

PARK - Main Result

Calculation: HKW MER 10MW incl HKN&HKZ

Wake Model N.O. Jensen (EMD) : 2005
Include mirror wakes

Calculation performed in UTM (north)-WGS84 Zone: 31
At the site centre the difference between grid north and true north is: 2.2°

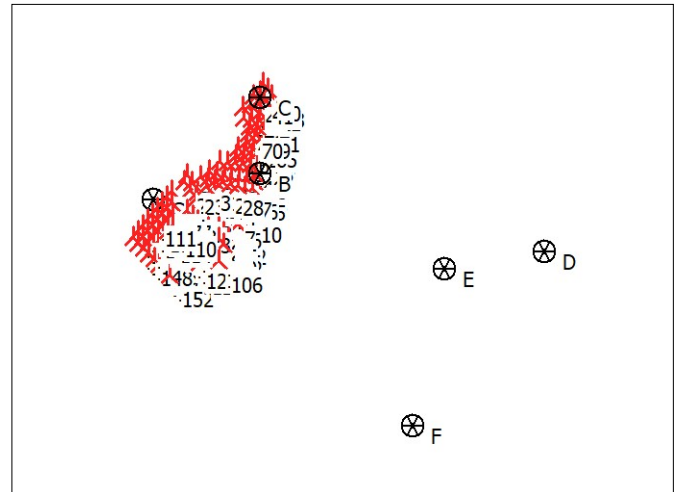
Power curve correction method
New windPRO method (adjusted IEC method, improved to match turbine control) <RECOMMENDED>
Air density calculation method
Fixed standard
Air density: 1.225 kg/m³ -> 100.0 % of Std

Wake Model Parameters
Terrain type Wake decay constant
HH: 100m Offshore 0.030

Omnidirectional displacement height from objects

Wake calculation settings
Angle [°] Wind speed [m/s]
start end step start end step
0.5 360.0 1.0 0.5 30.5 1.0

WAsP version WAsP 11 Version 11.06.0028



New WTG

Scale 1:1,000,000
Site Data

Key results for height 165.0 m above ground level

Terrain UTM (north)-ETRS89 Zone: 31

Easting Northing Name of wind Type
distribution

Wind energy Mean wind speed Equivalent roughness

					[kWh/m ²]	[m/s]	
A	548,060	5,829,150	HKW-03	WAsP (WAsP 11 Version 11.06.0028)	10,182	10.5	0.0
B	558,112	5,839,246	HKW-04	WAsP (WAsP 11 Version 11.06.0028)	10,107	10.4	0.0
C	558,004	5,849,256	HKW-05	WAsP (WAsP 11 Version 11.06.0028)	10,182	10.5	0.0
D	596,112	5,829,642	OWEZ	WAsP (WAsP 11 Version 11.06.0028)	9,227	10.1	0.0
E	582,817	5,827,056	Prinses Amalia	WAsP (WAsP 11 Version 11.06.0028)	9,685	10.3	0.0
F	578,881	5,806,416	Luchterduinen	WAsP (WAsP 11 Version 11.06.0028)	9,489	10.2	0.0
G	543,967	5,835,763	HKW-02	WAsP (WAsP 11 Version 11.06.0028)	10,207	10.5	0.0

Calculated Annual Energy for Wind Farm

WTG combination	Result PARK [MWh/y]	GROSS (no loss)		Wake loss [%]	Specific results ^{a)}		Full load hours [Hours/year]	Mean wind speed @hub height [m/s]
		Free WTGs [MWh/y]	Capacity factor [%]		Mean WTG result [MWh/y]			
Wind farm	7,825,659.2	8,545,929.8	8.4	58.7	51,484.6	5,148	9.9	

^{a)} Based on wake reduced results, but no other losses included

Calculated Annual Energy for each of 152 new WTGs with total 1,520.0 MW rated power

Links	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Power curve		Annual Energy			
	Valid	Manufact.					Creator	Name	Result [MWh/y]	Wake loss [%]	Free mean wind speed [m/s]	
1	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,574.8	8.1	9.92
2	C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	54,350.0	3.4	9.95
3	G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,299.8	5.3	9.96
4	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,098.4	8.9	9.92
5	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,809.4	7.7	9.92
6	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,123.3	8.9	9.92
7	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,835.1	9.4	9.92
8	A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,120.6	9.1	9.95
9	A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,003.9	9.3	9.95
10	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,945.8	7.4	9.92
11	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,809.1	9.5	9.92
12	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,851.4	9.4	9.92
13	G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,178.7	9.1	9.96
14	G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,482.6	8.6	9.96
15	B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,756.0	7.8	9.92

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^{*}) Included in wake losses is influence from 355 WTG(s) in the neighborhood, which has status as "Reference WTGs", see separate report to identify these.

PARK - Main Result

Calculation: HKW MER 10MW incl HKN&HKZ

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Links	Valid	WTG type Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Annual Energy		Free mean wind speed [m/s]
							Creator	Name	Result	Wake loss	
				[kW]	[m]	[m]			[MWh/y]	[%]	
16 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,023.0	9.1	9.92
17 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,101.2	8.9	9.92
18 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,417.9	8.7	9.96
19 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,957.6	7.7	9.96
20 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,513.4	10.0	9.92
21 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,512.1	10.0	9.92
22 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,138.6	9.2	9.96
23 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,018.4	7.6	9.96
24 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,995.9	5.9	9.96
25 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,879.2	7.6	9.92
26 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,023.7	9.1	9.92
27 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,942.0	9.5	9.92
28 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,396.1	10.2	9.92
29 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,278.8	10.4	9.92
30 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,446.3	10.1	9.92
31 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,942.5	9.2	9.92
32 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,088.9	7.5	9.96
33 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,574.1	8.1	9.92
34 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,838.5	9.4	9.92
35 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,887.4	9.7	9.92
36 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,579.7	9.9	9.92
37 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,698.0	9.7	9.92
38 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,953.9	9.2	9.92
39 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,912.5	7.5	9.92
40 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,177.0	5.5	9.95
41 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,890.1	6.0	9.95
42 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,544.2	4.8	9.95
43 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	55,233.3	5.4	9.95
44 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,473.6	6.7	9.95
45 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,595.7	6.5	9.95
46 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,968.0	5.8	9.95
47 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,886.2	4.2	9.95
48 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,632.9	8.0	9.92
49 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,984.0	9.1	9.92
50 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,940.6	9.2	9.92
51 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,183.1	8.8	9.92
52 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,680.6	7.9	9.92
53 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,453.2	6.5	9.92
54 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,386.0	8.4	9.92
55 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,591.7	9.8	9.92
56 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,762.2	9.5	9.92
57 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,468.5	8.3	9.92
58 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,409.2	8.4	9.92
59 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,750.9	9.6	9.92
60 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,145.8	8.9	9.92
61 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,114.6	7.1	9.92
62 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,449.5	8.3	9.92
63 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,846.4	9.4	9.92
64 B	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,704.6	7.9	9.92
65 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,703.8	8.1	9.95
66 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,255.8	8.9	9.95
67 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,151.8	7.3	9.95
68 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,823.5	7.9	9.95
69 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,371.0	8.7	9.95
70 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,231.5	7.2	9.95
71 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,041.4	7.5	9.95
72 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,639.8	8.2	9.95
73 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,229.7	7.2	9.95
74 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,366.4	5.1	9.95
75 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,442.1	6.8	9.95
76 C	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,195.5	7.2	9.95
77 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,900.0	6.0	9.96
78 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,181.7	9.0	9.95

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PARK - Main Result

Calculation: HKW MER 10MW incl HKN&HKZ

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Links	Valid	WTG type Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Annual Energy		Free mean wind speed
							Creator	Name	Result	Wake loss	
				[kW]	[m]	[m]			[MWh/y]	[%]	[m/s]
79 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,598.5	10.1	9.95
80 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,368.5	10.5	9.95
81 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,593.4	10.1	9.95
82 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,674.1	8.1	9.95
83 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,349.8	10.5	9.95
84 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,049.7	11.0	9.95
85 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,320.6	10.5	9.95
86 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,363.2	8.7	9.95
87 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,353.4	10.5	9.95
88 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,100.5	10.9	9.95
89 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,421.6	10.4	9.95
90 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,399.8	8.6	9.95
91 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,579.9	8.4	9.96
92 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,731.5	9.8	9.95
93 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,661.8	9.9	9.95
94 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,545.1	6.7	9.96
95 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,362.8	8.8	9.96
96 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,447.4	10.3	9.95
97 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,361.8	10.5	9.95
98 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,761.4	9.8	9.95
99 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,682.5	8.1	9.95
100 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,097.1	9.2	9.95
101 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,601.6	10.0	9.95
102 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,006.1	9.3	9.95
103 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,137.6	9.1	9.95
104 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,605.2	8.3	9.95
105 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,540.2	6.6	9.95
106 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,571.3	4.8	9.95
107 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,221.8	7.2	9.96
108 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,682.3	10.0	9.96
109 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,138.6	10.9	9.96
110 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,171.5	10.8	9.95
111 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,232.1	7.2	9.96
112 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,629.5	10.1	9.96
113 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,047.4	11.1	9.96
114 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	49,813.7	11.4	9.95
115 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,127.4	10.9	9.95
116 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,320.1	7.1	9.96
117 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,873.8	9.6	9.96
118 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,592.7	10.1	9.96
119 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,226.8	8.9	9.95
120 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,155.8	9.1	9.95
121 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,655.1	8.2	9.95
122 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,901.3	6.0	9.95
123 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,304.4	7.1	9.96
124 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,773.8	9.8	9.96
125 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,151.9	10.9	9.96
126 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	49,863.5	11.4	9.95
127 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	49,955.7	11.2	9.95
128 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,320.6	10.5	9.95
129 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,762.8	8.0	9.95
130 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,633.6	6.4	9.95
131 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,015.3	5.8	9.96
132 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,801.4	8.0	9.96
133 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,265.0	8.9	9.95
134 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,079.4	9.2	9.95
135 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,075.6	9.2	9.95
136 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,292.0	8.8	9.95
137 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,846.2	7.8	9.95
138 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,566.0	6.6	9.96
139 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,118.7	9.2	9.96
140 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,546.5	10.1	9.95
141 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,259.2	10.7	9.95

To be continued on next page...

PARK - Main Result

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

Links	WTG type		Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Annual Energy		Free mean wind speed
	Valid	Manufact.					Creator	Name	Result	Wake loss	
				[kW]	[m]	[m]			[MWh/y]	[%]	[m/s]
142 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,284.9	10.6	9.95
143 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	50,542.7	10.2	9.95
144 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	51,192.6	9.0	9.95
145 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	54,097.5	3.9	9.96
146 G	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,238.7	5.4	9.96
147 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,890.1	6.0	9.95
148 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,757.2	6.2	9.95
149 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	52,819.4	6.1	9.95
150 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,004.6	5.8	9.95
151 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,358.8	5.1	9.95
152 A	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	107.0	USER	V164 10 MW - HKN P-V curve	53,978.8	4.0	9.95

Annual Energy results do not include any losses apart from wake losses. For expected NET AEP (expected sold production), see report Loss & Uncertainty.

WTG siting

UTM (north)-ETRS89 Zone: 31

	Easting	Northing	Z	Row data/Description
				[m]
1 New	555,189	5,832,687	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7821)
2 New	558,356	5,851,237	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7824)
3 New	548,433	5,839,081	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7830)
4 New	552,768	5,836,211	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7832)
5 New	557,458	5,839,277	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7838)
6 New	555,372	5,833,658	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7825.1)
7 New	554,382	5,833,862	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7825.2)
8 New	551,413	5,834,475	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7826.1)
9 New	550,423	5,834,680	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7826.2)
10 New	556,544	5,834,424	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7828.1)
11 New	555,554	5,834,628	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7828.2)
12 New	554,565	5,834,832	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7828.3)
13 New	550,606	5,835,650	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7829.1)
14 New	549,617	5,835,855	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7829.2)
15 New	556,727	5,835,395	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7831.1)
16 New	555,737	5,835,599	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7831.2)
17 New	554,747	5,835,803	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7831.3)
18 New	549,799	5,836,825	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7833.1)
19 New	548,810	5,837,030	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7833.2)
20 New	552,951	5,837,181	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7834.1)
21 New	551,961	5,837,386	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7834.2)
22 New	550,972	5,837,591	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7834.3)
23 New	548,993	5,838,000	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7835.1)
24 New	548,003	5,838,206	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7835.2)
25 New	557,093	5,837,336	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.1)
26 New	556,103	5,837,539	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.2)
27 New	555,113	5,837,743	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.3)
28 New	554,123	5,837,947	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.4)
29 New	553,134	5,838,152	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.5)
30 New	552,144	5,838,356	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.6)
31 New	551,154	5,838,561	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.7)
32 New	550,165	5,838,766	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7836.8)
33 New	557,275	5,838,306	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7837.1)
34 New	556,286	5,838,510	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7837.2)
35 New	555,296	5,838,714	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7837.3)
36 New	554,306	5,838,918	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7837.4)
37 New	553,316	5,839,122	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7837.5)
38 New	552,327	5,839,326	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7837.6)
39 New	551,337	5,839,531	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7837.7)
40 New	558,898	5,850,398	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7851.1)
41 New	557,973	5,849,992	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7851.2)

To be continued on next page...

PARK - Main Result

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

UTM (north)-ETRS89 Zone: 31

	Eastng	Northing	Z	Row data/Description
			[m]	
42 New	557,047	5,849,587	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7851.3)
43 New	559,447	5,849,546	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7852.1)
44 New	558,517	5,849,149	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7852.2)
45 New	557,588	5,848,752	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7852.3)
46 New	556,659	5,848,355	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7852.4)
47 New	555,730	5,847,958	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7852.5)
48 New	557,733	5,840,520	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7921.1)
49 New	556,724	5,840,587	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7921.2)
50 New	555,716	5,840,654	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7921.3)
51 New	554,708	5,840,722	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7921.4)
52 New	553,700	5,840,790	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7921.5)
53 New	552,691	5,840,858	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7921.6)
54 New	557,915	5,841,490	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7922.1)
55 New	556,907	5,841,558	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7922.2)
56 New	555,899	5,841,625	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7922.3)
57 New	554,890	5,841,693	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7922.4)
58 New	558,098	5,842,461	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7923.1)
59 New	557,090	5,842,528	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7923.2)
60 New	556,081	5,842,595	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7923.3)
61 New	555,073	5,842,663	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7923.4)
62 New	558,280	5,843,432	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7924.1)
63 New	557,272	5,843,499	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7924.2)
64 New	556,264	5,843,566	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7924.3)
65 New	558,463	5,844,402	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7925.1)
66 New	557,455	5,844,469	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7925.2)
67 New	556,446	5,844,536	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7925.3)
68 New	558,646	5,845,373	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7926.1)
69 New	557,637	5,845,440	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7926.2)
70 New	556,629	5,845,507	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7926.3)
71 New	558,828	5,846,343	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7927.1)
72 New	557,820	5,846,410	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7927.2)
73 New	556,812	5,846,477	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7927.3)
74 New	555,803	5,846,545	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7927.4)
75 New	559,011	5,847,314	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7928.1)
76 New	558,002	5,847,381	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7928.2)
77 New	546,343	5,836,860	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7962)
78 New	548,599	5,831,417	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7969)
79 New	552,534	5,833,584	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7959.1)
80 New	553,239	5,832,897	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7959.2)
81 New	553,943	5,832,209	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7959.3)
82 New	554,647	5,831,522	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7959.4)
83 New	551,901	5,832,814	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7961.1)
84 New	552,605	5,832,127	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7961.2)
85 New	553,310	5,831,439	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7961.3)
86 New	554,014	5,830,752	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7961.4)
87 New	551,244	5,832,079	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7964.1)
88 New	551,948	5,831,391	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7964.2)
89 New	552,652	5,830,704	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7964.3)
90 New	553,357	5,830,017	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7964.4)
91 New	548,458	5,834,332	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7963.1)
92 New	549,162	5,833,645	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7963.2)
93 New	549,865	5,832,957	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7963.3)
94 New	545,710	5,836,091	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7965.1)
95 New	546,414	5,835,403	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7965.2)
96 New	550,588	5,831,309	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7967.1)
97 New	551,292	5,830,621	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7967.2)
98 New	551,996	5,829,934	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7967.3)
99 New	552,700	5,829,246	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7967.4)
100 New	548,528	5,832,875	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7966.1)
101 New	549,232	5,832,187	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7966.2)
102 New	549,931	5,830,562	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7970.1)
103 New	550,635	5,829,874	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7970.2)
104 New	551,339	5,829,187	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7970.3)
105 New	552,042	5,828,499	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7970.4)

To be continued on next page...

PARK - Main Result

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

UTM (north)-ETRS89 Zone: 31

	Easting	Northing	Z	Row data/Description
	[m]			
106 New	552,747	5,827,812	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7970.5)
107 New	544,445	5,834,553	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7971.1)
108 New	545,148	5,833,864	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7971.2)
109 New	545,851	5,833,176	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7971.3)
110 New	546,554	5,832,488	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7971.4)
111 New	543,812	5,833,784	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7972.1)
112 New	544,515	5,833,095	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7972.2)
113 New	545,218	5,832,407	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7972.3)
114 New	545,921	5,831,718	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7972.4)
115 New	546,624	5,831,030	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7972.5)
116 New	545,078	5,835,322	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7968.1)
117 New	545,781	5,834,634	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7968.2)
118 New	546,484	5,833,945	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7968.3)
119 New	548,031	5,829,653	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7973.1)
120 New	548,735	5,828,966	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7973.2)
121 New	549,438	5,828,278	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7973.3)
122 New	550,142	5,827,590	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7973.4)
123 New	543,179	5,833,014	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7974.1)
124 New	543,882	5,832,326	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7974.2)
125 New	544,585	5,831,637	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7974.3)
126 New	545,288	5,830,949	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7974.4)
127 New	545,991	5,830,260	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7974.5)
128 New	546,695	5,829,572	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7974.6)
129 New	548,101	5,828,195	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7975.1)
130 New	548,805	5,827,508	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7975.2)
131 New	541,914	5,831,476	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7977.1)
132 New	542,617	5,830,787	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7977.2)
133 New	543,319	5,830,099	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7977.3)
134 New	544,022	5,829,410	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7977.4)
135 New	544,725	5,828,721	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7977.5)
136 New	545,428	5,828,033	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7977.6)
137 New	546,131	5,827,344	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7977.7)
138 New	542,547	5,832,245	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7976.1)
139 New	543,249	5,831,557	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7976.2)
140 New	543,952	5,830,868	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7976.3)
141 New	544,655	5,830,179	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7976.4)
142 New	545,358	5,829,491	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7976.5)
143 New	546,061	5,828,802	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7976.6)
144 New	546,764	5,828,114	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7976.7)
145 New	541,281	5,830,707	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.1)
146 New	541,984	5,830,018	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.2)
147 New	542,687	5,829,329	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.3)
148 New	543,389	5,828,641	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.4)
149 New	544,092	5,827,952	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.5)
150 New	544,795	5,827,263	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.6)
151 New	545,498	5,826,575	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.7)
152 New	546,201	5,825,886	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 107.0 m (TOT: 189.0 m) (7978.8)

PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

Wake Model N.O. Jensen (EMD) : 2005
Include mirror wakes

Calculation performed in UTM (north)-WGS84 Zone: 31
At the site centre the difference between grid north and true north is: 2.2°

