

## PARK - Main Result

### Calculation: Alternatief 5

#### Setup

AEP assuming long term representative time series data with optional corrections

Calculation performed in UTM (north)-WGS84 Zone: 31  
At the site centre the difference between grid north and true north is: 2.1°

#### Wake

Wake Model: N.O. Jensen (EMD) : 2005  
Include mirror wakes  
Wake decay constant  
Wake decay constant: 0.054 HH:100m Very open farmland

Use Downwind change of WDC by number of wake turbines.  $y = A \cdot \ln(x) + B$   
Model A B Max x  
2 -0.3000 1.4000 5

#### Combination model

Weighted linear and RSS  
Linear weight RSS weight  
0.35 0.65

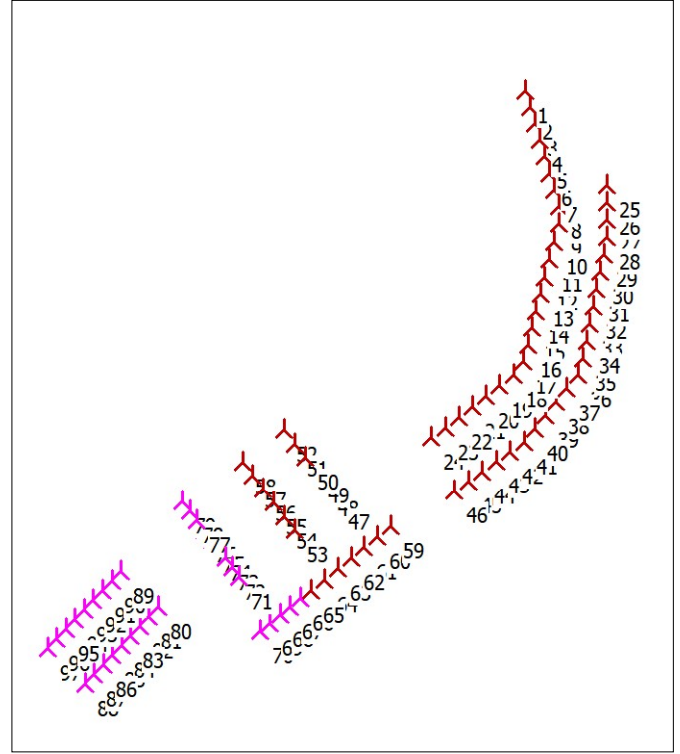
#### Scaler/wind data

Name EMD Scaler WKG  
Used period 31/01/1993 05:00:00 - 31/01/2017 04:00:00  
Meteo object(s) EmdConwx\_N52.400\_E005.540 (Pijlstaartweg)  
EmdConwx\_N52.430\_E005.660 (Kokkeltocht)  
EmdConwx\_N52.460\_E005.660 (Kubbeweg)  
EmdConwx\_N52.490\_E005.750 (Hoge Vaart)  
EmdConwx\_N52.520\_E005.780 (Hondtocht)  
Take nearest  
Horizontal interpolation  
Displacement height: Omnidirectional from objects  
WASP version WASP 11 Version 11.04.0006

#### Power correction

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

	Min	Max	Avg	Corr. [%]	Neg. corr. [%]	Pos. corr. [%]
Air density						
From scaler meteo objects [°C]	-14.2	32.6	9.8			
From air density settings						
Resulting air density [kg/m³]	1.134	1.345	1.227			
Relative to 15°C at sea level [%]	92.6	109.8	100.2	100.0	100.0	100.0



Scale 1:250,000

▲ New WTG

### Calculated Annual Energy for Wind Farm

WTG combination	Result PARK [MWh/y]	GROSS (no loss) Free WTGs [MWh/y]	Wake loss [%]	Specific results <sup>a)</sup>			Wind speed	
				Capacity factor [%]	Mean WTG result [MWh/y]	Full load hours [Hours/year]	free [m/s]	wake reduced [m/s]
Wind farm	1,561,724.1	1,719,427.7	9.2	43.7	16,100.2	3,831	7.6	7.2

