PARK - Main Result

Calculation: AEP_Vestas_Curtailment_Noicemode

Setup

AEP scaled to a full year based on number of samples
Scaling factor from 31.0 years to 1 year: 0.032

Calculation performed in UTM (north)-WGS84 Zone: 32
At the site centre the difference between grid north and true north is: 0.6°

Wake

Wake Model: N.O. Jensen (RISØ/EMD) Park 2 2018
Wake decay constant
Wake decay constant: 0.085 Mixed farmland Hub height dependent
Reference WTG: 01_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (1)

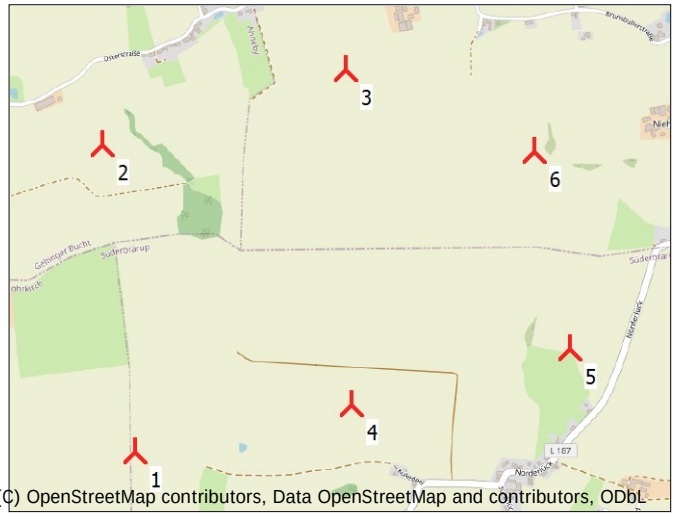
Scaler / wind data

Name	EMD Default Measurement Mast Scaler
Terrain scaling	Measured Data Scaling (WAsP Stability / A-Parameter)
Micro terrain flow model	WAsP IBZ from Site Data
Used period	1/1/1994 1:00:00 AM - 1/1/2025
Meteo object(s)	MCP LT - MCP session (1) - [Neural Network] (3), 125.00m - MCP LT - MCP session (1) - [Neural Network]
Displacement height	Omnidirectional from objects
WAsP version	WAsP 11 Version 11.04.0026

Power correction

Power curve correction (adjusted IEC method, improved to match turbine control)

		Min	Max	Avg	Corr. [%]	Neg. corr. [%]	Pos. corr. [%]
Air density							
From air density settings	[°C]	7.6	7.6	7.6			
From air density settings	[hPa]	990.7	990.7	990.7			
Resulting air density	[kg/m³]	1.229	1.229	1.229			
Relative to 15°C at sea level	[%]	100.4	100.4	100.4	0.2	0.0	0.2



Scale 1:25,000

New WTG

Calculated Annual Energy for Wind Farm

WTG combination	Result PARK	Result-10.0%	GROSS (no loss) Free WTGs	Curtailment loss	Wake loss	Specific results¤) Capacity factor	Mean WTG result	Full load hours	Wind speed free	wake reduced
	[MWh/y]	[MWh/y]	[MWh/y]	[%]	[%]	[%]	[MWh/y]	[Hours/year]	[m/s]	[m/s]
Wind farm	73,641.8	66,277.6	76,707.8	1.0	3.0	28.0	11,046.3	2,455	7.0	6.9

¤) Based on Result-10.0%

Calculated Annual Energy for each of 6 new WTGs with total 27.0 MW rated power

	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Power curve Creator	Name	Annual Energy Result [MWh/y]	Result-10.0% [MWh/y]	Curtailment loss [%]	Wake loss [%]	Wind speed free [m/s]	reduced [m/s]
1	Yes	VESTAS	V150-4.5-4,500	4,500	150.0	125.0	USER	Level 0 - Calculated - PO4-0S & PO4 - 12-2021	16,898.3	15,208	0.4	1.7	7.01	6.95
2	Yes	VESTAS	V150-4.5-4,500	4,500	150.0	125.0	USER	Level 4 - Calculated - SO11 - 12-2021	8,864.3	7,978	0.8	2.0	7.02	6.93
3	Yes	VESTAS	V150-4.5-4,500	4,500	150.0	125.0	USER	Level 4 - Calculated - SO11 - 12-2021	8,690.1	7,821	0.8	3.3	6.99	6.84
4	Yes	VESTAS	V150-4.5-4,500	4,500	150.0	125.0	USER	Level 1 - Calculated - LO1 - 12-2021	15,524.5	13,972	0.5	3.7	6.99	6.86
5	Yes	VESTAS	V150-4.5-4,500	4,500	150.0	125.0	USER	Level 4 - Calculated - SO11 - 12-2021	8,694.5	7,825	0.8	3.2	6.98	6.83
6	Yes	VESTAS	V150-4.5-4,500	4,500	150.0	125.0	USER	Level 2 - Calculated - LO2 - 12-2021	14,970.1	13,473	2.3	4.2	7.04	6.87

More power curves may be used due to curtailment. Please view Curtailment assumptions report.

WTG siting

	UTM (north)-ETRS89 Zone: 32 Easting	Northing	Z [m]	Row data/Description	Calculation period Start	End
1	New	547,816	6,060,703	60.0 01_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (1)	1/1/1994	1/1/2025
2	New	547,696	6,061,714	60.0 02_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (7)	1/1/1994	1/1/2025
3	New	548,500	6,061,972	60.0 03_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (8)	1/1/1994	1/1/2025
4	New	548,532	6,060,864	60.0 04_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (9)	1/1/1994	1/1/2025
5	New	549,254	6,061,058	60.0 05_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (10)	1/1/1994	1/1/2025
6	New	549,128	6,061,708	60.0 06_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (11)	1/1/1994	1/1/2025

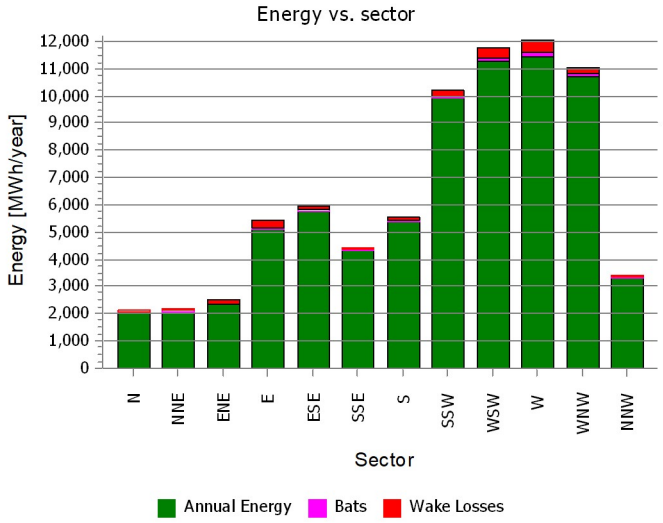
PARK - Production Analysis

Calculation: AEP_Vestas_Curtailment_Noicemode WTG: All new WTGs, Air density 1.229 kg/m³
Directional Analysis

