:22	06:07	06:56	07:46	07:40	08:22	14:11-14:26/15
	16:42		17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13	
17	08:22		07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23	14:11-14:27/16
	16:43		17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13	
18	08:21		07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24	14:12-14:27/15
	16:45		17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13	
19	08:20		07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24	14:12-14:28/16
	16:46		17:42	18:31	20:24	21:12	21:43	21:32	20:41	19:32	18:24	16:30	16:14	
20	08:19		07:30	06:29	06:20	05:26	05:04	05:27	06:13	07:03	07:53	07:47	08:25	14:12-14:28/16
	16:48		17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:29	16:14	
21	08:18		07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26	14:13-14:29/16
	16:50		17:46	18:35	20:27	21:15	21:44	21:29	20:37	19:27	18:20	16:27	16:14	
22	08:17		07:26	06:25	06:16	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26	14:13-14:29/16
	16:51		17:47	18:36	20:29	21:17	21:44	21:28	20:35	19:25	18:18	16:26	16:15	
23	08:16		07:24	06:22	06:13	05:22	05:05	05:31	06:18	07:08	07:58	07:52	08:27	14:14-14:30/16
	16:53		17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15	
24	08:15		07:22	06:20	06:11	05:20	05:05	05:32	06:20	07:09	08:00	07:54	08:27	14:14-14:30/16
	16:55		17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16	
25	08:14		07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28	14:15-14:31/16
	16:56		17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16	
26	08:12		07:18	07:16	06:07	05:18	05:06	05:35	06:23	07:12	08:03	07:57	08:28	14:15-14:31/16
	16:58		17:55	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17	
27	08:11		07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:28	14:16-14:31/15
	17:00		17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:18	
28	08:10		07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29	14:16-14:32/16
	17:02		17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18	
29	08:08			07:09	06:01	05:15	05:07	05:39	06:28	07:17	07:08	08:01	08:29	14:17-14:32/15
	17:03			19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19	
30	08:07			07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29	14:18-14:32/14
	17:05			19:50	20:42	21:27	21:45	21:17	20:17	19:07	17:02	16:18	16:20	
31	08:05			07:04		05:13		05:42	06:31		07:12		08:29	14:19-14:32/13
	17:07			19:52		21:28		21:16	20:15		17:00		16:21	
Sonnenscheinstunden	259		277	366	414	483	497	501	454	382	333	269	246	
Anzahl Minuten mit Schatten	28		0	0	0	0	0	0	0	0	0	0	306	

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B223 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 16:22	08:04 17:09	07:12 07:52-08:09/17 18:00	07:02 07:41-08:08/27 19:53	05:57 06:37-07:03/26 20:44	05:12 05:53-06:22/29 21:30	05:08 05:51-06:22/31 21:44	05:43 06:25-06:56/31 21:14	06:32 07:14-07:42/28 20:13	07:21 08:02-08:19/17 19:04	07:14 16:58	08:04 16:18
2	08:29 16:23	08:03 17:11	07:10 07:52-08:09/17 18:02	07:00 07:39-08:07/28 19:55	05:55 06:36-07:00/24 20:45	05:11 05:52-06:21/29 21:31	05:08 05:51-06:22/31 21:44	05:45 06:27-06:59/32 21:12	06:34 07:15-07:44/29 20:11	07:22 08:02-08:20/18 19:02	07:15 16:57	08:06 16:17
3	08:29 16:24	08:01 17:12	07:07 07:53-08:09/16 18:03 07:42-07:49/7	06:57 07:36-08:05/29 19:57	05:54 06:33-06:59/26 20:47	05:10 05:51-06:20/29 21:32	05:09 05:52-06:23/31 21:44	05:46 06:28-07:00/32 21:11	06:35 07:17-07:45/28 20:09	07:24 08:03-08:22/19 19:00	07:17 16:55	08:07 16:16
4	08:29 16:25	07:59 17:14	07:05 07:53-08:09/16 18:05 07:40-07:51/11	06:55 07:34-08:03/29 19:58	05:52 06:31-06:58/27 20:49	05:09 05:51-06:20/29 21:33	05:10 05:53-06:24/31 21:44	05:48 06:29-07:00/31 21:09	06:37 07:19-07:47/28 20:06	07:26 08:04-08:23/19 18:57	07:19 16:53	08:09 16:16
5	08:29 16:26	07:58 17:16	07:03 07:54-08:08/14 18:07 07:38-07:51/13	06:53 07:31-08:00/29 20:00	05:50 06:30-06:58/28 20:50	05:09 05:50-06:19/29 21:34	05:11 05:54-06:25/31 21:43	05:49 06:31-07:01/30 21:07	06:39 07:21-07:49/28 20:04	07:27 08:06-08:25/19 18:55	07:21 16:51	08:10 16:15
6	08:29 16:28	07:56 17:18	07:01 07:54-08:06/12 18:09 07:35-07:51/16	06:51 07:29-07:57/28 20:02	05:48 06:26-06:56/30 20:52	05:08 05:49-06:19/30 21:35	05:11 05:54-06:24/30 21:43	05:51 06:32-07:01/29 21:06	06:40 07:22-07:51/29 20:02	07:29 08:07-08:26/19 18:53	07:23 16:49	08:11 16:15
7	08:28 16:29	07:55 17:20	06:59 07:56-08:04/8 18:11 07:33-07:51/18	06:48 07:27-07:55/28 20:04	05:46 06:24-06:54/30 20:54	05:07 05:49-06:19/30 21:36	05:12 05:55-06:25/30 21:42	05:52 06:34-07:04/30 21:04	06:42 07:24-07:53/29 20:00	07:31 08:08-08:27/19 18:51	07:24 16:48	08:13 16:14
8	08:28 16:30	07:53 17:22	06:56 07:32-07:50/18 18:12	06:46 07:25-07:54/29 20:05	05:44 06:23-06:52/29 20:55	05:07 05:49-06:19/30 21:37	05:13 05:56-06:26/30 21:41	05:54 06:35-07:06/31 21:02	06:44 07:25-07:54/29 19:57	07:32 08:33-08:40/7 18:48 08:09-08:27/18	07:26 16:46	08:14 16:14
9	08:27 16:31	07:51 17:23	06:54 07:30-07:49/19 18:14	06:44 07:23-07:51/28 20:07	05:43 06:21-06:51/30 20:57	05:06 05:48-06:19/31 21:38	05:14 05:57-06:26/29 21:41	05:56 06:39-07:07/28 21:00	06:45 07:27-07:56/29 19:55	07:34 08:29-08:41/12 18:46 08:10-08:26/16	07:28 16:44	08:15 16:14
10	08:27 16:33	07:49 17:25	06:52 07:28-07:47/19 18:16	06:42 07:20-07:48/28 20:09	05:41 06:20-06:51/31 20:58	05:06 05:48-06:19/31 21:38	05:15 05:58-06:27/29 21:40	05:57 06:40-07:07/27 20:59	06:47 07:28-07:57/29 19:53	07:36 08:28-08:42/14 18:44 08:12-08:26/14	07:30 16:43	08:16 16:13
11	08:26 16:34	07:48 17:27	06:50 07:26-07:45/19 18:18	06:39 07:18-07:46/28 20:10	05:39 06:18-06:49/31 21:00	05:05 05:47-06:18/31 21:39	05:16 05:59-06:28/29 21:39	05:59 06:41-07:08/27 20:57	06:48 07:30-07:59/29 19:50	07:37 08:27-08:43/16 18:42 08:14-08:25/11	07:31 16:41	08:17 16:13
12	08:26 16:35	07:46 17:29	06:48 07:25-07:44/19 18:19	06:37 07:15-07:44/29 20:12	05:38 06:16-06:48/32 21:02	05:05 05:47-06:18/31 21:40	05:17 06:00-06:29/29 21:39	06:00 06:43-07:08/25 20:55	06:50 07:31-08:00/29 19:48	07:39 08:27-08:43/16 18:39 08:16-08:23/7	07:33 16:40	08:18 16:13
13	08:25 16:37	07:44 17:31	06:45 07:23-07:41/18 18:21	06:35 07:13-07:42/29 20:14	05:36 06:15-06:46/31 21:03	05:05 05:47-06:18/31 21:41	05:18 06:01-06:30/29 21:38	06:02 06:45-07:09/24 20:53	06:52 07:34-08:01/27 19:46	07:41 08:26-08:43/17 18:37	07:35 16:38	08:19 16:13
14	08:24 16:38	07:42 17:33	06:43 07:22-07:39/17 18:23	06:33 07:11-07:40/29 20:15	05:34 06:14-06:45/31 21:05	05:05 05:47-06:18/31 21:41	05:19 06:02-06:32/30 21:37	06:03 06:46-07:13/27 20:51	06:53 07:35-08:00/25 19:44	07:42 08:26-08:42/16 18:35	07:37 16:37	08:20 16:13
15	08:24 16:40	07:40 17:34	06:41 07:21-07:37/16 18:24	06:30 07:09-07:38/29 20:17	05:33 06:12-06:43/31 21:06	05:04 05:47-06:19/32 21:42	05:20 06:03-06:33/30 21:36	06:05 06:48-07:15/27 20:49	06:55 07:37-08:00/23 19:41	07:44 08:26-08:42/16 18:33	07:38 16:35	08:21 16:13
16	08:23 16:41	07:38 17:36	06:38 07:18-07:36/18 18:26	06:28 07:07-07:35/28 20:19	05:31 06:10-06:42/32 21:08	05:04 05:47-06:19/32 21:42	05:22 06:04-06:34/30 21:35	06:07 06:51-07:16/25 20:47	06:56 07:39-08:00/21 19:39	07:46 08:27-08:41/14 18:31	07:40 16:34	08:22 16:13
17	08:22 16:43	07:36 17:38	06:36 07:16-07:35/19 18:28	06:26 07:06-07:32/26 20:20	05:30 06:09-06:40/31 21:09	05:04 05:47-06:19/32 21:43	05:23 06:06-06:35/29 21:34	06:08 06:52-07:17/25 20:45	06:58 07:40-08:01/21 19:37	07:47 08:28-08:40/12 18:29	07:42 16:32	08:23 16:13
18	08:21 16:45	07:34 17:40	06:34 07:14-07:34/20 18:30	06:24 07:00-07:31/31 20:22	05:28 06:08-06:36/28 21:11	05:04 05:47-06:19/32 21:43	05:24 06:07-06:35/28 21:33	06:10 06:52-07:17/25 20:43	07:00 07:41-08:04/23 19:34	07:49 08:28-08:37/9 18:26	07:44 16:31	08:24 16:13
19	08:20 16:46	07:32 17:42	06:32 07:09-07:33/24 18:31	06:22 06:58-07:28/30 20:24	05:27 06:07-06:35/28 21:12	05:04 05:47-06:19/32 21:44	05:25 06:08-06:36/28 21:32	06:11 06:54-07:17/23 20:41	07:01 07:41-08:05/24 19:32	07:51 18:24	07:45 16:30	08:25 16:13
20	08:19 16:48	07:30 17:44	06:29 07:07-07:32/25 18:33	06:20 06:57-07:27/30 20:25	05:26 06:06-06:34/28 21:14	05:04 05:47-06:19/32 21:44	05:26 06:10-06:38/28 21:31	06:13 06:56-07:23/27 20:39	07:03 07:42-08:06/24 19:30	07:53 18:22	07:47 16:28	08:25 16:14
21	08:18 16:50	07:28 17:45	06:27 07:04-07:30/26 18:35	06:18 06:56-07:25/29 20:27	05:24 06:04-06:32/28 21:15	05:04 05:47-06:19/32 21:44	05:28 06:12-06:39/27 21:30	06:15 07:00-07:25/25 20:37	07:04 07:44-08:10/26 19:27	07:54 18:20	07:49 16:27	08:26 16:14
22	08:17 16:51	07:26 17:47	06:25 07:03-07:27/24 18:36	06:16 06:55-07:22/27 20:29	05:23 06:03-06:32/29 21:17	05:04 05:47-06:19/32 21:45	05:29 06:12-06:40/28 21:28	06:16 06:59-07:26/27 20:35	07:06 07:45-08:11/26 19:25	07:56 18:18	07:50 16:26	08:26 16:15
23	08:16 16:53	07:24 17:49	06:22 06:58-07:25/27 18:38	06:13 06:54-07:20/26 20:30	05:22 06:02-06:30/28 21:18	05:04 05:47-06:19/32 21:45	05:30 06:13-06:42/29 21:27	06:18 07:00-07:28/28 20:33	07:08 07:48-08:12/24 19:23	07:58 18:16	07:52 16:25	08:27 16:15
24	08:15 16:55	07:22 17:51	06:20 06:57-07:23/26 18:40	06:11 06:54-07:18/24 20:32	05:20 06:01-06:29/28 21:19	05:05 05:48-06:20/32 21:45	05:32 06:15-06:43/28 21:26	06:19 07:00-07:29/29 20:31	07:09 07:48-08:14/26 19:20	08:00 18:14	07:54 16:24	08:27 16:16
25	08:14 16:56	07:20 07:57-08:05/8 17:53	06:18 06:55-07:19/24 18:42	06:09 06:48-07:16/28 20:34	05:19 06:00-06:28/28 21:21	05:05 05:48-06:20/32 21:45	05:33 06:16-06:44/28 21:24	06:21 07:01-07:32/31 20:28	07:11 07:51-08:15/24 19:18	08:01 18:12	07:55 16:23	08:28 16:16
26	08:12 16:58	07:18 07:55-08:07/12 17:55	07:16 07:53-08:17/24 19:43	06:07 06:46-07:10/24 20:36	05:18 05:59-06:27/28 21:22	05:05 05:48-06:20/32 21:45	05:35 06:17-06:45/28 21:23	06:23 07:02-07:32/30 20:26	07:12 07:53-08:16/23 19:16	08:03 18:10	07:57 16:22	08:28 16:17
27	08:11 17:00	07:16 07:54-08:09/15 17:56	07:13 07:53-08:14/21 19:45	06:05 06:44-07:09/25 20:37	05:17 05:58-06:26/28 21:23	05:06 05:49-06:21/32 21:45	05:36 06:18-06:46/28 21:22	06:24 07:09-07:35/26 20:24	07:14 07:56-08:16/20 19:13	08:05 18:08	07:58 16:21	08:29 16:18
28	08:10 17:02	07:14 07:54-08:09/15 17:58	07:11 07:51-08:12/21 19:47	06:03 06:43-07:08/25 20:39	05:16 05:57-06:26/29 21:25	05:06 05:49-06:21/32 21:45	05:37 06:20-06:51/31 21:20	06:26 07:09-07:36/27 20:22	07:16 07:58-08:17/19 19:11	08:07 18:06	08:00 16:20	08:29 16:18
29	08:08 17:03		07:09 07:48-08:10/22 19:48	06:01 06:40-07:07/27 20:41	05:15 05:55-06:25/30 21:26	05:07 05:50-06:22/32 21:45	05:39 06:20-06:52/32 21:19	06:27 07:10-07:38/28 20:20	07:17 07:59-08:16/17 19:09	07:08 17:04	08:01 16:19	08:29 16:19
30	08:07 17:05		07:06 07:46-08:10/24 19:50	05:59 06:39-07:06/27 20:42	05:14 05:54-06:24/30 21:27	05:07 05:50-06:21/31 21:45	05:40 06:22-06:53/31 21:17	06:29 07:10-07:39/29 20:18	07:19 08:01-08:17/16 19:07	07:10 17:02	08:03 16:18	08:29 16:20
31	08:06 17:07		07:04 07:44-08:10/26 19:52		05:13 05:53-06:23/30 21:28		05:42 06:24-06:55/31 21:16	06:31 07:12-07:41/29 20:15		07:12 17:00		08:29 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	50	681	834	900	932	914	865	753	345	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B227 - ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (473)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:24	08:13
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:41	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:18	19:06	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B249 - NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (488)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:30	08:04	07:12	07:02	05:58	05:12	05:08	05:43	06:32	07:21	07:14	08:05
	16:22	17:09	18:00	19:54	20:44	21:30	21:45	21:14	20:13	19:04	16:59	16:18
2	08:30	08:03	07:10	07:00	05:56	05:11	05:09	05:45	06:34	07:22	07:16	08:06
	16:23	17:11	18:02	19:55	20:46	21:31	21:44	21:13	20:11	19:02	16:57	16:17
3	08:29	08:01	07:08	06:57	05:54	05:10	05:09	05:46	06:36	07:24	07:17	08:08
	16:24	17:13	18:04	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	08:00	07:06	06:55	05:52	05:10	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:59	20:49	21:33	21:44	21:09	20:07	18:58	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:51	21:34	21:43	21:08	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:51	05:48	05:08	05:12	05:51	06:40	07:29	07:23	08:12
	16:28	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:50	16:15
7	08:29	07:55	06:59	06:48	05:46	05:08	05:12	05:53	06:42	07:31	07:25	08:13
	16:29	17:20	18:11	20:04	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:57	06:46	05:45	05:07	05:13	05:54	06:44	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:56	21:37	21:42	21:02	19:58	18:49	16:46	16:14
9	08:28	07:51	06:54	06:44	05:43	05:06	05:14	05:56	06:45	07:34	07:28	08:15
	16:31	17:24	18:14	20:07	20:57	21:38	21:41	21:01	19:55	18:46	16:44	16:14
10	08:27	07:50	06:52	06:42	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:59	21:39	21:40	20:59	19:53	18:44	16:43	16:13
11	08:27	07:48	06:50	06:39	05:39	05:06	05:16	05:59	06:48	07:37	07:32	08:18
	16:34	17:27	18:18	20:10	21:00	21:39	21:40	20:57	19:51	18:42	16:41	16:13
12	08:26	07:46	06:48	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:19
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13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:52	07:41	07:35	08:20
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	17:07		19:52		21:29		21:16	20:16		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	502	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B253 - ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29 09:27-09:55/28 16:22	08:04 09:03-09:24/21 17:09	07:12 08:08-08:37/29 18:00	07:02 08:00-08:32/32 19:53	05:57 20:44	05:12 06:39-06:56/17 21:30	05:08 21:44	05:43 06:49-07:14/25 21:14	06:32 07:28-08:04/36 20:13	07:21 08:21-08:57/36 19:04	07:14 08:22-08:46/24 16:58	08:04 09:04-09:32/28 16:18
2	08:29 09:27-09:55/28 16:23	08:03 08:53-08:59/6 17:11 09:02-09:23/21	07:10 08:08-08:37/29 18:02	07:00 07:57-08:30/33 19:55	05:56 20:45	05:11 06:40-06:55/15 21:31	05:09 21:44	05:45 06:51-07:15/24 21:12	06:34 07:30-08:06/36 20:11	07:22 08:23-08:58/35 19:02	07:15 08:21-08:48/27 16:57	08:06 09:05-09:33/28 16:17
3	08:29 09:27-09:56/29 16:24	08:01 08:51-09:23/32 17:12	07:07 08:07-08:37/30 18:04	06:57 07:55-08:28/33 19:57	05:54 20:47	05:10 06:40-06:55/15 21:32	05:09 21:44	05:46 06:53-07:14/21 21:11	06:36 07:32-07:36/4 20:09 07:37-08:08/31	07:24 08:24-08:59/35 19:00	07:17 08:19-08:48/29 16:55	08:07 09:06-09:35/29 16:16
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9	08:27 09:24-09:53/29 16:31	07:51 08:50-09:19/29 17:23	06:54 07:53-08:29/36 18:14	06:44 07:41-08:14/33 20:07	05:43 06:44-07:02/18 20:57	05:06 21:37	05:14 06:49-07:01/12 21:41	05:56 07:00-07:06/6 21:00	06:45 07:45-08:19/34 19:55	07:34 08:35-09:10/35 18:46	07:28 08:21-08:53/32 16:44	08:15 09:14-09:42/28 16:14
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28	08:10 09:07-09:22/15 17:02 09:24-09:34/10	07:14 08:10-08:40/30 17:58	07:11 08:10-08:42/32 19:47	06:03 07:13-07:24/11 20:39	05:16 06:37-06:57/20 21:25	05:06 21:45	05:37 06:47-07:14/27 21:20	06:26 07:20-07:57/37 20:22	07:16 08:16-08:52/36 19:11	08:07 09:26-09:39/13 18:06 09:04-09:14/10	08:00 08:59-09:27/28 16:20	08:29 09:27-09:55/28 16:18
29	08:08 09:06-09:23/17 17:03 09:27-09:33/6		07:09 08:07-08:39/32 19:48	06:01 07:16-07:21/5 20:41	05:15 06:37-06:57/20 21:26	05:07 21:45	05:39 06:47-07:14/27 21:19	06:28 07:23-07:59/36 20:20	07:17 08:17-08:53/36 19:09	07:08 08:24-08:40/16 17:04	08:01 09:01-09:28/27 16:19	08:29 09:27-09:55/28 16:19
30	08:07 09:04-09:23/19 17:05		07:06 08:05-08:37/32 19:50	05:59 20:42	05:14 06:38-06:56/18 21:27	05:07 21:45	05:40 06:48-07:15/27 21:17	06:29 07:23-08:00/37 20:18	07:19 08:19-08:55/36 19:07	07:10 08:24-08:41/17 17:02	08:03 09:02-09:30/28 16:18	08:29 09:27-09:56/29 16:20
31	08:06 09:03-09:23/20 17:07		07:04 08:03-08:35/32 19:52		05:13 06:38-06:56/18 21:28		05:42 06:48-07:15/27 21:16	06:31 07:27-08:01/34 20:15		07:12 08:23-08:44/21 17:00		08:29 09:27-09:55/28 16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	808	715	1043	860	586	92	526	596	1022	868	786	866

