

# STATEMENT OF COMPLIANCE

Statement No.:  
SC-DNVGL-SE-0190-02664-0

Issued  
2017-03-21

Issued for:

## Site Conditions Assessment

of

## Wind Farm Zone Hollandse Kust (zuid) (WFS I and WFS II)

Comprising:

## Wind Turbines, Substation and Power Cables

Specified in Annex 1

Issued to:

## Netherlands Enterprise Agency

Croeselaan 15  
3521 BJ Utrecht  
The Netherlands

According to:

## DNVGL-SE-0190:2015-12 Project certification of wind power plants

Based on the documents:

CR-SC-DNVGL-SE-0190-02664-2

Certification Report, dated 2017-03-21

Changes of the site conditions are to be approved by DNV GL.

Hamburg, 2017-03-21

For DNV GL Renewables Certification



**I.V. Fabio Pollicino**  
Service Line Leader Project Certification



By DAkKS according DIN EN IEC/ISO 17065  
accredited Certification Body for products. The  
accreditation is valid for the fields of certification  
listed in the certificate.

Hellerup, 2017-03-21

For DNV GL Renewables Certification



**Erik Asp**  
Project Manager

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## Wind power plant layout and coordinates

Coordinates for the polygon corner positions in the UTM Zone 31

Easting	Northing
576,948.70	5,808,275.50
576,952.60	5,808,157.70
575,197.50	5,804,680.40
579,083.40	5,802,567.50
578,933.50	5,802,214.50
568,076.40	5,799,744.20
563,545.30	5,799,743.00
564,404.00	5,804,398.40
571,480.70	5,804,824.10
572,804.40	5,807,112.00
563,073.90	5,797,187.70
570,003.90	5,797,059.00
570,376.50	5,797,159.50
571,344.50	5,791,559.50
564,370.20	5,789,770.20
562,982.70	5,796,693.20

## Wind conditions General

Air density	Approx. 1.24 kg/m <sup>3</sup> (temperature and pressure dependent)
Minimum - Maximum air temperature	- 9.1° to 28.4 ° (50 year)
Air humidity	<100%
Average inclined flow	0°

## Wind conditions – Normal

Annual average wind speed (at 100m)	9.5 m/s
Weibull A-parameter (at 100 m)	10.77 m/s
Weibull k-parameter (at 100 m)	2.07

## Wind conditions – Extreme

Wind speed 50 year recurrence period, 10 min. Hub Height	45.4 m/s (max. within the area)
Wind speed 1 year recurrence period, 10 min. Hub Height	35.2 m/s (max. within the area)

## Marine conditions

Highest astronomical tide (HAT)	1.98 m (LAT)
Lowest astronomical tide (LAT)	0 m (LAT)
Tidal variation HAT/LAT	1.98 m (LAT)
Shallowest - deepest position	18m-24m (LAT)
Significant wave height for 50 year recurrence period, $H_{s,50-yr}$	7.0 m
Significant wave height for 1 year recurrence period, $H_{s,1-yr}$	5.4 m
Peak wave period $T_p$ for extreme for 50 year recurrence wave $H_{s,50-yr}$	12.3 s
Peak wave period $T_p$ for extreme for 1 year recurrence wave $H_{s,1-yr}$	10.4 s

The accredited certification body is Germanischer Lloyd Industrial Services GmbH, Brooktorkai 18, 20457 Hamburg.

DNV GL Renewables Certification is the trading name of DNV GL's certification business in the renewable energy industry.

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Extreme deterministic wave height for 50 year recurrence period, $H_{\max,50\text{-yr}}$	13.5 m
Extreme deterministic wave height for 1 year recurrence period, $H_{\max,1\text{-yr}}$	10,1
Interval of wave periods $T_{H_{\max,50\text{-yr}}}$ , associated with $H_{\max,50\text{-yr}}$	9.4s-12.2s
Interval of wave periods $T_{H_{\max,1\text{-yr}}}$ , associated with $H_{\max,1\text{-yr}}$	8.1s-10.6s
Extreme wave crest height for 50 year recurrence period	11.2m (MSL)
Extreme wave crest height for 1 year recurrence period	7.9m (MSL)
Extreme high water level with recurrence period of 50 year	4.0m (LAT)
Extreme high water level with recurrence period of 1 year	2.9m (LAT)
Extreme low water level with recurrence period of 50 year	-1.3m (LAT)
Extreme low water level with recurrence period of 1 year	-0.5m (LAT)
Extreme current for 50 year recurrence period (depth averaged)	0.7m/s
Extreme current for 1 year recurrence period (depth averaged)	0.4m/s
Water level rise to year 2045 due to climate change	0.2m
Water density	Approx. 1027 kg/m <sup>3</sup>
Minimum - Maximum sea temperature	-2->24°C

## Soil Conditions

Layer

It mostly consists of medium to coarse sand with shells and shell fragments, silt, clay and gravel.