Sector		0 N	1 NNE	2 ENE	3 E	4 ESE	5 SSE	6 S	7 SSW	8 WSW	9 W	10 WNW	11 NNW	Total
Gross	[MWh]	2,134.0	2,200.8	2,527.1	5,413.4	5,956.9	4,424.7	5,567.1	10,213.5	11,745.7	12,045.1	11,045.8	3,433.7	76,707.8
-Decrease due to curtailments	[MWh]	21.2	23.4	43.2	66.3	66.8	35.0	29.3	52.1	76.7	142.9	126.8	48.7	732.3
Bats	[MWh]	21.2	23.4	43.2	66.3	66.8	35.0	29.3	52.1	76.7	142.9	126.8	48.7	732.3
-Decrease due to wake losses	[MWh]	85.2	85.1	152.1	252.5	145.8	74.8	155.7	263.3	387.0	446.7	226.2	59.3	2,333.6
Resulting energy	[MWh]	2,027.6	2,092.4	2,331.8	5,094.6	5,744.3	4,314.8	5,382.2	9,898.1	11,282.0	11,455.5	10,692.8	3,325.7	73,641.8
Specific energy	[kWh/m²]													695
Specific energy	[kWh/kW]													2,727
-Decrease due to curtailments	[%]	1.0	1.1	1.7	1.2	1.1	0.8	0.5	0.5	0.7	1.2	1.1	1.4	1.0
Bats	[%]	1.0	1.1	1.7	1.2	1.1	0.8	0.5	0.5	0.7	1.2	1.1	1.4	1.0
Decrease due to wake losses	[%]	4.0	3.9	6.0	4.7	2.4	1.7	2.8	2.6	3.3	3.7	2.0	1.7	3.04
Full Load Equivalent	[Hours/year]	75	77	86	189	213	160	199	367	418	424	396	123	2,727

Note:

- A turbines' curtailment losses are calculated based on the wake-reduced wind speed.
- The wake reduced wind speed includes curtailment of up-wind WTGs.



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1/16/2025 5:16 PM/4.0.547

PARK - Power Curve Analysis

Calculation: AEP_Vestas_Curtailment_Noicemode WTG: 1 - VESTAS V150-4.5 4500 150.0 !O!, Hub height: 125.0 m

Name: Level 0 - Calculated - PO4-0S & PO4 - 12-2021
Source: Manufacturer

Source/Date	Created by	Created	Edited	Stop wind speed [m/s]	Power control	CT curve type	Generator type	Specific power kW/m²
12/3/2021	USER	8/30/2022	8/30/2022	24.5	Pitch	User defined	Variable	0.25

Based on Document no.: 0067-7057.V04.

HP curve comparison - Note: For standard air density

Vmean	[m/s]	5	6	7	8	9	10
HP value Pitch, variable speed (2013)	[MWh]	8,677	12,863	16,760	20,128	22,908	25,089
VESTAS V150-4.5 4500 150.0 !O! Level 0 - Calculated - PO4-0S & PO4 - 12-2021	[MWh]	8,804	12,992	16,852	20,105	22,641	24,450
Check value	[%]	-1	-1	-1	0	1	3

The table shows comparison between annual energy production calculated on basis of simplified "HP-curves" which assume that all WTGs performs quite similar - only specific power loading (kW/m^2) and single/dual speed or stall/pitch decides the calculated values. Productions are without wake losses.
For further details, ask at the Danish Energy Agency for project report J.nr. 51171/00-0016 or see the windPRO manual.
The method is refined in EMD report "20 Detailed Case Studies comparing Project Design Calculations and actual Energy Productions for Wind Energy Projects worldwide", jan 2003.
Use the table to evaluate if the given power curve is reasonable - if the check value are lower than -5%, the power curve probably is too optimistic due to uncertainty in power curve measurement.