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B257 - ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m) (512)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:30	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:03	07:10	07:00	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:11	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:54	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:26	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:29	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:23	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:43	21:06	20:02	18:53	16:49	16:15
7	08:28	07:55	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:31	07:24	08:13
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:51	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:22	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:36	07:30	08:16
	16:33	17:25	18:16	20:09	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:48	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:57	19:50	18:42	16:41	16:13
12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:40	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
	16:37	17:31	18:21	20:14	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
	16:38	17:33	18:23	20:15	21:05	21:41	21:37	20:51	19:44	18:35	16:37	16:13
15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:07	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:29	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	07:00	07:49	07:44	08:24
	16:45	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:25
	16:46	17:42	18:31	20:24	21:12	21:44	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:53	07:47	08:25
	16:48	17:44	18:33	20:25	21:14	21:44	21:31	20:39	19:30	18:22	16:28	16:14
21	08:18	07:28	06:27	06:18	05:24	05:04	05:28	06:15	07:04	07:54	07:49	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:30	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:17	21:45	21:28	20:35	19:25	18:18	16:26	16:15
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:08	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:45	21:27	20:33	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	08:00	07:54	08:27
	16:55	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:16
25	08:14	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:42	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:29
	17:00	17:56	19:45	20:37	21:23	21:45	21:22	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
	17:02	17:58	19:47	20:39	21:25	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:06		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B258 - ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (491)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:21	07:14	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:17
2	08:29	08:03	07:10	06:59	05:55	05:11	05:08	05:45	06:34	07:22	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:31	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:53	05:10	05:09	05:46	06:35	07:24	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:32	21:44	21:11	20:09	19:00	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25	07:19	08:09
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:28	07:56	07:01	06:50	05:48	05:08	05:11	05:51	06:40	07:29	07:22	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:42	21:06	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59	06:48	05:46	05:07	05:12	05:52	06:42	07:30	07:24	08:12
	16:29	17:20	18:10	20:03	20:54	21:36	21:42	21:04	20:00	18:50	16:48	16:14
8	08:28	07:53	06:56	06:46	05:44	05:07	05:13	05:54	06:43	07:32	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:37	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54	06:44	05:43	05:06	05:14	05:55	06:45	07:34	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:30	08:16
	16:33	17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:47	06:50	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
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12	08:26	07:46	06:47	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:02	21:40	21:39	20:55	19:48	18:39	16:39	16:13
13	08:25	07:44	06:45	06:35	05:36	05:05	05:18	06:02	06:51	07:41	07:35	08:19
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14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:37	08:20
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15	08:24	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:42	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:06	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:19	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:37	18:28	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:44	08:24
	16:44	17:40	18:30	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:32	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24
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24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	07:59	07:54	08:27
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26	08:12	07:18	07:16	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
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28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:07	08:00	08:29
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	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
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	17:05		19:50	20:42	21:27	21:45	21:17	20:17	19:06	17:02	16:18	16:20
31	08:05		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:16	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

SHADOW - Kalender pro WEA

Berechnung: Dörenhagen GB WEA: B263 - ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (496)

Annahmen für Schattenwurfberechnung

Referenzjahr für Kalender 2023

Sonnenscheinwahrscheinlichkeit S (Mittlere tägliche Sonnenstunden) [BAD LIPPSPRINGE]

Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
1.58	3.21	3.35	5.03	6.68	5.58	6.26	5.85	4.04	3.08	2.01	1.34

Betriebsdauer je Sektor

N	NNO	ONO	O	OSO	SSO	S	SSW	WSW	W	WNW	NNW	Summe
276	320	528	889	623	429	649	670	1,305	1,498	731	430	8,349

Startwindgeschwindigkeit: Startwindgeschw. aus Leistungskennlinie

	Januar	Februar	März	April	Mai	Juni	Juli	August	September	Oktober	November	Dezember
1	08:29	08:04	07:12	07:02	05:57	05:12	05:08	05:43	06:32	07:20	07:13	08:04
	16:22	17:09	18:00	19:53	20:44	21:29	21:44	21:14	20:13	19:04	16:58	16:18
2	08:29	08:02	07:09	06:59	05:55	05:11	05:08	05:45	06:34	07:22 08:04-08:11/7	07:15	08:06
	16:23	17:10	18:02	19:55	20:45	21:30	21:44	21:12	20:11	19:02	16:56	16:17
3	08:29	08:01	07:07	06:57	05:53	05:10	05:09	05:46	06:35	07:24 08:03-08:13/10	07:17	08:07
	16:24	17:12	18:03	19:57	20:47	21:31	21:44	21:11	20:08	18:59	16:55	16:16
4	08:29	07:59	07:05	06:55	05:52	05:09	05:10	05:48	06:37	07:25 08:02-08:15/13	07:19	08:08
	16:25	17:14	18:05	19:58	20:49	21:33	21:43	21:09	20:06	18:57	16:53	16:16
5	08:29	07:58	07:03	06:53	05:50	05:09	05:11	05:49	06:39	07:27 08:01-08:15/14	07:21	08:10
	16:26	17:16	18:07	20:00	20:50	21:34	21:43	21:07	20:04	18:55	16:51	16:15
6	08:28	07:56	07:01 07:30-07:38/8	06:50	05:48	05:08	05:11	05:51	06:40	07:29 08:02-08:15/13	07:22	08:11
	16:27	17:18	18:09	20:02	20:52	21:35	21:42	21:05	20:02	18:53	16:49	16:15
7	08:28	07:54	06:59 07:29-07:39/10	06:48	05:46	05:07	05:12	05:52	06:42	07:30 08:03-08:15/12	07:24	08:12
	16:29	17:20	18:10	20:03	20:53	21:35	21:42	21:04	19:59	18:50	16:48	16:14
8	08:28	07:53	06:56 07:27-07:39/12	06:46	05:44	05:07	05:13	05:54	06:43	07:32 08:04-08:14/10	07:26	08:14
	16:30	17:21	18:12	20:05	20:55	21:36	21:41	21:02	19:57	18:48	16:46	16:14
9	08:27	07:51	06:54 07:25-07:38/13	06:44	05:43	05:06	05:14	05:55	06:45	07:34 08:05-08:13/8	07:28	08:15
	16:31	17:23	18:14	20:07	20:57	21:37	21:41	21:00	19:55	18:46	16:44	16:13
10	08:27	07:49	06:52 07:24-07:38/14	06:41	05:41	05:06	05:15	05:57	06:47	07:35	07:29	08:16
	16:33	17:25	18:16	20:08	20:58	21:38	21:40	20:58	19:53	18:44	16:43	16:13
11	08:26	07:47	06:50 07:24-07:37/13	06:39	05:39	05:05	05:16	05:59	06:48	07:37	07:31	08:17
	16:34	17:27	18:17	20:10	21:00	21:39	21:39	20:56	19:50	18:41	16:41	16:13
12	08:26	07:46	06:47 07:24-07:34/10	06:37	05:38	05:05	05:17	06:00	06:50	07:39	07:33	08:18
	16:35	17:29	18:19	20:12	21:01	21:40	21:38	20:55	19:48	18:39	16:39	16:13
13	08:25	07:44	06:45 07:25-07:32/7	06:35	05:36	05:05	05:18	06:02	06:51	07:40	07:35	08:19
	16:37	17:31	18:21	20:13	21:03	21:40	21:38	20:53	19:46	18:37	16:38	16:13
14	08:24	07:42	06:43	06:33	05:34	05:04	05:19	06:03	06:53	07:42	07:36	08:20
	16:38	17:32	18:23	20:15	21:05	21:41	21:37	20:51	19:43	18:35	16:36	16:13
15	08:23	07:40	06:41	06:30	05:33	05:04	05:20	06:05	06:55	07:44	07:38	08:21
	16:40	17:34	18:24	20:17	21:06	21:41	21:36	20:49	19:41	18:33	16:35	16:13
16	08:23	07:38	06:38	06:28	05:31	05:04	05:21	06:06	06:56	07:46	07:40	08:22
	16:41	17:36	18:26	20:18	21:08	21:42	21:35	20:47	19:39	18:31	16:34	16:13
17	08:22	07:36	06:36	06:26	05:30	05:04	05:23	06:08	06:58	07:47	07:42	08:23
	16:43	17:38	18:28	20:20	21:09	21:43	21:34	20:45	19:36	18:28	16:32	16:13
18	08:21	07:34	06:34	06:24	05:28	05:04	05:24	06:10	06:59	07:49	07:43	08:24
	16:44	17:40	18:29	20:22	21:11	21:43	21:33	20:43	19:34	18:26	16:31	16:13
19	08:20	07:32	06:31	06:22	05:27	05:04	05:25	06:11	07:01	07:51	07:45	08:24
	16:46	17:42	18:31	20:24	21:12	21:43	21:32	20:41	19:32	18:24	16:30	16:13
20	08:19	07:30	06:29	06:20	05:25	05:04	05:26	06:13	07:03	07:52	07:47	08:25
	16:48	17:43	18:33	20:25	21:14	21:44	21:31	20:39	19:29	18:22	16:28	16:14
21	08:18	07:28	06:27	06:17	05:24	05:04	05:28	06:14	07:04	07:54	07:48	08:26
	16:49	17:45	18:35	20:27	21:15	21:44	21:29	20:37	19:27	18:20	16:27	16:14
22	08:17	07:26	06:25	06:15	05:23	05:04	05:29	06:16	07:06	07:56	07:50	08:26
	16:51	17:47	18:36	20:29	21:16	21:44	21:28	20:35	19:25	18:18	16:26	16:14
23	08:16	07:24	06:22	06:13	05:21	05:04	05:30	06:18	07:07	07:58	07:52	08:27
	16:53	17:49	18:38	20:30	21:18	21:44	21:27	20:32	19:23	18:16	16:25	16:15
24	08:15	07:22	06:20	06:11	05:20	05:05	05:32	06:19	07:09	07:59	07:53	08:27
	16:54	17:51	18:40	20:32	21:19	21:45	21:26	20:30	19:20	18:14	16:24	16:15
25	08:13	07:20	06:18	06:09	05:19	05:05	05:33	06:21	07:11	08:01	07:55	08:28
	16:56	17:53	18:41	20:34	21:21	21:45	21:24	20:28	19:18	18:12	16:23	16:16
26	08:12	07:18	07:15	06:07	05:18	05:05	05:34	06:23	07:12	08:03	07:57	08:28
	16:58	17:54	19:43	20:35	21:22	21:45	21:23	20:26	19:16	18:10	16:22	16:17
27	08:11	07:16	07:13	06:05	05:17	05:06	05:36	06:24	07:14	08:05	07:58	08:28
	17:00	17:56	19:45	20:37	21:23	21:45	21:21	20:24	19:13	18:08	16:21	16:17
28	08:10	07:14	07:11	06:03	05:16	05:06	05:37	06:26	07:16	08:06	08:00	08:29
	17:01	17:58	19:46	20:39	21:24	21:45	21:20	20:22	19:11	18:06	16:20	16:18
29	08:08		07:09	06:01	05:15	05:07	05:39	06:27	07:17	07:08	08:01	08:29
	17:03		19:48	20:40	21:26	21:45	21:19	20:20	19:09	17:04	16:19	16:19
30	08:07		07:06	05:59	05:14	05:07	05:40	06:29	07:19	07:10	08:03	08:29
	17:05		19:50	20:42	21:27	21:44	21:17	20:17	19:06	17:02	16:18	16:20
31	08:05		07:04		05:13		05:42	06:31		07:12		08:29
	17:07		19:52		21:28		21:15	20:15		17:00		16:21
Sonnenscheinstunden	259	277	366	414	483	497	501	454	382	333	268	245
Anzahl Minuten mit Schatten	0	0	87	0	0	0	0	0	0	87	0	0

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

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

Projekt:
Dörenhagen

Beschreibung:
2024-07-Anhang
Schattenwurfkalender_zu_24-437-7240899-Rev.00-SW-LF

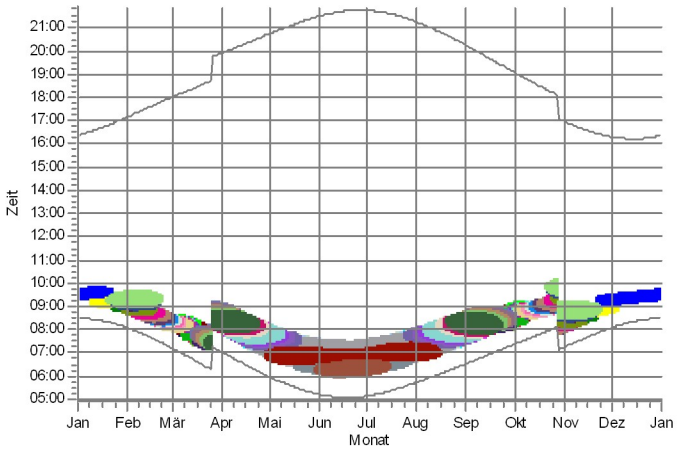
Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