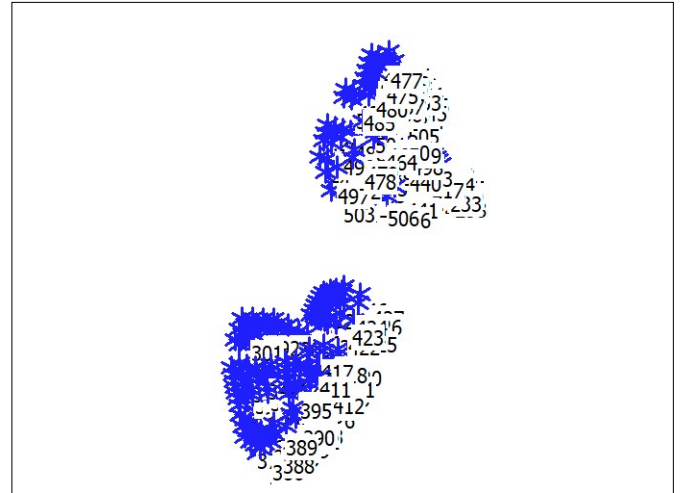
Power curve correction method
New windPRO method (adjusted IEC method, improved to match turbine control) <RECOMMENDED>
Air density calculation method
Fixed standard
Air density: 1.225 kg/m³ -> 100.0 % of Std

Wake Model Parameters
Terrain type Wake decay constant
HH: 100m Offshore 0.030

Omnidirectional displacement height from objects

Wake calculation settings
Angle [°] Wind speed [m/s]
start end step start end step
0.5 360.0 1.0 0.5 30.5 1.0

WASP version WASP 11 Version 11.06.0028



▲ New WTG

★ Existing WTG

Key results for height 165.0 m above ground level

Terrain UTM (north)-ETRS89 Zone: 31

Easting Northing Name of wind Type
distribution

Wind energy Mean wind speed Equivalent roughness

					[kWh/m²]	[m/s]	
A	548,060	5,829,150	HKW-03	WASP (WASP 11 Version 11.06.0028)	10,182	10.5	0.0
B	558,112	5,839,246	HKW-04	WASP (WASP 11 Version 11.06.0028)	10,107	10.4	0.0
C	558,004	5,849,256	HKW-05	WASP (WASP 11 Version 11.06.0028)	10,182	10.5	0.0
D	596,112	5,829,642	OWEZ	WASP (WASP 11 Version 11.06.0028)	9,227	10.1	0.0
E	582,817	5,827,056	Prinses Amalia	WASP (WASP 11 Version 11.06.0028)	9,685	10.3	0.0
F	578,881	5,806,416	Luchterduinen	WASP (WASP 11 Version 11.06.0028)	9,489	10.2	0.0
G	543,967	5,835,763	HKW-02	WASP (WASP 11 Version 11.06.0028)	10,207	10.5	0.0

Calculated Annual Energy for reference WTGs

Calculated prod. without new WTGs [MWh/y]	GROSS (no loss) Free WTGs [MWh/y]	Wake loss [%]	Capacity factor [%]	Specific results		Mean wind speed @hub height [m/s]	Actual wind corrected energy [MWh/y]	Goodness Factor [%]
				Mean WTG result [MWh/y]	Full load hours [Hours/year]			
12,888,725.0	13,814,928.4	6.8	57.9	36,306.3	5,078	9.6	0.0	

Calculated Annual Energy for each of 355 reference WTGs with total 2,538.0 MW rated power

Links	Valid	WTG type Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Power curve		Calculated prod. without new WTGs [MWh/y]	Goodness Factor [%]
							Creator	Name		
153	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	8,086.1	0
154	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	8,035.8	0
155	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	8,043.3	0
156	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	8,174.9	0
157	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,761.3	0
158	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,928.0	0
159	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,682.7	0
160	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	8,056.3	0
161	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,700.7	0
162	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,820.2	0
163	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,580.7	0
164	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,522.2	0
165	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	8,074.2	0
166	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,626.8	0
167	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,533.3	0
168	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated - - 09/2001	7,784.5	0

To be continued on next page...

PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

Links	Valid	WTG type Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Calculated prod. without new WTGs [MWh/y]	Goodness Factor [%]
							Creator	Name		
169	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,648.8	0
170	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	8,053.7	0
171	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,757.5	0
172	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,411.2	0
173	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,457.7	0
174	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,408.1	0
175	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,498.6	0
176	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	8,110.4	0
177	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,476.2	0
178	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,662.2	0
179	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,581.0	0
180	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,917.9	0
181	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,336.9	0
182	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,831.2	0
183	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,371.8	0
184	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,354.6	0
185	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,463.0	0
186	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,386.9	0
187	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,624.8	0
188	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,480.7	0
189	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,658.4	0
190	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,354.1	0
191	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,346.5	0
192	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,404.1	0
193	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,380.1	0
194	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,474.9	0
195	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	8,000.4	0
196	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,450.6	0
197	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,758.5	0
198	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,597.0	0
199	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,440.7	0
200	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,388.9	0
201	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,817.5	0
202	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,377.4	0
203	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,527.5	0
204	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,445.9	0
205	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,654.5	0
206	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,565.0	0
207	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,819.8	0
208	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,546.3	0
209	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,473.4	0
210	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,494.3	0
211	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,671.9	0
212	E	Yes VESTAS	V80-2.0MW offshore-2,000	2,000	80.0	60.0	EMD	Level 0 - calculated -- 09/2001	7,709.2	0
213	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,478.7	0
214	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,407.7	0
215	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,371.2	0
216	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,337.6	0
217	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,309.8	0
218	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,323.7	0
219	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,342.2	0
220	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,390.1	0
221	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,410.4	0
222	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,161.8	0
223	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,443.1	0
224	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,051.6	0
225	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,045.3	0
226	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,492.1	0
227	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,056.3	0
228	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,133.4	0
229	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,575.4	0
230	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,211.4	0
231	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,204.7	0
232	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,057.1	0
233	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,245.9	0
234	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,020.2	0
235	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,043.2	0
236	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,348.5	0
237	D	Yes VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,166.1	0

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PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

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Links	Valid	WTG type Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Calculated prod. without new WTGs [MWh/y]	Goodness Factor [%]
							Creator	Name		
238 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,576.2	0
239 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,217.1	0
240 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,345.3	0
241 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,203.2	0
242 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,301.2	0
243 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,166.4	0
244 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,209.8	0
245 D	Yes	VESTAS	V90-3,000	3,000	90.0	70.0	EMD	Mode 0	11,314.0	0
246 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,569.3	0
247 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,146.7	0
248 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,069.4	0
249 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,168.1	0
250 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,735.4	0
251 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,291.2	0
252 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,663.2	0
253 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,757.9	0
254 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,929.8	0
255 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,565.5	0
256 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,459.9	0
257 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,108.4	0
258 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,462.0	0
259 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,612.2	0
260 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,724.5	0
261 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,419.1	0
262 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,325.2	0
263 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,069.5	0
264 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,347.7	0
265 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,580.6	0
266 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,648.5	0
267 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,398.2	0
268 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,337.6	0
269 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,079.7	0
270 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,367.6	0
271 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,617.9	0
272 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,577.1	0
273 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,459.9	0
274 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,391.1	0
275 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,458.5	0
276 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,165.6	0
277 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,759.7	0
278 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,688.1	0
279 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,642.0	0
280 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,588.4	0
281 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,637.5	0
282 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,410.9	0
283 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,086.4	0
284 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	13,885.7	0
285 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,038.4	0
286 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,004.5	0
287 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,062.6	0
288 F	Yes	VESTAS	V112 offshore-3,000	3,000	112.0	81.0	EMD	Level 0 - Estimated - Mode 0 - 08-2011	14,318.0	0
289 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,087.1	0
290 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,705.0	0
291 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,107.1	0
292 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,959.9	0
293 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,873.4	0
294 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,552.5	0
295 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,555.0	0
296 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,701.3	0
297 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,954.5	0
298 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,715.8	0
299 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,860.3	0
300 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,370.9	0
301 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,521.1	0
302 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,088.9	0
303 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,614.4	0
304 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,512.9	0
305 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,674.1	0
306 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,588.2	0

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PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

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Links	WTG type		Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Calculated prod. without new WTGs [MWh/y]	Goodness Factor [%]
	Valid	Manufact.					Creator	Name		
307 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,766.7	0
308 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,487.8	0
309 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,565.0	0
310 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,947.6	0
311 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,778.9	0
312 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,330.6	0
313 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,866.4	0
314 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,983.3	0
315 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,159.5	0
316 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,292.5	0
317 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,554.4	0
318 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,684.4	0
319 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,692.5	0
320 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,622.8	0
321 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,428.5	0
322 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,297.7	0
323 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,938.7	0
324 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,790.1	0
325 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,759.4	0
326 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,811.9	0
327 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,001.3	0
328 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,884.0	0
329 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,340.6	0
330 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,176.7	0
331 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,202.4	0
332 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,364.0	0
333 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,735.3	0
334 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,160.2	0
335 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,656.6	0
336 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,530.6	0
337 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,587.4	0
338 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,864.8	0
339 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,311.6	0
340 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,618.6	0
341 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,260.0	0
342 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,246.8	0
343 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,395.1	0
344 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,002.4	0
345 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,726.1	0
346 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,325.4	0
347 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,167.7	0
348 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,244.6	0
349 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,579.3	0
350 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,193.9	0
351 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,704.1	0
352 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,454.8	0
353 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,497.0	0
354 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,677.9	0
355 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,219.3	0
356 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,694.3	0
357 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,019.0	0
358 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,157.5	0
359 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,826.1	0
360 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,028.1	0
361 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,639.0	0
362 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,518.5	0
363 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,791.5	0
364 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,644.9	0
365 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,767.5	0
366 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,438.2	0
367 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,045.3	0
368 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,377.9	0
369 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,872.2	0
370 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	50,783.8	0
371 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,409.8	0
372 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,604.3	0
373 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,407.5	0
374 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,503.2	0
375 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,622.5	0

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PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

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Links	WTG type		Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Calculated prod. without new WTGs [MWh/y]	Goodness Factor [%]
	Valid	Manufact.					Creator	Name		
376 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,941.3	0
377 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,445.2	0
378 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,603.2	0
379 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,646.9	0
380 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,110.2	0
381 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,661.8	0
382 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,738.7	0
383 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,163.7	0
384 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,922.4	0
385 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,161.4	0
386 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,866.1	0
387 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,141.0	0
388 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,845.8	0
389 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,361.3	0
390 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,141.6	0
391 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,317.9	0
392 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,246.5	0
393 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,265.5	0
394 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,572.4	0
395 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,239.9	0
396 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,168.0	0
397 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,180.4	0
398 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,358.9	0
399 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,855.8	0
400 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,676.2	0
401 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,397.9	0
402 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,298.9	0
403 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,285.3	0
404 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,471.7	0
405 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,018.4	0
406 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,895.0	0
407 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,193.9	0
408 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,738.6	0
409 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,529.9	0
410 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,501.2	0
411 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,753.1	0
412 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,664.4	0
413 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,815.4	0
414 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,643.2	0
415 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,067.4	0
416 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,416.4	0
417 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,569.7	0
418 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,689.3	0
419 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,818.0	0
420 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,374.0	0
421 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,241.1	0
422 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,908.2	0
423 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,441.2	0
424 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,576.0	0
425 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,009.7	0
426 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,898.6	0
427 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,063.3	0
428 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,179.0	0
429 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,505.1	0
430 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,027.2	0
431 F	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,734.0	0
432 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,886.7	0
433 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,351.4	0
434 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,618.2	0
435 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,610.7	0
436 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,822.0	0
437 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,306.4	0
438 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,642.6	0
439 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,381.3	0
440 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,188.6	0
441 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,280.7	0
442 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,579.2	0
443 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,300.8	0
444 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,473.1	0

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PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

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Links	WTG type		Type-generator	Power, rated	Rotor diameter	Hub height	Power curve		Calculated prod. without new WTGs	Goodness Factor
	Valid	Manufact.					Creator	Name		
				[kW]	[m]	[m]			[MWh/y]	[%]
445 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,218.6	0
446 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,420.2	0
447 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,505.8	0
448 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,009.5	0
449 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,136.4	0
450 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,494.8	0
451 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,794.0	0
452 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,558.3	0
453 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,689.2	0
454 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,216.4	0
455 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,387.1	0
456 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,029.7	0
457 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,370.9	0
458 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,381.7	0
459 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,738.6	0
460 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,392.8	0
461 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,421.3	0
462 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,719.7	0
463 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,473.8	0
464 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,470.3	0
465 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,275.2	0
466 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,721.4	0
467 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,396.0	0
468 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,473.2	0
469 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,713.0	0
470 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,266.2	0
471 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,264.8	0
472 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,284.3	0
473 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,723.3	0
474 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,570.4	0
475 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,771.7	0
476 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	51,962.5	0
477 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,577.5	0
478 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,296.3	0
479 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,332.9	0
480 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,378.9	0
481 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,478.1	0
482 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,629.6	0
483 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,891.9	0
484 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,538.3	0
485 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,818.9	0
486 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,665.7	0
487 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,383.0	0
488 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,400.8	0
489 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,379.6	0
490 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,889.1	0
491 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,341.2	0
492 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,658.9	0
493 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,424.7	0
494 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,164.8	0
495 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,483.3	0
496 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,646.6	0
497 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,735.4	0
498 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,422.0	0
499 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,303.9	0
500 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	52,973.7	0
501 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,937.0	0
502 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,033.4	0
503 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,941.3	0
504 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,710.5	0
505 D	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	53,266.0	0
506 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,446.1	0
507 E	No	PONDERA VESTAS	V164-10.0MW-10,000	10,000	164.0	125.0	USER	V164 10 MW - HKN P-V curve	54,433.6	0

Project:

RVO Offshore wind farms

Licensed user:

Pondera Consult B.V.
Welbergweg 49
NL-7556 PE Hengelo
0031742489940



Calculated:

16/05/2019 10:18/3.2.712

PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

WTG siting

UTM (north)-ETRS89 Zone: 31

Easting Northing Z Row data/Description

Production source Statistical basis for normalized production: [Months]

			[m]		
153	582,037	5,825,515	0.0	WMPA 60	
154	581,541	5,825,752	0.0	WMPA 59	
155	581,045	5,825,990	0.0	WMPA 58	
156	580,549	5,826,228	0.0	WMPA 57	
157	582,496	5,825,818	0.0	WMPA 54	
158	582,988	5,825,571	0.0	WMPA 55	
159	582,004	5,826,064	0.0	WMPA 53	
160	583,480	5,825,325	0.0	WMPA 56	
161	581,513	5,826,310	0.0	WMPA 52	
162	581,021	5,826,556	0.0	WMPA 51	
163	582,970	5,826,130	0.0	WMPA 46	
164	582,483	5,826,385	0.0	WMPA 45	
165	580,529	5,826,802	0.0	WMPA 50	
166	583,457	5,825,875	0.0	WMPA 47	
167	581,995	5,826,640	0.0	WMPA 44	
168	583,944	5,825,620	0.0	WMPA 48	
169	581,508	5,826,895	0.0	WMPA 43	
170	584,432	5,825,365	0.0	WMPA 49	
171	581,021	5,827,150	0.0	WMPA 42	
172	582,972	5,826,707	0.0	WMPA 36	
173	583,454	5,826,443	0.0	WMPA 37	
174	582,490	5,826,971	0.0	WMPA 35	
175	583,937	5,826,179	0.0	WMPA 38	
176	580,533	5,827,405	0.0	WMPA 41	
177	582,007	5,827,235	0.0	WMPA 34	
178	584,419	5,825,915	0.0	WMPA 39	
179	581,525	5,827,499	0.0	WMPA 33	
180	584,902	5,825,651	0.0	WMPA 40	
181	583,457	5,827,020	0.0	WMPA 28	
182	581,043	5,827,763	0.0	WMPA 32	
183	583,934	5,826,747	0.0	WMPA 29	
184	582,980	5,827,293	0.0	WMPA 27	
185	584,412	5,826,473	0.0	WMPA 30	
186	582,502	5,827,566	0.0	WMPA 26	
187	584,889	5,826,200	0.0	WMPA 31	
188	582,026	5,827,839	0.0	WMPA 25	
189	581,547	5,828,111	0.0	WMPA 24	
190	583,948	5,827,323	0.0	WMPA 19	
191	583,476	5,827,606	0.0	WMPA 18	
192	584,420	5,827,041	0.0	WMPA 20	
193	583,004	5,827,888	0.0	WMPA 17	
194	584,892	5,826,759	0.0	WMPA 21	
195	581,070	5,828,385	0.0	WMPA 23	
196	582,531	5,828,170	0.0	WMPA 16	
197	585,364	5,826,477	0.0	WMPA 22	
198	582,059	5,828,452	0.0	WMPA 15	
199	584,439	5,827,608	0.0	WMPA 11	
200	583,972	5,827,900	0.0	WMPA 10	
201	581,587	5,828,734	0.0	WMPA 14	
202	583,505	5,828,191	0.0	WMPA 9	
203	584,906	5,827,318	0.0	WMPA 12	
204	583,039	5,828,481	0.0	WMPA 8	
205	585,373	5,827,027	0.0	WMPA 13	
206	582,572	5,828,772	0.0	WMPA 7	
207	582,105	5,829,063	0.0	WMPA 6	
208	584,457	5,828,159	0.0	WMPA 5	
209	583,996	5,828,458	0.0	WMPA 4	
210	583,534	5,828,757	0.0	WMPA 3	
211	583,073	5,829,056	0.0	WMPA 2	
212	584,027	5,829,008	0.0	WMPA 1	
213	592,510	5,831,701	0.0	Offshore Windpark Egmond aan Zee / 12	
214	592,935	5,831,215	0.0	Offshore Windpark Egmond aan Zee / 11	

To be continued on next page...

PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

UTM (north)-ETRS89 Zone: 31

Easting Northing Z Row data/Description

Production source Statistical basis for normalized production: [Months]

			[m]					
215	593,367	5,830,738	0.0	Offshore Windpark Egmond aan Zee / 10				
216	593,785	5,830,248	0.0	Offshore Windpark Egmond aan Zee / 9				
217	594,210	5,829,765	0.0	Offshore Windpark Egmond aan Zee / 8				
218	594,635	5,829,282	0.0	Offshore Windpark Egmond aan Zee / 7				
219	595,066	5,828,790	0.0	Offshore Windpark Egmond aan Zee / 6				
220	595,491	5,828,306	0.0	Offshore Windpark Egmond aan Zee / 5				
221	595,915	5,827,823	0.0	Offshore Windpark Egmond aan Zee / 4				
222	594,536	5,830,909	0.0	Offshore Windpark Egmond aan Zee / 21				
223	596,341	5,827,337	0.0	Offshore Windpark Egmond aan Zee / 3				
224	594,961	5,830,426	0.0	Offshore Windpark Egmond aan Zee / 20				
225	595,386	5,829,939	0.0	Offshore Windpark Egmond aan Zee / 19				
226	596,758	5,826,863	0.0	Offshore Windpark Egmond aan Zee / 2				
227	595,811	5,829,456	0.0	Offshore Windpark Egmond aan Zee / 18				
228	596,235	5,828,973	0.0	Offshore Windpark Egmond aan Zee / 17				
229	597,270	5,826,468	0.0	Offshore Windpark Egmond aan Zee / 1				
230	596,916	5,828,199	0.0	Offshore Windpark Egmond aan Zee / 16				
231	595,287	5,831,569	0.0	Offshore Windpark Egmond aan Zee / 29				
232	595,712	5,831,083	0.0	Offshore Windpark Egmond aan Zee / 28				
233	597,340	5,827,716	0.0	Offshore Windpark Egmond aan Zee / 15				
234	596,137	5,830,600	0.0	Offshore Windpark Egmond aan Zee / 27				
235	596,562	5,830,117	0.0	Offshore Windpark Egmond aan Zee / 26				
236	597,766	5,827,233	0.0	Offshore Windpark Egmond aan Zee / 14				
237	597,040	5,829,573	0.0	Offshore Windpark Egmond aan Zee / 25				
238	598,190	5,826,750	0.0	Offshore Windpark Egmond aan Zee / 13				
239	597,696	5,828,826	0.0	Offshore Windpark Egmond aan Zee / 24				
240	596,039	5,832,227	0.0	Offshore Windpark Egmond aan Zee / 36				
241	596,464	5,831,744	0.0	Offshore Windpark Egmond aan Zee / 35				
242	598,120	5,828,337	0.0	Offshore Windpark Egmond aan Zee / 23				
243	596,888	5,831,261	0.0	Offshore Windpark Egmond aan Zee / 34				
244	597,313	5,830,778	0.0	Offshore Windpark Egmond aan Zee / 33				
245	597,798	5,830,225	0.0	Offshore Windpark Egmond aan Zee / 32				
246	581,938	5,809,670	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (94)				
247	580,605	5,809,303	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (95)				
248	579,652	5,809,041	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (96)				
249	581,625	5,808,865	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (97)				
250	580,154	5,808,809	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (98)				
251	578,496	5,808,723	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (99)				
252	580,657	5,808,508	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (100)				
253	578,974	5,808,485	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (101)				
254	581,251	5,808,288	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (102)				
255	579,448	5,808,239	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (103)				
256	579,929	5,808,008	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (104)				
257	578,087	5,808,012	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (105)				
258	580,412	5,807,760	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (106)				
259	578,577	5,807,774	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (107)				
260	580,882	5,807,505	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (108)				
261	579,071	5,807,520	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (109)				
262	579,568	5,807,277	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (110)				
263	577,660	5,807,334	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (111)				
264	580,042	5,807,014	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (112)				
265	578,169	5,807,067	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (113)				
266	580,537	5,806,707	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (114)				
267	578,674	5,806,818	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (115)				
268	579,182	5,806,551	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (116)				
269	577,306	5,806,630	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (117)				
270	579,693	5,806,276	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (118)				
271	577,809	5,806,387	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (119)				
272	580,188	5,806,021	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (120)				
273	578,316	5,806,128	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (121)				
274	578,848	5,805,870	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (122)				
275	579,380	5,805,570	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (123)				
276	576,916	5,805,900	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (124)				

To be continued on next page...

PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

UTM (north)-ETRS89 Zone: 31

Easting Northing Z Row data/Description

Production source Statistical basis for normalized production: [Months]

			[m]	
277	577,439	5,805,661	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (125)
278	579,904	5,805,320	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (126)
279	577,963	5,805,386	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (127)
280	578,511	5,805,087	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (128)
281	579,035	5,804,820	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (129)
282	576,540	5,805,102	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (130)
283	577,094	5,804,911	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (131)
284	579,583	5,804,546	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (132)
285	577,634	5,804,603	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (133)
286	578,191	5,804,321	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (134)
287	578,715	5,804,038	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (135)
288	579,289	5,803,644	0.0	VESTAS V112 offshore 3000 112.0 !O! hub: 81.0 m (TOT: 137.0 m) (136)
289	573,220	5,802,271	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1276)
290	574,531	5,802,197	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1277)
291	575,939	5,801,904	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1278)
292	564,980	5,804,195	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1279)
293	566,755	5,804,176	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1280)
294	568,529	5,804,158	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1281)
295	570,304	5,804,140	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1282)
296	565,599	5,803,336	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1283)
297	567,374	5,803,317	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1284)
298	569,148	5,803,299	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1285)
299	570,923	5,803,281	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1286)
300	572,697	5,803,264	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1287)
301	564,445	5,802,495	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1288)
302	566,219	5,802,476	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1289)
303	567,994	5,802,457	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1290)
304	569,769	5,802,439	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1291)
305	571,543	5,802,422	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1292)
306	565,064	5,801,635	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1293)
307	566,838	5,801,616	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1294)
308	568,613	5,801,598	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1295)
309	570,388	5,801,580	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1296)
310	572,162	5,801,563	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1297)
311	563,910	5,800,795	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1298)
312	565,684	5,800,776	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1299)
313	567,459	5,800,757	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1300)
314	569,233	5,800,739	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1301)
315	571,008	5,800,721	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1302)
316	564,528	5,799,935	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1303)
317	566,303	5,799,916	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1304)
318	563,306	5,796,102	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1305)
319	564,547	5,796,713	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1306)
320	565,906	5,796,392	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1307)
321	568,451	5,796,861	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1308)
322	564,590	5,789,985	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1309)
323	564,392	5,790,980	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1310)
324	564,194	5,791,975	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1311)
325	563,996	5,792,970	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1312)
326	563,798	5,793,965	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1313)
327	563,600	5,794,960	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1314)
328	565,770	5,790,735	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1315)
329	565,571	5,791,731	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1316)
330	565,373	5,792,726	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1317)
331	565,175	5,793,721	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1318)
332	564,976	5,794,716	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1319)
333	564,778	5,795,711	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1320)
334	566,949	5,791,486	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1321)
335	566,751	5,792,481	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1322)
336	566,552	5,793,476	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1323)
337	566,353	5,794,471	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1324)
338	566,155	5,795,466	0.0	PONDERA VESTAS V164-10.0MW 10000 164.0 !O! hub: 125.0 m (TOT: 207.0 m) (1325)

To be continued on next page...

PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

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UTM (north)-ETRS89 Zone: 31

Easting Northing Z Row data/Description

Production
source
Statistical basis
for normalized
production:
[Months]

		[m]							
339	568,327	5,791,242	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1326)
340	568,128	5,792,237	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1327)
341	567,929	5,793,232	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1328)
342	567,731	5,794,227	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1329)
343	567,532	5,795,222	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1330)
344	567,333	5,796,217	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1331)
345	569,506	5,791,993	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1332)
346	569,307	5,792,988	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1333)
347	569,108	5,793,983	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1334)
348	568,909	5,794,978	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1335)
349	568,710	5,795,973	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1336)
350	570,884	5,791,749	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1337)
351	570,685	5,792,744	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1338)
352	570,486	5,793,738	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1339)
353	570,286	5,794,733	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1340)
354	570,087	5,795,728	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1341)
355	569,888	5,796,723	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1342)
356	564,771	5,788,336	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1343)
357	567,523	5,789,081	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1344)
358	568,898	5,789,454	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1345)
359	570,274	5,789,828	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1346)
360	571,649	5,790,202	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1347)
361	565,696	5,787,610	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1348)
362	568,448	5,788,355	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1349)
363	569,823	5,788,728	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1350)
364	571,198	5,789,102	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1351)
365	572,574	5,789,476	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1352)
366	565,246	5,786,511	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1353)
367	566,621	5,786,883	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1354)
368	569,372	5,787,629	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1355)
369	570,748	5,788,003	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1356)
370	572,123	5,788,377	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1357)
371	566,171	5,785,784	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1358)
372	567,546	5,786,157	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1359)
373	571,673	5,787,277	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1360)
374	573,048	5,787,651	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1361)
375	565,720	5,784,685	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1362)
376	567,096	5,785,058	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1363)
377	568,471	5,785,431	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1364)
378	569,847	5,785,804	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1365)
379	572,597	5,786,552	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1366)
380	566,645	5,783,959	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1367)
381	568,021	5,784,331	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1368)
382	569,396	5,784,705	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1369)
383	570,772	5,785,078	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1370)
384	567,513	5,783,401	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1371)
385	567,843	5,782,096	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1372)
386	568,335	5,782,779	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1373)
387	568,844	5,783,619	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1374)
388	570,098	5,783,905	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1375)
389	570,463	5,786,987	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1376)
390	573,418	5,788,676	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1377)
391	573,742	5,789,596	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1378)
392	574,171	5,788,036	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1379)
393	574,816	5,788,859	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1380)
394	572,953	5,791,985	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1381)
395	572,815	5,793,009	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1382)
396	572,678	5,794,033	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1383)
397	572,540	5,795,057	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1384)
398	572,403	5,796,081	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1385)
399	572,265	5,797,105	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1386)
400	574,779	5,792,275	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1387)

To be continued on next page...

PARK - Reference WTGs

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

UTM (north)-ETRS89 Zone: 31

Easting Northing Z Row data/Description

Production
source
Statistical basis
for normalized
production:
[Months]

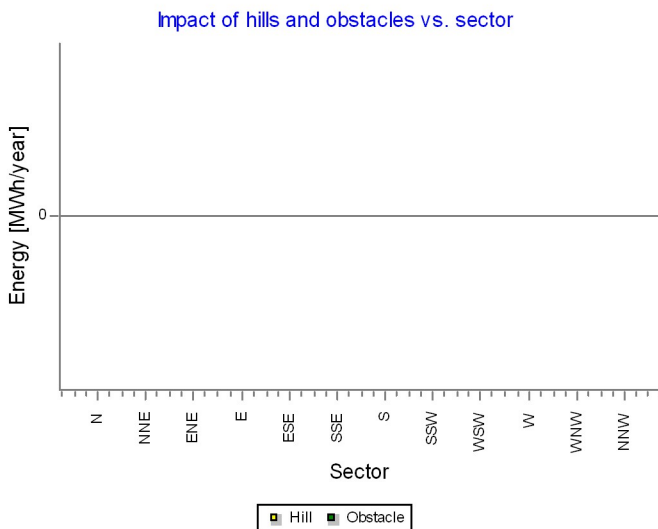
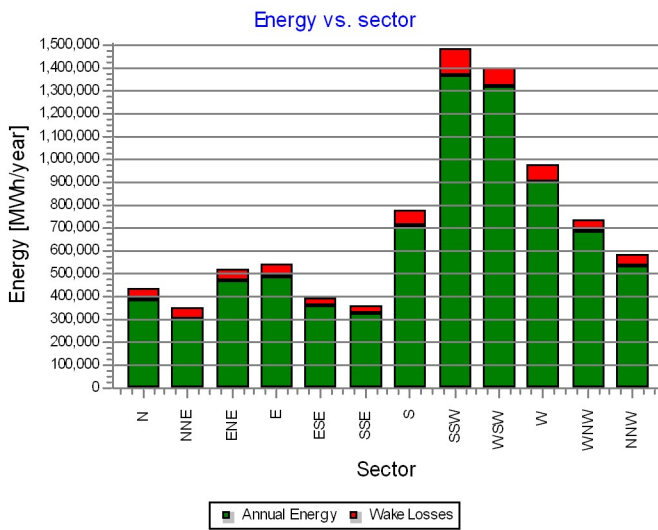
		[m]							
401	574,641	5,793,299	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1388)
402	574,503	5,794,323	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1389)
403	574,365	5,795,347	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1390)
404	574,227	5,796,371	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1391)
405	574,090	5,797,395	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1392)
406	576,744	5,791,541	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1393)
407	576,605	5,792,565	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1394)
408	576,467	5,793,589	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1395)
409	576,328	5,794,613	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1396)
410	576,190	5,795,637	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1397)
411	576,052	5,796,660	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1398)
412	578,292	5,793,879	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1399)
413	578,153	5,794,903	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1400)
414	578,015	5,795,926	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1401)
415	577,876	5,796,950	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1402)
416	576,220	5,798,604	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1403)
417	576,221	5,799,504	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1404)
418	578,659	5,799,014	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1405)
419	578,660	5,799,914	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1406)
420	581,098	5,798,523	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1407)
421	581,098	5,799,424	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1408)
422	580,646	5,803,664	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1409)
423	581,314	5,805,227	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1410)
424	581,981	5,806,790	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1411)
425	583,606	5,804,256	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1412)
426	584,343	5,807,061	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1413)
427	584,712	5,808,463	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1414)
428	575,031	5,791,196	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1415)
429	579,227	5,795,022	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1416)
430	579,230	5,796,000	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1417)
431	580,081	5,796,709	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1418)
432	577,510	5,831,183	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1419)
433	578,783	5,830,842	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1420)
434	581,651	5,831,440	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1421)
435	582,616	5,835,281	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1422)
436	583,903	5,840,401	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1423)
437	584,517	5,832,038	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1424)
438	585,160	5,834,599	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1425)
439	585,790	5,831,697	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1426)
440	590,570	5,830,924	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1427)
441	590,080	5,826,466	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1428)
442	588,648	5,826,832	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1429)
443	588,967	5,828,113	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1430)
444	590,895	5,841,260	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1431)
445	591,214	5,842,541	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1432)
446	591,533	5,843,822	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1433)
447	587,374	5,827,174	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1434)
448	587,694	5,828,454	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1435)
449	588,014	5,829,735	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1436)
450	589,305	5,840,320	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1437)
451	589,624	5,841,601	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1438)
452	589,943	5,842,882	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1439)
453	590,262	5,844,162	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1440)
454	590,582	5,845,443	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1441)
455	586,421	5,828,795	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1442)
456	586,715	5,829,983	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1443)
457	587,061	5,831,357	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1444)
458	588,035	5,840,660	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1445)
459	588,355	5,841,941	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1446)
460	588,674	5,843,222	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1447)
461	588,993	5,844,503	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1448)
462	589,313	5,845,783	0.0	PONDERA VESTAS V164-10.0MW	10000	164.0	!O!	hub: 125.0 m (TOT: 207.0 m)	(1449)

To be continued on next page...

PARK - Production Analysis

Calculation: HKW MER 10MW incl HKN&HKZWTG: All new WTGs, Air density 1.225 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
Roughness based energy	[MWh]	436,108.6	347,188.8	517,557.7	539,612.3	390,204.3	361,174.2	774,518.3	1,485,182.0	1,400,113.6	978,973.8	735,180.4	580,115.6	8,545,934.0
-Decrease due to wake losses	[MWh]	55,577.7	49,839.6	52,548.9	55,014.8	32,964.3	34,917.1	66,740.3	114,392.6	83,612.7	75,889.3	49,845.5	48,927.6	720,270.8
Resulting energy	[MWh]	380,530.7	297,349.3	465,008.9	484,596.6	357,240.3	326,257.3	707,778.7	1,370,788.6	1,316,501.5	903,085.4	685,333.8	531,188.6	7,825,658.0
Specific energy	[kWh/m ²]													2,437
Specific energy	[kWh/kW]													5,148
Decrease due to wake losses	[%]	12.7	14.4	10.2	10.2	8.4	9.7	8.6	7.7	6.0	7.8	6.8	8.4	8.43
Utilization	[%]	35.3	37.1	36.2	32.7	36.5	33.6	24.3	21.4	23.2	25.0	28.8	29.8	26.7
Operational	[Hours/year]	547	438	572	576	433	410	737	1,270	1,208	940	777	636	8,544
Full Load Equivalent	[Hours/year]	250	196	306	319	235	215	466	902	866	594	451	349	5,148



PARK - Power Curve Analysis

Calculation: HKW MER 10MW incl HKN&HKZWTG: 1 - PONDERA VESTAS V164-10.0MW 10000 164.0 !O!, Hub height: 107.0 m
Name: V164 10 MW - HKN P-V curve
Source: Pondera

Source/Date	Created by	Created	Edited	Stop wind speed [m/s]	Power control	CT curve type	Generator type	Specific power kW/m ²
27/11/2018	USER	27/11/2018	27/11/2018	25.0	Pitch	Standard pitch	Variable	0.47

Date added: 27-11-2018

By: WPU

Document source: NA

Document date: NA

Document folder: NA

10 MW P-V curve of V164 8,0MW - Custom-made by Pondera for HKN project. Only use in this context!

HP curve data comparison - Note: For standard air density

Vmean	[m/s]	5	6	7	8	9	10
HP value Pitch, variable speed (2013)	[MWh]	11,101	18,056	25,507	32,724	39,229	44,728
PONDERA VESTAS V164-10.0MW 10000 164.0 !O! V164 10 MW - HKN P-V curve	[MWh]	17,780	26,931	35,620	43,218	49,506	54,425
Check value	[%]	-38	-33	-28	-24	-21	-18

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/m²) 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 windPRO manual chapter 3.5.2.

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

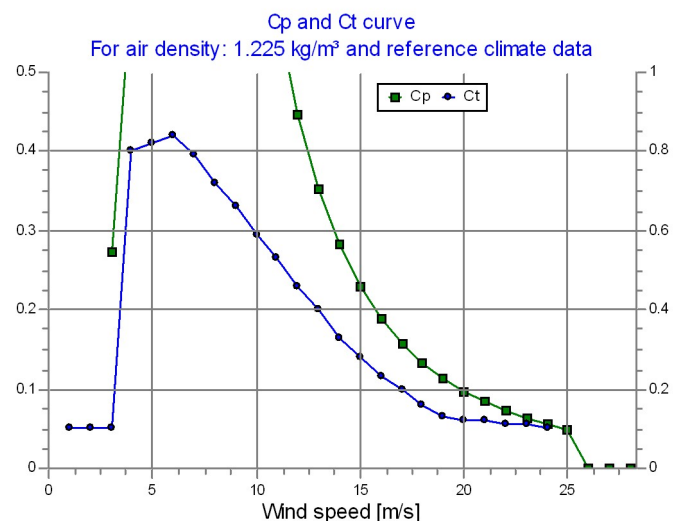
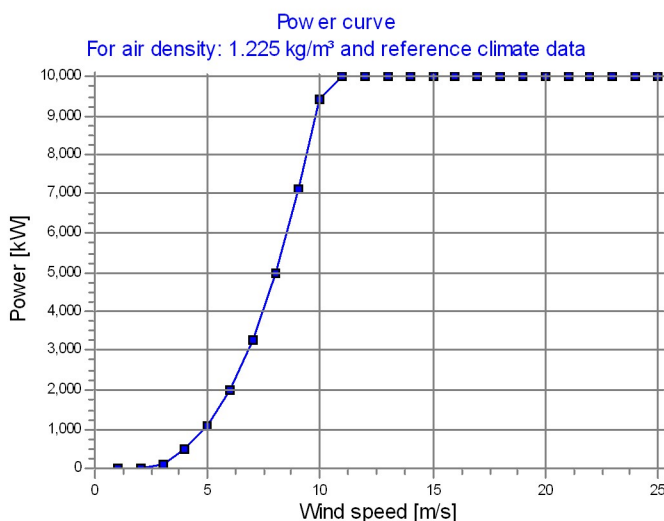
Original data, Air density: 1.225 kg/m³

Wind speed [m/s]	Power [kW]	Cp	Wind speed [m/s]	Ct curve
3.0	95.0	0.27	1.0	0.10
4.0	500.0	0.60	2.0	0.10
5.0	1,082.0	0.67	3.0	0.10
6.0	1,981.0	0.71	4.0	0.80
7.0	3,250.0	0.73	5.0	0.82
8.0	4,974.0	0.75	6.0	0.84
9.0	7,135.0	0.76	7.0	0.79
10.0	9,400.0	0.73	8.0	0.72
10.5	9,900.0	0.66	9.0	0.66
11.0	10,000.0	0.58	10.0	0.59
12.0	10,000.0	0.45	11.0	0.53
13.0	10,000.0	0.35	12.0	0.46
14.0	10,000.0	0.28	13.0	0.40
15.0	10,000.0	0.23	14.0	0.33
16.0	10,000.0	0.19	15.0	0.28
17.0	10,000.0	0.16	16.0	0.23
18.0	10,000.0	0.13	17.0	0.20
19.0	10,000.0	0.11	18.0	0.16
20.0	10,000.0	0.10	19.0	0.13
21.0	10,000.0	0.08	20.0	0.12
22.0	10,000.0	0.07	21.0	0.12
23.0	10,000.0	0.06	22.0	0.11
24.0	10,000.0	0.06	23.0	0.11
25.0	10,000.0	0.05	24.0	0.10
26.0	10,000.0	0.00		
27.0	10,000.0	0.00		
28.0	10,000.0	0.00		

Power, Efficiency and energy vs. wind speed

Data used in calculation, Air density: 1.225 kg/m³ New windPRO method (adjusted IEC method, improved to match turbine control) <RECOMMENDED>