Power curve

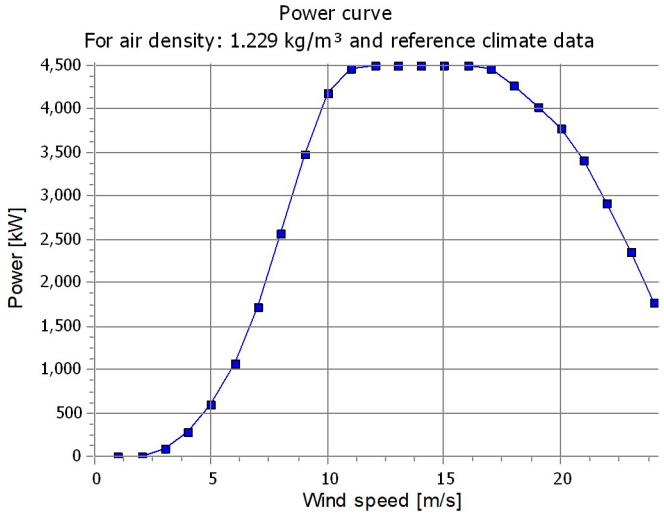
Original data, Air density: 1.225 kg/m³

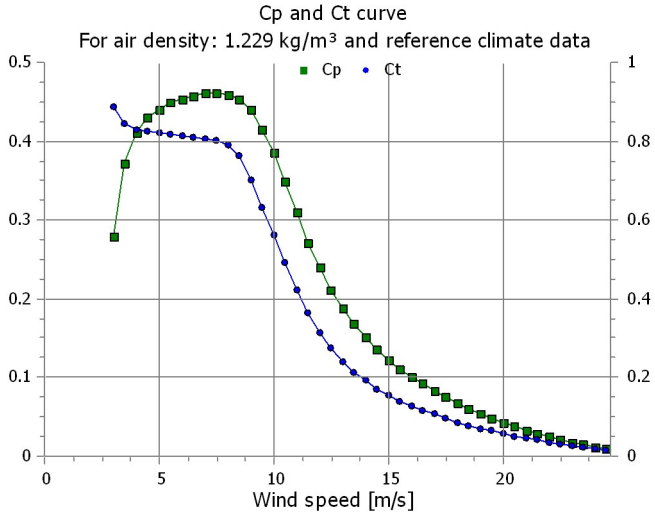
Wind speed [m/s]	Power [kW]	Cp	Wind speed [m/s]	Ct curve
3.0	81.0	0.28	3.0	0.89
3.5	172.0	0.37	3.5	0.85
4.0	285.0	0.41	4.0	0.83
4.5	424.0	0.43	4.5	0.83
5.0	596.0	0.44	5.0	0.82
5.5	808.0	0.45	5.5	0.82
6.0	1,061.0	0.45	6.0	0.81
6.5	1,360.0	0.46	6.5	0.81
7.0	1,710.0	0.46	7.0	0.81
7.5	2,106.0	0.46	7.5	0.80
8.0	2,549.0	0.46	8.0	0.79
8.5	3,021.0	0.45	8.5	0.76
9.0	3,471.0	0.44	9.0	0.70
9.5	3,861.0	0.42	9.5	0.63
10.0	4,180.0	0.39	10.0	0.56
10.5	4,372.0	0.35	10.5	0.49
11.0	4,470.0	0.31	11.0	0.42
11.5	4,494.0	0.27	11.5	0.36
12.0	4,500.0	0.24	12.0	0.31
12.5	4,500.0	0.21	12.5	0.27
13.0	4,500.0	0.19	13.0	0.24
13.5	4,500.0	0.17	13.5	0.22
14.0	4,500.0	0.15	14.0	0.19
14.5	4,500.0	0.14	14.5	0.17
15.0	4,500.0	0.12	15.0	0.16
15.5	4,500.0	0.11	15.5	0.14
16.0	4,500.0	0.10	16.0	0.13
16.5	4,498.0	0.09	16.5	0.12
17.0	4,473.0	0.08	17.0	0.11
17.5	4,394.0	0.08	17.5	0.10
18.0	4,268.0	0.07	18.0	0.09
18.5	4,139.0	0.06	18.5	0.08
19.0	4,031.0	0.05	19.0	0.07
19.5	3,909.0	0.05	19.5	0.06
20.0	3,771.0	0.04	20.0	0.06
20.5	3,607.0	0.04	20.5	0.05
21.0	3,408.0	0.03	21.0	0.05
21.5	3,180.0	0.03	21.5	0.04
22.0	2,917.0	0.03	22.0	0.04
22.5	2,645.0	0.02	22.5	0.03
23.0	2,363.0	0.02	23.0	0.03
23.5	2,070.0	0.01	23.5	0.02
24.0	1,782.0	0.01	24.0	0.02
24.5	1,561.0	0.01	24.5	0.02

Power and efficiency vs. wind speed

Data used in calculation, Mean air density: 1.229 kg/m³

Wind speed [m/s]	Power [kW]	Cp
1.0	0.0	0.00
2.0	0.0	0.00
3.0	81.6	0.28
4.0	286.3	0.41
5.0	598.5	0.44
6.0	1,065.2	0.45
7.0	1,716.5	0.46
8.0	2,557.8	0.46
9.0	3,479.6	0.44
10.0	4,185.1	0.39
11.0	4,470.6	0.31
12.0	4,500.0	0.24
13.0	4,500.0	0.19
14.0	4,500.0	0.15
15.0	4,500.0	0.12
16.0	4,499.9	0.10
17.0	4,473.0	0.08
18.0	4,268.0	0.07
19.0	4,031.0	0.05
20.0	3,771.0	0.04
21.0	3,408.0	0.03
22.0	2,917.0	0.03
23.0	2,363.0	0.02
24.0	1,782.0	0.01





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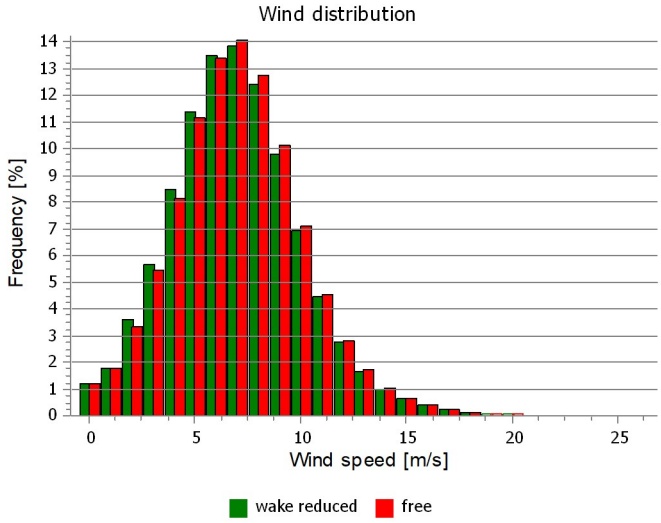
PARK - Wind Data Analysis

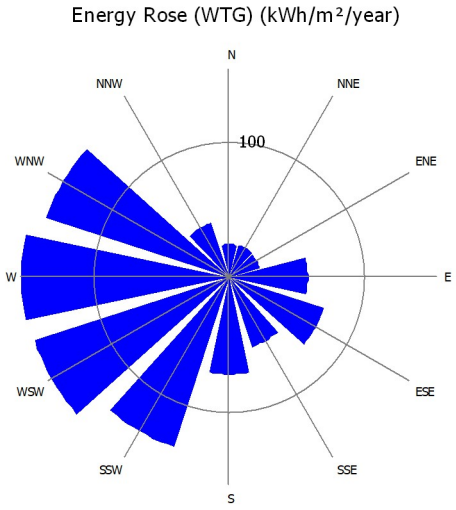
Calculation: AEP_Vestas_Curtailment_Noicemode Wind data: 1 - 01_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (1); Hub height: 125.0

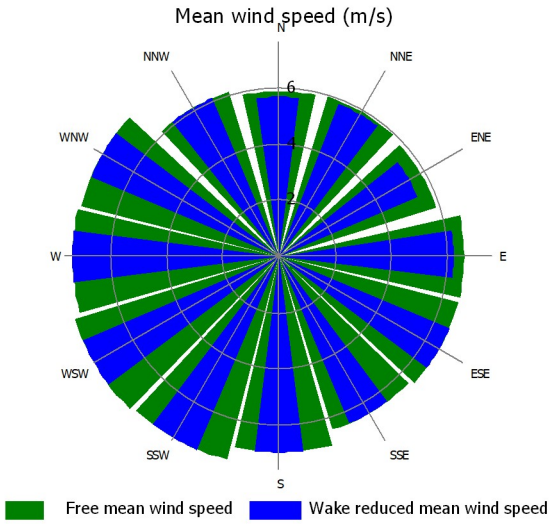
Site coordinates
UTM (north)-ETRS89 Zone: 32
East: 547,816 North: 6,060,703
01_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (1)
Masts used
Take nearest