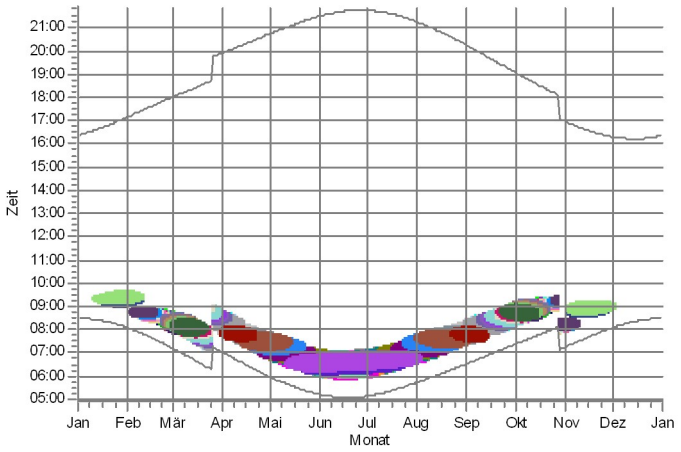
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

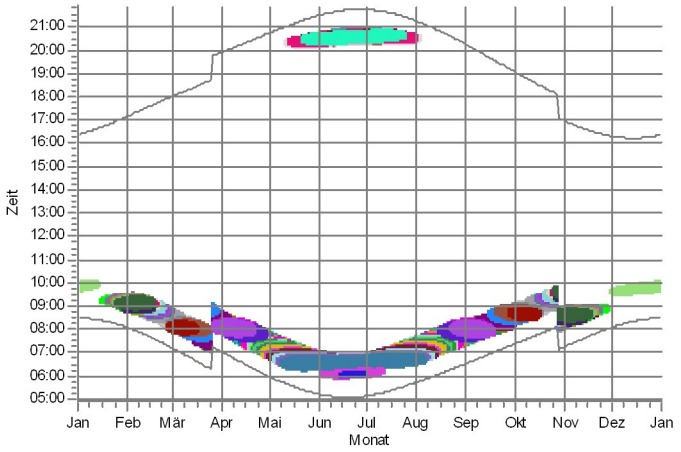
WEA01: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (



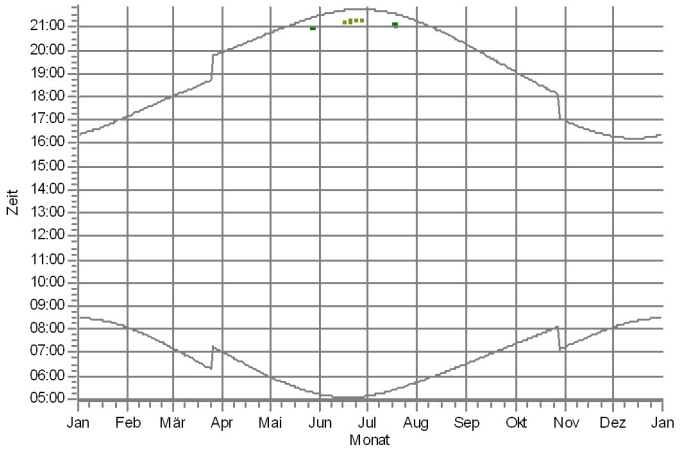
WEA02: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (



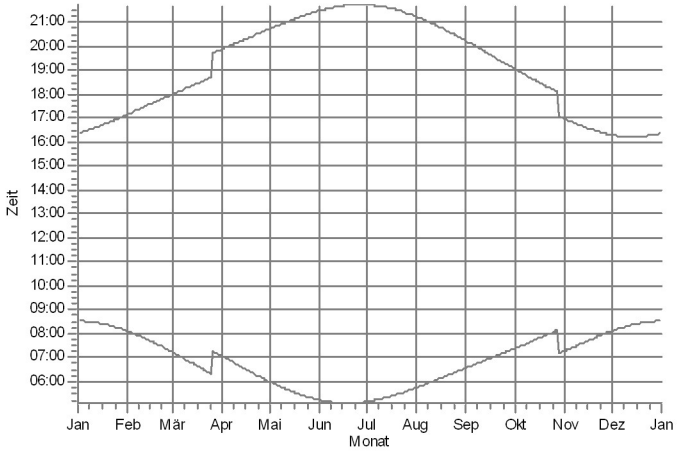
WEA03: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (



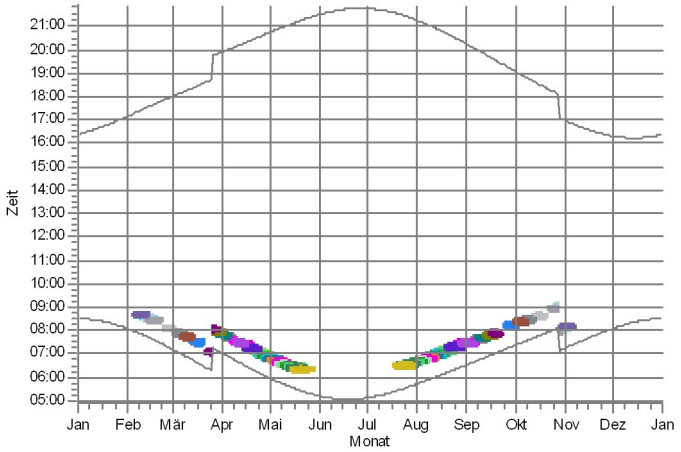
B004: MICON M1500 600-150 43.0 !O! NH: 46.0 m (Ges:67.5 m) (309)



B008: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (31



B012: ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (314)



Schattenrezeptoren

IO001: Dahler Str. 2a, Borchen
IO002: Dahler Str. 3, Borchen
IO003: Dahler Str. 5, Borchen
IO004: Am Bogen 11, Dörenhagen
IO005: Am Bogen 18, Dörenhagen
IO006: Am Bogen 9, 9a, Dörenhagen
IO007: Am Dorfteich 1, Dörenhagen
IO008: Am Dorfteich 2, Dörenhagen
IO009: Am Dorfteich 4, Dörenhagen
IO010: Am Rüenmarkt 4, Dörenhagen
IO011: Am Rüenmarkt 9, Dörenhagen
IO012: Am Rüenmarkt 11, Dörenhagen
IO013: An d. Trift 23, Dörenhagen
IO014: An d. Trift 25, Dörenhagen
IO015: An d. Trift 27, Dörenhagen
IO016: An d. Trift 30/32, Dörenhagen
IO017: Beerengrund 1, Dörenhagen
IO018: Beerengrund 3, Dörenhagen
IO019: Beerengrund 5, Dörenhagen
IO020: Beerengrund 7, Dörenhagen
IO021: Beerengrund 9, Dörenhagen
IO022: Beerengrund 11, Dörenhagen
IO023: Beerengrund 13, Dörenhagen
IO024: Beerengrund 15, Dörenhagen
IO025: Beerengrund 17, Dörenhagen
IO026: Beerengrund 19, Dörenhagen
IO027: Beerengrund 21, 21a, Dörenhagen
IO028: Beerengrund 23, Dörenhagen
IO029: Beerengrund 25, Dörenhagen
IO030: Beerengrund 27, Dörenhagen
IO031: Beerengrund 31, Dörenhagen
IO032: Beerengrund 33, Dörenhagen
IO033: Ebbinghauser Str. 13, Dörenhagen
IO034: Ebbinghauser Str. 15, Dörenhagen
IO035: Ebbinghauser Str. 15a, Dörenhagen
IO036: Ebbinghauser Str. 17, Dörenhagen
IO037: Ebbinghauser Str. 20a, Dörenhagen
IO038: Eggestr. 15, Dörenhagen
IO039: Eggestr. 16, Dörenhagen
IO040: Eggestr. 17, 17a, Dörenhagen
IO041: Eggestr. 25, 25a, Dörenhagen
IO042: Eggestr. 29, Dörenhagen
IO043: Eggestr. 30, 32, Dörenhagen
IO044: Im Kirchenfelde 22, Dörenhagen
IO045: Im Kirchenfelde 24, Dörenhagen
IO047: Im Kirchenfelde 30, Dörenhagen
IO048: Im Kirchenfelde 30, Dörenhagen
IO049: Im Kirchenfelde 32, Dörenhagen
IO050: Im Kirchenfelde 34, Dörenhagen
IO051: Kirchborchener Str. 28, Dörenhagen
IO052: Kirchborchener Str. 52, Dörenhagen
IO053: Kirchborchener Str. 54, Dörenhagen
IO054: Kirchborchener Str. 56, Dörenhagen
IO055: Kirchborchener Str. 58,Dörenhagen
IO056: Kirchborchener Str. 60, Dörenhagen
IO057: Kirchborchener Str. 60a, Dörenhagen
IO058: Kirchborchener Str. 62, Dörenhagen
IO059: Kirchborchener Str. 64, Dörenhagen
IO060: Kirchborchener Str. 66, Dörenhagen
IO061: Kirchborchener Str. 68, Dörenhagen
IO062: Kirchborchener Str. 70, Dörenhagen
IO063: Kirchborchener Str. 72, Dörenhagen
IO064: Kirchborchener Str. 74, Dörenhagen
IO065: Kirchborchener Str. 82, Dörenhagen
IO066: Kirchborchener Str. 82, Dörenhagen
IO067: Kirchborchener Str. 84, Dörenhagen
IO068: Sebastianstr. 7, Dörenhagen
IO069: Sebastianstr. 45, Dörenhagen
IO070: Sebastianstr. 47, Dörenhagen
IO071: Sebastianstr. 49, Dörenhagen
IO072: Sebastianstr. 51, Dörenhagen
IO073: Sebastianstr. 53, Dörenhagen
IO074: Warburger Str. 2, Dörenhagen
IO075: Warburger Str. 3, Dörenhagen
IO076: Warburger Str. 3a, Dörenhagen
IO077: Am Schulberg 1, Grundsteinheim
IO078: Am Schulberg 2, Grundsteinheim
IO079: Am Schulberg 3, Grundsteinheim
IO080: Am Schulberg 4, Grundsteinheim
IO081: Am Schulberg 4, Grundsteinheim
IO083: Am Schulberg 6, Grundsteinheim
IO084: Am Schulberg 7, Grundsteinheim
IO085: Am Schulberg 8, Grundsteinheim
IO086: Am Schulberg 9, Grundsteinheim
IO087: Am Schulberg 10, Grundsteinheim
IO088: Am Schulberg 12, Grundsteinheim
IO089: Am Schulberg 14, Grundsteinheim
IO093: Dorfstr. 11, Grundsteinheim
IO094: Dorfstr. 11a, Grundsteinheim
IO095: Dorfstr. 13, Grundsteinheim
IO099: Ecke 6, Grundsteinheim
IO100: Futterweg 1, Grundsteinheim
IO101: Futterweg 3, Grundsteinheim
IO102: Futterweg 4, Grundsteinheim
IO106: Futterweg 6, Grundsteinheim
IO107: Futterweg 8, Grundsteinheim

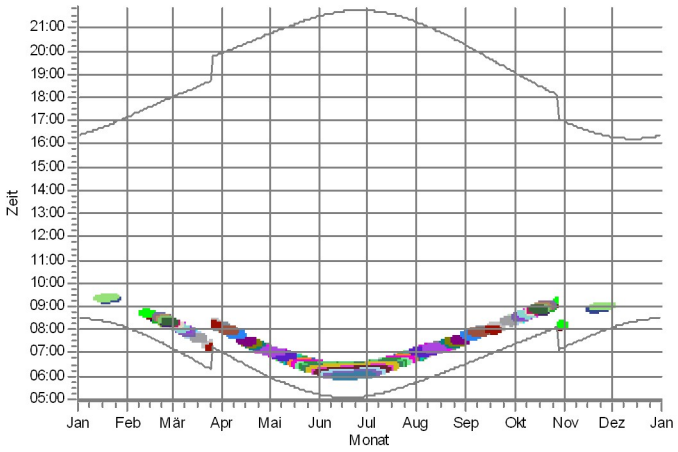
Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

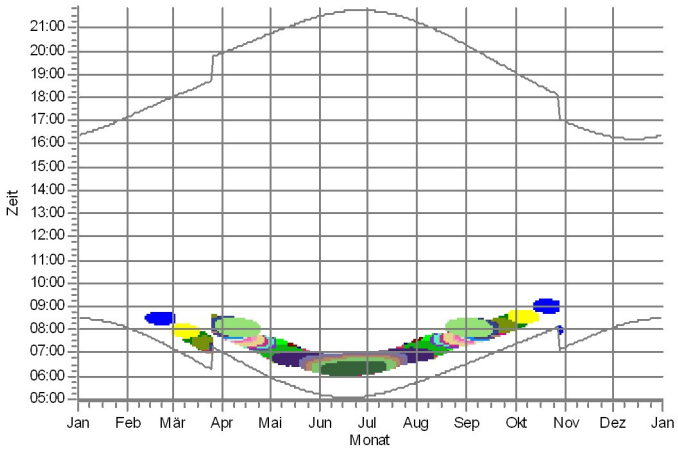
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

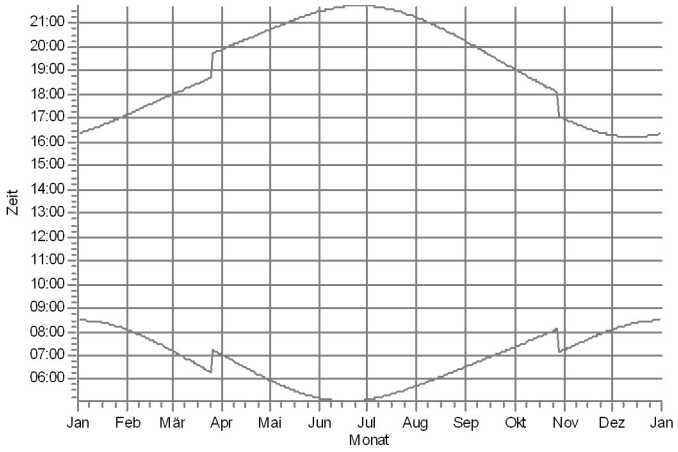
B013: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (315)



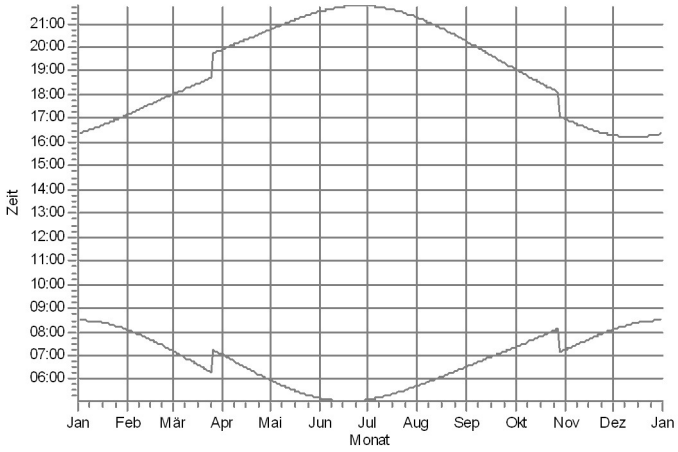
B014: ENERCON E-160 EP5 E3 5560 160.0 !O! NH: 166.6 m (Ges:246.6 m)



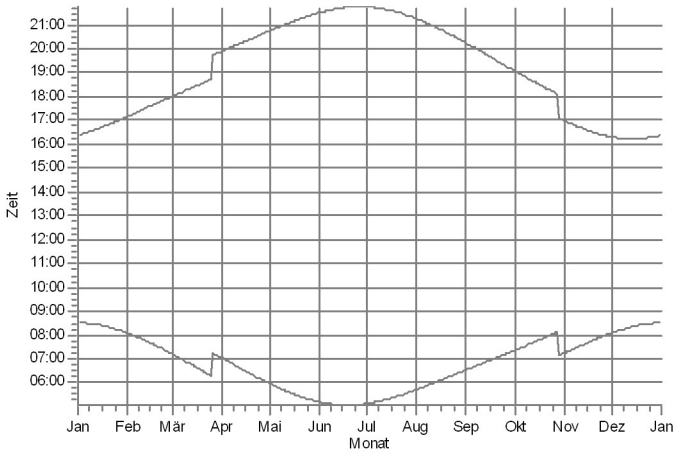
B020: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (320)



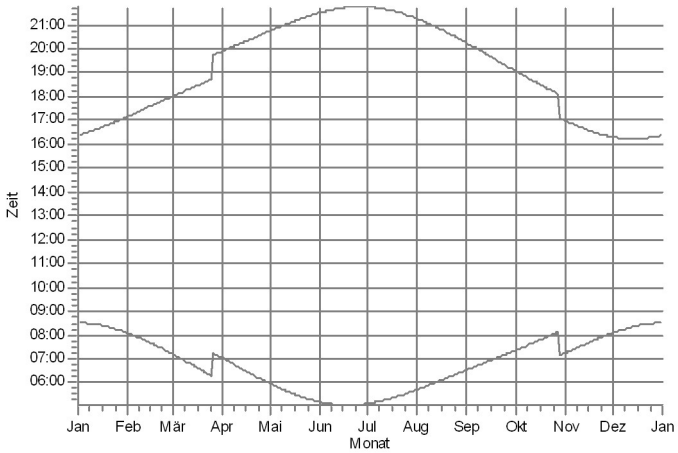
B039: NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (333)



B040: NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (334)



B041: ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (335)