<sup>a)</sup> Based on wake reduced results, but no other losses included

### Calculated Annual Energy for each of 97 new WTGs with total 407.7 MW rated power

WTG type	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Power curve Creator	Name	Annual Energy		Wind speed	
									Result [MWh/y]	Wake loss [%]	free [m/s]	reduced [m/s]
1	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	20,728.0	2.6	8.05	7.92
2	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	20,322.5	4.0	8.02	7.82
3	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	20,136.1	4.5	7.99	7.77
4	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,993.2	4.9	7.97	7.74
5	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,810.1	5.3	7.94	7.69
6	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,714.0	5.7	7.94	7.67
7	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,560.5	6.2	7.93	7.63
8	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,335.3	7.1	7.92	7.58
9	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,249.7	7.4	7.92	7.57
10	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,197.3	7.4	7.91	7.56
11	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,184.6	7.4	7.91	7.56
12	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,134.3	7.6	7.91	7.55
13	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,105.6	7.8	7.92	7.54
14	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	19,094.3	7.9	7.92	7.54
15	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,999.6	8.1	7.91	7.52
16	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,929.7	8.6	7.92	7.50
17	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,585.0	10.3	7.92	7.43
18	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,241.8	11.8	7.91	7.37
19	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,247.1	11.8	7.92	7.38
20	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,277.2	11.6	7.91	7.38
21	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,370.3	11.2	7.91	7.40
22	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m³ - R01	18,548.8	10.4	7.92	7.45

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## PARK - Main Result

### Calculation: Alternatief 5

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WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Power curve		Annual Energy Result [MWh/y]	Wake loss [%]	Wind speed		
Valid	Manufact.					Creator	Name			free [m/s]	reduced [m/s]	
23	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,790.4	9.2	7.92	7.49
24	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,413.8	5.9	7.89	7.62
25	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,520.9	6.8	7.96	7.64
26	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,273.5	7.9	7.96	7.59
27	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,179.5	8.3	7.96	7.57
28	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,052.0	8.8	7.96	7.54
29	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,970.6	9.0	7.95	7.52
30	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,972.6	9.0	7.96	7.53
31	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,911.1	9.1	7.94	7.51
32	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,948.1	9.0	7.95	7.52
33	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,939.5	9.0	7.95	7.51
34	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,927.8	9.0	7.95	7.51
35	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,836.0	9.3	7.93	7.48
36	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,547.5	10.7	7.94	7.43
37	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,451.0	11.1	7.93	7.41
38	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,477.6	10.9	7.93	7.42
39	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,536.1	10.6	7.93	7.43
40	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,596.8	10.4	7.94	7.45
41	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,407.1	11.3	7.94	7.42
42	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,398.9	11.5	7.95	7.43
43	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,447.6	11.2	7.95	7.44
44	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,578.9	10.6	7.96	7.47
45	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,836.6	9.5	7.96	7.53
46	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,593.6	5.9	7.98	7.71
47	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,054.5	8.1	7.94	7.56
48	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,916.8	8.9	7.95	7.52
49	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,954.2	8.8	7.95	7.53
50	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,007.2	8.4	7.94	7.53
51	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,211.4	7.5	7.94	7.58
52	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,663.1	5.2	7.94	7.67
53	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,219.4	7.5	7.95	7.59
54	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,998.5	8.3	7.93	7.53
55	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,068.9	8.3	7.95	7.55
56	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,118.4	8.0	7.95	7.56
57	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,225.0	7.3	7.93	7.57
58	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,669.6	5.2	7.93	7.67
59	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,777.7	9.8	7.98	7.52
60	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,540.3	10.9	7.98	7.47
61	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,529.7	11.1	7.98	7.47
62	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,558.3	10.9	7.97	7.47
63	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,649.6	10.6	7.99	7.49
64	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	18,788.2	10.0	7.99	7.51
65	Yes	NORDEX	N149/4.0-4.5-4,500	4,500	149.0	166.0	EMD	Mode 00 - 4500kW - 1.225 kg/m <sup>3</sup> - R01	19,298.3	7.5	7.98	7.61
66	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,028.6	14.1	7.07	6.58
67	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,071.4	13.6	7.06	6.59
68	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,142.7	12.8	7.06	6.61
69	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,302.2	11.1	7.04	6.66
70	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,996.0	5.0	7.04	6.85
71	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,444.3	9.3	7.03	6.69
72	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,279.2	11.0	7.03	6.64
73	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,192.2	11.2	7.02	6.61
74	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,182.5	11.1	7.01	6.60
75	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,150.6	11.2	7.00	6.60
76	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,138.7	11.2	7.00	6.60
77	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,139.1	10.8	6.98	6.60
78	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,239.5	9.8	6.98	6.64
79	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,504.1	6.7	6.95	6.72
80	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,906.0	13.9	7.03	6.58
81	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,747.5	14.9	7.01	6.52
82	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,822.9	14.7	7.03	6.54
83	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,832.8	14.4	7.02	6.54
84	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,952.5	13.7	7.04	6.57
85	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,001.5	13.0	7.02	6.59
86	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,164.5	11.8	7.03	6.64
87	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,340.5	9.9	7.02	6.69
88	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	11,028.9	3.8	7.01	6.87
89	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,898.4	13.1	6.99	6.58
90	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,837.6	14.1	7.01	6.55
91	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,811.3	14.1	7.00	6.54
92	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,844.7	13.9	7.01	6.55
93	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,890.5	13.5	7.01	6.56
94	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	9,960.9	12.9	7.01	6.58