Wind speed [m/s]	Power [kW]	Cp	Interval [m/s]	Energy [MWh]	Acc. Energy [MWh]	Relative [%]
1.0	0.0	0.00	0.50-1.50	0.0	0.0	0.0
2.0	0.0	0.00	1.50-2.50	0.0	0.0	0.0
3.0	95.0	0.27	2.50-3.50	53.1	53.1	0.1
4.0	500.0	0.60	3.50-4.50	235.9	289.1	0.6
5.0	1,082.0	0.67	4.50-5.50	604.4	893.4	1.7
6.0	1,981.0	0.71	5.50-6.50	1,227.7	2,121.1	4.1
7.0	3,250.0	0.73	6.50-7.50	2,155.0	4,276.2	8.3
8.0	4,974.0	0.75	7.50-8.50	3,373.2	7,649.3	14.8
9.0	7,135.0	0.76	8.50-9.50	4,734.6	12,383.9	24.0
10.0	9,400.0	0.73	9.50-10.50	5,782.3	18,166.3	35.2
11.0	10,000.0	0.58	10.50-11.50	5,914.5	24,080.7	46.7
12.0	10,000.0	0.45	11.50-12.50	5,367.2	29,447.9	57.1
13.0	10,000.0	0.35	12.50-13.50	4,702.6	34,150.6	66.2
14.0	10,000.0	0.28	13.50-14.50	4,004.6	38,155.2	74.0
15.0	10,000.0	0.23	14.50-15.50	3,318.2	41,473.4	80.4
16.0	10,000.0	0.19	15.50-16.50	2,677.6	44,151.0	85.6
17.0	10,000.0	0.16	16.50-17.50	2,105.5	46,256.5	89.7
18.0	10,000.0	0.13	17.50-18.50	1,614.1	47,870.7	92.8
19.0	10,000.0	0.11	18.50-19.50	1,206.6	49,077.3	95.2
20.0	10,000.0	0.10	19.50-20.50	879.6	49,956.9	96.9
21.0	10,000.0	0.08	20.50-21.50	625.1	50,582.0	98.1
22.0	10,000.0	0.07	21.50-22.50	433.1	51,015.1	98.9
23.0	10,000.0	0.06	22.50-23.50	292.3	51,307.4	99.5
24.0	10,000.0	0.06	23.50-24.50	192.1	51,499.4	99.9
25.0	10,000.0	0.05	24.50-25.50	75.4	51,574.8	100.0



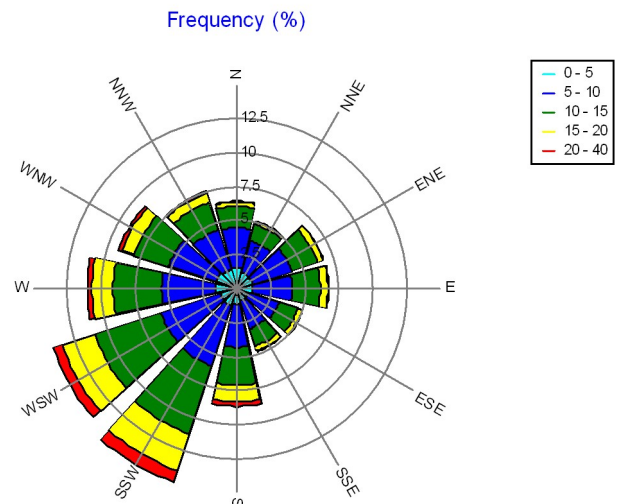
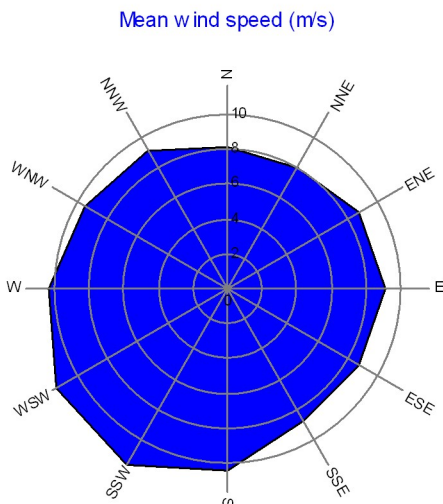
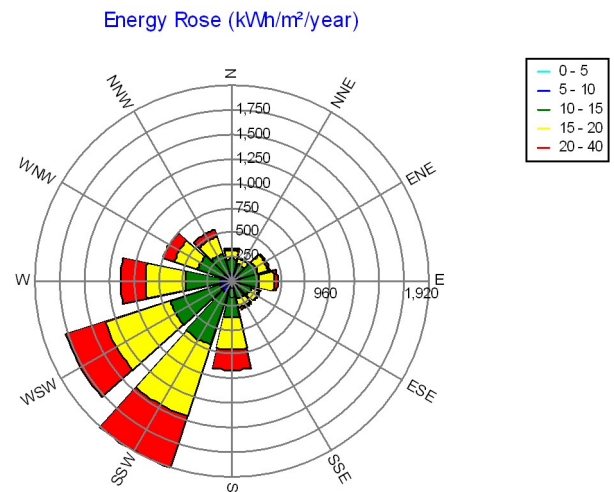
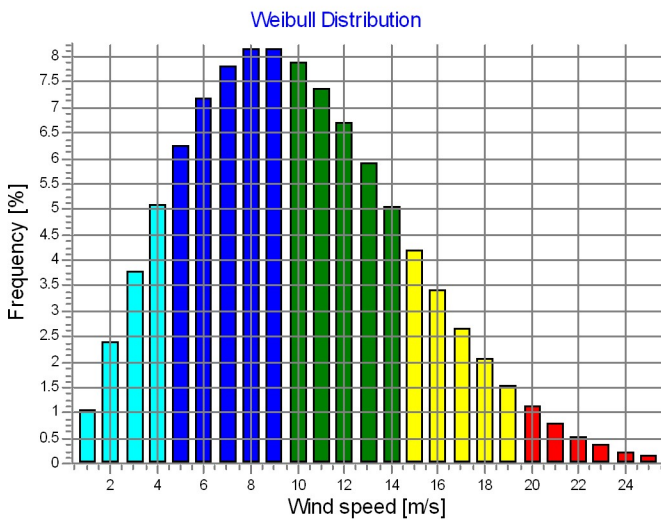
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: A - HKW-03; Hub height: 107.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 548,060 North: 5,829,150
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Current site Wind speed [m/s]	k- parameter	Frequency [%]
0 Synth	100.00	9.20	8.15	6.4
1 NNE	9.10	8.06	2.213	5.1
2 ENE	9.95	8.82	2.396	6.7
3 E	10.33	9.15	2.322	6.7
4 ESE	9.94	8.81	2.365	5.1
5 SSE	9.90	8.77	2.205	4.8
6 S	11.82	10.47	2.252	8.6
7 SSW	13.15	11.66	2.482	14.9
8 WSW	12.86	11.41	2.510	14.1
9 W	11.72	10.38	2.244	11.0
10 WNW	10.70	9.47	2.139	9.1
11 NNW	10.34	9.15	2.111	7.4
All	11.23	9.95	2.209	100.0



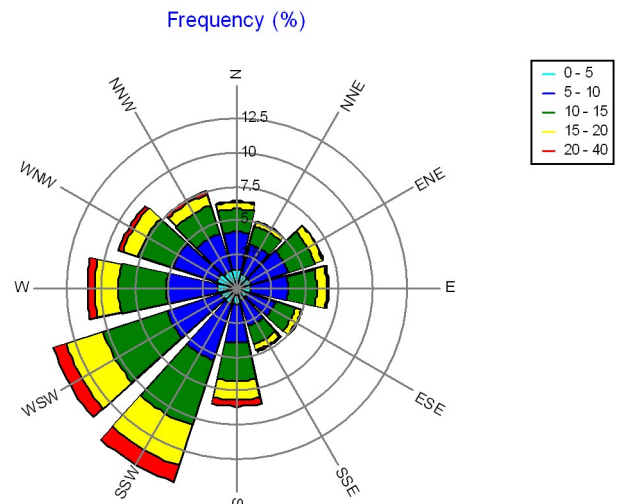
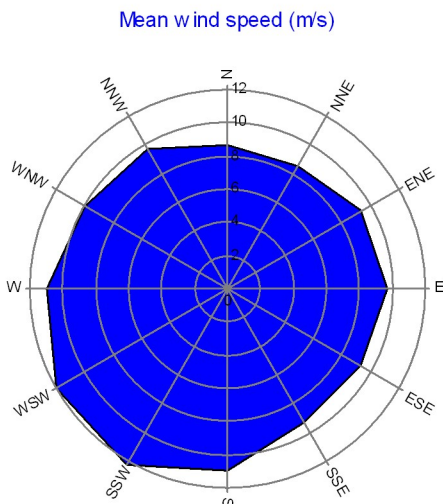
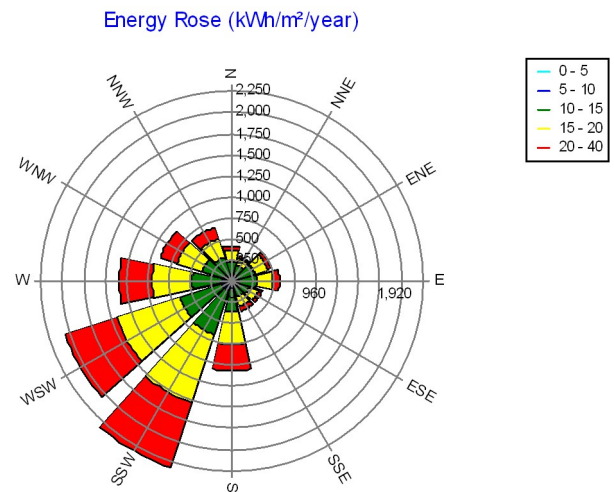
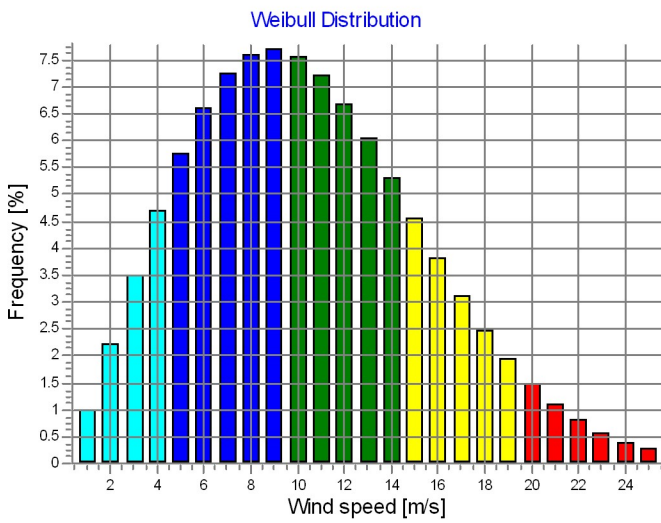
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: A - HKW-03; Hub height: 165.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 548,060 North: 5,829,150
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Current site Wind speed [m/s]	k- parameter	Frequency [%]
0 N	100.00	9.74	8.63	6.4
1 NNE	9.63	8.53	2.154	5.1
2 ENE	10.54	9.34	2.338	6.7
3 E	10.94	9.69	2.268	6.7
4 ESE	10.53	9.32	2.307	5.1
5 SSE	10.49	9.29	2.146	4.8
6 S	12.41	10.99	2.209	8.6
7 SSW	13.76	12.20	2.443	14.9
8 WSW	13.48	11.96	2.467	14.1
9 W	12.30	10.89	2.201	11.0
10 WNW	11.27	9.98	2.092	9.1
11 NNW	10.91	9.66	2.064	7.4
All	11.82	10.46	2.178	100.0



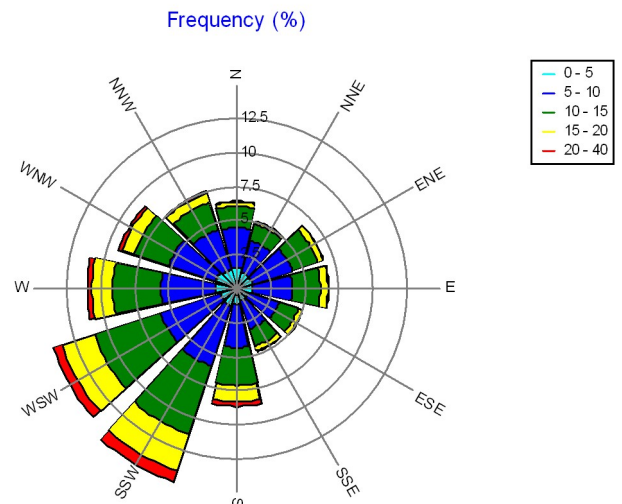
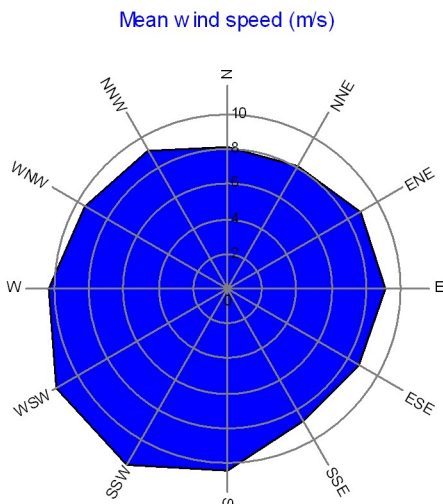
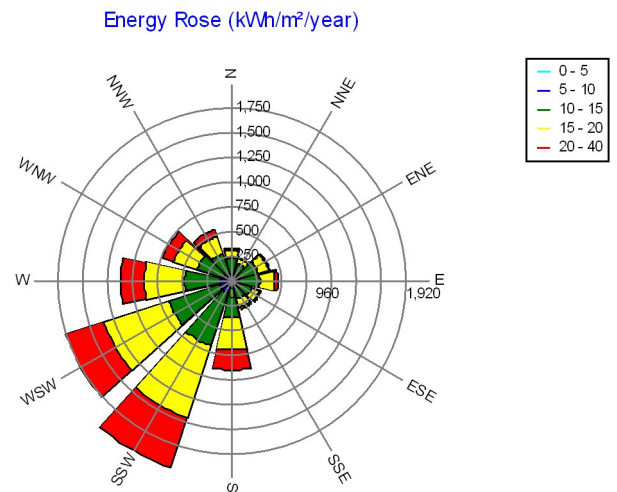
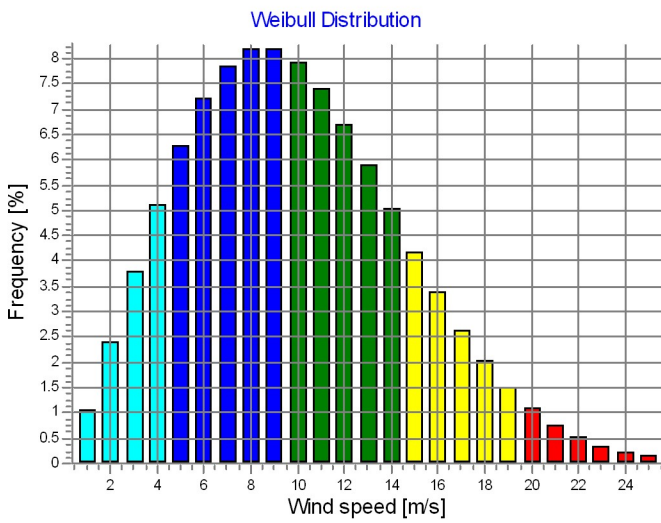
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: B - HKW-04; Hub height: 107.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 558,112 North: 5,839,246
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Wind speed [m/s]	k- parameter	Frequency [%]
0 Synth	100.00	9.99	8.14	6.4
1 NNE	9.08	8.04	2.213	5.1
2 ENE	9.93	8.80	2.396	6.7
3 E	10.31	9.13	2.322	6.7
4 ESE	9.91	8.79	2.365	5.1
5 SSE	9.88	8.75	2.205	4.8
6 S	11.79	10.44	2.252	8.6
7 SSW	13.10	11.62	2.482	14.9
8 WSW	12.82	11.37	2.510	14.1
9 W	11.68	10.34	2.244	11.0
10 WNW	10.67	9.45	2.139	9.1
11 NNW	10.31	9.13	2.111	7.4
All	11.20	9.92	2.213	100.0



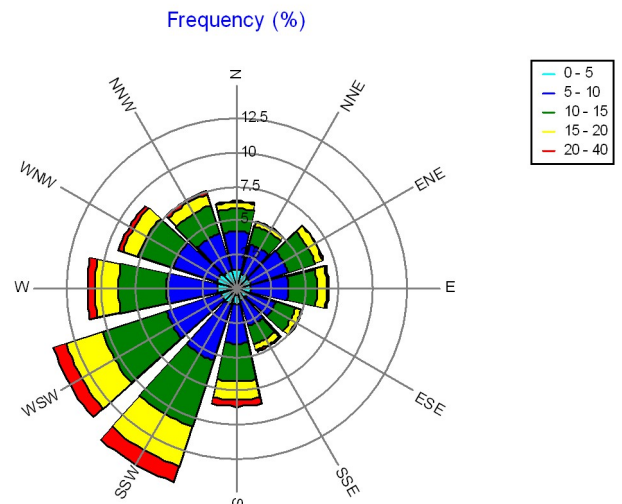
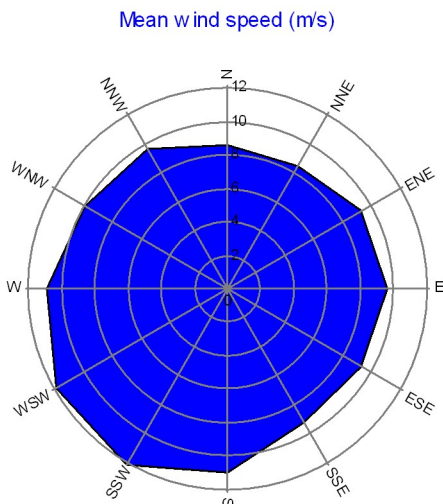
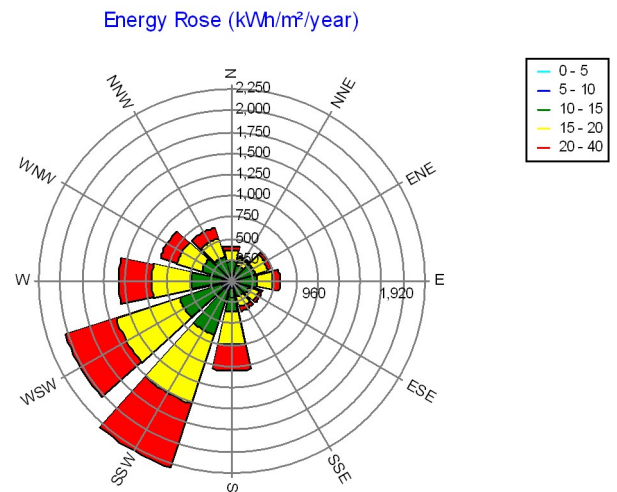
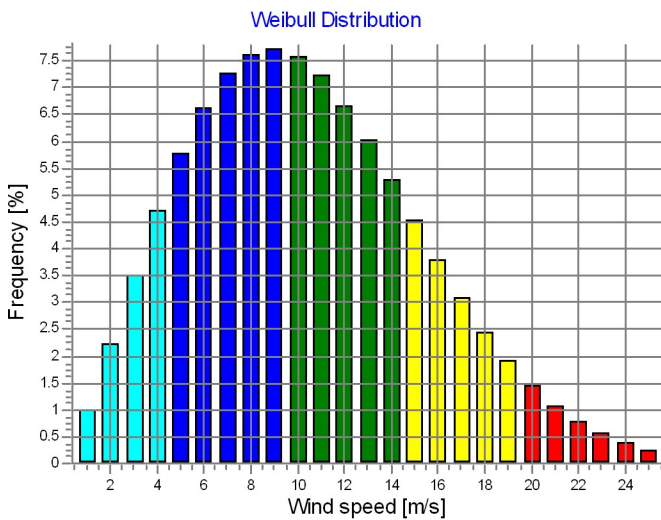
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: B - HKW-04; Hub height: 165.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 558,112 North: 5,839,246
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Current site Wind speed [m/s]	k- parameter	Frequency [%]
0 Synth	100.00	9.73	8.61	6.4
1 NNE	9.61	8.51	2.154	5.1
2 ENE	10.52	9.32	2.338	6.7
3 E	10.92	9.67	2.268	6.7
4 ESE	10.50	9.30	2.307	5.1
5 SSE	10.46	9.27	2.146	4.8
6 S	12.37	10.95	2.209	8.6
7 SSW	13.71	12.16	2.443	14.9
8 WSW	13.43	11.91	2.467	14.1
9 W	12.26	10.86	2.201	11.0
10 WNW	11.24	9.95	2.092	9.1
11 NNW	10.88	9.64	2.064	7.4
All	11.78	10.43	2.178	100.0