Schattenrezeptoren

IO001: Dahler Str. 2a, Borchen
IO002: Dahler Str. 3, Borchen
IO003: Dahler Str. 5, Borchen
IO004: Am Bogen 11, Dörenhagen
IO005: Am Bogen 18, Dörenhagen
IO006: Am Bogen 9, 9a, Dörenhagen
IO007: Am Dorfteich 1, Dörenhagen
IO008: Am Dorfteich 2, Dörenhagen
IO009: Am Dorfteich 4, Dörenhagen
IO010: Am Rüenmarkt 4, Dörenhagen
IO011: Am Rüenmarkt 9, Dörenhagen
IO013: An d. Trift 23, Dörenhagen
IO014: An d. Trift 25, Dörenhagen
IO015: An d. Trift 27, Dörenhagen
IO016: An d. Trift 30/32, Dörenhagen
IO017: Beerengrund 1, Dörenhagen
IO018: Beerengrund 3, Dörenhagen
IO019: Beerengrund 5, Dörenhagen
IO020: Beerengrund 7, Dörenhagen
IO021: Beerengrund 9, Dörenhagen
IO022: Beerengrund 11, Dörenhagen
IO023: Beerengrund 13, Dörenhagen
IO024: Beerengrund 15, Dörenhagen
IO026: Beerengrund 19, Dörenhagen
IO027: Beerengrund 21, 21a, Dörenhagen
IO028: Beerengrund 23, Dörenhagen
IO029: Beerengrund 25, Dörenhagen
IO030: Beerengrund 27, Dörenhagen
IO031: Beerengrund 31, Dörenhagen
IO032: Beerengrund 33, Dörenhagen
IO033: Ebbinghauser Str. 13, Dörenhagen
IO034: Ebbinghauser Str. 15, Dörenhagen
IO037: Ebbinghauser Str. 20a, Dörenhagen
IO038: Eggestr. 15, Dörenhagen
IO039: Eggestr. 16, Dörenhagen
IO041: Eggestr. 25, 25a, Dörenhagen
IO042: Eggestr. 29, Dörenhagen
IO043: Eggestr. 30, 32, Dörenhagen
IO044: Im Kirchenfelde 22, Dörenhagen
IO045: Im Kirchenfelde 24, Dörenhagen
IO046: Im Kirchenfelde 26, Dörenhagen
IO047: Im Kirchenfelde 30, Dörenhagen
IO048: Im Kirchenfelde 30, Dörenhagen
IO049: Im Kirchenfelde 32, Dörenhagen
IO050: Im Kirchenfelde 34, Dörenhagen
IO051: Kirchborchener Str. 28, Dörenhagen
IO052: Kirchborchener Str. 52, Dörenhagen
IO053: Kirchborchener Str. 54, Dörenhagen
IO054: Kirchborchener Str. 56, Dörenhagen
IO055: Kirchborchener Str. 58,Dörenhagen
IO056: Kirchborchener Str. 60, Dörenhagen
IO057: Kirchborchener Str. 60a, Dörenhagen
IO058: Kirchborchener Str. 62, Dörenhagen
IO059: Kirchborchener Str. 64, Dörenhagen
IO060: Kirchborchener Str. 66, Dörenhagen
IO061: Kirchborchener Str. 68, Dörenhagen
IO062: Kirchborchener Str. 70, Dörenhagen
IO063: Kirchborchener Str. 72, Dörenhagen
IO064: Kirchborchener Str. 74, Dörenhagen
IO065: Kirchborchener Str. 82, Dörenhagen
IO066: Kirchborchener Str. 84, Dörenhagen
IO067: Kirchborchener Str. 84, Dörenhagen
IO068: Sebastianstr. 7, Dörenhagen
IO069: Sebastianstr. 45, Dörenhagen
IO070: Sebastianstr. 47, Dörenhagen
IO071: Sebastianstr. 49, Dörenhagen
IO072: Sebastianstr. 51, Dörenhagen
IO073: Sebastianstr. 53, Dörenhagen
IO074: Warburger Str. 2, Dörenhagen
IO075: Warburger Str. 3, Dörenhagen
IO076: Warburger Str. 3a, Dörenhagen

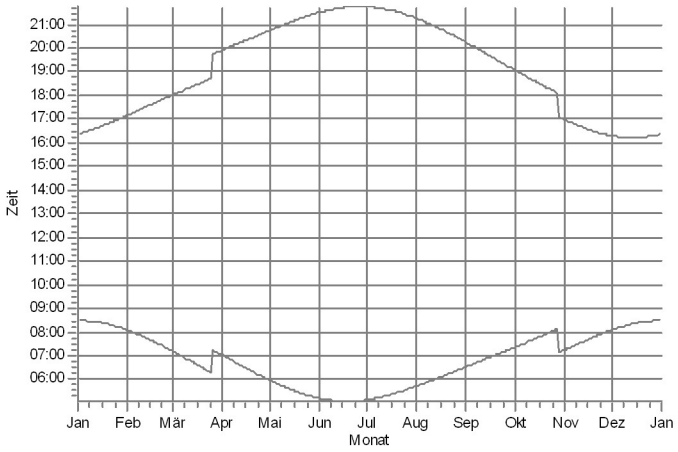
Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

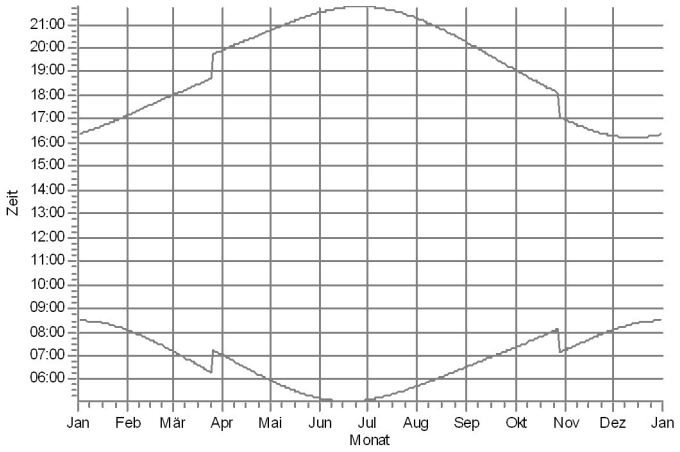
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

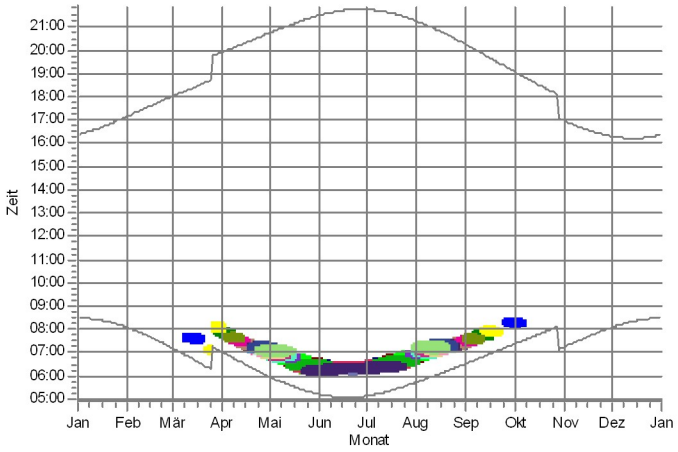
B042: NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (336)



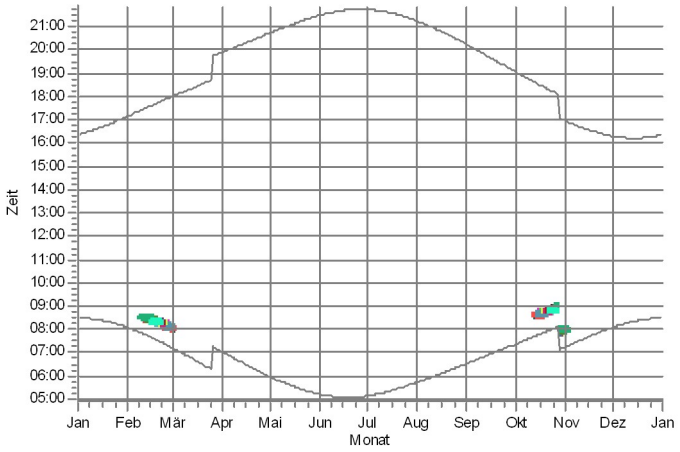
B045: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (33



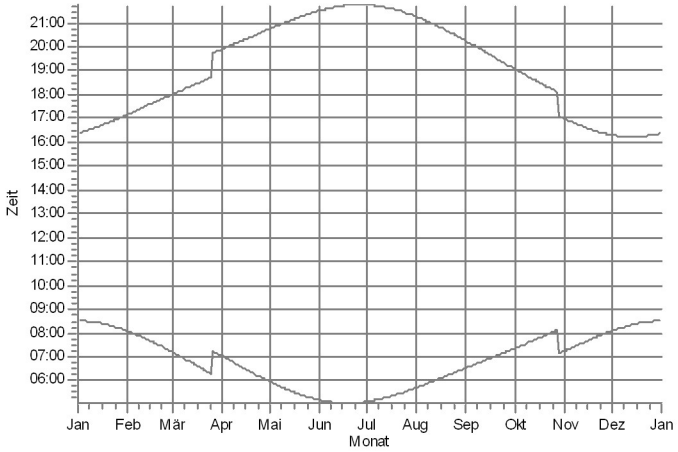
B050: ENERCON E-138 EP3 3500 138.3 !O! NH: 160.0 m (Ges:229.1 m) (34



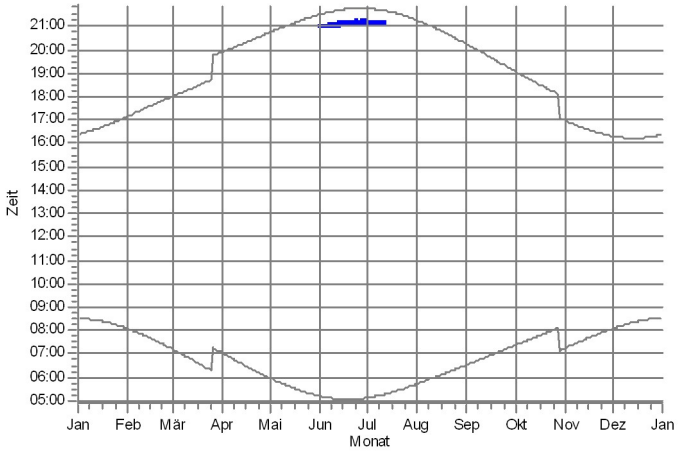
B062: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (350)



B076: TACKE TW 600 600-200 43.0 !O! NH: 50.0 m (Ges:71.5 m) (363)



B077: VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (364)



Schattenrezeptoren

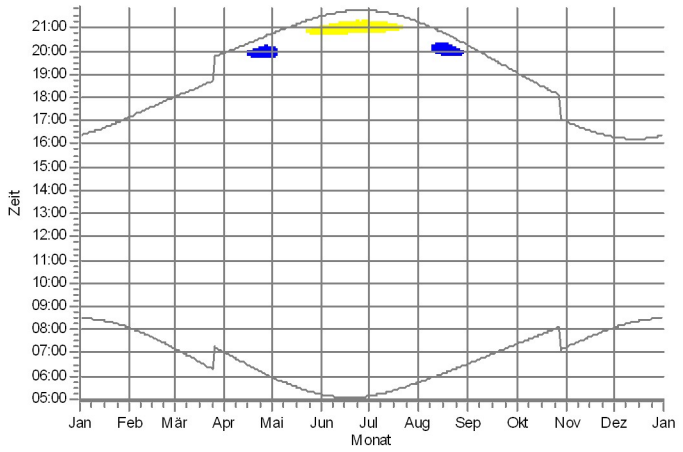
IO001: Dahler Str. 2a, Borchen
IO002: Dahler Str. 3, Borchen
IO003: Dahler Str. 5, Borchen
IO007: Am Dorfteich 1, Dörenhagen
IO008: Am Dorfteich 2, Dörenhagen
IO009: Am Dorfteich 4, Dörenhagen
IO052: Kirchborchener Str. 52, Dörenhagen
IO053: Kirchborchener Str. 54, Dörenhagen
IO054: Kirchborchener Str. 56, Dörenhagen
IO055: Kirchborchener Str. 58,Dörenhagen
IO056: Kirchborchener Str. 60, Dörenhagen
IO057: Kirchborchener Str. 60a, Dörenhagen
IO058: Kirchborchener Str. 62, Dörenhagen
IO059: Kirchborchener Str. 64, Dörenhagen
IO060: Kirchborchener Str. 66, Dörenhagen
IO061: Kirchborchener Str. 68, Dörenhagen
IO062: Kirchborchener Str. 70, Dörenhagen
IO063: Kirchborchener Str. 72, Dörenhagen
IO064: Kirchborchener Str. 74, Dörenhagen
IO065: Kirchborchener Str. 82, Dörenhagen
IO066: Kirchborchener Str. 82, Dörenhagen
IO067: Kirchborchener Str. 84, Dörenhagen
IO068: Sebastianstr. 7, Dörenhagen
IO069: Sebastianstr. 45, Dörenhagen
IO074: Warburger Str. 2, Dörenhagen
IO075: Warburger Str. 3, Dörenhagen
IO076: Warburger Str. 3a, Dörenhagen
IO077: Am Schulberg 1, Grundsteinheim
IO078: Am Schulberg 2, Grundsteinheim
IO079: Am Schulberg 3, Grundsteinheim
IO080: Am Schulberg 3a, Grundsteinheim
IO081: Am Schulberg 4, Grundsteinheim
IO082: Am Schulberg 5, Grundsteinheim
IO083: Am Schulberg 6, Grundsteinheim
IO084: Am Schulberg 7, Grundsteinheim
IO085: Am Schulberg 8, Grundsteinheim
IO086: Am Schulberg 9, Grundsteinheim
IO087: Am Schulberg 10, Grundsteinheim
IO088: Am Schulberg 12, Grundsteinheim
IO089: Am Schulberg 14, Grundsteinheim
IO090: Am Schulberg 15, Grundsteinheim
IO091: Am Schulberg 16, Grundsteinheim
IO092: Am Schulberg 26, Grundsteinheim
IO093: Dorfstr. 11, Grundsteinheim
IO094: Dorfstr. 11a, Grundsteinheim
IO095: Dorfstr. 13, Grundsteinheim
IO096: Ecke 1, Grundsteinheim
IO097: Ecke 2, Grundsteinheim
IO098: Ecke 3, Grundsteinheim
IO099: Ecke 6, Grundsteinheim
IO100: Futterweg 1, Grundsteinheim
IO101: Futterweg 3, Grundsteinheim
IO102: Futterweg 4, Grundsteinheim
IO103: Futterweg 6, Grundsteinheim
IO104: Futterweg 8, Grundsteinheim

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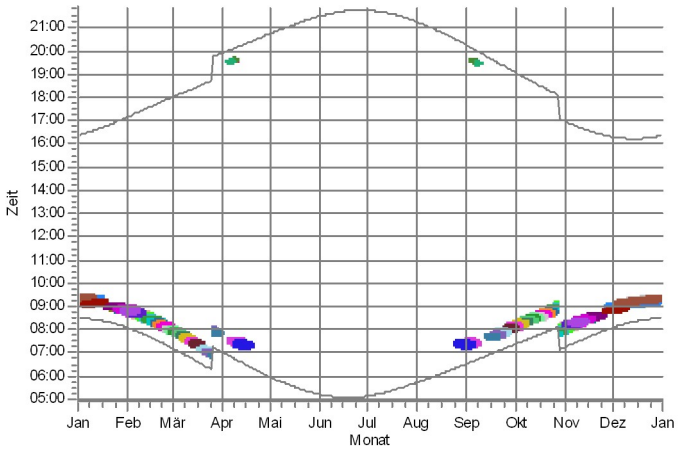
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

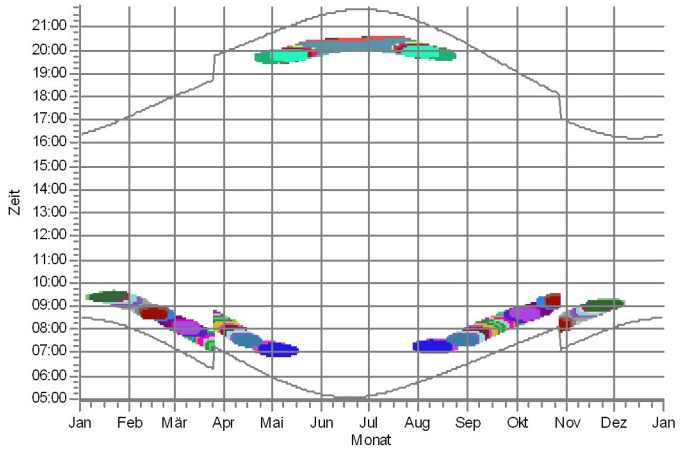
B078: VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (365)



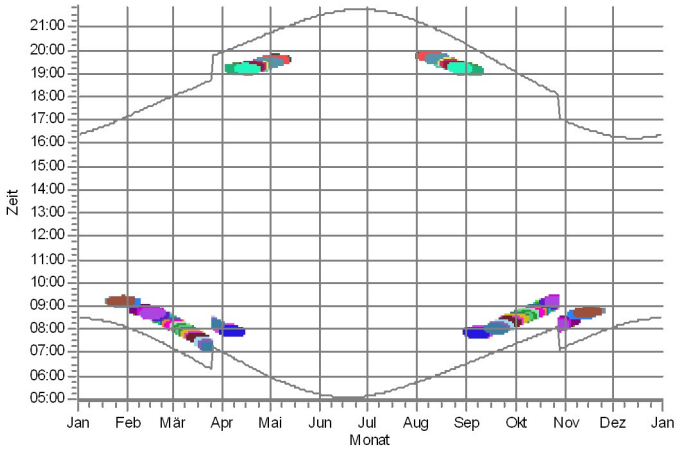
B082: NEG MICON NM64C/1500 1500-400 64.0 !O! NH: 68.0 m (Ges:100.0