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## PARK - Main Result

### Calculation: Alternatief 5

...continued from previous page

WTG type	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Power curve Creator	Name	Annual Energy Result [MWh/y]	Wake loss [%]	Wind speed	
											free [m/s]	reduced [m/s]
95	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,084.4	12.0	7.01	6.62
96	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,229.0	10.3	7.00	6.66
97	Yes	VESTAS	V117-3.6-3,600	3,600	117.0	97.5	EMD	Level 0 - Calculated - Modes PO1 & PO1-OS - 01-2016	10,937.7	4.2	7.00	6.85

Annual Energy results do not include any losses apart from wake losses. Additional losses and uncertainty must be considered for an investment decision.

### WTG siting

Dutch Stereo-RD/NAP 2008								Calculation period	
	X (east)	Y (north)	Z	Row data/Description				Start	End
1	New	180,300.0	509,271.0	-4.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6472)			31/01/1993	31/01/2017
2	New	180,464.0	508,725.0	-5.9	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6473)			31/01/1993	31/01/2017
3	New	180,629.0	508,179.0	-4.5	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6474)			31/01/1993	31/01/2017
4	New	180,793.0	507,634.0	-4.4	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6475)			31/01/1993	31/01/2017
5	New	180,957.0	507,088.0	-6.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6476)			31/01/1993	31/01/2017
6	New	181,121.0	506,542.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6477)			31/01/1993	31/01/2017
7	New	181,286.0	505,996.0	-4.8	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6478)			31/01/1993	31/01/2017
8	New	181,450.0	505,451.0	-6.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6479)			31/01/1993	31/01/2017
9	New	181,432.0	504,866.0	-4.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6480)			31/01/1993	31/01/2017
10	New	181,287.0	504,284.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6481)			31/01/1993	31/01/2017
11	New	181,138.0	503,687.0	-5.8	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6482)			31/01/1993	31/01/2017
12	New	180,992.0	503,105.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6483)			31/01/1993	31/01/2017
13	New	180,850.0	502,538.0	-5.3	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6484)			31/01/1993	31/01/2017
14	New	180,712.0	501,985.0	-5.5	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6485)			31/01/1993	31/01/2017
15	New	180,574.0	501,432.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6486)			31/01/1993	31/01/2017
16	New	180,435.0	500,879.0	-4.9	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6487)			31/01/1993	31/01/2017
17	New	180,297.0	500,326.0	-4.5	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6488)			31/01/1993	31/01/2017
18	New	179,961.0	499,866.0	-6.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6489)			31/01/1993	31/01/2017
19	New	179,509.0	499,519.0	-5.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6490)			31/01/1993	31/01/2017
20	New	179,056.0	499,172.0	-5.6	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6491)			31/01/1993	31/01/2017
21	New	178,604.0	498,825.0	-5.3	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6492)			31/01/1993	31/01/2017
22	New	178,152.0	498,479.0	-3.7	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6493)			31/01/1993	31/01/2017
