

Project: Description:

Iglsø

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Calculated:
08/04/2024 09.22/4.0.540

PARK - Main Result

Calculation: Layout10 Iglsø 6x SG170 6.6MW 100m

Setup

AEP scaled to a full year based on number of samples

Scaling factor from 1,0 years to 1 year: 1,001

Calculation performed in UTM (north)-WGS84 Zone: 32

At the site centre the difference between grid north and true north is: 0,1°

Wake

Wake Model: N.O. Jensen (RISØ/EMD) Park 2 2018

Wake decay constant

Wake decay constant: 0,090 DTU default onshore Hub height independent

Reference WTG: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 100,0 m (TOT: 185,0 m) (76)

Scaler/wind data

Name EMD Default Meso Scaler

Terrain scaling Meso-scale Data Downscaling

Micro terrain flow model WASP IBZ from Site Data

Used period 01/01/2017 - 31/12/2017 23.00.00

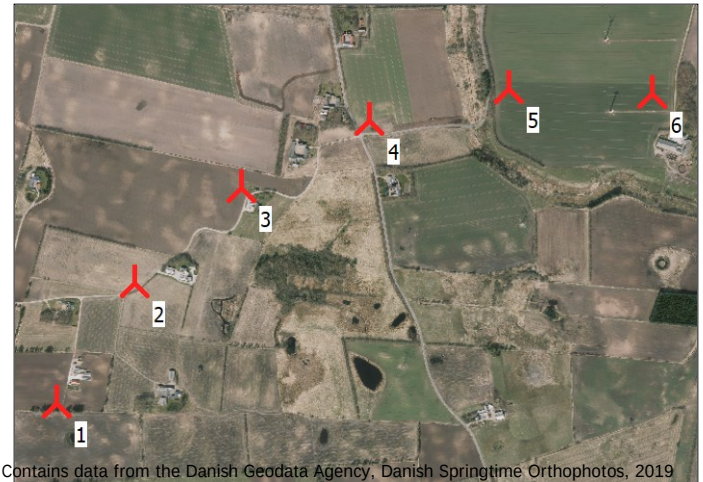
Meteo object(s) EMD-WRF Europe+ (ERA5)_N56,45987_E009,116058 (6)

WASP version WASP 11 Version 11.06.0042

Power correction (All new WTGs)

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]	7,5	7,6	7,5			
From air density settings	[hPa]	996,0	996,8	996,4			
Resulting air density	[kg/m³]	1,236	1,237	1,237			
Relative to 15°C at sea level	[%]	100,9	101,0	100,9	0,6	0,0	0,6



Contains data from the Danish Geodata Agency, Danish Springtime Orthophotos, 2019

Scale 1:20.000

New WTG

Calculated Annual Energy for Wind Farm

WTG combination	Result PARK [MWh/y]	GROSS (no loss) Free WTGs [MWh/y]	Wake loss [%]	Capacity factor [%]	Mean WTG result [MWh/y]	Full load hours [Hours/year]	Wind speed	
							free [m/s]	wake reduced [m/s]
Wind farm	138.003,4	159.406,4	13,4	39,8	23.000,6	3.485	7,5	6,9

*) Based on wake reduced results and any curtailments.

Calculated Annual Energy for each of 6 new WTGs with total 39,6 MW rated power

WTG type	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Power curve		Annual Energy Result [MWh/y]	Wind speed free [m/s]	Wind speed reduced [m/s]
							Creator	Name			
1 Yes		Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	100,0	USER	(AM 0, 6.6MW) - 1.225 kg/m3	25.486,5	4,8	7,48
2 Yes		Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	100,0	USER	N1 - 105.5dB(A) - 1.225 kg/m3	23.885,5	9,7	7,49
3 Yes		Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	100,0	USER	(AM 0, 6.6MW) - 1.225 kg/m3	22.777,4	13,3	7,40
4 Yes		Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	100,0	USER	(AM 0, 6.6MW) - 1.225 kg/m3	21.794,8	17,2	7,40
5 Yes		Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	100,0	USER	(AM 0, 6.6MW) - 1.225 kg/m3	21.489,6	18,6	7,42
6 Yes		Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	100,0	USER	(AM 0, 6.6MW) - 1.225 kg/m3	22.569,6	16,9	7,54

Annual Energy results includes shown losses. For expected NET AEP (expected sold production), see report Loss & Uncertainty.

WTG siting

	Danish Transv. Merc. DKT2 Eastern Jylland (10°)-ETRS89				Z	Row data/Description	Calculation period	
	Easting	Northing					Start	End
1 New	343.253,59	1.259.956,85	40,0	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 100,0 m (TOT: 185,0 m) (76)			01/01/2017	31/12/2017
2 New	343.467,31	1.260.271,06	40,4	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 100,0 m (TOT: 185,0 m) (77)			01/01/2017	31/12/2017
3 New	343.753,13	1.260.521,47	35,0	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 100,0 m (TOT: 185,0 m) (78)			01/01/2017	31/12/2017
4 New	344.092,71	1.260.692,03	34,6	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 100,0 m (TOT: 185,0 m) (79)			01/01/2017	31/12/2017
5 New	344.464,24	1.260.771,78	36,9	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 100,0 m (TOT: 185,0 m) (80)			01/01/2017	31/12/2017
6 New	344.843,90	1.260.755,60	41,6	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 100,0 m (TOT: 185,0 m) (81)			01/01/2017	31/12/2017

*) Included in wake losses is influence from 11 WTG(s) in the neighborhood, which has status as "Reference WTGs", see separate report to identify these.