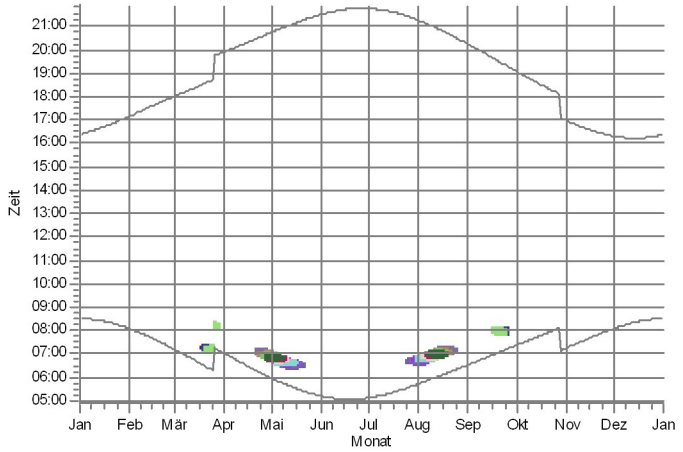
B083: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m)



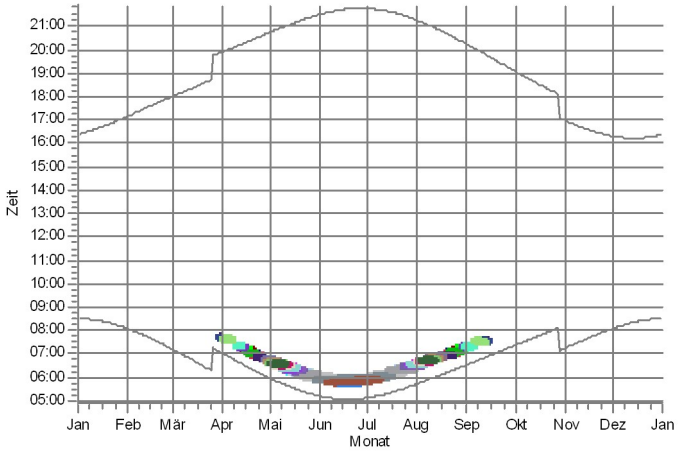
B084: ENERCON E-115 EP3 E3 4200 115.7 !O! NH: 149.0 m (Ges:206.9 m)



B086: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (36



B087: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (370)



Schattenrezeptoren

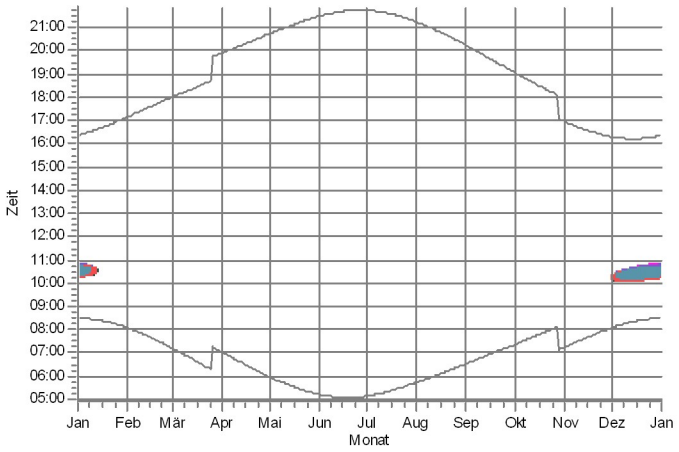
IO002: Dahler Str. 3, Borchen
IO003: Dahler Str. 5, Borchen
IO004: Am Bogen 11, Dörenhagen
IO005: Am Bogen 18, Dörenhagen
IO006: Am Bogen 9, 9a, Dörenhagen
IO007: Am Dorfteich 1, Dörenhagen
IO008: Am Dorfteich 2, Dörenhagen
IO009: Am Dorfteich 4, Dörenhagen
IO010: Am Rüenmarkt 4, Dörenhagen
IO011: Am Rüenmarkt 9, Dörenhagen
IO012: Am Wallgraben 2, Dörenhagen
IO013: Am Wallgraben 4, Dörenhagen
IO014: An d. Trift 25, Dörenhagen
IO015: An d. Trift 27, Dörenhagen
IO016: An d. Trift 30/32, Dörenhagen
IO017: Beerengrund 1, Dörenhagen
IO018: Beerengrund 3, Dörenhagen
IO019: Beerengrund 5, Dörenhagen
IO020: Beerengrund 7, Dörenhagen
IO021: Beerengrund 9, Dörenhagen
IO022: Beerengrund 11, Dörenhagen
IO023: Beerengrund 13, Dörenhagen
IO024: Beerengrund 15, Dörenhagen
IO025: Beerengrund 17, Dörenhagen
IO026: Beerengrund 19, Dörenhagen
IO027: Beerengrund 21, 21a, Dörenhagen
IO028: Beerengrund 23, Dörenhagen
IO029: Beerengrund 25, Dörenhagen
IO030: Beerengrund 27, Dörenhagen
IO031: Beerengrund 31, Dörenhagen
IO032: Beerengrund 33, Dörenhagen
IO033: Ebbinghauser Str. 13, Dörenhagen
IO034: Ebbinghauser Str. 15, Dörenhagen
IO035: Ebbinghauser Str. 15a, Dörenhagen
IO036: Ebbinghauser Str. 17, Dörenhagen
IO037: Ebbinghauser Str. 20a, Dörenhagen
IO038: Eggestr. 15, Dörenhagen
IO039: Eggestr. 16, Dörenhagen
IO040: Eggestr. 17, 17a, Dörenhagen
IO041: Eggestr. 25, 25a, Dörenhagen
IO042: Eggestr. 29, Dörenhagen
IO043: Eggestr. 30, 32, Dörenhagen
IO044: Im Kirchenfelde 22, Dörenhagen
IO045: Im Kirchenfelde 24, Dörenhagen
IO046: Im Kirchenfelde 26, Dörenhagen
IO047: Im Kirchenfelde 30, Dörenhagen
IO048: Im Kirchenfelde 30, Dörenhagen
IO049: Im Kirchenfelde 32, Dörenhagen
IO050: Im Kirchenfelde 34, Dörenhagen
IO051: Kirchborchener Str. 28, Dörenhagen
IO052: Kirchborchener Str. 52, Dörenhagen
IO053: Kirchborchener Str. 54, Dörenhagen
IO054: Kirchborchener Str. 56, Dörenhagen
IO055: Kirchborchener Str. 58,Dörenhagen
IO056: Kirchborchener Str. 60, Dörenhagen
IO068: Sebastianstr. 7, Dörenhagen
IO069: Sebastianstr. 45, Dörenhagen
IO070: Sebastianstr. 47, Dörenhagen
IO071: Sebastianstr. 49, Dörenhagen
IO072: Sebastianstr. 51, Dörenhagen
IO073: Sebastianstr. 53, Dörenhagen
IO074: Warburger Str. 2, Dörenhagen
IO075: Warburger Str. 3, Dörenhagen
IO076: Warburger Str. 3a, Dörenhagen
IO077: Am Schulberg 1, Grundsteinheim
IO078: Am Schulberg 2, Grundsteinheim
IO079: Am Schulberg 3, Grundsteinheim
IO080: Am Schulberg 3a, Grundsteinheim
IO081: Am Schulberg 4, Grundsteinheim
IO082: Am Schulberg 5, Grundsteinheim
IO083: Am Schulberg 6, Grundsteinheim
IO084: Am Schulberg 7, Grundsteinheim
IO085: Am Schulberg 8, Grundsteinheim
IO086: Am Schulberg 9, Grundsteinheim
IO087: Am Schulberg 10, Grundsteinheim
IO088: Am Schulberg 11, Grundsteinheim
IO089: Am Schulberg 14, Grundsteinheim
IO090: Am Schulberg 15, Grundsteinheim
IO091: Am Schulberg 16, Grundsteinheim
IO092: Am Schulberg 26, Grundsteinheim
IO093: Dorfstr. 11, Grundsteinheim
IO094: Dorfstr. 11a, Grundsteinheim
IO095: Dorfstr. 13, Grundsteinheim
IO096: Ecke 1, Grundsteinheim
IO097: Ecke 2, Grundsteinheim
IO098: Ecke 3, Grundsteinheim
IO099: Ecke 6, Grundsteinheim
IO100: Futterweg 1, Grundsteinheim
IO101: Futterweg 3, Grundsteinheim
IO102: Futterweg 4, Grundsteinheim
IO106: Futterweg 5, Grundsteinheim
IO107: Futterweg 8, Grundsteinheim

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Lena Fieckel / lena.fieckel@anemos.de

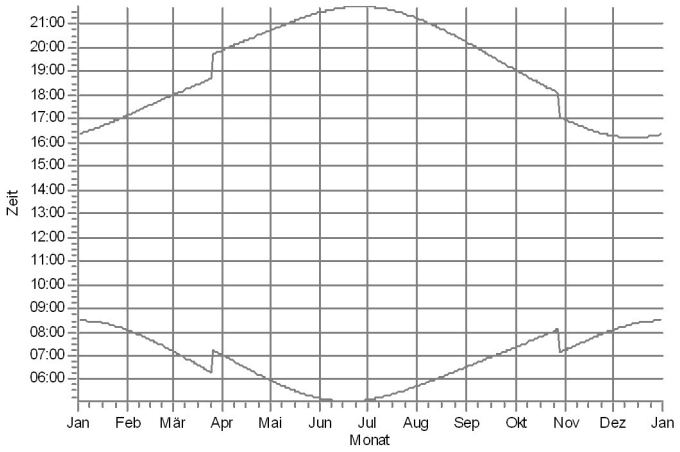
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

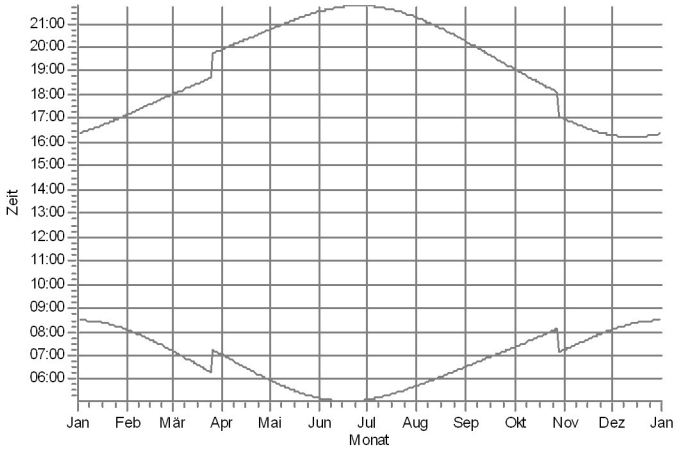
B093: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (37



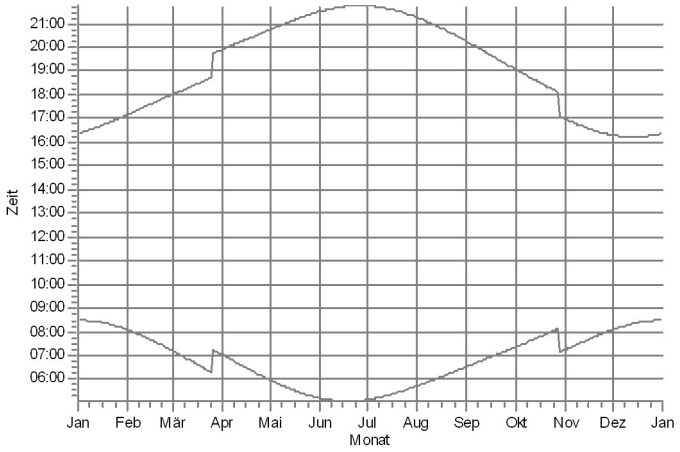
B094: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (376)



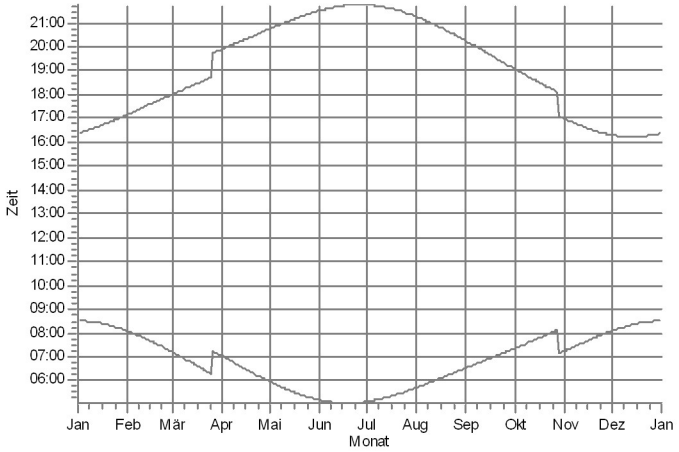
B115: GE WIND ENERGY GE 1.5s 1500 70.5 !O! NH: 64.7 m (Ges:99.9 m) (



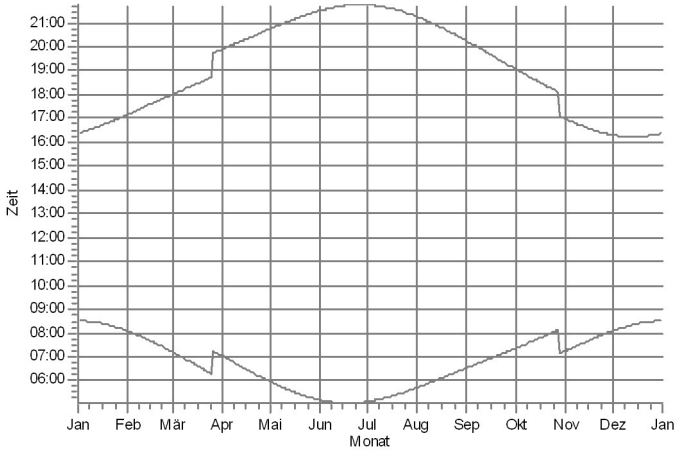
B116: NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (390)



B117: ENERCON E-48 800 48.0 !O! NH: 75.6 m (Ges:99.6 m) (391)



B118: ENERCON E-70 E4 2,3 MW 2300 71.0 !O! NH: 64.0 m (Ges:99.5 m) (



Schattenrezeptoren

IO093: Dorfstr. 11, Grundsteinheim
IO094: Dorfstr. 11a, Grundsteinheim
IO095: Dorfstr. 13, Grundsteinheim
IO096: Ecke 1, Grundsteinheim
IO097: Ecke 2, Grundsteinheim
IO098: Ecke 3, Grundsteinheim
IO099: Ecke 6, Grundsteinheim

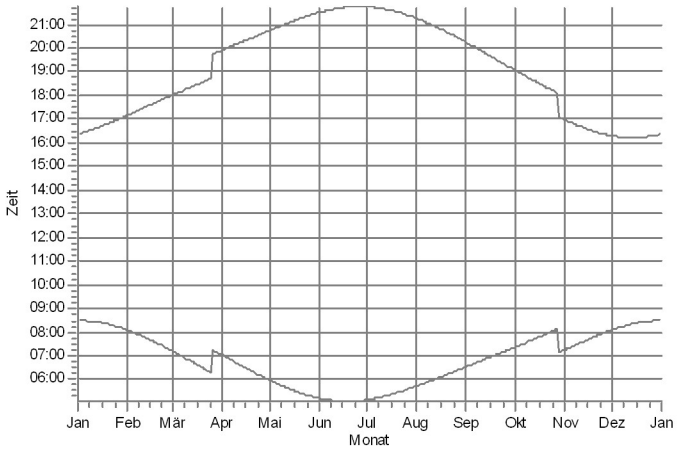
Lizenzierter Anwender:
anemos GmbH für Umweltmeteorologie mbH
Böhmsholzer Weg 3
DE-21391 Reppenstedt
49(0)4131-8308-100
Lena Fieckel / lena.fieckel@anemos.de

Berechnet:
08.07.2024 18:59/4.0.540

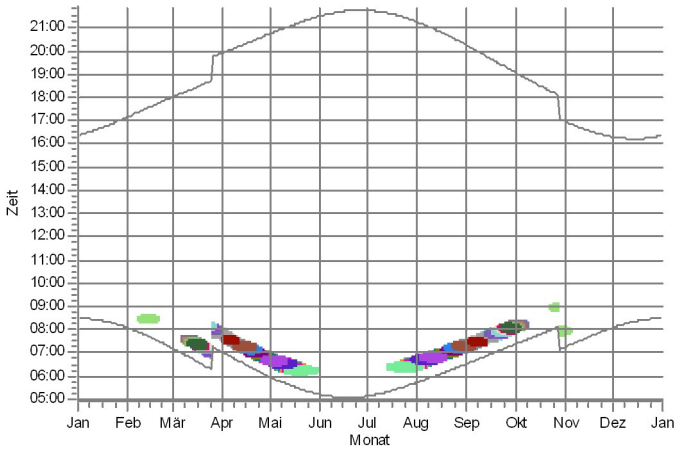
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