23	New	177,700.0	498,132.0	-5.7	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6494)			31/01/1993	31/01/2017
24	New	177,247.0	497,785.0	-7.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6495)			31/01/1993	31/01/2017
25	New	183,029.0	506,144.0	-4.3	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6496)			31/01/1993	31/01/2017
26	New	183,039.0	505,574.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6497)			31/01/1993	31/01/2017
27	New	183,048.0	505,005.0	-5.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6498)			31/01/1993	31/01/2017
28	New	183,058.0	504,435.0	-4.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6499)			31/01/1993	31/01/2017
29	New	182,944.0	503,861.0	-6.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6500)			31/01/1993	31/01/2017
30	New	182,830.0	503,287.0	-4.6	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6501)			31/01/1993	31/01/2017
31	New	182,716.0	502,714.0	-5.8	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6502)			31/01/1993	31/01/2017
32	New	182,602.0	502,140.0	-3.8	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6503)			31/01/1993	31/01/2017
33	New	182,488.0	501,566.0	-4.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6504)			31/01/1993	31/01/2017
34	New	182,379.0	501,007.0	-4.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6505)			31/01/1993	31/01/2017
35	New	182,270.0	500,447.0	-5.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6506)			31/01/1993	31/01/2017
36	New	182,102.0	499,903.0	-4.1	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6507)			31/01/1993	31/01/2017
37	New	181,747.0	499,456.0	-4.6	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6508)			31/01/1993	31/01/2017
38	New	181,393.0	499,010.0	-4.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6509)			31/01/1993	31/01/2017
39	New	181,038.0	498,564.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6510)			31/01/1993	31/01/2017
40	New	180,683.0	498,118.0	-4.3	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6511)			31/01/1993	31/01/2017
41	New	180,329.0	497,672.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6512)			31/01/1993	31/01/2017
42	New	179,873.0	497,329.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6513)			31/01/1993	31/01/2017
43	New	179,408.0	497,001.0	-6.2	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6514)			31/01/1993	31/01/2017
44	New	178,942.0	496,672.0	-5.8	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6515)			31/01/1993	31/01/2017
45	New	178,476.0	496,343.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6516)			31/01/1993	31/01/2017
46	New	178,011.0	496,015.0	-6.3	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6517)			31/01/1993	31/01/2017
47	New	174,087.0	495,769.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6518)			31/01/1993	31/01/2017
48	New	173,738.0	496,219.0	-5.3	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6519)			31/01/1993	31/01/2017
49	New	173,389.0	496,670.0	-6.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6520)			31/01/1993	31/01/2017
50	New	173,040.0	497,120.0	-6.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6521)			31/01/1993	31/01/2017
51	New	172,690.0	497,571.0	-4.6	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6522)			31/01/1993	31/01/2017
52	New	172,341.0	498,021.0	-5.8	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6523)			31/01/1993	31/01/2017