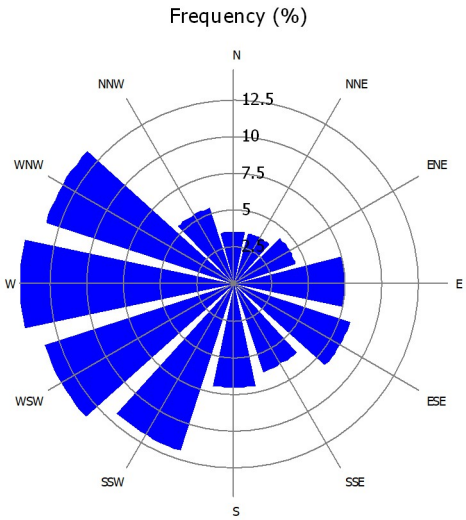
Winddata for site

Sector	Free mean wind speed [m/s]	Wake reduced mean wind speed [m/s]	Frequency [%]
0 N	5.9	5.7	3.6
1 NNE	6.0	5.9	3.6
2 ENE	5.9	5.4	4.4
3 E	6.7	6.3	7.5
4 ESE	6.6	6.6	8.3
5 SSE	6.5	6.5	6.3
6 S	7.0	7.0	7.1
7 SSW	7.5	7.5	12.0
8 WSW	7.7	7.7	13.6
9 W	7.4	7.4	14.6
10 WNW	7.3	7.3	13.5
11 NNW	6.2	6.2	5.5
All	7.0	7.0	100.0









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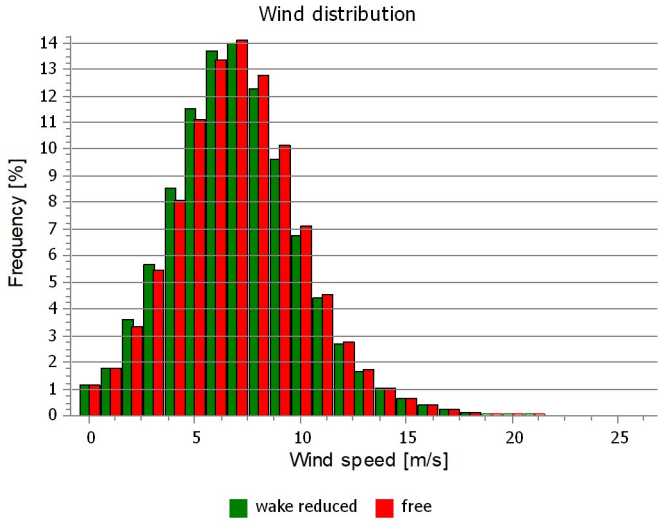
PARK - Wind Data Analysis

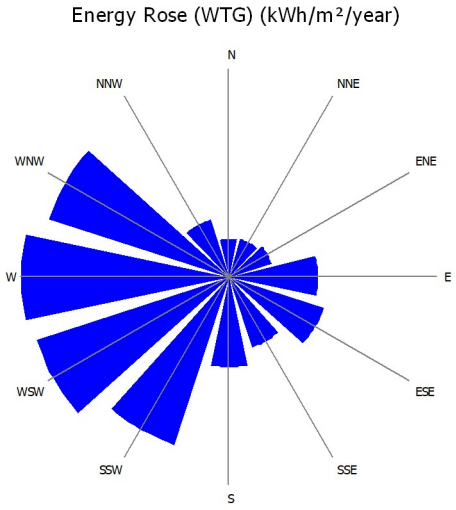
Calculation: AEP_Vestas_Curtailment_Noicemode Wind data: 2 - 02_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (7); Hub height: 125.0

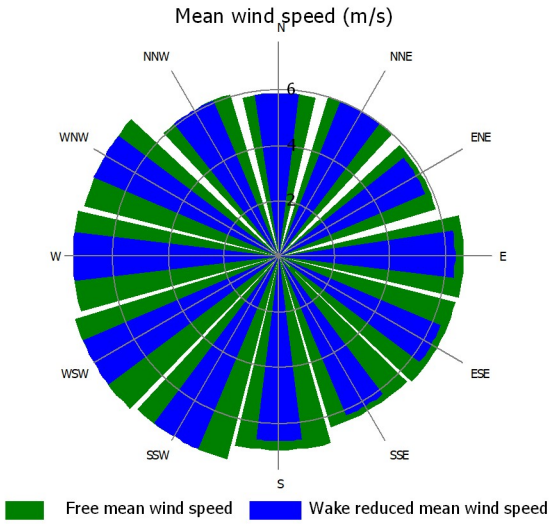
Site coordinates
UTM (north)-ETRS89 Zone: 32
East: 547,696 North: 6,061,714
02_VESTAS V150-4.5 4500 150.0 !O! hub: 125.0 m (TOT: 200.0 m) (7)
Masts used
Take nearest

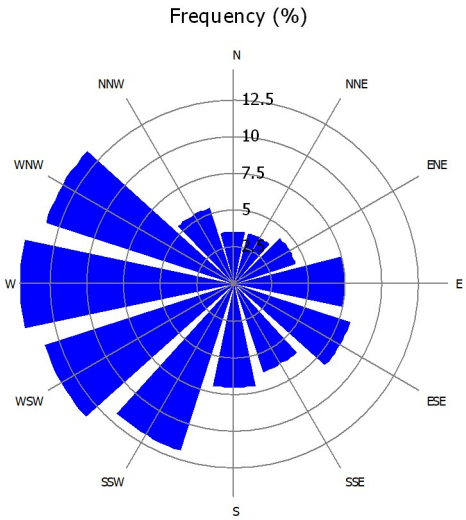
Winddata for site

Sector	Free mean wind speed [m/s]	Wake reduced mean wind speed [m/s]	Frequency [%]
0 N	5.9	5.9	3.6
1 NNE	6.0	6.0	3.6
2 ENE	6.0	5.8	4.4
3 E	6.7	6.4	7.5
4 ESE	6.6	6.4	8.3
5 SSE	6.5	6.2	6.3
6 S	7.0	6.7	7.1
7 SSW	7.6	7.6	12.0
8 WSW	7.7	7.7	13.6
9 W	7.5	7.5	14.6
10 WNW	7.3	7.3	13.5
11 NNW	6.1	6.1	5.5
All	7.0	6.9	100.0