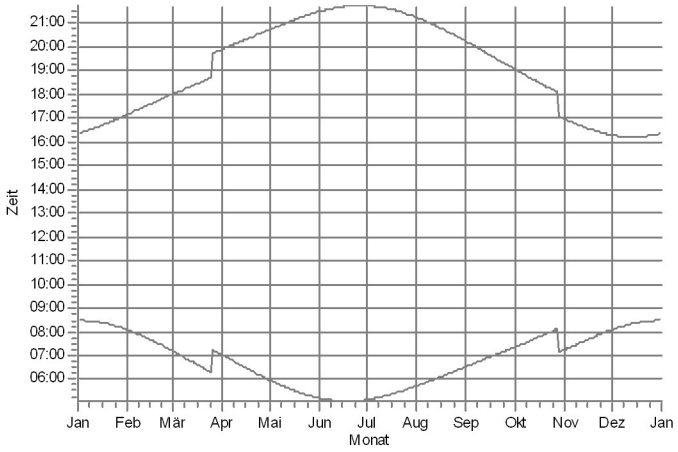
B119: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (393)



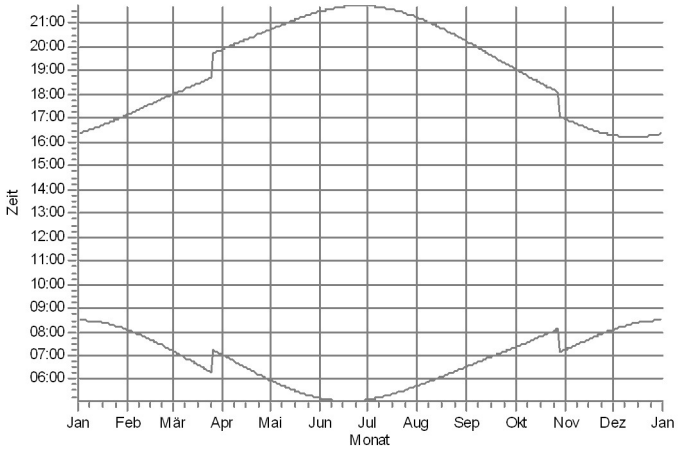
B124: NORDEX N131/3600 3600 131.0 !O! NH: 120.0 m (Ges:185.5 m) (39



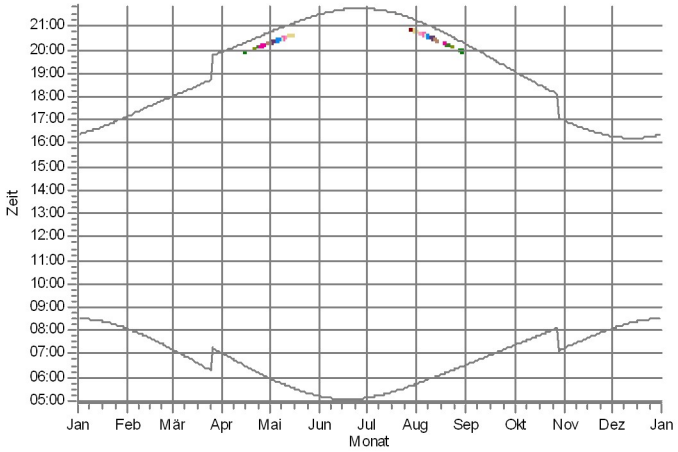
B130: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (40



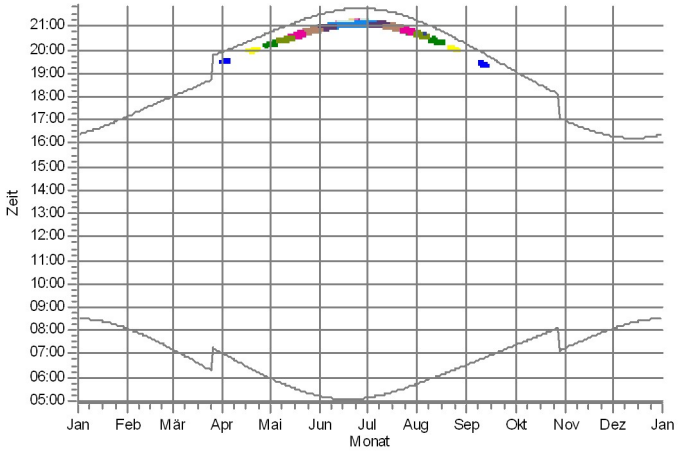
B132: NORDEX N149/5.X 5700 149.0 !O! NH: 164.0 m (Ges:238.5 m) (513)



B142: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0



B143: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0



Schattenrezeptoren

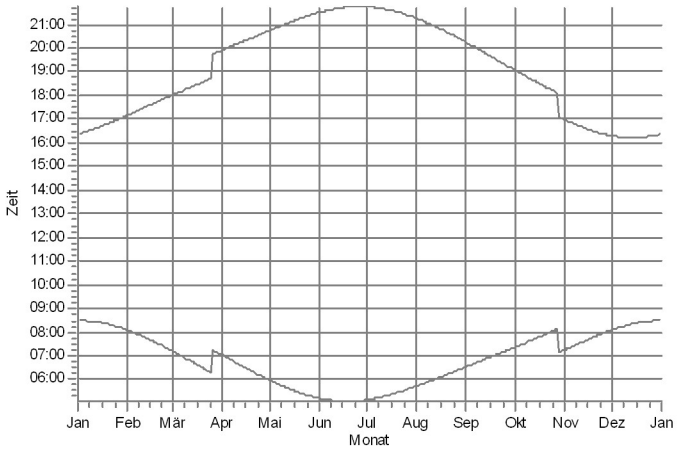
IO001: Dahler Str. 2a, Borchen
IO002: Dahler Str. 3, Borchen
IO003: Dahler Str. 5, Borchen
IO004: Am Bogen 11, Dörenhagen
IO005: Am Bogen 18, Dörenhagen
IO006: Am Bogen 9, 9a, Dörenhagen
IO008: Am Dorfteich 2, Dörenhagen
IO009: Am Dorfteich 4, Dörenhagen
IO010: Am Rüenmarkt 4, Dörenhagen
IO011: Am Rüenmarkt 9, Dörenhagen
IO012: Am Wallgraben 2, Dörenhagen
IO013: An d. Trift 23, Dörenhagen
IO014: An d. Trift 25, Dörenhagen
IO015: An d. Trift 27, Dörenhagen
IO016: An d. Trift 30/32, Dörenhagen
IO017: Beerengrund 1, Dörenhagen
IO018: Beerengrund 3, Dörenhagen
IO019: Beerengrund 5, Dörenhagen
IO020: Beerengrund 7, Dörenhagen
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IO024: Beerengrund 15, Dörenhagen
IO025: Beerengrund 17, Dörenhagen
IO026: Beerengrund 19, Dörenhagen
IO038: Eggestr. 15, Dörenhagen
IO039: Eggestr. 16, Dörenhagen
IO040: Eggestr. 17, 17a, Dörenhagen
IO041: Eggestr. 25, 25a, Dörenhagen
IO042: Eggestr. 29, Dörenhagen
IO043: Eggestr. 30, 32, Dörenhagen
IO044: Im Kirchenfelde 22, Dörenhagen
IO045: Im Kirchenfelde 24, Dörenhagen
IO046: Im Kirchenfelde 26, Dörenhagen
IO047: Im Kirchenfelde 30, Dörenhagen
IO048: Im Kirchenfelde 30, Dörenhagen
IO049: Im Kirchenfelde 32, Dörenhagen
IO050: Im Kirchenfelde 34, Dörenhagen
IO051: Kirchborchener Str. 28, Dörenhagen
IO055: Kirchborchener Str. 58,Dörenhagen
IO056: Kirchborchener Str. 60, Dörenhagen
IO057: Kirchborchener Str. 60a, Dörenhagen
IO058: Kirchborchener Str. 62, Dörenhagen
IO059: Kirchborchener Str. 64, Dörenhagen
IO060: Kirchborchener Str. 66, Dörenhagen
IO061: Kirchborchener Str. 68, Dörenhagen
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IO070: Sebastianstr. 47, Dörenhagen
IO071: Sebastianstr. 49, Dörenhagen
IO072: Sebastianstr. 51, Dörenhagen
IO073: Sebastianstr. 53, Dörenhagen
IO074: Warburger Str. 2, Dörenhagen
IO075: Warburger Str. 3, Dörenhagen
IO076: Warburger Str. 3a, Dörenhagen

Lizenzierter Anwender:
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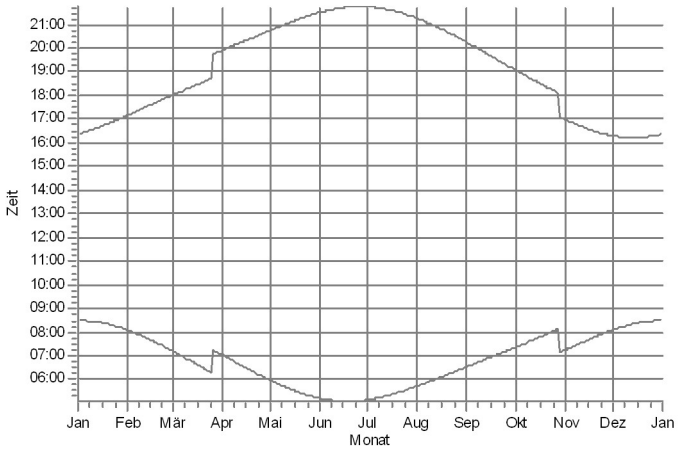
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

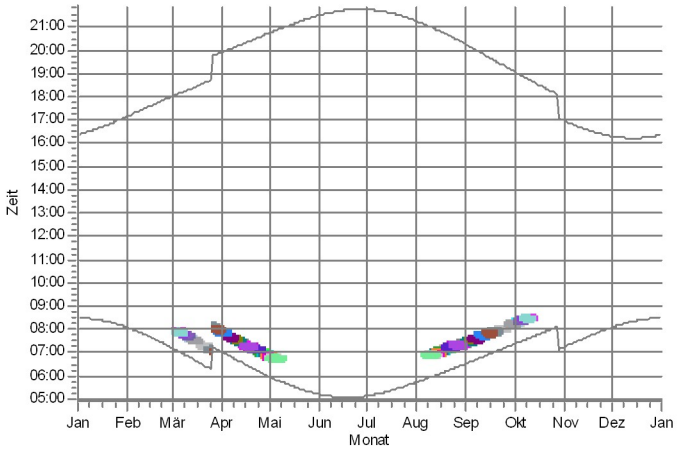
B144: VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (410)



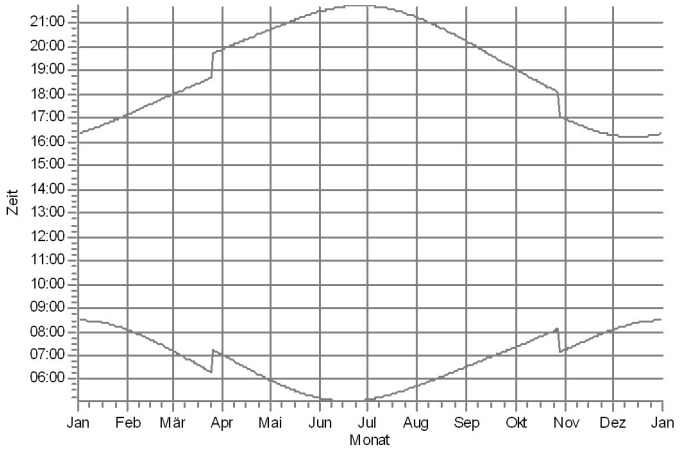
B145: ENERCON E-101 3050 101.0 !-! NH: 135.4 m (Ges:185.9 m) (411)



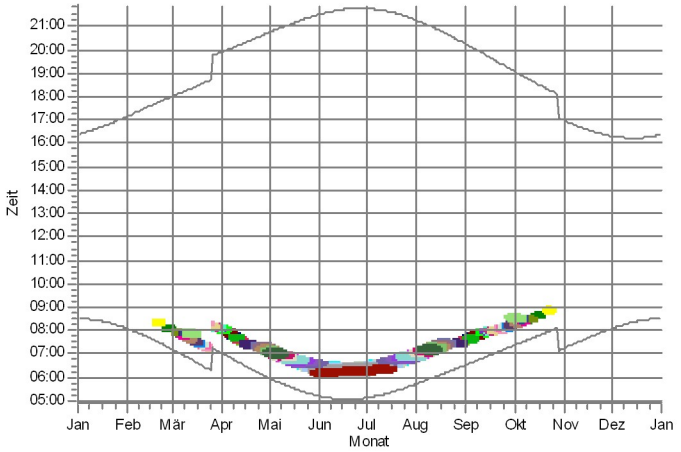
B150: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (4



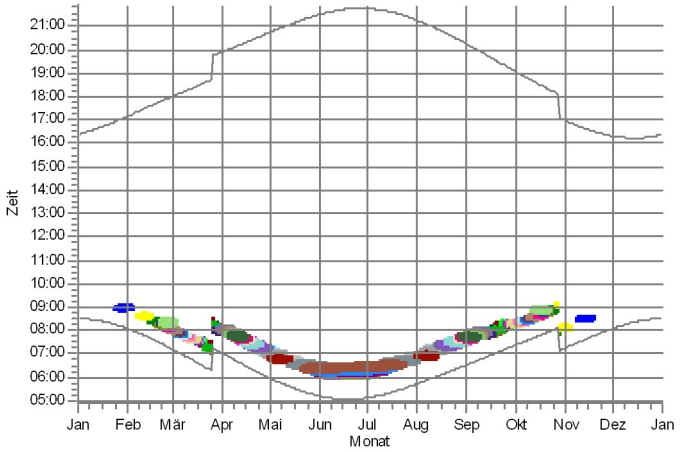
B151: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (4



B152: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (417)



B153: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (418)



Schattenrezeptoren

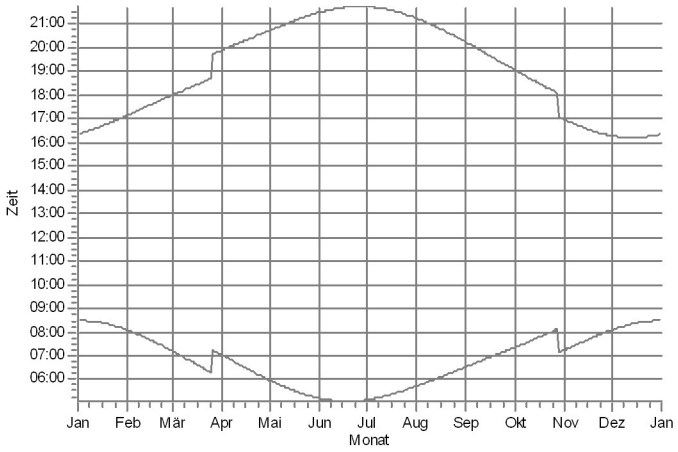
IO001: Dahler Str. 2a, Borchen
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IO003: Dahler Str. 5, Borchen
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IO009: Am Dorfteich 4, Dörenhagen
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IO011: Am Rüenmarkt 9, Dörenhagen
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IO053: Kirchborchener Str. 54, Dörenhagen
IO054: Kirchborchener Str. 56, Dörenhagen
IO055: Kirchborchener Str. 58,Dörenhagen
IO056: Kirchborchener Str. 60, Dörenhagen
IO057: Kirchborchener Str. 60a, Dörenhagen
IO058: Kirchborchener Str. 62, Dörenhagen
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IO060: Kirchborchener Str. 66, Dörenhagen
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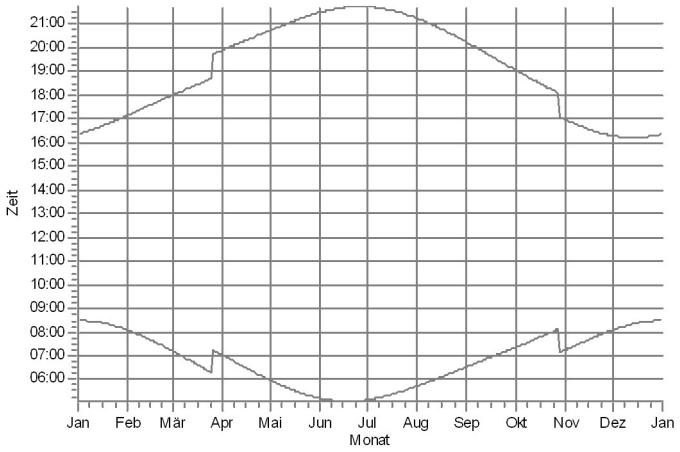
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

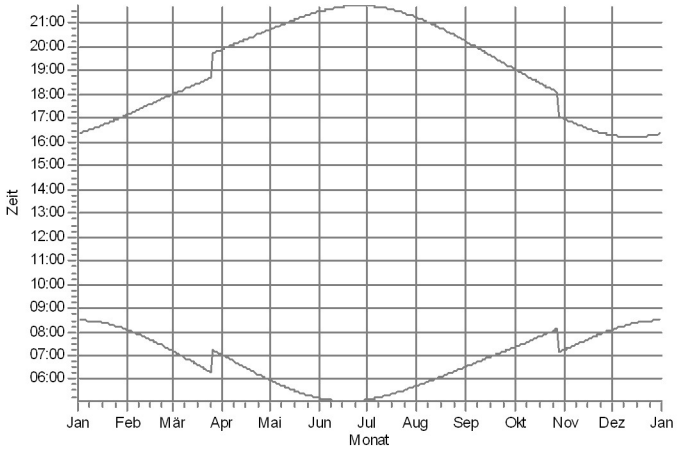
B154: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m)