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## PARK - Main Result

Calculation: Alternatief 5

...continued from previous page

Dutch Stereo-RD/NAP 2008				Calculation period		
	X (east)	Y (north)	Z	Row data/Description	Start	End
			[m]			
53 New	172,705.0	494,704.0	-5.4	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6524)	31/01/1993	31/01/2017
54 New	172,355.0	495,154.0	-6.4	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6525)	31/01/1993	31/01/2017
55 New	172,005.0	495,604.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6526)	31/01/1993	31/01/2017
56 New	171,655.0	496,054.0	-5.2	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6527)	31/01/1993	31/01/2017
57 New	171,305.0	496,503.0	-6.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6528)	31/01/1993	31/01/2017
58 New	170,955.0	496,953.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6529)	31/01/1993	31/01/2017
59 New	175,914.0	494,845.0	-4.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6530)	31/01/1993	31/01/2017
60 New	175,470.0	494,488.0	-5.2	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6531)	31/01/1993	31/01/2017
61 New	175,025.0	494,132.0	-4.6	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6532)	31/01/1993	31/01/2017
62 New	174,581.0	493,775.0	-5.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6533)	31/01/1993	31/01/2017
63 New	174,137.0	493,418.0	-4.8	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6534)	31/01/1993	31/01/2017
64 New	173,692.0	493,061.0	-4.6	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6535)	31/01/1993	31/01/2017
65 New	173,247.0	492,705.0	-4.0	NORDEX N149/4.0-4.5 4500 149.0 !O! hub: 166,0 m (TOT: 240,5 m) (6536)	31/01/1993	31/01/2017
66 New	172,908.0	492,433.0	-5.2	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6537)	31/01/1993	31/01/2017
67 New	172,569.0	492,160.0	-5.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6538)	31/01/1993	31/01/2017
68 New	172,229.0	491,888.0	-4.9	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6539)	31/01/1993	31/01/2017
69 New	171,890.0	491,616.0	-5.4	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6540)	31/01/1993	31/01/2017
70 New	171,551.0	491,344.0	-5.3	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6541)	31/01/1993	31/01/2017
71 New	170,862.0	493,145.0	-5.6	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6542)	31/01/1993	31/01/2017
72 New	170,625.0	493,455.0	-4.6	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6543)	31/01/1993	31/01/2017
73 New	170,389.0	493,765.0	-6.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6544)	31/01/1993	31/01/2017
74 New	170,153.0	494,076.0	-5.3	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6545)	31/01/1993	31/01/2017
75 New	169,917.0	494,386.0	-5.9	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6546)	31/01/1993	31/01/2017
76 New	169,678.0	494,697.0	-5.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6547)	31/01/1993	31/01/2017
77 New	169,442.0	495,008.0	-6.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6548)	31/01/1993	31/01/2017
78 New	169,206.0	495,318.0	-5.1	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6549)	31/01/1993	31/01/2017
79 New	168,970.0	495,629.0	-6.6	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6550)	31/01/1993	31/01/2017
80 New	168,734.0	495,940.0	-5.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6551)	31/01/1993	31/01/2017
81 New	168,498.0	496,251.0	-6.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6552)	31/01/1993	31/01/2017
82 New	168,262.0	496,562.0	-5.1	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6553)	31/01/1993	31/01/2017
83 New	168,026.0	496,873.0	-5.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6554)	31/01/1993	31/01/2017
84 New	167,790.0	497,184.0	-5.9	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6555)	31/01/1993	31/01/2017
85 New	167,554.0	497,495.0	-6.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6556)	31/01/1993	31/01/2017
86 New	167,318.0	497,806.0	-5.3	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6557)	31/01/1993	31/01/2017
87 New	167,082.0	498,117.0	-5.9	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6558)	31/01/1993	31/01/2017
88 New	166,846.0	498,428.0	-5.7	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6559)	31/01/1993	31/01/2017
89 New	166,610.0	498,739.0	-6.3	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6561)	31/01/1993	31/01/2017
90 New	166,374.0	499,050.0	-4.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6562)	31/01/1993	31/01/2017
91 New	166,138.0	499,361.0	-5.6	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6563)	31/01/1993	31/01/2017
92 New	165,902.0	499,672.0	-5.8	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6564)	31/01/1993	31/01/2017
93 New	165,666.0	499,983.0	-5.1	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6565)	31/01/1993	31/01/2017
94 New	165,430.0	500,294.0	-6.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6566)	31/01/1993	31/01/2017
95 New	165,194.0	500,605.0	-4.3	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6567)	31/01/1993	31/01/2017
96 New	164,958.0	500,916.0	-6.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6568)	31/01/1993	31/01/2017
97 New	164,722.0	501,227.0	-5.0	VESTAS V117-3.6 3600 117.0 !O! hub: 97,5 m (TOT: 156,0 m) (6569)	31/01/1993	31/01/2017