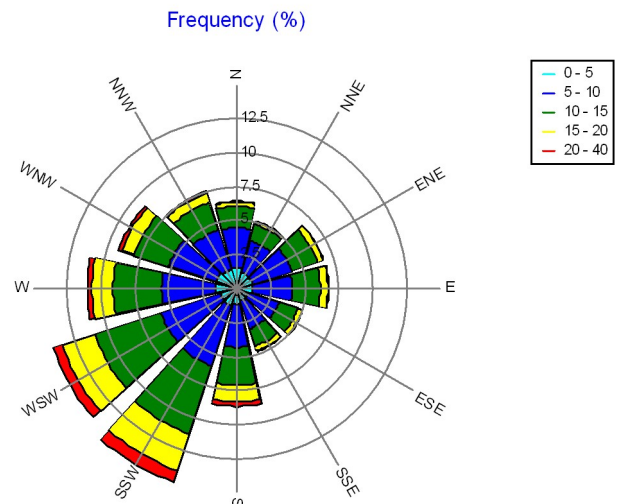
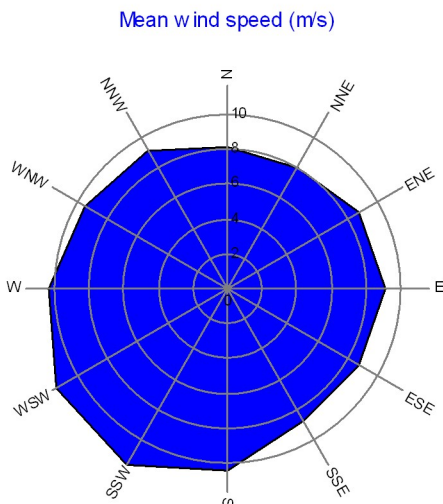
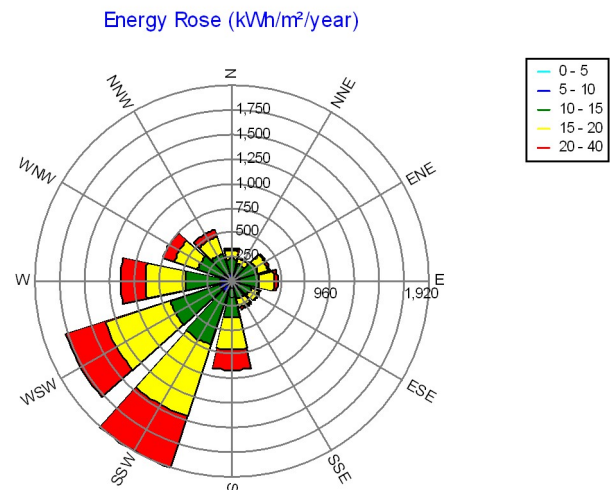
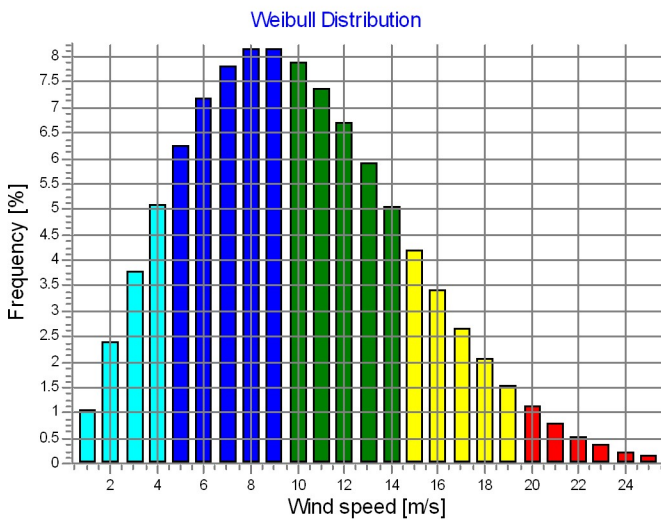
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: C - HKW-05; Hub height: 107.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 558,004 North: 5,849,256
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Current site Wind speed [m/s]	k- parameter	Frequency [%]
0 Synth	100.00	9.20	8.15	6.4
1 NNE	9.10	8.06	2.213	5.1
2 ENE	9.95	8.82	2.396	6.7
3 E	10.33	9.15	2.322	6.7
4 ESE	9.94	8.81	2.365	5.1
5 SSE	9.90	8.77	2.205	4.8
6 S	11.82	10.47	2.252	8.6
7 SSW	13.15	11.66	2.482	14.9
8 WSW	12.86	11.41	2.510	14.1
9 W	11.72	10.38	2.244	11.0
10 WNW	10.70	9.47	2.139	9.1
11 NNW	10.34	9.15	2.111	7.4
All	11.23	9.95	2.209	100.0



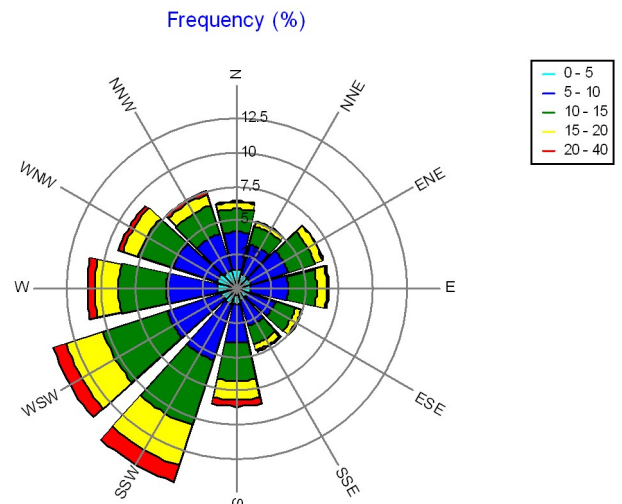
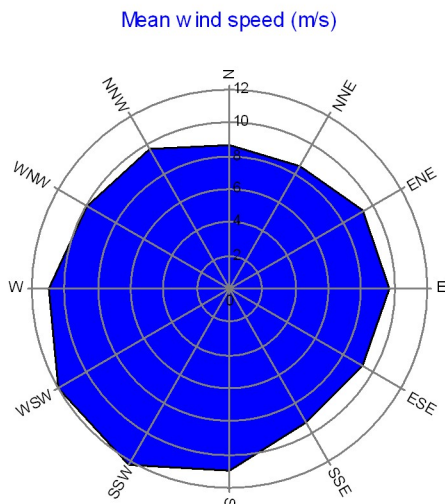
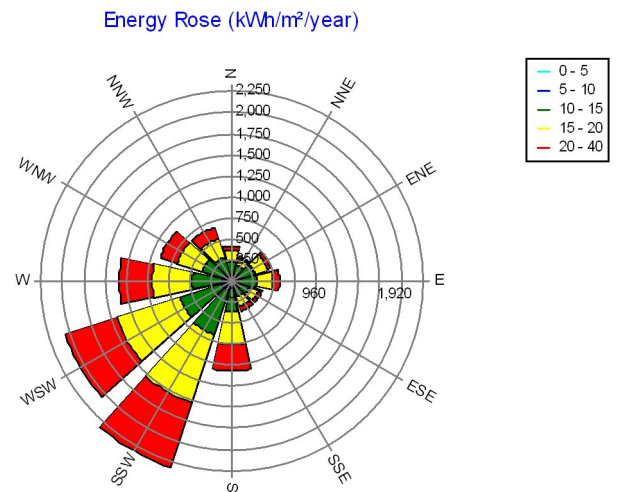
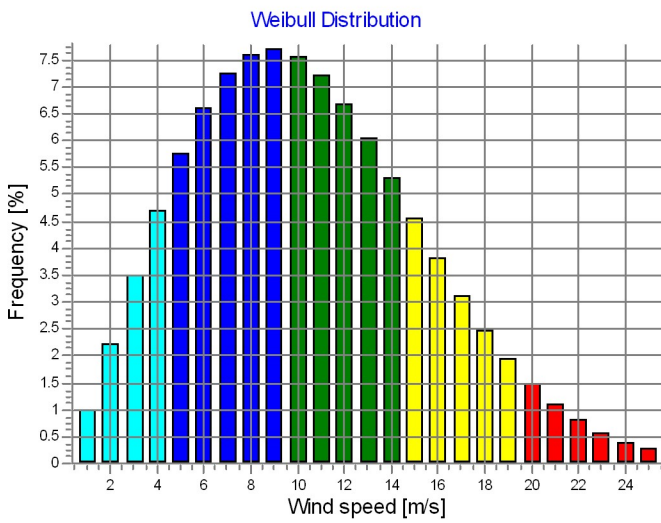
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: C - HKW-05; Hub height: 165.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 558,004 North: 5,849,256
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Wind speed [m/s]	k- parameter	Frequency [%]
0 Synth	100.00	9.74	8.63	6.4
1 NNE	9.63	8.53	2.154	5.1
2 ENE	10.54	9.34	2.338	6.7
3 E	10.94	9.69	2.268	6.7
4 ESE	10.53	9.32	2.307	5.1
5 SSE	10.49	9.29	2.146	4.8
6 S	12.41	10.99	2.209	8.6
7 SSW	13.76	12.20	2.443	14.9
8 WSW	13.48	11.96	2.467	14.1
9 W	12.30	10.89	2.201	11.0
10 WNW	11.27	9.98	2.092	9.1
11 NNW	10.91	9.66	2.064	7.4
All	11.82	10.46	2.178	100.0



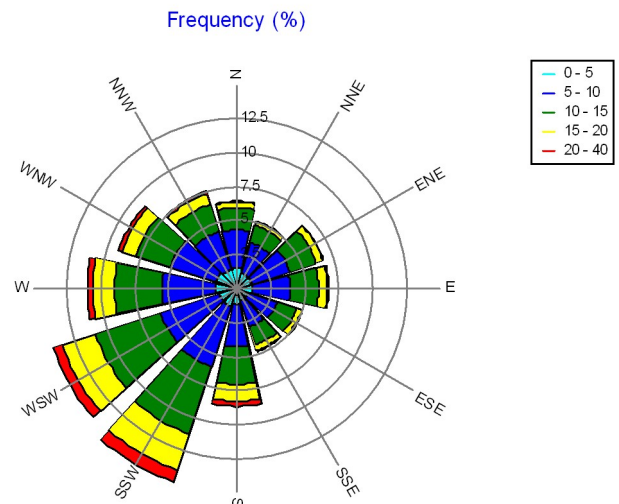
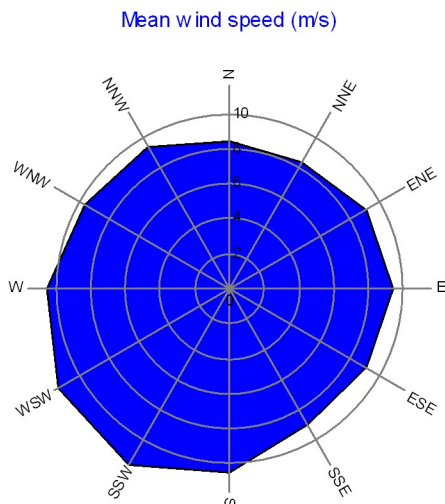
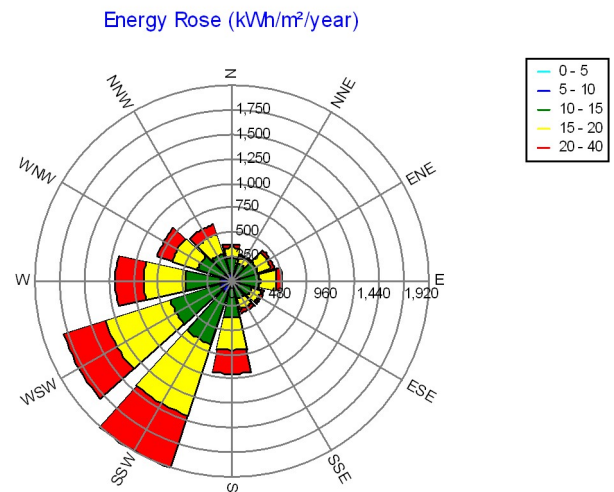
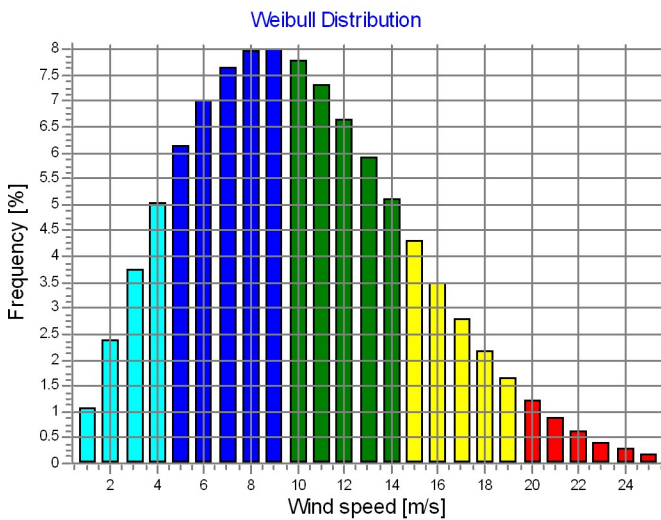
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: D - OWEZ; Hub height: 165.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 596,112 North: 5,829,642
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Current site Wind speed [m/s]	k- parameter	Frequency [%]
0 N	100.00	9.49	0.955	0.0
1 NNE	9.39	8.32	2.154	5.1
2 ENE	10.25	9.08	2.338	6.7
3 E	10.61	9.40	2.268	6.7
4 ESE	10.23	9.07	2.307	5.1
5 SSE	10.19	9.02	2.146	4.8
6 S	11.91	10.55	2.209	8.6
7 SSW	13.09	11.61	2.443	14.9
8 WSW	12.86	11.40	2.467	14.1
9 W	11.82	10.46	2.201	11.0
10 WNW	10.89	9.64	2.092	9.1
11 NNW	10.56	9.35	2.064	7.4
All	11.37	10.07	2.189	100.0



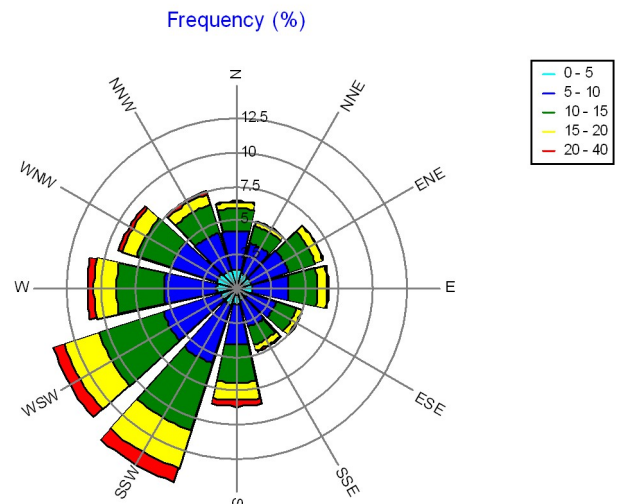
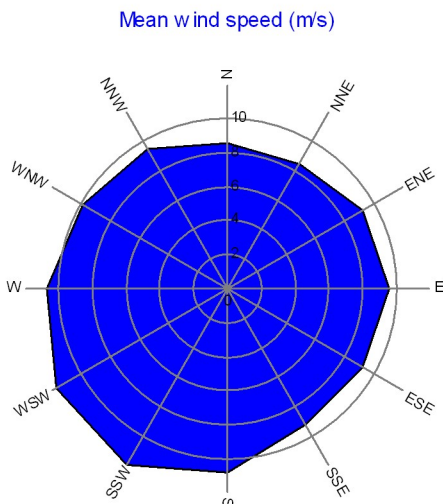
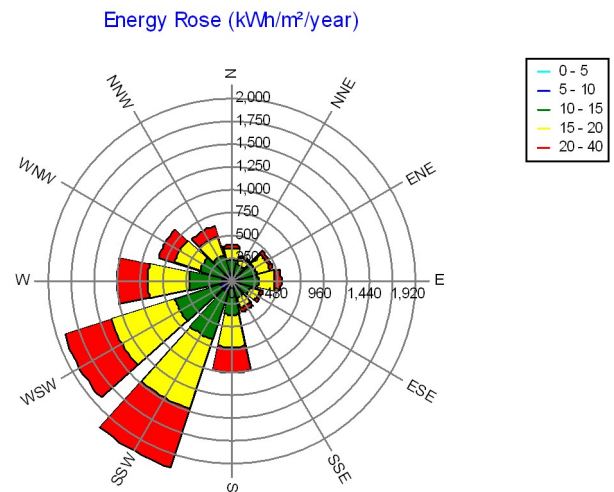
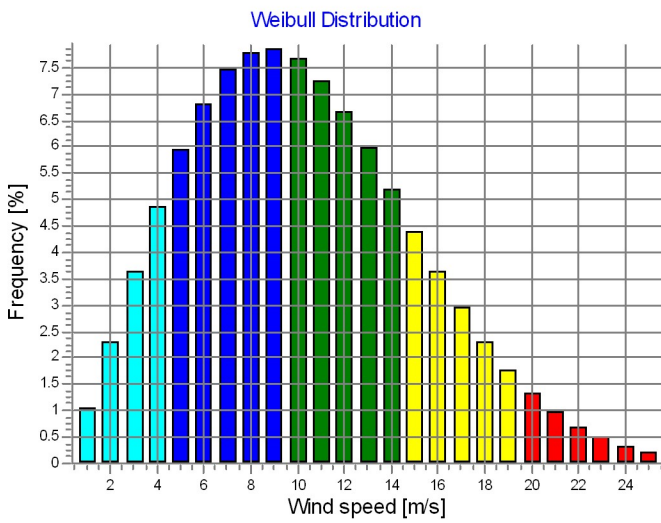
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: E - Prinses Amalia; Hub height: 165.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 582,817 North: 5,827,056
Wind statistics
IJmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) - E

Weibull Data

Sector	A- parameter [m/s]	Wind speed [m/s]	k- parameter	Frequency [%]
0 N	100.00	9.61	0.974	6.4
1 NNE	9.51	8.42	2.154	5.1
2 ENE	10.39	9.21	2.338	6.7
3 E	10.77	9.54	2.268	6.7
4 ESE	10.37	9.19	2.307	5.1
5 SSE	10.33	9.15	2.146	4.8
6 S	12.15	10.76	2.209	8.6
7 SSW	13.41	11.89	2.443	14.9
8 WSW	13.15	11.66	2.467	14.1
9 W	12.05	10.67	2.201	11.0
10 WNW	11.07	9.81	2.092	9.1
11 NNW	10.73	9.50	2.064	7.4
All	11.58	10.26	2.182	100.0