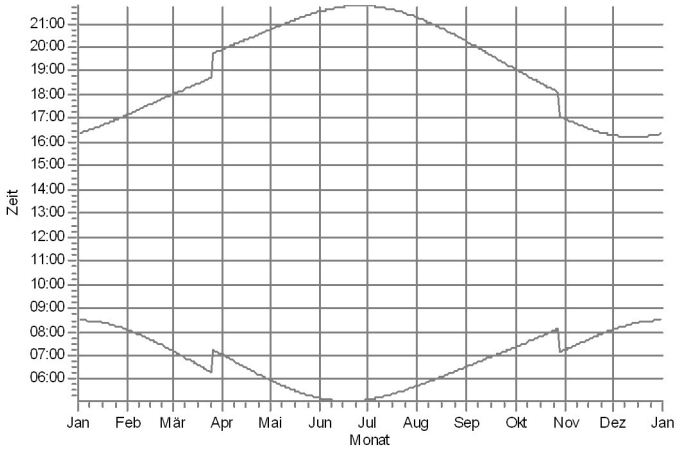
B155: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (42



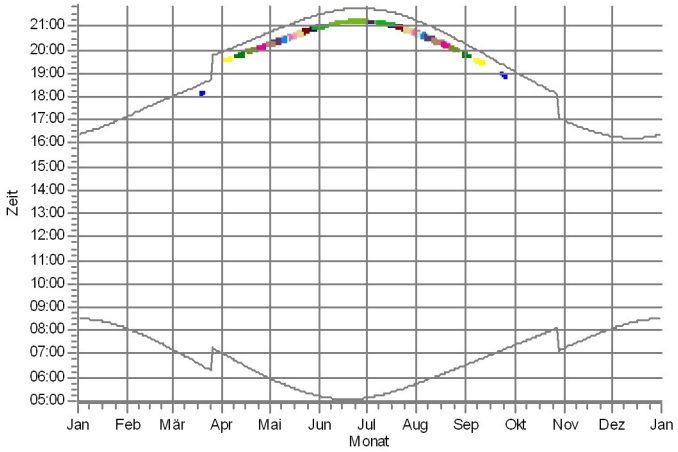
B159: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (424)



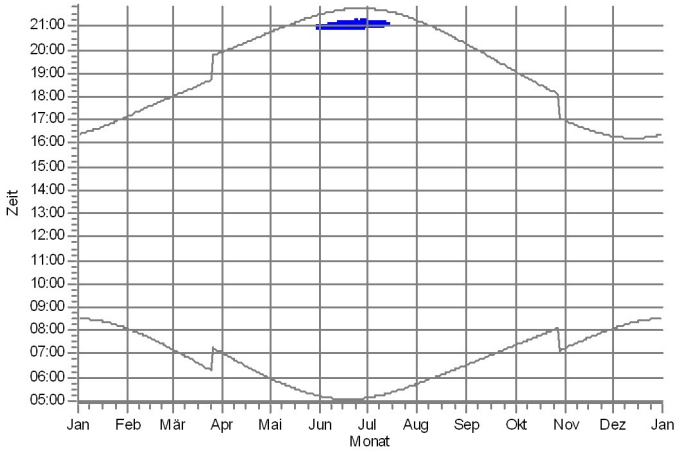
B171: TACKE TW 600 600-200 43.0 !O! NH: 50.0 m (Ges:71.5 m) (434)



B172: NEG MICON NM72C/1500 1500-400 72.0 !O! NH: 64.0 m (Ges:100.0



B173: VESTAS V80-2.0MW 2000 80.0 !O! NH: 60.0 m (Ges:100.0 m) (436)



Schattenrezeptoren

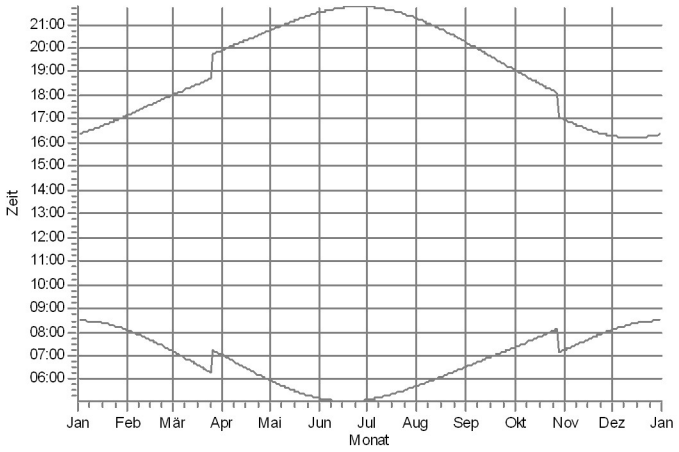
IO001: Dahler Str. 2a, Borchen
IO002: Dahler Str. 3, Borchen
IO003: Dahler Str. 5, Borchen
IO007: Am Dorfteich 1, Dörenhagen
IO008: Am Dorfteich 2, Dörenhagen
IO009: Am Dorfteich 4, Dörenhagen
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IO053: Kirchborchener Str. 54, Dörenhagen
IO054: Kirchborchener Str. 56, Dörenhagen
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IO056: Kirchborchener Str. 60, Dörenhagen
IO057: Kirchborchener Str. 60a, Dörenhagen
IO058: Kirchborchener Str. 62, Dörenhagen
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IO064: Kirchborchener Str. 74, Dörenhagen
IO065: Kirchborchener Str. 82, Dörenhagen
IO066: Kirchborchener Str. 82, Dörenhagen
IO067: Kirchborchener Str. 84, Dörenhagen
IO068: Sebastianstr. 7, Dörenhagen

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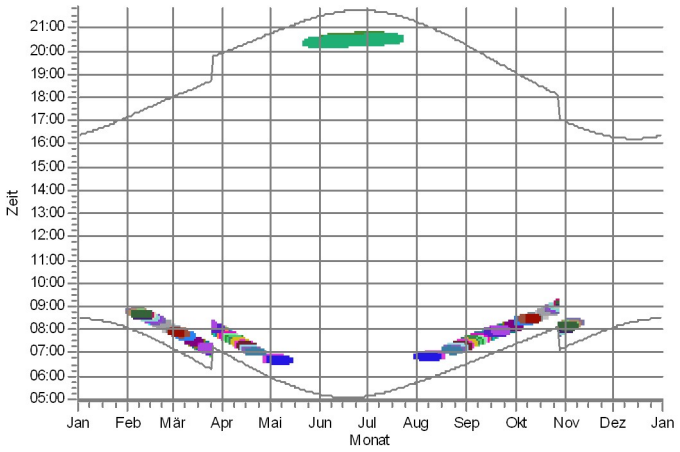
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

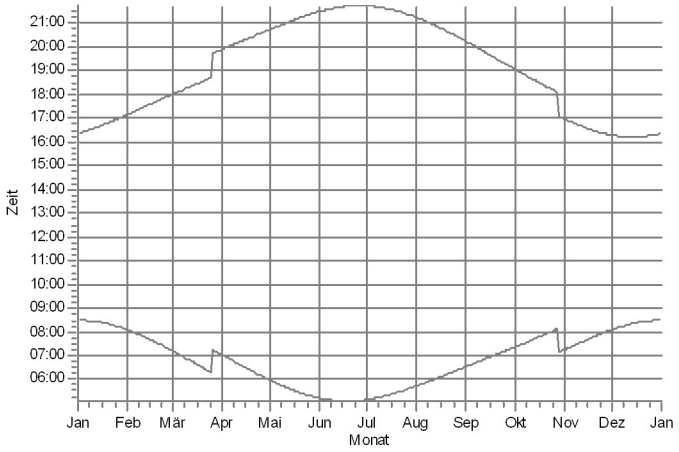
B175: ENERCON E-70 E4 2,3 MW 2300 71.0 !O! NH: 64.0 m (Ges:99.5 m) (



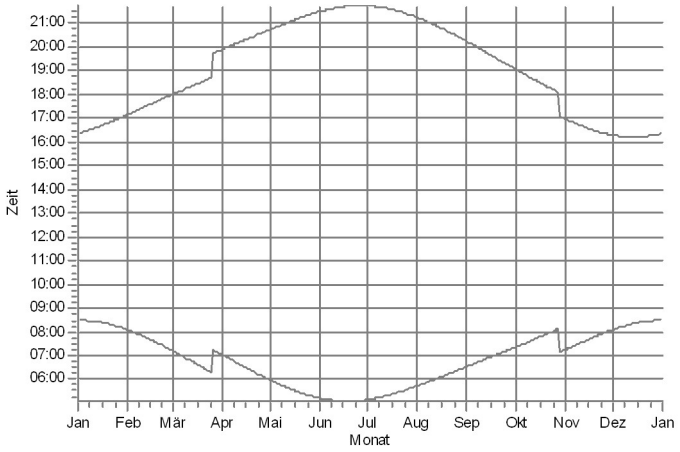
B178: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (440)



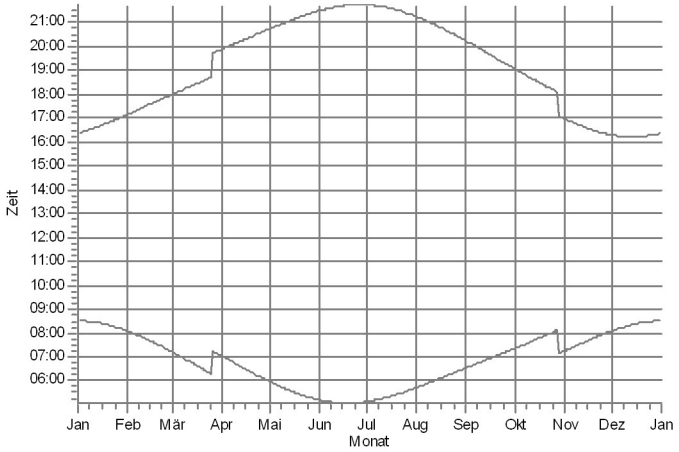
B185: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (443)



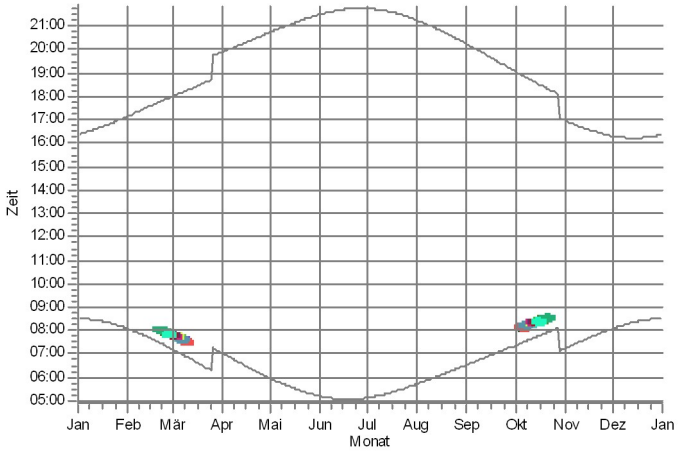
B186: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m)



B187: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (4



B200: ENERCON E-101 3050 101.0 !-! NH: 99.0 m (Ges:149.5 m) (454)



Schattenrezeptoren

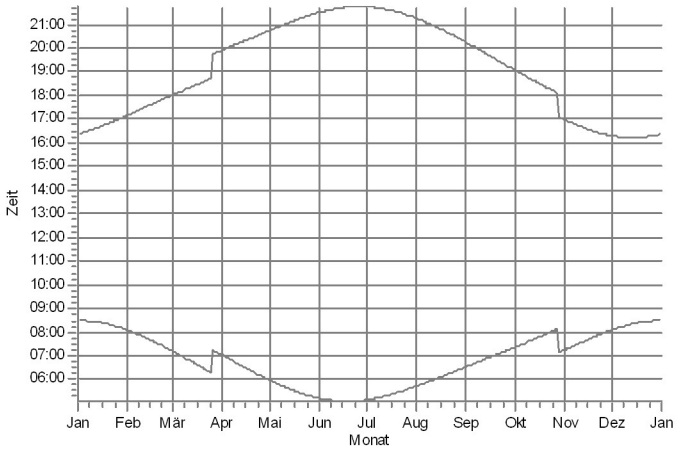
IO004: Am Bogen 11, Dörenhagen
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IO006: Am Bogen 9, 9a, Dörenhagen
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IO015: An d. Trift 27, Dörenhagen
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IO020: Beerengrund 7, Dörenhagen
IO021: Beerengrund 9, Dörenhagen
IO022: Beerengrund 11, Dörenhagen
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IO024: Beerengrund 15, Dörenhagen
IO025: Beerengrund 17, Dörenhagen
IO026: Beerengrund 19, Dörenhagen
IO027: Beerengrund 21, 21a, Dörenhagen
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IO029: Beerengrund 25, Dörenhagen
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IO072: Sebastianstr. 51, Dörenhagen
IO073: Sebastianstr. 53, Dörenhagen
IO077: Am Schulberg 1, Grundsteinheim
IO078: Am Schulberg 2, Grundsteinheim
IO079: Am Schulberg 3, Grundsteinheim
IO080: Am Schulberg 3a, Grundsteinheim
IO081: Am Schulberg 4, Grundsteinheim
IO082: Am Schulberg 5, Grundsteinheim
IO083: Am Schulberg 6, Grundsteinheim
IO084: Am Schulberg 7, Grundsteinheim
IO085: Am Schulberg 8, Grundsteinheim
IO086: Am Schulberg 9, Grundsteinheim
IO087: Am Schulberg 10, Grundsteinheim
IO088: Am Schulberg 12, Grundsteinheim
IO089: Am Schulberg 14, Grundsteinheim
IO090: Am Schulberg 15, Grundsteinheim
IO091: Am Schulberg 16, Grundsteinheim
IO092: Am Schulberg 26, Grundsteinheim
IO093: Am Schulberg 28, Grundsteinheim
IO094: Dorfstr. 11a, Grundsteinheim
IO095: Dorfstr. 13, Grundsteinheim
IO096: Ecke 1, Grundsteinheim
IO097: Ecke 2, Grundsteinheim
IO098: Ecke 3, Grundsteinheim
IO099: Ecke 6, Grundsteinheim
IO100: Futterweg 1, Grundsteinheim
IO101: Futterweg 3, Grundsteinheim
IO102: Futterweg 4, Grundsteinheim
IO103: Futterweg 6, Grundsteinheim
IO104: Futterweg 8, Grundsteinheim

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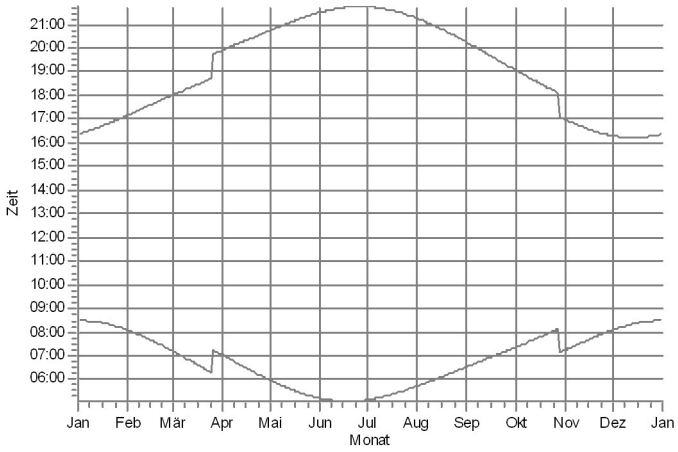
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

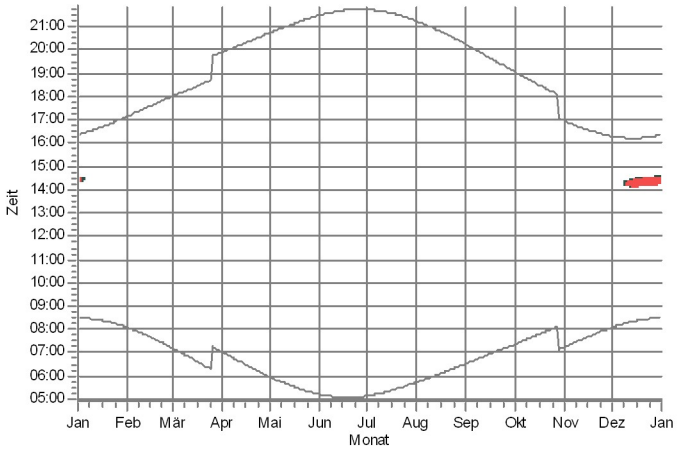
B217: TACKE TW 600 600-200 43.0 !O! NH: 60.0 m (Ges:81.5 m) (466)



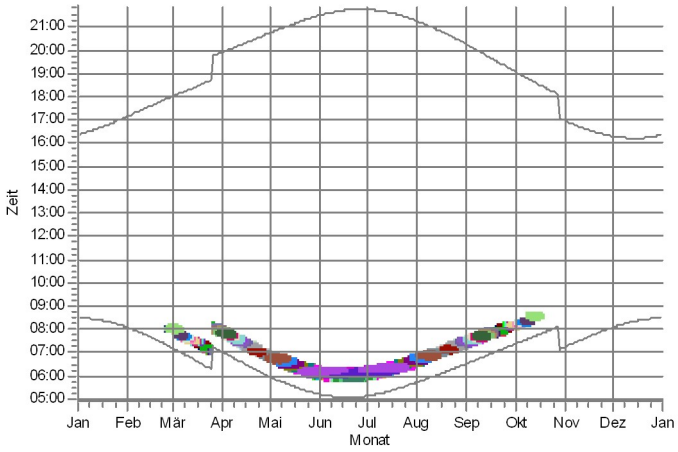
B218: ENERCON E-53 800 53.0 !-! NH: 73.3 m (Ges:99.8 m) (467)