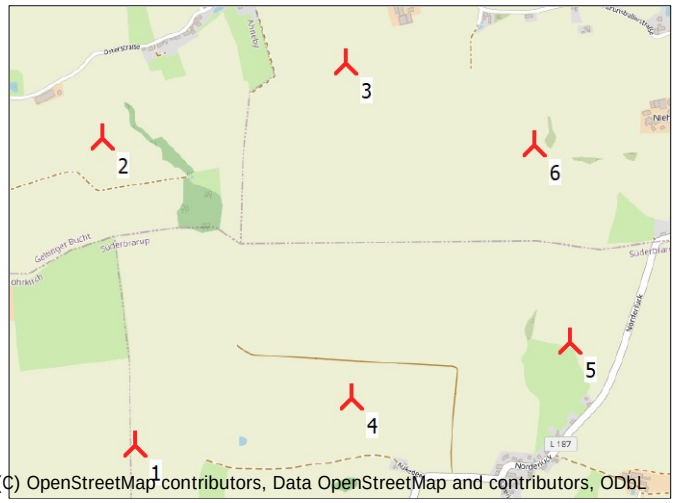


PARK - WTG distances

Calculation: AEP_Vestas_Curtailment_Noicemode

WTG distances

	Z [m]	Nearest WTG	Z [m]	Horizontal distance [m]	Distance in rotor diameters
1	60.0	4	60.0	734	4.9
2	60.0	3	60.0	844	5.6
3	60.0	6	60.0	681	4.5
4	60.0	1	60.0	734	4.9
5	60.0	6	60.0	662	4.4
6	60.0	5	60.0	662	4.4
Min	60.0		60.0	662	4.4
Max	60.0		60.0	844	5.6



Scale 1:25,000

New WTG

PARK - Time varying AEP

Calculation: AEP_Vestas_Curtailment_Noicemode

Windfarm: 27.0 MW based on 6 turbines with 4.5 MW (in average).
Selection: All new WTGs
Calculated mean yield per month and hour [MWh]. The result includes wake losses and any curtailment losses.
Values are scaled to a full year, see correction factors at main result page.

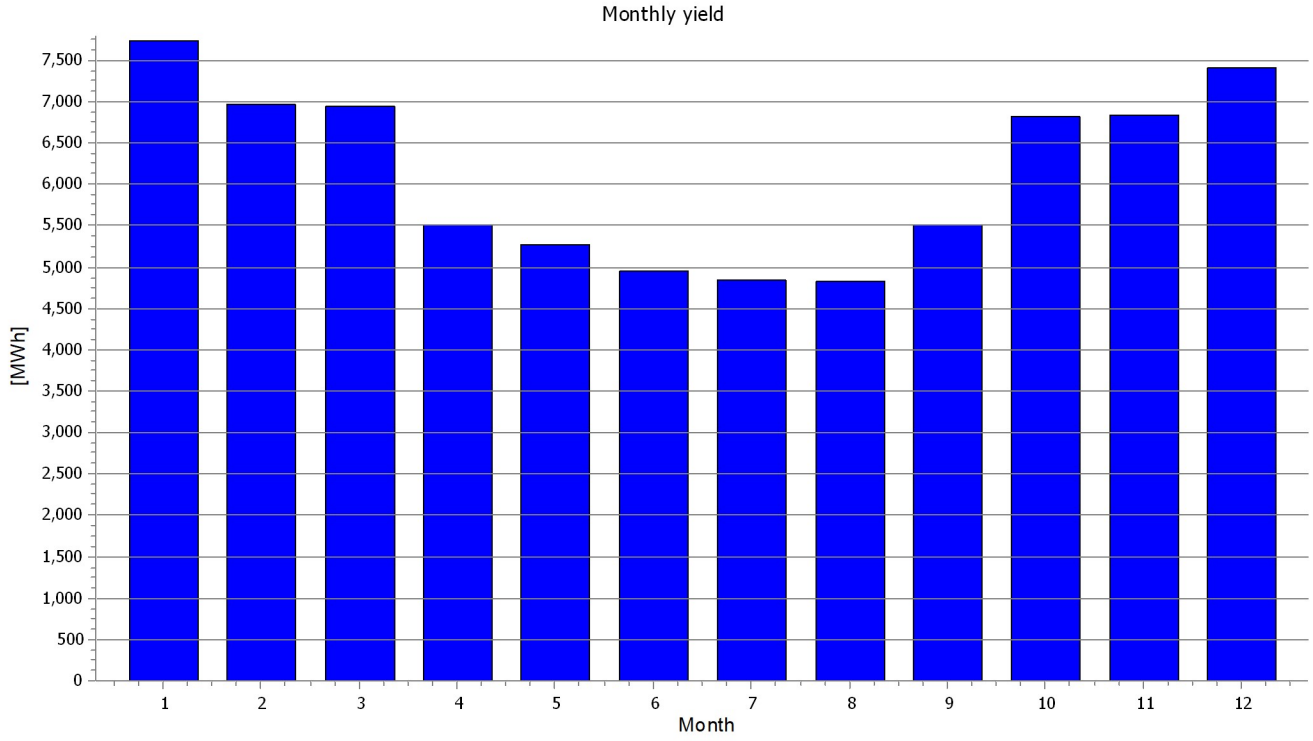
Hour/Month [MWh]	1	2	3	4	5	6	7	8	9	10	11	12	Grand Total
0	341	307	308	255	250	230	223	222	252	307	306	326	3,328
1	337	306	307	254	242	220	214	226	245	295	310	324	3,279
2	337	303	306	254	237	221	216	222	244	294	308	330	3,271
3	334	303	298	247	242	214	218	218	241	296	308	321	3,242
4	341	305	303	252	238	218	215	219	245	295	305	323	3,258
5	335	306	299	243	241	220	216	212	241	293	295	325	3,224
6	334	299	295	239	228	206	204	214	239	297	291	319	3,164
7	327	295	293	228	205	199	192	190	227	287	288	314	3,043
8	324	290	273	198	198	187	185	178	215	279	277	306	2,912
9	313	281	262	195	184	187	187	173	199	260	268	302	2,811
10	313	270	261	198	186	190	188	183	215	258	265	296	2,822
11	303	263	260	200	189	186	183	179	206	252	248	286	2,756
12	297	271	265	209	203	203	199	194	221	263	263	289	2,876
13	305	279	277	223	213	215	207	204	235	274	262	290	2,984
14	306	279	286	230	223	225	219	215	229	276	271	290	3,051
15	311	287	291	233	227	227	218	209	238	279	264	293	3,076
16	310	277	282	232	224	217	208	210	230	272	271	294	3,025
17	310	274	277	225	220	213	204	205	215	267	274	301	2,986
18	313	280	282	208	213	202	200	185	190	273	279	304	2,929
19	327	288	290	201	200	199	190	165	205	289	286	302	2,941
20	327	294	300	228	205	164	164	170	231	292	290	312	2,976
21	331	302	312	245	219	186	179	201	243	301	300	311	3,132
22	333	305	313	255	243	213	209	214	244	312	305	321	3,268
23	332	301	307	255	243	221	214	224	260	312	300	319	3,288
Grand Total	7,737	6,964	6,947	5,507	5,274	4,962	4,850	4,833	5,510	6,823	6,835	7,399	73,642