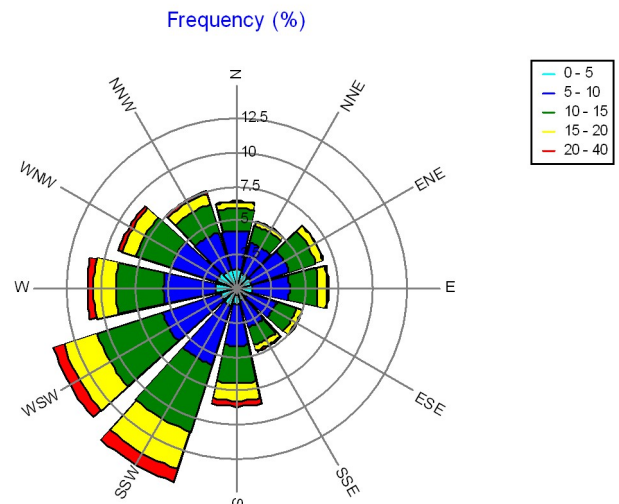
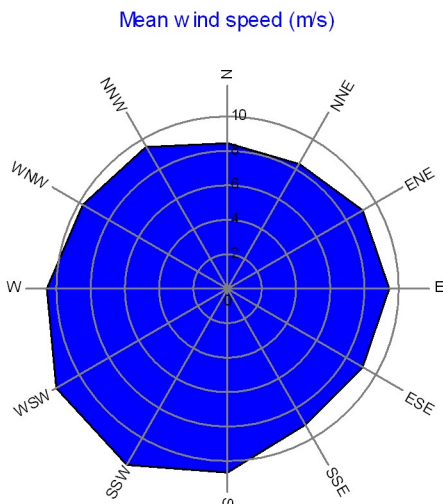
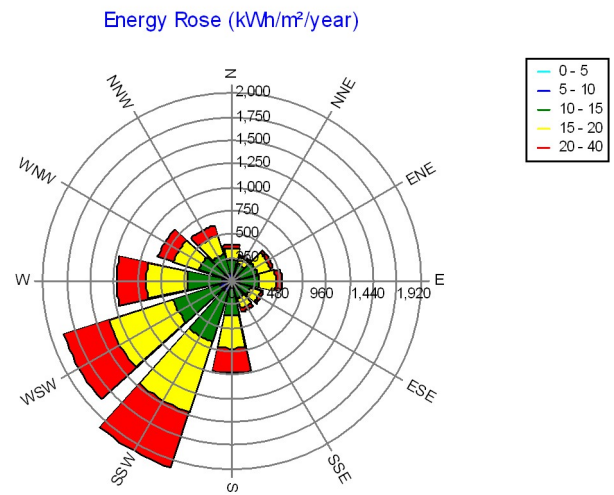
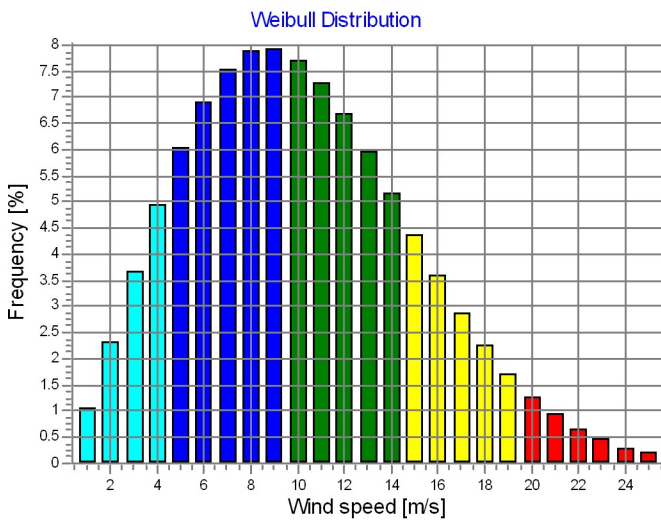
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: F - Luchterduinen; Hub height: 165.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 578,881 North: 5,806,416
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Current site Wind speed [m/s]	k- parameter	Frequency [%]
0 N	100.00	9.58	0.966	6.4
1 NNE	9.46	8.38	2.154	5.1
2 ENE	10.33	9.15	2.338	6.7
3 E	10.70	9.48	2.268	6.7
4 ESE	10.31	9.14	2.307	5.1
5 SSE	10.27	9.09	2.146	4.8
6 S	12.05	10.67	2.209	8.6
7 SSW	13.27	11.77	2.443	14.9
8 WSW	13.03	11.55	2.467	14.1
9 W	11.95	10.58	2.201	11.0
10 WNW	10.99	9.74	2.092	9.1
11 NNW	10.66	9.44	2.064	7.4
All	11.49	10.18	2.186	100.0



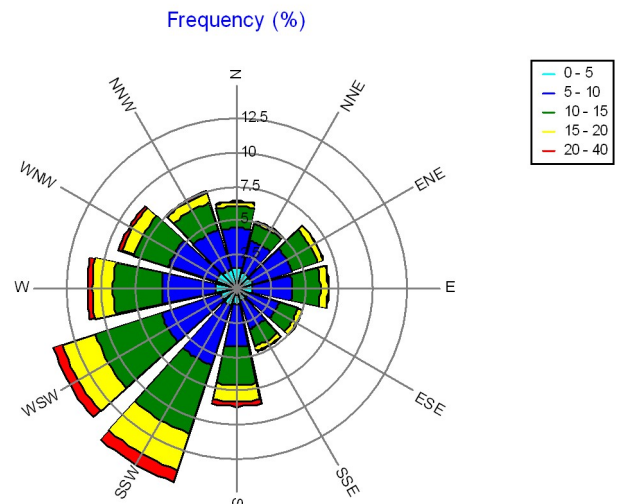
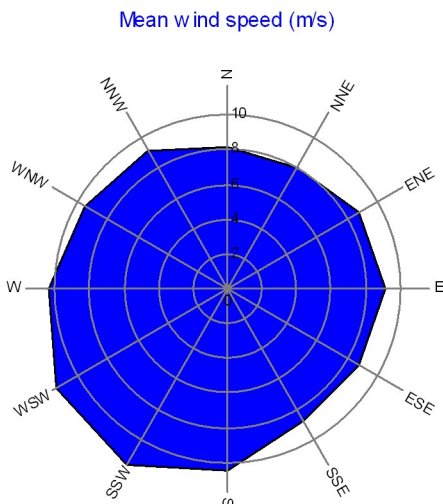
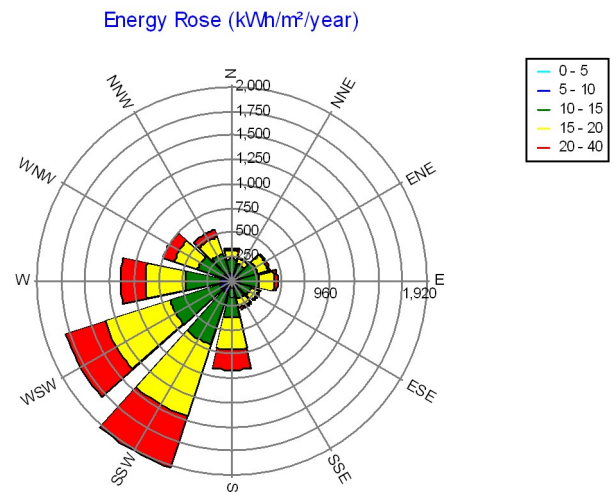
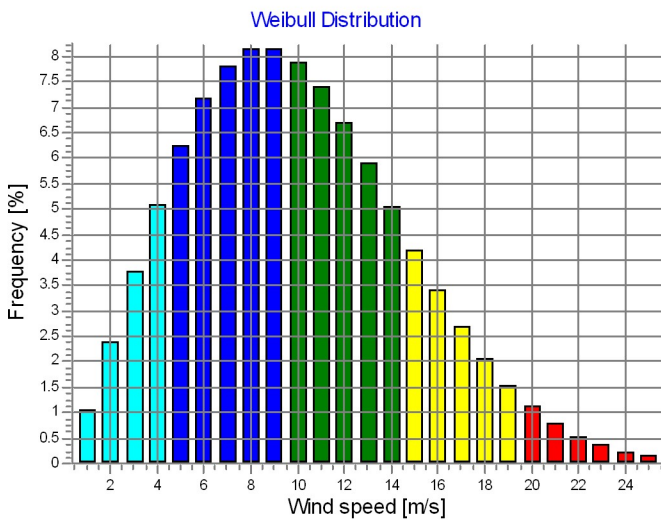
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: G - HKW-02; Hub height: 107.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 543,967 North: 5,835,763
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Wind speed [m/s]	k- parameter	Frequency [%]
0 Synth	100.00	9.21	2.119	6.4
1 NNE	9.10	8.06	2.213	5.1
2 ENE	9.96	8.83	2.396	6.7
3 E	10.34	9.16	2.322	6.7
4 ESE	9.94	8.81	2.365	5.1
5 SSE	9.91	8.78	2.205	4.8
6 S	11.84	10.48	2.252	8.6
7 SSW	13.17	11.68	2.482	14.9
8 WSW	12.88	11.43	2.510	14.1
9 W	11.73	10.39	2.244	11.0
10 WNW	10.71	9.48	2.139	9.1
11 NNW	10.35	9.16	2.111	7.4
All	11.24	9.96	2.209	100.0



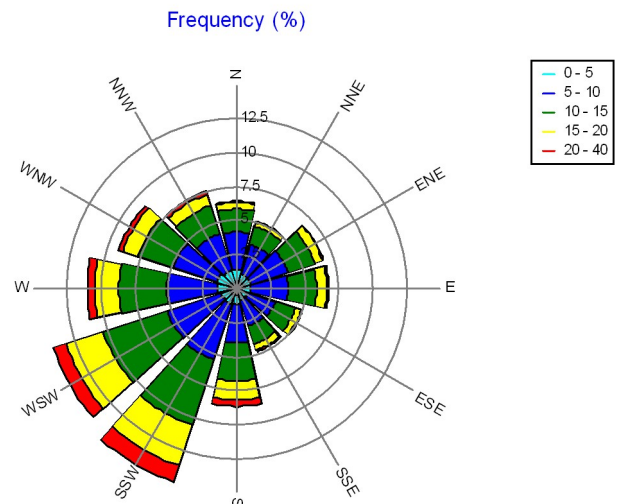
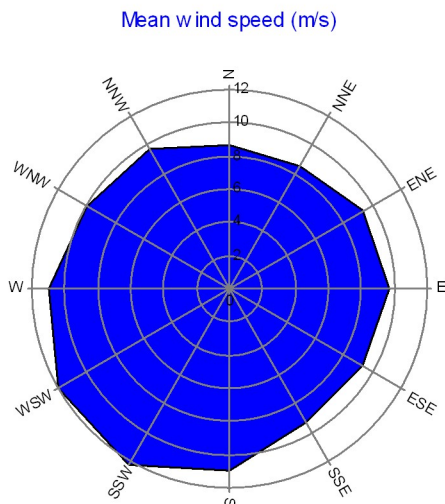
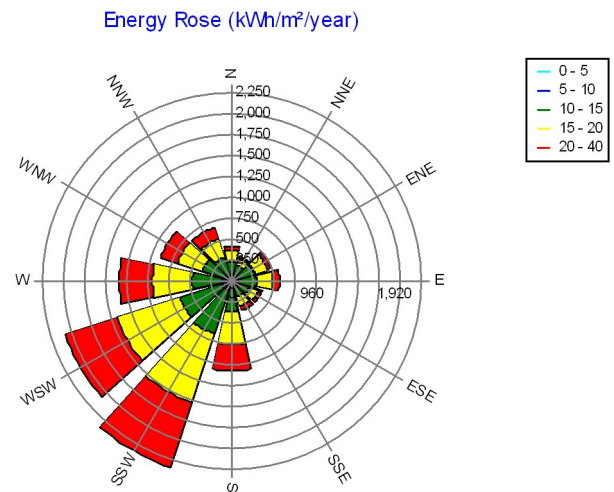
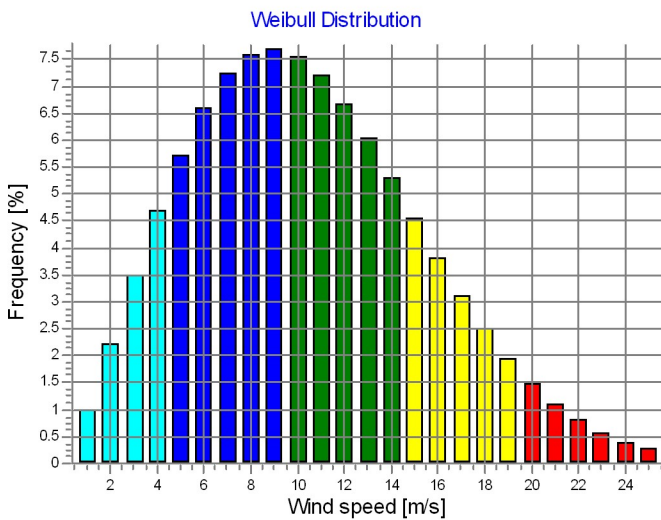
PARK - Wind Data Analysis

Calculation: HKW MER 10MW incl HKN&HKZWind data: G - HKW-02; Hub height: 165.0

Site coordinates
UTM (north)-ETRS89 Zone: 31
East: 543,967 North: 5,835,763
Wind statistics
Ijmuiden Mast (Regression MCP using EmdConvwx_N52.850_E003.440 (1)) -

Weibull Data

Sector	A- parameter [m/s]	Wind speed [m/s]	k- parameter	Frequency [%]
0 N	100.00	9.75	8.64	6.4
1 NNE	9.64	8.54	2.154	5.1
2 ENE	10.55	9.35	2.338	6.7
3 E	10.95	9.70	2.268	6.7
4 ESE	10.53	9.33	2.307	5.1
5 SSE	10.49	9.29	2.146	4.8
6 S	12.42	11.00	2.209	8.6
7 SSW	13.78	12.22	2.443	14.9
8 WSW	13.50	11.97	2.467	14.1
9 W	12.31	10.90	2.201	11.0
10 WNW	11.28	9.99	2.092	9.1
11 NNW	10.92	9.67	2.064	7.4
All	11.83	10.47	2.178	100.0



PARK - Park power curve

Calculation: HKW MER 10MW incl HKN&HKZ

Wind speed [m/s]	Power													
	Free WTGs [kW]	Park WTGs [kW]	N [kW]	NNE [kW]	ENE [kW]	E [kW]	ESE [kW]	SSE [kW]	S [kW]	SSW [kW]	WSW [kW]	W [kW]	WNW [kW]	NNW [kW]
0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.5	45,220	36,653	35,982	35,360	36,943	36,472	38,189	36,910	35,951	35,216	37,104	36,731	38,547	37,207
4.5	120,232	87,592	85,736	82,436	87,435	87,264	93,895	88,958	85,564	81,976	87,982	88,506	95,145	90,255
5.5	232,788	169,378	164,994	159,330	169,530	168,459	181,933	172,390	164,665	158,081	170,945	170,801	184,380	174,907
6.5	397,556	291,992	284,490	274,665	292,472	290,343	313,097	297,277	283,947	272,350	294,933	294,576	317,371	301,828
7.5	625,024	469,015	457,193	442,039	470,430	466,323	501,139	478,020	456,347	438,013	474,482	472,618	507,652	484,964
8.5	920,284	711,886	694,063	674,626	716,018	707,721	755,708	725,262	692,997	668,440	721,693	715,930	764,408	734,421
9.5	1,256,660	1,015,150	991,029	969,499	1,024,336	1,009,235	1,067,339	1,032,554	989,957	961,986	1,030,719	1,018,511	1,077,101	1,042,875
10.5	1,504,800	1,320,586	1,293,019	1,279,863	1,340,063	1,313,327	1,364,181	1,338,316	1,292,721	1,274,419	1,343,987	1,318,516	1,369,422	1,343,789
11.5	1,520,000	1,470,672	1,450,590	1,451,720	1,495,173	1,463,090	1,482,202	1,480,111	1,450,386	1,454,207	1,492,810	1,464,669	1,482,250	1,480,990
12.5	1,520,000	1,509,015	1,502,066	1,500,923	1,518,288	1,508,611	1,509,729	1,512,826	1,501,614	1,503,217	1,517,865	1,508,660	1,509,545	1,512,925
13.5	1,520,000	1,518,659	1,517,508	1,517,483	1,519,935	1,519,072	1,518,633	1,519,238	1,516,942	1,517,899	1,519,935	1,518,975	1,518,664	1,519,282
14.5	1,520,000	1,519,976	1,519,961	1,519,975	1,520,000	1,519,995	1,519,985	1,519,994	1,519,906	1,519,980	1,520,000	1,519,993	1,519,989	1,519,996
15.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
16.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
17.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
18.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
19.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
20.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
21.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
22.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
23.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
24.5	1,520,000	1,519,996	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000	1,520,000
25.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Description:

The park power curve is similar to a WTG power curve, meaning that when a given wind speed appears in front of the park with same speed in the entire wind farm area (before influence from the park), the output from the park can be found in the park power curve. Another way to say this: The park power curve includes wake losses, but do NOT include terrain given variations in the wind speed over the park area.

Measuring a park power curve is not as simple as measuring a WTG power curve due to the fact that the park power curve depends on the wind direction and that the same wind speed normally will not appear for the entire park area at the same time (only in very flat non-complex terrain). The idea with this version of the park power curve is not to use it for validation based on measurements. This would require at least 2 measurement masts at two sides of the park, unless only a few direction sectors should be tested, AND non complex terrain (normally only useable off shore). Another park power curve version for complex terrain is available in windPRO.

The park power curve can be used for:

- Forecast systems, based on more rough (approximated) wind data, the park power curve would be an efficient way to make the connection from wind speed (and direction) to power.
- Construction of duration curves, telling how often a given power output will appear, the park power curve can be used together with the average wind distribution for the Wind farm area in hub height. The average wind distribution can eventually be obtained based on the Weibull parameters for each WTG position. These are found at print menu: >Result to file< in the >Park result< which can be saved to file or copied to clipboard and pasted in Excel.
- Calculation of wind energy index based on the PARK production (see below).
- Estimation of the expected PARK production for an existing wind farm based on wind measurements at minimum 2 measurement masts at two sides of wind farm. The masts must be used for obtaining the free wind speed. The free wind speed is used in the simulation of expected energy production with the PARK power curve. This procedure will only work suitable in non complex terrains. For complex terrain another park power curve calculation is available in windPRO (PPV-model).

Note:

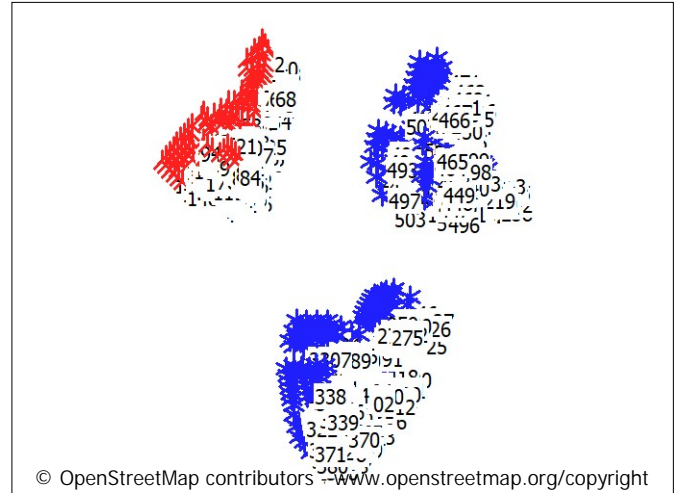
From the >Result to file< the >Wind Speeds Inside Wind farm< is also available. These can (e.g. via Excel) be used for extracting the wake induced reductions in measured wind speed.