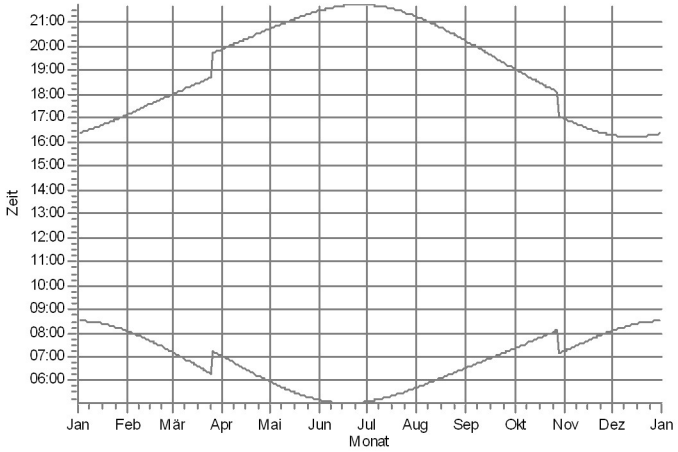
B222: ENERCON E-175 EP5 6000 175.0 !O! NH: 162.0 m (Ges:249.5 m) (46



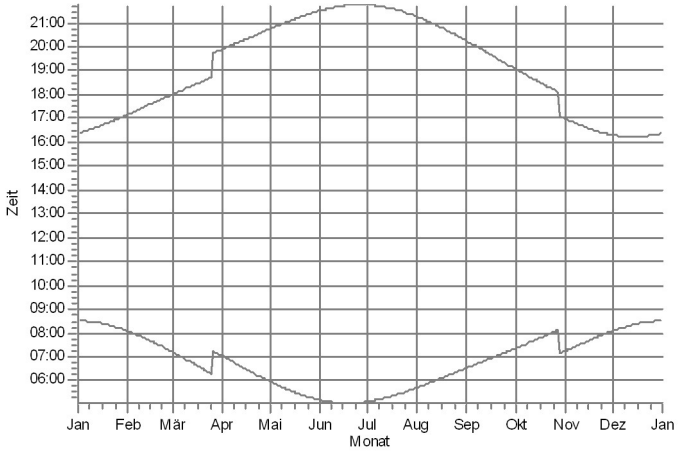
B223: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (470)



B227: ENERCON E-92 2,3 MW 2350 92.0 !-! NH: 138.4 m (Ges:184.4 m) (47



B249: NORDEX N62 1300-250 62.0 !O! NH: 69.0 m (Ges:100.0 m) (488)



Schattenrezeptoren

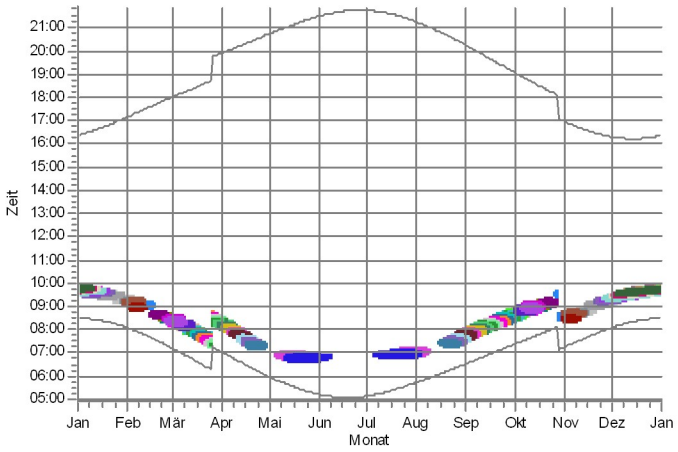
IO004: Am Bogen 11, Dörenhagen
IO005: Am Bogen 18, Dörenhagen
IO006: Am Bogen 9, 9a, Dörenhagen
IO007: Am Dorfteich 1, Dörenhagen
IO008: Am Dorfteich 2, Dörenhagen
IO009: Am Dorfteich 4, Dörenhagen
IO010: Am Rüenmarkt 4, Dörenhagen
IO011: Am Rüenmarkt 9, Dörenhagen
IO012: Am Wallgraben 2, Dörenhagen
IO013: An d. Trift 23, Dörenhagen
IO014: An d. Trift 25, Dörenhagen
IO015: An d. Trift 27, Dörenhagen
IO016: An d. Trift 30/32, Dörenhagen
IO017: Beerengrund 1, Dörenhagen
IO018: Beerengrund 3, Dörenhagen
IO019: Beerengrund 5, Dörenhagen
IO020: Beerengrund 7, Dörenhagen
IO021: Beerengrund 9, Dörenhagen
IO022: Beerengrund 11, Dörenhagen
IO023: Beerengrund 13, Dörenhagen
IO024: Beerengrund 15, Dörenhagen
IO025: Beerengrund 17, Dörenhagen
IO026: Beerengrund 19, Dörenhagen
IO027: Beerengrund 21, 21a, Dörenhagen
IO028: Beerengrund 23, Dörenhagen
IO029: Beerengrund 25, Dörenhagen
IO038: Eggestr. 15, Dörenhagen
IO039: Eggestr. 16, Dörenhagen
IO040: Eggestr. 17, 17a, Dörenhagen
IO041: Eggestr. 25, 25a, Dörenhagen
IO042: Eggestr. 29, Dörenhagen
IO043: Eggestr. 30, 32, Dörenhagen
IO044: Im Kirchenfelde 22, Dörenhagen
IO045: Im Kirchenfelde 24, Dörenhagen
IO046: Im Kirchenfelde 26, Dörenhagen
IO047: Im Kirchenfelde 30, Dörenhagen
IO048: Im Kirchenfelde 30, Dörenhagen
IO049: Im Kirchenfelde 32, Dörenhagen
IO050: Im Kirchenfelde 34, Dörenhagen
IO051: Kirchborchener Str. 28, Dörenhagen
IO052: Kirchborchener Str. 52, Dörenhagen
IO053: Kirchborchener Str. 54, Dörenhagen
IO054: Kirchborchener Str. 56, Dörenhagen
IO055: Kirchborchener Str. 58,Dörenhagen
IO056: Kirchborchener Str. 60, Dörenhagen
IO057: Kirchborchener Str. 60a, Dörenhagen
IO058: Kirchborchener Str. 62, Dörenhagen
IO059: Kirchborchener Str. 64, Dörenhagen
IO060: Kirchborchener Str. 66, Dörenhagen
IO061: Kirchborchener Str. 68, Dörenhagen
IO062: Kirchborchener Str. 70, Dörenhagen
IO063: Kirchborchener Str. 72, Dörenhagen
IO068: Sebastianstr. 7, Dörenhagen
IO069: Sebastianstr. 45, Dörenhagen
IO070: Sebastianstr. 47, Dörenhagen
IO071: Sebastianstr. 49, Dörenhagen
IO072: Sebastianstr. 51, Dörenhagen
IO073: Sebastianstr. 53, Dörenhagen
IO074: Warburger Str. 2, Dörenhagen
IO075: Warburger Str. 3, Dörenhagen
IO076: Warburger Str. 3a, Dörenhagen
IO096: Ecke 1, Grundsteinheim
IO098: Ecke 3, Grundsteinheim

Lizenzierter Anwender:
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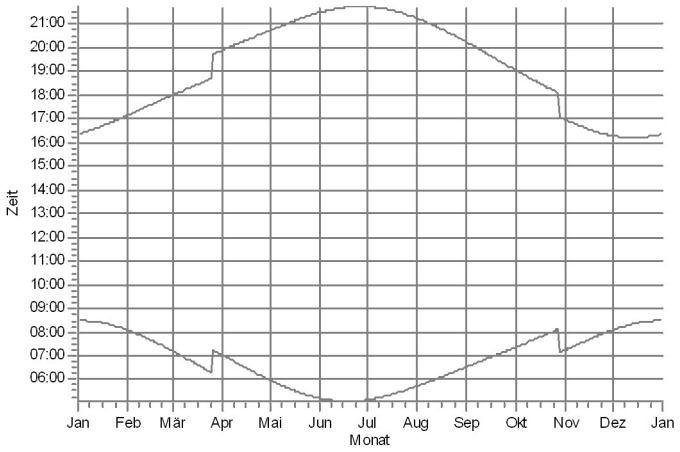
SHADOW - Grafischer Kalender pro WEA

Berechnung: Dörenhagen GB

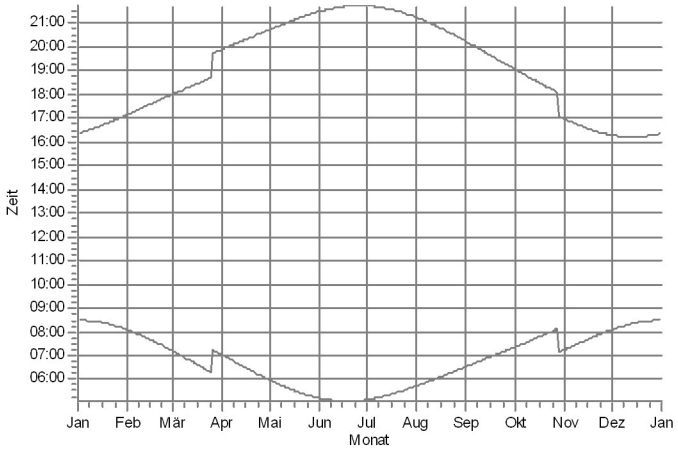
B253: ENERCON E-82 E2 2300 82.0 !O! NH: 138.4 m (Ges:179.4 m) (489)



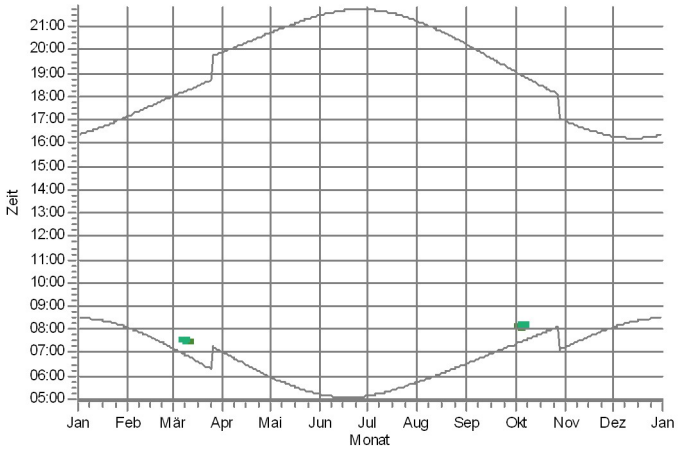
B257: ENERCON E-138 EP3 E2 4200 138.3 !O! NH: 160.0 m (Ges:229.1 m)



B258: ENERCON E-115 3000 115.7 !O! NH: 149.0 m (Ges:206.9 m) (491)



B263: ENERCON E-101 3050 101.0 !-! NH: 149.0 m (Ges:199.5 m) (496)



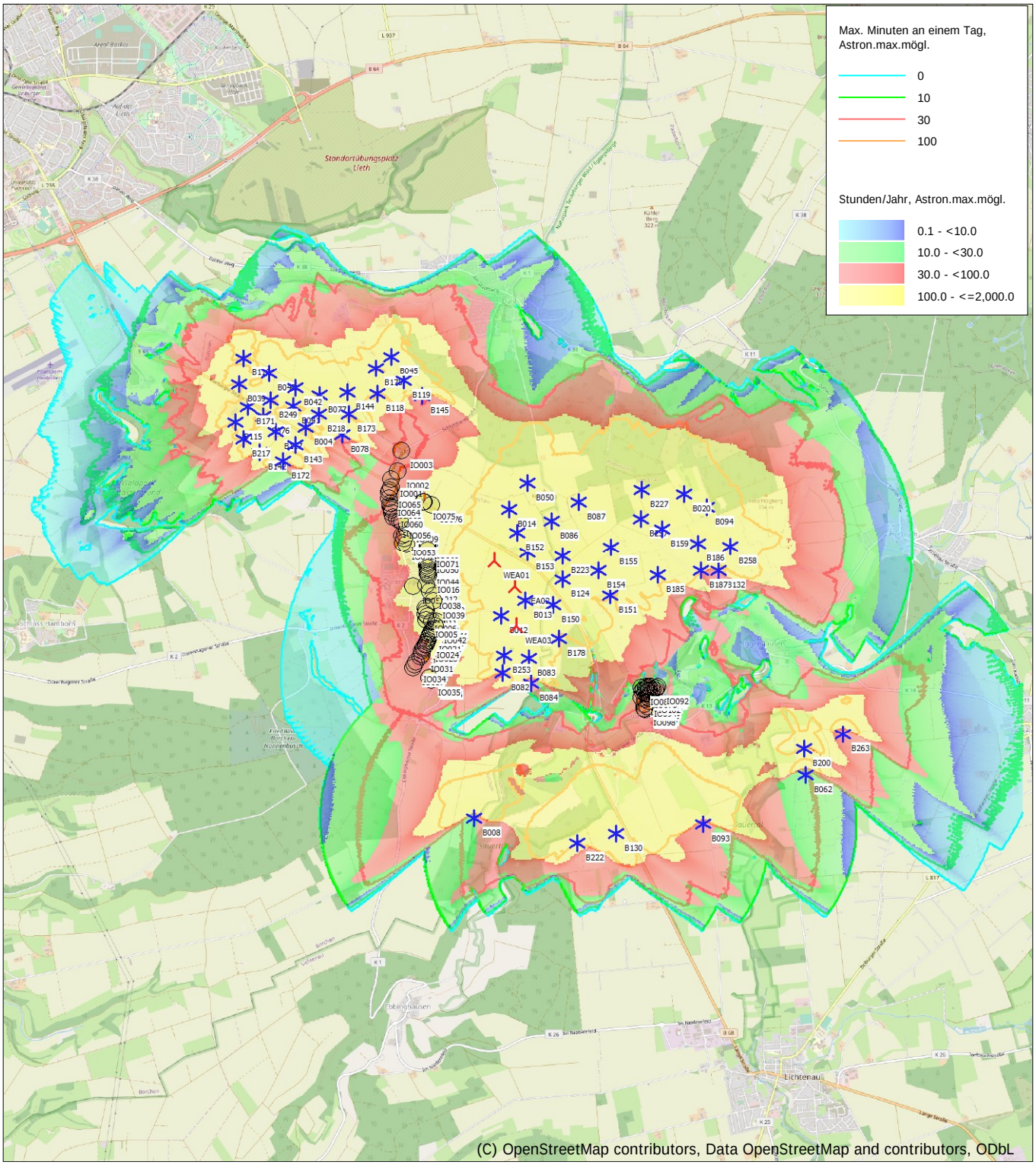
Schattenrezeptoren

IO004: Am Bogen 11, Dörenhagen
IO005: Am Bogen 18, Dörenhagen
IO006: Am Bogen 9, 9a, Dörenhagen
IO010: Am Rüenmarkt 4, Dörenhagen
IO011: Am Rüenmarkt 9, Dörenhagen
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IO024: Beerengrund 15, Dörenhagen
IO025: Beerengrund 17, Dörenhagen
IO026: Beerengrund 19, Dörenhagen
IO027: Beerengrund 21, 21a, Dörenhagen
IO028: Beerengrund 23, Dörenhagen
IO029: Beerengrund 25, Dörenhagen
IO030: Beerengrund 27, Dörenhagen
IO031: Beerengrund 31, Dörenhagen
IO032: Beerengrund 33, Dörenhagen
IO033: Ebbinghauser Str. 13, Dörenhagen
IO034: Ebbinghauser Str. 15, Dörenhagen
IO035: Ebbinghauser Str. 15a, Dörenhagen
IO036: Ebbinghauser Str. 17, Dörenhagen
IO037: Ebbinghauser Str. 20a, Dörenhagen
IO038: Eggestr. 15, Dörenhagen
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IO071: Sebastianstr. 49, Dörenhagen
IO072: Sebastianstr. 51, Dörenhagen
IO073: Sebastianstr. 53, Dörenhagen
IO089: Am Schulberg 14, Grundsteinheim
IO090: Am Schulberg 15, Grundsteinheim
IO091: Am Schulberg 16, Grundsteinheim
IO092: Am Schulberg 26, Grundsteinheim

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SHADOW - Karte

Berechnung: Dörenhagen GB



0 1000 2000 3000 4000 m

Karte: EMD OpenStreetMap , Maßstab 1:65,000, Mitte: UTM (north)-ETRS89 Zone: 32 Ost: 489,862 Nord: 5,724,033

Neue WEA Existierende WEA Schattenrezeptor

Höhe der Schattenkarte: Höhenlinien: oro_DGM5_5m_DGM5_10m_20x20km.wpo (2)

Zeitschritt: 2 Minuten, Schrittweite: 3 Tag(e), Kartenauflösung: 10 m, Sichtbarkeit Auflösung: 5 m, Augenhöhe: 1.5 m