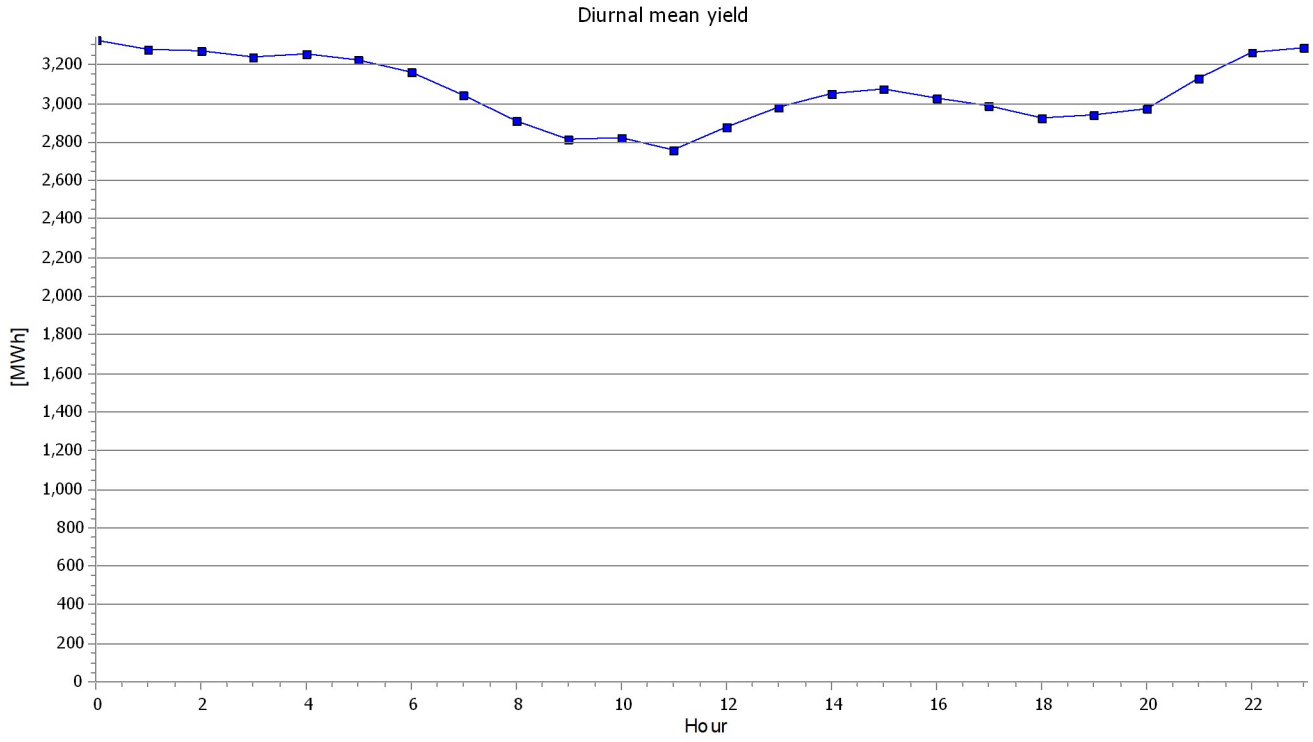
Hour/Month [MW]	1	2	3	4	5	6	7	8	9	10	11	12	Grand Total
0	11.0	11.0	9.9	8.5	8.1	7.7	7.2	7.2	8.4	9.9	10.2	10.5	9.1
1	10.9	10.9	9.9	8.5	7.8	7.3	6.9	7.3	8.2	9.5	10.3	10.4	9.0
2	10.9	10.8	9.9	8.5	7.7	7.4	7.0	7.2	8.1	9.5	10.3	10.7	9.0
3	10.8	10.8	9.6	8.2	7.8	7.1	7.0	7.0	8.0	9.6	10.3	10.4	8.9
4	11.0	10.9	9.8	8.4	7.7	7.3	6.9	7.1	8.2	9.5	10.2	10.4	8.9
5	10.8	10.9	9.6	8.1	7.8	7.3	7.0	6.8	8.0	9.4	9.8	10.5	8.8
6	10.8	10.7	9.5	8.0	7.4	6.9	6.6	6.9	8.0	9.6	9.7	10.3	8.7
7	10.5	10.5	9.4	7.6	6.6	6.6	6.2	6.1	7.6	9.3	9.6	10.1	8.3
8	10.4	10.4	8.8	6.6	6.4	6.2	6.0	5.7	7.2	9.0	9.2	9.9	8.0
9	10.1	10.0	8.5	6.5	5.9	6.2	6.0	5.6	6.6	8.4	8.9	9.7	7.7
10	10.1	9.6	8.4	6.6	6.0	6.3	6.1	5.9	7.2	8.3	8.8	9.5	7.7
11	9.8	9.4	8.4	6.7	6.1	6.2	5.9	5.8	6.9	8.1	8.3	9.2	7.6
12	9.6	9.7	8.5	7.0	6.6	6.8	6.4	6.3	7.4	8.5	8.8	9.3	7.9
13	9.8	10.0	8.9	7.4	6.9	7.2	6.7	6.6	7.8	8.8	8.7	9.4	8.2
14	9.9	10.0	9.2	7.7	7.2	7.5	7.1	6.9	7.6	8.9	9.0	9.4	8.4
15	10.0	10.2	9.4	7.8	7.3	7.6	7.0	6.7	7.9	9.0	8.8	9.5	8.4
16	10.0	9.9	9.1	7.7	7.2	7.2	6.7	6.8	7.7	8.8	9.0	9.5	8.3
17	10.0	9.8	8.9	7.5	7.1	7.1	6.6	6.6	7.2	8.6	9.1	9.7	8.2
18	10.1	10.0	9.1	6.9	6.9	6.7	6.4	6.0	6.3	8.8	9.3	9.8	8.0
19	10.5	10.3	9.4	6.7	6.4	6.6	6.1	5.3	6.8	9.3	9.5	9.7	8.1
20	10.5	10.5	9.7	7.6	6.6	5.5	5.3	5.5	7.7	9.4	9.7	10.1	8.2
21	10.7	10.8	10.1	8.2	7.1	6.2	5.8	6.5	8.1	9.7	10.0	10.0	8.6
22	10.7	10.9	10.1	8.5	7.9	7.1	6.7	6.9	8.1	10.1	10.2	10.4	9.0
23	10.7	10.8	9.9	8.5	7.8	7.4	6.9	7.2	8.7	10.1	10.0	10.3	9.0
Grand Total	10.4	10.4	9.3	7.6	7.1	6.9	6.5	6.5	7.7	9.2	9.5	9.9	8.4

PARK - Time varying AEP

Calculation: AEP_Vestas_Curtailment_Noicemode

Windfarm: 27.0 MW based on 6 turbines with 4.5 MW (in average).
Selection: All new WTGs
Calculated mean yield per month and hour [MWh]. The result includes wake losses and any curtailment losses.
Values are scaled to a full year, see correction factors at main result page.