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

WTG distances

	Z	Nearest WTG	Z	Horizontal distance	Distance in rotor diameters (max)	Distance in rotor diameters (min)
	[m]		[m]	[m]		
1	0.0	6	0.0	988	6.0	6.0
2	0.0	40	0.0	999	6.1	6.1
3	0.0	24	0.0	975	5.9	5.9
4	0.0	20	0.0	987	6.0	6.0
5	0.0	33	0.0	988	6.0	6.0
6	0.0	11	0.0	988	6.0	6.0
7	0.0	12	0.0	987	6.0	6.0
8	0.0	9	0.0	1,011	6.2	6.2
9	0.0	13	0.0	987	6.0	6.0
10	0.0	15	0.0	988	6.0	6.0
11	0.0	6	0.0	988	6.0	6.0
12	0.0	7	0.0	987	6.0	6.0
13	0.0	9	0.0	987	6.0	6.0
14	0.0	18	0.0	987	6.0	6.0
15	0.0	10	0.0	988	6.0	6.0
16	0.0	11	0.0	988	6.0	6.0
17	0.0	12	0.0	987	6.0	6.0
18	0.0	14	0.0	987	6.0	6.0
19	0.0	23	0.0	987	6.0	6.0
20	0.0	29	0.0	987	6.0	6.0
21	0.0	30	0.0	987	6.0	6.0
22	0.0	31	0.0	987	6.0	6.0
23	0.0	19	0.0	987	6.0	6.0
24	0.0	3	0.0	975	5.9	5.9
25	0.0	33	0.0	988	6.0	6.0
26	0.0	34	0.0	988	6.0	6.0
27	0.0	35	0.0	987	6.0	6.0
28	0.0	36	0.0	987	6.0	6.0
29	0.0	37	0.0	987	6.0	6.0
30	0.0	21	0.0	987	6.0	6.0
31	0.0	22	0.0	987	6.0	6.0
32	0.0	31	0.0	1,011	6.2	6.2
33	0.0	5	0.0	988	6.0	6.0
34	0.0	26	0.0	988	6.0	6.0
35	0.0	27	0.0	987	6.0	6.0
36	0.0	28	0.0	987	6.0	6.0
37	0.0	29	0.0	987	6.0	6.0
38	0.0	30	0.0	987	6.0	6.0
39	0.0	31	0.0	987	6.0	6.0
40	0.0	2	0.0	999	6.1	6.1
41	0.0	44	0.0	1,004	6.1	6.1
42	0.0	45	0.0	995	6.1	6.1
43	0.0	44	0.0	1,011	6.2	6.2
44	0.0	41	0.0	1,004	6.1	6.1
45	0.0	42	0.0	995	6.1	6.1
46	0.0	45	0.0	1,011	6.2	6.2
47	0.0	46	0.0	1,011	6.2	6.2
48	0.0	54	0.0	988	6.0	6.0
49	0.0	55	0.0	988	6.0	6.0
50	0.0	56	0.0	987	6.0	6.0
51	0.0	57	0.0	987	6.0	6.0
52	0.0	51	0.0	1,011	6.2	6.2
53	0.0	52	0.0	1,011	6.2	6.2
54	0.0	58	0.0	988	6.0	6.0
55	0.0	59	0.0	988	6.0	6.0
56	0.0	60	0.0	987	6.0	6.0
57	0.0	61	0.0	987	6.0	6.0
58	0.0	62	0.0	988	6.0	6.0
59	0.0	63	0.0	988	6.0	6.0
60	0.0	64	0.0	987	6.0	6.0
61	0.0	57	0.0	987	6.0	6.0
62	0.0	58	0.0	988	6.0	6.0
63	0.0	66	0.0	988	6.0	6.0



▲ New WTG

★ Existing WTG

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest	Z	Horizontal	Distance in	Distance in
	[m]	WTG	[m]	distance	rotor	rotor
				[m]	diameters	diameters
					(max)	(min)
64	0.0	67	0.0	987	6.0	6.0
65	0.0	68	0.0	988	6.0	6.0
66	0.0	69	0.0	988	6.0	6.0
67	0.0	70	0.0	987	6.0	6.0
68	0.0	71	0.0	988	6.0	6.0
69	0.0	72	0.0	988	6.0	6.0
70	0.0	73	0.0	987	6.0	6.0
71	0.0	75	0.0	988	6.0	6.0
72	0.0	76	0.0	988	6.0	6.0
73	0.0	70	0.0	987	6.0	6.0
74	0.0	73	0.0	1,011	6.2	6.2
75	0.0	71	0.0	988	6.0	6.0
76	0.0	72	0.0	988	6.0	6.0
77	0.0	94	0.0	996	6.1	6.1
78	0.0	101	0.0	997	6.1	6.1
79	0.0	80	0.0	984	6.0	6.0
80	0.0	81	0.0	984	6.0	6.0
81	0.0	80	0.0	984	6.0	6.0
82	0.0	81	0.0	984	6.0	6.0
83	0.0	84	0.0	984	6.0	6.0
84	0.0	85	0.0	984	6.0	6.0
85	0.0	84	0.0	984	6.0	6.0
86	0.0	85	0.0	984	6.0	6.0
87	0.0	88	0.0	984	6.0	6.0
88	0.0	89	0.0	984	6.0	6.0
89	0.0	88	0.0	984	6.0	6.0
90	0.0	89	0.0	984	6.0	6.0
91	0.0	92	0.0	984	6.0	6.0
92	0.0	93	0.0	984	6.0	6.0
93	0.0	92	0.0	984	6.0	6.0
94	0.0	95	0.0	984	6.0	6.0
95	0.0	94	0.0	984	6.0	6.0
96	0.0	97	0.0	984	6.0	6.0
97	0.0	98	0.0	984	6.0	6.0
98	0.0	97	0.0	984	6.0	6.0
99	0.0	98	0.0	984	6.0	6.0
100	0.0	101	0.0	984	6.0	6.0
101	0.0	100	0.0	984	6.0	6.0
102	0.0	103	0.0	984	6.0	6.0
103	0.0	104	0.0	984	6.0	6.0
104	0.0	103	0.0	984	6.0	6.0
105	0.0	104	0.0	984	6.0	6.0
106	0.0	105	0.0	984	6.0	6.0
107	0.0	108	0.0	984	6.0	6.0
108	0.0	109	0.0	984	6.0	6.0
109	0.0	108	0.0	984	6.0	6.0
110	0.0	109	0.0	984	6.0	6.0
111	0.0	112	0.0	984	6.0	6.0
112	0.0	113	0.0	984	6.0	6.0
113	0.0	112	0.0	984	6.0	6.0
114	0.0	113	0.0	984	6.0	6.0
115	0.0	114	0.0	984	6.0	6.0
116	0.0	117	0.0	984	6.0	6.0
117	0.0	118	0.0	984	6.0	6.0
118	0.0	117	0.0	984	6.0	6.0
119	0.0	120	0.0	984	6.0	6.0
120	0.0	121	0.0	984	6.0	6.0
121	0.0	120	0.0	984	6.0	6.0
122	0.0	121	0.0	984	6.0	6.0
123	0.0	124	0.0	984	6.0	6.0
124	0.0	125	0.0	984	6.0	6.0
125	0.0	124	0.0	984	6.0	6.0
126	0.0	125	0.0	984	6.0	6.0

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest WTG	Z	Horizontal distance	Distance in rotor diameters (max)	Distance in rotor diameters (min)
	[m]		[m]	[m]		
127	0.0	126	0.0	984	6.0	6.0
128	0.0	127	0.0	984	6.0	6.0
129	0.0	130	0.0	984	6.0	6.0
130	0.0	129	0.0	984	6.0	6.0
131	0.0	132	0.0	984	6.0	6.0
132	0.0	133	0.0	984	6.0	6.0
133	0.0	132	0.0	984	6.0	6.0
134	0.0	133	0.0	984	6.0	6.0
135	0.0	134	0.0	984	6.0	6.0
136	0.0	135	0.0	984	6.0	6.0
137	0.0	136	0.0	984	6.0	6.0
138	0.0	139	0.0	984	6.0	6.0
139	0.0	140	0.0	984	6.0	6.0
140	0.0	139	0.0	984	6.0	6.0
141	0.0	140	0.0	984	6.0	6.0
142	0.0	141	0.0	984	6.0	6.0
143	0.0	142	0.0	984	6.0	6.0
144	0.0	143	0.0	984	6.0	6.0
145	0.0	146	0.0	984	6.0	6.0
146	0.0	147	0.0	984	6.0	6.0
147	0.0	146	0.0	984	6.0	6.0
148	0.0	147	0.0	984	6.0	6.0
149	0.0	148	0.0	984	6.0	6.0
150	0.0	149	0.0	984	6.0	6.0
151	0.0	150	0.0	984	6.0	6.0
152	0.0	151	0.0	984	6.0	6.0
153	0.0	154	0.0	550	6.9	6.9
154	0.0	153	0.0	550	6.9	6.9
155	0.0	156	0.0	550	6.9	6.9
156	0.0	155	0.0	550	6.9	6.9
157	0.0	153	0.0	550	6.9	6.9
158	0.0	160	0.0	550	6.9	6.9
159	0.0	161	0.0	549	6.9	6.9
160	0.0	168	0.0	550	6.9	6.9
161	0.0	159	0.0	549	6.9	6.9
162	0.0	165	0.0	550	6.9	6.9
163	0.0	166	0.0	550	6.9	6.9
164	0.0	163	0.0	550	6.9	6.9
165	0.0	162	0.0	550	6.9	6.9
166	0.0	163	0.0	550	6.9	6.9
167	0.0	169	0.0	550	6.9	6.9
168	0.0	166	0.0	550	6.9	6.9
169	0.0	167	0.0	550	6.9	6.9
170	0.0	178	0.0	550	6.9	6.9
171	0.0	169	0.0	550	6.9	6.9
172	0.0	173	0.0	550	6.9	6.9
173	0.0	172	0.0	550	6.9	6.9
174	0.0	172	0.0	550	6.9	6.9
175	0.0	178	0.0	550	6.9	6.9
176	0.0	171	0.0	551	6.9	6.9
177	0.0	179	0.0	550	6.9	6.9
178	0.0	175	0.0	550	6.9	6.9
179	0.0	177	0.0	550	6.9	6.9
180	0.0	187	0.0	549	6.9	6.9
181	0.0	183	0.0	550	6.9	6.9
182	0.0	179	0.0	550	6.9	6.9
183	0.0	181	0.0	550	6.9	6.9
184	0.0	181	0.0	550	6.9	6.9
185	0.0	187	0.0	550	6.9	6.9
186	0.0	188	0.0	549	6.9	6.9
187	0.0	180	0.0	549	6.9	6.9
188	0.0	186	0.0	549	6.9	6.9
189	0.0	195	0.0	550	6.9	6.9

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest WTG	Z	Horizontal distance	Distance in rotor diameters (max)	Distance in rotor diameters (min)
	[m]		[m]	[m]		
190	0.0	192	0.0	550	6.9	6.9
191	0.0	193	0.0	550	6.9	6.9
192	0.0	194	0.0	550	6.9	6.9
193	0.0	191	0.0	550	6.9	6.9
194	0.0	192	0.0	550	6.9	6.9
195	0.0	189	0.0	550	6.9	6.9
196	0.0	198	0.0	550	6.9	6.9
197	0.0	194	0.0	550	6.9	6.9
198	0.0	201	0.0	550	6.9	6.9
199	0.0	203	0.0	550	6.9	6.9
200	0.0	208	0.0	550	6.9	6.9
201	0.0	198	0.0	550	6.9	6.9
202	0.0	204	0.0	549	6.9	6.9
203	0.0	199	0.0	550	6.9	6.9
204	0.0	202	0.0	549	6.9	6.9
205	0.0	197	0.0	550	6.9	6.9
206	0.0	207	0.0	550	6.9	6.9
207	0.0	206	0.0	550	6.9	6.9
208	0.0	209	0.0	549	6.9	6.9
209	0.0	208	0.0	549	6.9	6.9
210	0.0	211	0.0	549	6.9	6.9
211	0.0	210	0.0	549	6.9	6.9
212	0.0	209	0.0	552	6.9	6.9
213	0.0	214	0.0	646	7.2	7.2
214	0.0	215	0.0	644	7.2	7.2
215	0.0	216	0.0	644	7.2	7.2
216	0.0	215	0.0	644	7.2	7.2
217	0.0	216	0.0	644	7.2	7.2
218	0.0	217	0.0	644	7.2	7.2
219	0.0	220	0.0	644	7.2	7.2
220	0.0	221	0.0	643	7.1	7.1
221	0.0	220	0.0	643	7.1	7.1
222	0.0	224	0.0	644	7.2	7.2
223	0.0	226	0.0	632	7.0	7.0
224	0.0	222	0.0	644	7.2	7.2
225	0.0	227	0.0	644	7.2	7.2
226	0.0	223	0.0	632	7.0	7.0
227	0.0	228	0.0	642	7.1	7.1
228	0.0	227	0.0	642	7.1	7.1
229	0.0	226	0.0	646	7.2	7.2
230	0.0	233	0.0	643	7.1	7.1
231	0.0	232	0.0	646	7.2	7.2
232	0.0	234	0.0	644	7.2	7.2
233	0.0	230	0.0	643	7.1	7.1
234	0.0	232	0.0	644	7.2	7.2
235	0.0	234	0.0	644	7.2	7.2
236	0.0	238	0.0	643	7.1	7.1
237	0.0	235	0.0	724	8.0	8.0
238	0.0	236	0.0	643	7.1	7.1
239	0.0	242	0.0	647	7.2	7.2
240	0.0	241	0.0	644	7.2	7.2
241	0.0	243	0.0	642	7.1	7.1
242	0.0	239	0.0	647	7.2	7.2
243	0.0	241	0.0	642	7.1	7.1
244	0.0	243	0.0	644	7.2	7.2
245	0.0	244	0.0	736	8.2	8.2
246	0.0	249	0.0	863	7.7	7.7
247	0.0	250	0.0	668	6.0	6.0
248	0.0	250	0.0	553	4.9	4.9
249	0.0	254	0.0	688	6.1	6.1
250	0.0	248	0.0	553	4.9	4.9
251	0.0	253	0.0	534	4.8	4.8
252	0.0	250	0.0	586	5.2	5.2

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest	Z	Horizontal	Distance in	Distance in
	[m]	WTG	[m]	distance	rotor	rotor
				[m]	diameters	diameters
					(max)	(min)
253	0.0	255	0.0	533	4.8	4.8
254	0.0	252	0.0	633	5.7	5.7
255	0.0	253	0.0	533	4.8	4.8
256	0.0	255	0.0	534	4.8	4.8
257	0.0	259	0.0	544	4.9	4.9
258	0.0	260	0.0	535	4.8	4.8
259	0.0	257	0.0	544	4.9	4.9
260	0.0	258	0.0	535	4.8	4.8
261	0.0	262	0.0	553	4.9	4.9
262	0.0	264	0.0	543	4.8	4.8
263	0.0	265	0.0	575	5.1	5.1
264	0.0	262	0.0	543	4.8	4.8
265	0.0	267	0.0	563	5.0	5.0
266	0.0	264	0.0	582	5.2	5.2
267	0.0	265	0.0	563	5.0	5.0
268	0.0	267	0.0	573	5.1	5.1
269	0.0	271	0.0	558	5.0	5.0
270	0.0	272	0.0	557	5.0	5.0
271	0.0	269	0.0	558	5.0	5.0
272	0.0	270	0.0	557	5.0	5.0
273	0.0	271	0.0	570	5.1	5.1
274	0.0	273	0.0	591	5.3	5.3
275	0.0	278	0.0	580	5.2	5.2
276	0.0	277	0.0	575	5.1	5.1
277	0.0	276	0.0	575	5.1	5.1
278	0.0	275	0.0	580	5.2	5.2
279	0.0	277	0.0	592	5.3	5.3
280	0.0	281	0.0	588	5.2	5.2
281	0.0	280	0.0	588	5.2	5.2
282	0.0	283	0.0	586	5.2	5.2
283	0.0	282	0.0	586	5.2	5.2
284	0.0	281	0.0	613	5.5	5.5
285	0.0	283	0.0	622	5.6	5.6
286	0.0	287	0.0	596	5.3	5.3
287	0.0	286	0.0	596	5.3	5.3
288	0.0	287	0.0	696	6.2	6.2
289	0.0	300	0.0	1,122	6.8	6.8
290	0.0	289	0.0	1,313	8.0	8.0
291	0.0	290	0.0	1,438	8.8	8.8
292	0.0	296	0.0	1,059	6.5	6.5
293	0.0	297	0.0	1,059	6.5	6.5
294	0.0	298	0.0	1,059	6.5	6.5
295	0.0	299	0.0	1,059	6.5	6.5
296	0.0	292	0.0	1,059	6.5	6.5
297	0.0	293	0.0	1,059	6.5	6.5
298	0.0	294	0.0	1,059	6.5	6.5
299	0.0	295	0.0	1,059	6.5	6.5
300	0.0	289	0.0	1,122	6.8	6.8
301	0.0	306	0.0	1,060	6.5	6.5
302	0.0	307	0.0	1,060	6.5	6.5
303	0.0	308	0.0	1,059	6.5	6.5
304	0.0	309	0.0	1,059	6.5	6.5
305	0.0	310	0.0	1,059	6.5	6.5
306	0.0	312	0.0	1,059	6.5	6.5
307	0.0	302	0.0	1,060	6.5	6.5
308	0.0	303	0.0	1,059	6.5	6.5
309	0.0	304	0.0	1,059	6.5	6.5
310	0.0	305	0.0	1,059	6.5	6.5
311	0.0	316	0.0	1,059	6.5	6.5
312	0.0	306	0.0	1,059	6.5	6.5
313	0.0	307	0.0	1,060	6.5	6.5
314	0.0	308	0.0	1,059	6.5	6.5
315	0.0	309	0.0	1,059	6.5	6.5

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest	Z	Horizontal	Distance in	Distance in
	[m]	WTG	[m]	distance	rotor	rotor
				[m]	diameters	diameters
					(max)	(min)
316	0.0	311	0.0	1,059	6.5	6.5
317	0.0	312	0.0	1,060	6.5	6.5
318	0.0	327	0.0	1,179	7.2	7.2
319	0.0	333	0.0	1,028	6.3	6.3
320	0.0	338	0.0	959	5.8	5.8
321	0.0	349	0.0	925	5.6	5.6
322	0.0	323	0.0	1,015	6.2	6.2
323	0.0	324	0.0	1,015	6.2	6.2
324	0.0	325	0.0	1,015	6.2	6.2
325	0.0	326	0.0	1,015	6.2	6.2
326	0.0	327	0.0	1,015	6.2	6.2
327	0.0	326	0.0	1,015	6.2	6.2
328	0.0	329	0.0	1,016	6.2	6.2
329	0.0	330	0.0	1,015	6.2	6.2
330	0.0	331	0.0	1,015	6.2	6.2
331	0.0	330	0.0	1,015	6.2	6.2
332	0.0	333	0.0	1,015	6.2	6.2
333	0.0	332	0.0	1,015	6.2	6.2
334	0.0	335	0.0	1,015	6.2	6.2
335	0.0	334	0.0	1,015	6.2	6.2
336	0.0	337	0.0	1,015	6.2	6.2
337	0.0	338	0.0	1,015	6.2	6.2
338	0.0	320	0.0	959	5.8	5.8
339	0.0	340	0.0	1,015	6.2	6.2
340	0.0	341	0.0	1,015	6.2	6.2
341	0.0	342	0.0	1,015	6.2	6.2
342	0.0	341	0.0	1,015	6.2	6.2
343	0.0	344	0.0	1,015	6.2	6.2
344	0.0	343	0.0	1,015	6.2	6.2
345	0.0	346	0.0	1,015	6.2	6.2
346	0.0	347	0.0	1,015	6.2	6.2
347	0.0	348	0.0	1,015	6.2	6.2
348	0.0	349	0.0	1,015	6.2	6.2
349	0.0	321	0.0	925	5.6	5.6
350	0.0	351	0.0	1,015	6.2	6.2
351	0.0	352	0.0	1,014	6.2	6.2
352	0.0	351	0.0	1,014	6.2	6.2
353	0.0	354	0.0	1,015	6.2	6.2
354	0.0	355	0.0	1,015	6.2	6.2
355	0.0	354	0.0	1,015	6.2	6.2
356	0.0	361	0.0	1,176	7.2	7.2
357	0.0	362	0.0	1,176	7.2	7.2
358	0.0	363	0.0	1,176	7.2	7.2
359	0.0	364	0.0	1,175	7.2	7.2
360	0.0	365	0.0	1,176	7.2	7.2
361	0.0	356	0.0	1,176	7.2	7.2
362	0.0	368	0.0	1,175	7.2	7.2
363	0.0	369	0.0	1,175	7.2	7.2
364	0.0	359	0.0	1,175	7.2	7.2
365	0.0	390	0.0	1,163	7.1	7.1
366	0.0	371	0.0	1,177	7.2	7.2
367	0.0	372	0.0	1,176	7.2	7.2
368	0.0	362	0.0	1,175	7.2	7.2
369	0.0	389	0.0	1,055	6.4	6.4
370	0.0	364	0.0	1,175	7.2	7.2
371	0.0	376	0.0	1,176	7.2	7.2
372	0.0	367	0.0	1,176	7.2	7.2
373	0.0	379	0.0	1,174	7.2	7.2
374	0.0	390	0.0	1,090	6.6	6.6
375	0.0	380	0.0	1,176	7.2	7.2
376	0.0	371	0.0	1,176	7.2	7.2
377	0.0	372	0.0	1,176	7.2	7.2
378	0.0	383	0.0	1,176	7.2	7.2

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest	Z	Horizontal	Distance in	Distance in
	[m]	WTG	[m]	distance	rotor	rotor
				[m]	diameters	diameters
					(max)	(min)
379	0.0	373	0.0	1,174	7.2	7.2
380	0.0	384	0.0	1,032	6.3	6.3
381	0.0	384	0.0	1,060	6.5	6.5
382	0.0	388	0.0	1,064	6.5	6.5
383	0.0	378	0.0	1,176	7.2	7.2
384	0.0	386	0.0	1,031	6.3	6.3
385	0.0	386	0.0	842	5.1	5.1
386	0.0	385	0.0	842	5.1	5.1
387	0.0	386	0.0	982	6.0	6.0
388	0.0	382	0.0	1,064	6.5	6.5
389	0.0	369	0.0	1,055	6.4	6.4
390	0.0	391	0.0	975	5.9	5.9
391	0.0	390	0.0	975	5.9	5.9
392	0.0	390	0.0	988	6.0	6.0
393	0.0	392	0.0	1,046	6.4	6.4
394	0.0	395	0.0	1,033	6.3	6.3
395	0.0	396	0.0	1,033	6.3	6.3
396	0.0	395	0.0	1,033	6.3	6.3
397	0.0	398	0.0	1,033	6.3	6.3
398	0.0	397	0.0	1,033	6.3	6.3
399	0.0	398	0.0	1,033	6.3	6.3
400	0.0	401	0.0	1,033	6.3	6.3
401	0.0	402	0.0	1,033	6.3	6.3
402	0.0	403	0.0	1,033	6.3	6.3
403	0.0	404	0.0	1,033	6.3	6.3
404	0.0	405	0.0	1,033	6.3	6.3
405	0.0	404	0.0	1,033	6.3	6.3
406	0.0	407	0.0	1,033	6.3	6.3
407	0.0	408	0.0	1,033	6.3	6.3
408	0.0	407	0.0	1,033	6.3	6.3
409	0.0	410	0.0	1,033	6.3	6.3
410	0.0	411	0.0	1,032	6.3	6.3
411	0.0	410	0.0	1,032	6.3	6.3
412	0.0	413	0.0	1,033	6.3	6.3
413	0.0	414	0.0	1,032	6.3	6.3
414	0.0	413	0.0	1,032	6.3	6.3
415	0.0	414	0.0	1,033	6.3	6.3
416	0.0	417	0.0	900	5.5	5.5
417	0.0	416	0.0	900	5.5	5.5
418	0.0	419	0.0	900	5.5	5.5
419	0.0	418	0.0	900	5.5	5.5
420	0.0	421	0.0	901	5.5	5.5
421	0.0	420	0.0	901	5.5	5.5
422	0.0	288	0.0	1,357	12.1	8.3
423	0.0	272	0.0	1,377	12.3	8.4
424	0.0	260	0.0	1,311	11.7	8.0
425	0.0	423	0.0	2,489	15.2	15.2
426	0.0	427	0.0	1,450	8.8	8.8
427	0.0	426	0.0	1,450	8.8	8.8
428	0.0	400	0.0	1,108	6.8	6.8
429	0.0	430	0.0	978	6.0	6.0
430	0.0	429	0.0	978	6.0	6.0
431	0.0	430	0.0	1,108	6.8	6.8
432	0.0	433	0.0	1,318	8.0	8.0
433	0.0	432	0.0	1,318	8.0	8.0
434	0.0	478	0.0	1,318	8.0	8.0
435	0.0	488	0.0	1,317	8.0	8.0
436	0.0	485	0.0	1,315	8.0	8.0
437	0.0	439	0.0	1,317	8.0	8.0
438	0.0	464	0.0	1,317	8.0	8.0
439	0.0	457	0.0	1,316	8.0	8.0
440	0.0	213	0.0	2,090	23.2	12.7
441	0.0	442	0.0	1,478	9.0	9.0

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest	Z	Horizontal	Distance in	Distance in
	[m]	WTG	[m]	distance	rotor	rotor
				[m]	diameters	diameters
					(max)	(min)
442	0.0	447	0.0	1,318	8.0	8.0
443	0.0	448	0.0	1,318	8.0	8.0
444	0.0	451	0.0	1,316	8.0	8.0
445	0.0	452	0.0	1,315	8.0	8.0
446	0.0	453	0.0	1,315	8.0	8.0
447	0.0	442	0.0	1,318	8.0	8.0
448	0.0	455	0.0	1,318	8.0	8.0
449	0.0	448	0.0	1,320	8.0	8.0
450	0.0	458	0.0	1,315	8.0	8.0
451	0.0	459	0.0	1,315	8.0	8.0
452	0.0	460	0.0	1,314	8.0	8.0
453	0.0	461	0.0	1,314	8.0	8.0
454	0.0	462	0.0	1,314	8.0	8.0
455	0.0	456	0.0	1,223	7.5	7.5
456	0.0	455	0.0	1,223	7.5	7.5
457	0.0	439	0.0	1,316	8.0	8.0
458	0.0	450	0.0	1,315	8.0	8.0
459	0.0	466	0.0	1,313	8.0	8.0
460	0.0	467	0.0	1,313	8.0	8.0
461	0.0	468	0.0	1,313	8.0	8.0
462	0.0	469	0.0	1,312	8.0	8.0
463	0.0	470	0.0	1,312	8.0	8.0
464	0.0	465	0.0	1,195	7.3	7.3
465	0.0	464	0.0	1,195	7.3	7.3
466	0.0	459	0.0	1,313	8.0	8.0
467	0.0	460	0.0	1,313	8.0	8.0
468	0.0	461	0.0	1,313	8.0	8.0
469	0.0	462	0.0	1,312	8.0	8.0
470	0.0	463	0.0	1,312	8.0	8.0
471	0.0	470	0.0	1,320	8.0	8.0
472	0.0	473	0.0	1,280	7.8	7.8
473	0.0	480	0.0	1,202	7.3	7.3
474	0.0	481	0.0	1,313	8.0	8.0
475	0.0	482	0.0	1,313	8.0	8.0
476	0.0	483	0.0	1,312	8.0	8.0
477	0.0	484	0.0	1,312	8.0	8.0
478	0.0	434	0.0	1,318	8.0	8.0
479	0.0	437	0.0	1,318	8.0	8.0
480	0.0	473	0.0	1,202	7.3	7.3
481	0.0	480	0.0	1,266	7.7	7.7
482	0.0	475	0.0	1,313	8.0	8.0
483	0.0	476	0.0	1,312	8.0	8.0
484	0.0	477	0.0	1,312	8.0	8.0
485	0.0	507	0.0	1,315	8.0	8.0
486	0.0	489	0.0	1,288	7.9	7.9
487	0.0	491	0.0	1,318	8.0	8.0
488	0.0	492	0.0	1,317	8.0	8.0
489	0.0	486	0.0	1,288	7.9	7.9
490	0.0	493	0.0	1,317	8.0	8.0
491	0.0	494	0.0	1,317	8.0	8.0
492	0.0	495	0.0	1,317	8.0	8.0
493	0.0	490	0.0	1,317	8.0	8.0
494	0.0	491	0.0	1,317	8.0	8.0
495	0.0	492	0.0	1,317	8.0	8.0
496	0.0	506	0.0	2,021	12.3	12.3
497	0.0	502	0.0	2,088	12.7	12.7
498	0.0	499	0.0	1,925	11.7	11.7
499	0.0	498	0.0	1,925	11.7	11.7
500	0.0	465	0.0	1,907	11.6	11.6
501	0.0	504	0.0	1,543	9.4	9.4
502	0.0	195	0.0	1,182	14.8	7.2
503	0.0	156	0.0	1,173	14.7	7.2
504	0.0	465	0.0	1,514	9.2	9.2

To be continued on next page...

PARK - WTG distances

Calculation: HKW MER 10MW incl HKN&HKZ

...continued from previous page

	Z	Nearest	Z	Horizontal	Distance in	Distance in
	[m]	WTG	[m]	distance	rotor	rotor
				[m]	diameters	diameters
					(max)	(min)
505	0.0	450	0.0	1,801	11.0	11.0
506	0.0	496	0.0	2,021	12.3	12.3
507	0.0	489	0.0	1,298	7.9	7.9
Min	0.0	0.0	0.0	533	4.8	4.8
Max	0.0	0.0	0.0	2,489	23.2	15.2

Project:

RVO Offshore wind farms

Licensed user:

Pondera Consult B.V.
Welbergweg 49
NL-7556 PE Hengelo
0031742489940



Calculated:

16/05/2019 10:18/3.2.712

PARK - Wind statistics info

Calculation: HKW MER 10MW incl HKN&HKZ

Main data for wind statistic

File	\\pd-fs01.pondera.local\projecten\Extern\2017\717029 Expert support RVO offshore WF Zones\TO\WPK\Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,994.wws
Name	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,994
Country	Netherlands
Source	User
Mast coordinates	UTM (north)-ETRS89 Zone: 31 East: 529,340 North: 5,855,469
Created	23/05/2018
Edited	23/05/2018
Sectors	12
WASP version	WASP 11 Version 11.06.0028
Coordinate system	UTM (north)-WGS84 Zone: 31
Displacement height	None

Additional info for wind statistic

Source data	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1))
Data from	27/02/1993
Data to	28/02/2018
Measurement length	300.0 Months
Recovery rate	100.0 %
Effective measurement length	300.0 Months

Note

To get the most correct calculation results, wind statistics shall be calculated with the SAME model and model parameters, as currently chosen in calculation. For WASP versions before 10.0, the model is unchanged, but thereafter more model changes affecting the wind statistic is seen. Likewise WASP CFD should always use WASP CFD calculated wind statistics.

Project:
RVO Offshore wind farms

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0031742489940



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16/05/2019 10:18/3.2.712

PARK - Wind statistics info

Calculation: HKW MER 10MW incl HKN&HKZ

Main data for wind statistic

File	\\pd-fs01.pondera.local\projecten\Extern\2017\717029 Expert support RVO offshore WF Zones\TO\WPK\Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,991.wws
Name	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,991
Country	Netherlands
Source	User
Mast coordinates	UTM (north)-ETRS89 Zone: 31 East: 529,340 North: 5,855,469
Created	23/05/2018
Edited	23/05/2018
Sectors	12
WASP version	WASP 11 Version 11.06.0028
Coordinate system	UTM (north)-WGS84 Zone: 31
Displacement height	None

Additional info for wind statistic

Source data	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1))
Data from	27/02/1993
Data to	28/02/2018
Measurement length	300.0 Months
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To get the most correct calculation results, wind statistics shall be calculated with the SAME model and model parameters, as currently chosen in calculation. For WASP versions before 10.0, the model is unchanged, but thereafter more model changes affecting the wind statistic is seen. Likewise WASP CFD should always use WASP CFD calculated wind statistics.

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Calculated:

16/05/2019 10:18/3.2.712

PARK - Wind statistics info

Calculation: HKW MER 10MW incl HKN&HKZ

Main data for wind statistic

File	\\pd-fs01.pondera.local\projecten\Extern\2017\717029 Expert support RVO offshore WF Zones\TO\WPK\Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,994.wws
Name	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,994
Country	Netherlands
Source	User
Mast coordinates	UTM (north)-ETRS89 Zone: 31 East: 529,340 North: 5,855,469
Created	23/05/2018
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Additional info for wind statistic

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Effective measurement length	300.0 Months

Note

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0031742489940



Calculated:

16/05/2019 10:18/3.2.712

PARK - Wind statistics info

Calculation: HKW MER 10MW incl HKN&HKZ

Main data for wind statistic

File	\\pd-fs01.pondera.local\projecten\Extern\2017\717029 Expert support RVO offshore WF Zones\TO\WPI\Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,955.wws
Name	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,955
Country	Netherlands
Source	User
Mast coordinates	UTM (north)-ETRS89 Zone: 31 East: 529,340 North: 5,855,469
Created	23/05/2018
Edited	23/05/2018
Sectors	12
WASP version	WASP 11 Version 11.06.0028
Coordinate system	UTM (north)-WGS84 Zone: 31
Displacement height	None

Additional info for wind statistic

Source data	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1))
Data from	27/02/1993
Data to	28/02/2018
Measurement length	300.0 Months
Recovery rate	100.0 %
Effective measurement length	300.0 Months

Note

To get the most correct calculation results, wind statistics shall be calculated with the SAME model and model parameters, as currently chosen in calculation. For WASP versions before 10.0, the model is unchanged, but thereafter more model changes affecting the wind statistic is seen. Likewise WASP CFD should always use WASP CFD calculated wind statistics.

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0031742489940



Calculated:
16/05/2019 10:18/3.2.712

PARK - Wind statistics info

Calculation: HKW MER 10MW incl HKN&HKZ

Main data for wind statistic

File	\\pd-fs01.pondera.local\projecten\Extern\2017\717029 Expert support RVO offshore WF Zones\TO\WPA\Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,974.wws
Name	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,974
Country	Netherlands
Source	User
Mast coordinates	UTM (north)-ETRS89 Zone: 31 East: 529,340 North: 5,855,469
Created	23/05/2018
Edited	23/05/2018
Sectors	12
WASP version	WASP 11 Version 11.06.0028
Coordinate system	UTM (north)-WGS84 Zone: 31
Displacement height	None

Additional info for wind statistic

Source data	Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1))
Data from	27/02/1993
Data to	28/02/2018
Measurement length	300.0 Months
Recovery rate	100.0 %
Effective measurement length	300.0 Months

Note

To get the most correct calculation results, wind statistics shall be calculated with the SAME model and model parameters, as currently chosen in calculation. For WASP versions before 10.0, the model is unchanged, but thereafter more model changes affecting the wind statistic is seen. Likewise WASP CFD should always use WASP CFD calculated wind statistics.

Project:

RVO Offshore wind farms

Licensed user:

Pondera Consult B.V.
Welbergweg 49
NL-7556 PE Hengelo
0031742489940



Calculated:

16/05/2019 10:18/3.2.712

PARK - Wind statistics info

Calculation: HKW MER 10MW incl HKN&HKZ

Main data for wind statistic

File	\\pd-fs01.pondera.local\projecten\Extern\2017\717029 Expert support RVO offshore WF Zones\TO\WPI\Jmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,966.wws
Name	Ijmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1)) - E Synth 100.00 m-Corr0,966
Country	Netherlands
Source	User
Mast coordinates	UTM (north)-ETRS89 Zone: 31 East: 529,340 North: 5,855,469
Created	23/05/2018
Edited	23/05/2018
Sectors	12
WASP version	WASP 11 Version 11.06.0028
Coordinate system	UTM (north)-WGS84 Zone: 31
Displacement height	None

Additional info for wind statistic

Source data	Ijmuiden Mast (Regression MCP using EmdConwx_N52.850_E003.440 (1))
Data from	27/02/1993
Data to	28/02/2018
Measurement length	300.0 Months
Recovery rate	100.0 %
Effective measurement length	300.0 Months

Note

To get the most correct calculation results, wind statistics shall be calculated with the SAME model and model parameters, as currently chosen in calculation. For WASP versions before 10.0, the model is unchanged, but thereafter more model changes affecting the wind statistic is seen. Likewise WASP CFD should always use WASP CFD calculated wind statistics.

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Additional info for wind statistic

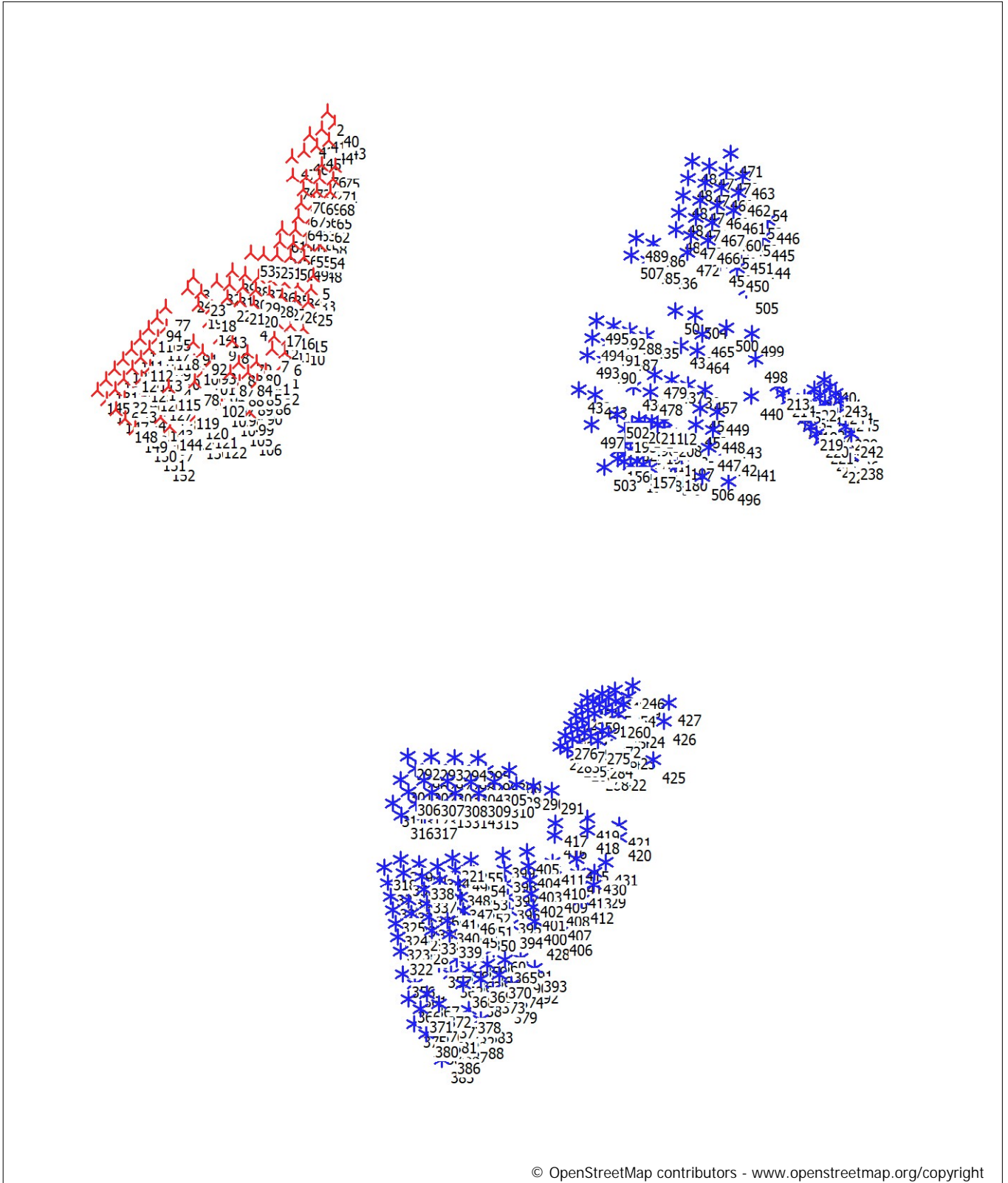
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PARK - Map

Calculation: HKW MER 10MW incl HKN&HKZ



Map: Open Street Map 001 , Print scale 1:400,000, Map center UTM (north)-ETRS89 Zone: 31 East: 569,735 North: 5,816,667
New WTG Existing WTG