Project:
Exam_16.01

Licensed user:
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- -

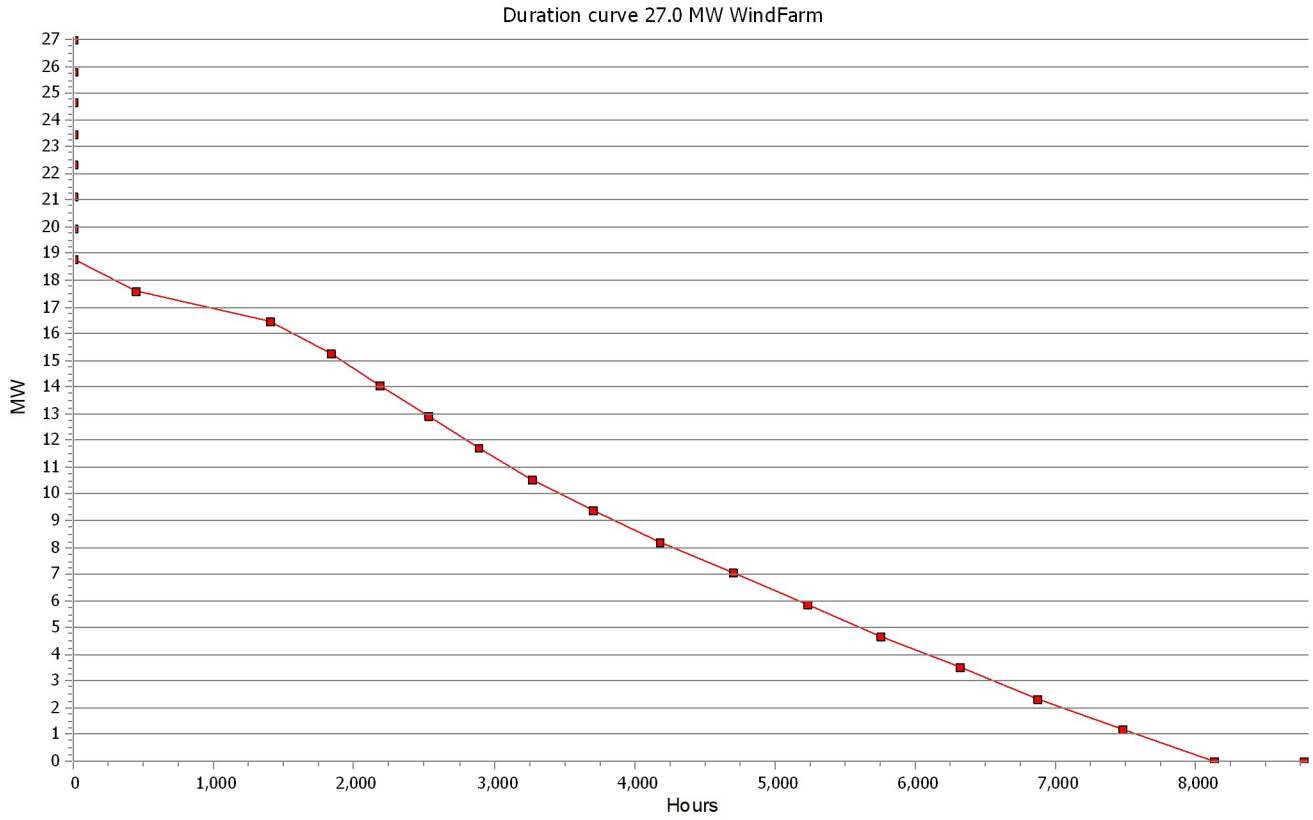
student / weti-lab-vt10@hs-flensburg.de
Calculated:
1/16/2025 5:16 PM/4.0.547

PARK - Time varying AEP

Calculation: AEP_Vestas_Curtailment_Noicemode

Windfarm: 27.0 MW based on 6 turbines with 4.5 MW (in average).
Selection: All new WTGs
Calculated mean yield per month and hour [MWh]. The result includes wake losses and any curtailment losses.

Hours	Hours [%]	Hours accumulated	Power [MW]	Power (MW/WTG)
0	0.0	0	27.0	4.5
0	0.0	0	25.8 - 27.0	4.3 - 4.5
0	0.0	0	24.7 - 25.8	4.1 - 4.3
0	0.0	0	23.5 - 24.7	3.9 - 4.1
0	0.0	0	22.3 - 23.5	3.7 - 3.9
0	0.0	0	21.1 - 22.3	3.5 - 3.7
0	0.0	0	20.0 - 21.1	3.3 - 3.5
0	0.0	0	18.8 - 20.0	3.1 - 3.3
440	5.0	440	17.6 - 18.8	2.9 - 3.1
955	10.9	1395	16.4 - 17.6	2.7 - 2.9
440	5.0	1835	15.3 - 16.4	2.5 - 2.7
350	4.0	2185	14.1 - 15.3	2.3 - 2.5
341	3.9	2526	12.9 - 14.1	2.2 - 2.3
354	4.0	2881	11.7 - 12.9	2.0 - 2.2
388	4.4	3269	10.6 - 11.7	1.8 - 2.0
430	4.9	3698	9.4 - 10.6	1.6 - 1.8
479	5.5	4177	8.2 - 9.4	1.4 - 1.6
521	5.9	4698	7.0 - 8.2	1.2 - 1.4
531	6.1	5229	5.9 - 7.0	1.0 - 1.2
519	5.9	5748	4.7 - 5.9	0.8 - 1.0
561	6.4	6309	3.5 - 4.7	0.6 - 0.8
560	6.4	6869	2.3 - 3.5	0.4 - 0.6
610	7.0	7479	1.2 - 2.3	0.2 - 0.4
650	7.4	8129	0.0 - 1.2	0.0 - 0.2
637	7.3	8766	0.0	0.0



PARK - Scaling info

Calculation: AEP_Vestas_Curtailment_Noicemode

Scaler settings

Name	EMD Default Measurement Mast Scaler
Terrain scaling	Measured Data Scaling (WAsP Stability / A-Parameter)
RIX correction	No RIX correction
Displacement height	from objects
Micro terrain flow model	Site data: RESGEN (5)

Site Data: Site data: RESGEN (5)

Obstacles:

All obstacles used

Roughness:

Terrain data files used in calculation:
C:\Users\student\Desktop\Exam_16_01_2025\Windpro_exam_16.01\ROUGHNESSLINE_ONLINEDATA_0.wpo
Min X: 518,359, Max X: 578,403, Min Y: 6,030,681, Max Y: 6,091,978, Width: 60,044 m, Height: 61,297 m

Orography:

Terrain data files used in calculation:
C:\Users\student\Desktop\Exam_16_01_2025\Windpro_exam_16.01\CONTOURLINE_ONLINEDATA_0.wpo
Min X: 538,612, Max X: 558,177, Min Y: 6,051,218, Max Y: 6,071,644, Width: 19,565 m, Height: 20,426 m

Post calibration

Overall factor	1.0000
Overall offset	0.0000
By sector	No
By month	No
By hour	No
By wind speed	No

PARK - Curtailment assumptions

Calculation: AEP_Vestas_Curtailment_Noicemode

Curtailment signals

Signal	Signal source
Mean wind speed	Scaler

WTG Curtailments

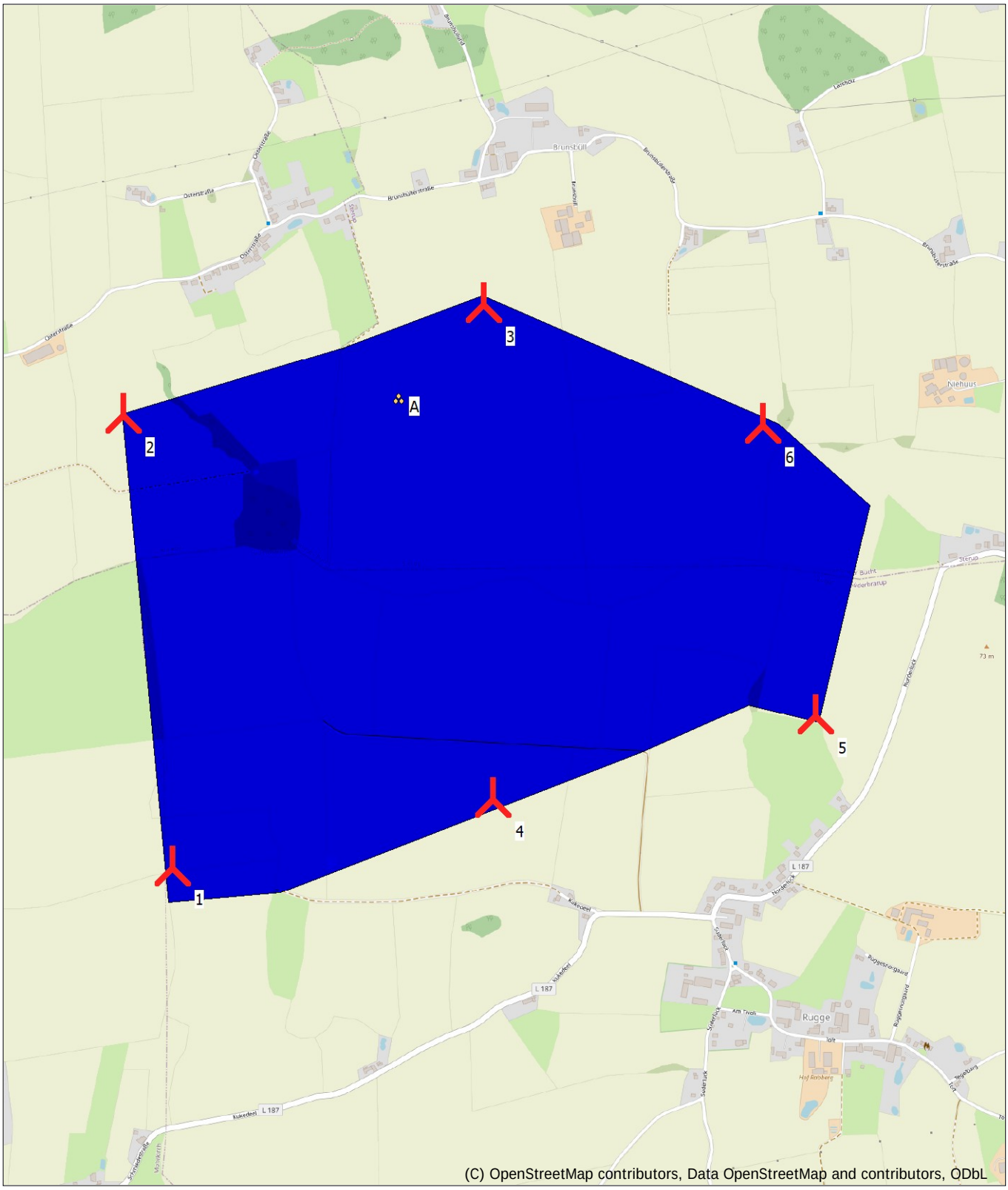
WTG	Name	Index	Priority	Type	Action	Conditions	Times fully applied	Time partially applied	Times skipped
1	Bats	1	1	Bats	Shut down	Date [4/1;9/30], SunRiseSet [1:00h before sunset;1:00h after sunset], WS [0;6]	6562	0	0
2	Bats	1	1	Bats	Shut down	Date [4/1;9/30], SunRiseSet [1:00h before sunset;1:00h after sunset], WS [0;6]	6593	0	0
3	Bats	1	1	Bats	Shut down	Date [4/1;9/30], SunRiseSet [1:00h before sunset;1:00h after sunset], WS [0;6]	6817	0	0
4	Bats	1	1	Bats	Shut down	Date [4/1;9/30], SunRiseSet [1:00h before sunset;1:00h after sunset], WS [0;6]	6819	0	0
5	Bats	1	1	Bats	Shut down	Date [4/1;9/30], SunRiseSet [1:00h before sunset;1:00h after sunset], WS [0;6]	6701	0	0
6	Bats	1	1	Bats	Shut down	Date [4/1;9/30], SunRiseSet [1:00h before sunset;1:00h after sunrise], WS [0;6]	26045	0	0

WTG curtailments using wind speeds interacts with the wake losses.

Multiple curtailment rules may have been sequentially applied in each time step

PARK - Map

Calculation: AEP_Vestas_Curtailment_Noicemode



0 250 500 750 1000m

Map: EMD OpenStreetMap , Print scale 1:12,500, Map center UTM (north)-ETRS89 Zone: 32 East: 548,534 North: 6,061,313

New WTG WTG area