PARK WIND

Logistics of Offshore Wind

About **Parkwind**

** Green energy entrepreneurs at heart.*

Parkwind is a **Belgian-based company** that develops, finances and operates offshore wind farms.

In just over ten years, **Parkwind has become a major independent offshore wind developer**, with 771 MW of operational capacity in the Belgian North Sea.

Actively pursuing global opportunities and further expansion, **Parkwind currently has more than 1GW under development in Ireland and Germany.**

With a team of 130 in-house offshore energy experts, we have built know-how across the entire value chain, operating from Belgium (Leuven and Ostend), Ireland (Dublin) and Mukram (Germany).

Parkwind is controlled by Belgian shareholders, committed to a sustainable future, and with a long-term investment horizon.

Experience and **expertise**

Know-how across the full project value chain.

1 DEVELOPMENT

Over 10 years of experience In project development.

2 FINANCING

Lasting relationships with financial institutions.

3 CONSTRUCTION

Supplier relationships & supply chain knowledge.

4 O&M

10 years of Operations & Maintenance expertise.

5 DECOMISSIONING

* As of 2020, we manage over 200 turbines across 4 wind farms providing enough energy to power up the equivalent of 800 000 households.

Arcadis OST 1 **Sourcing map**

Marshalling of **WTG Components**

Rønne Port on the Island of Bornholm was used for marshalling due to space availability, infrastructure capable of handling heavy loads and proximity to Arcadis Ost installation site.

WTG XXL monopile foundations waiting for pickup by installation vessel Orion.

Monopile being loaded onto Orion.

WTG & Monopiles Transport and installation

MONOPILE TRANSPORT AND INSTALLATION

Image source: Deme

Installation of the worlds largest WTG monopile foundations (XXL).

3 monopiles were taken from marshalling port and installed by Deme's Orion using a cutting-edge motion compensated pile gripper.

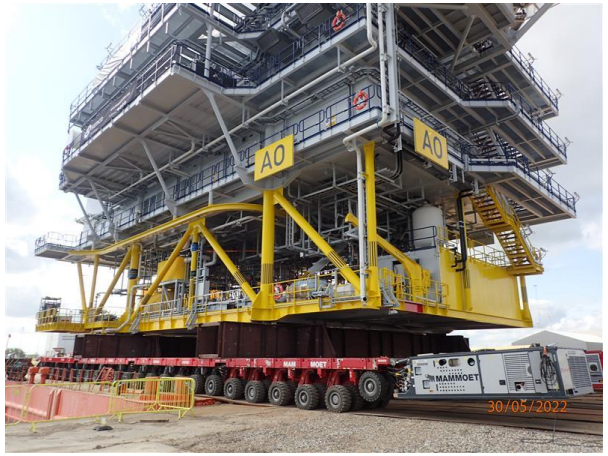
WTG TRANSPORT AND INSTALLATION

Image source: Vestas MHI

Installation of WTG towers using a floating vessel and revolutionary technique devised by Parkwind, Heerema and MHI Vestas:

- Tower installed on to foundation (bolted).
- Nacelle installed on dummy tower on vessel deck (Thialf).
- Blades installed on nacelle.
- Nacelle and blades installed on tower.

OSS (Offshore Substation Topside) Transport and installation



Loadout -Topside lifted off temporary supports and driven out to awaiting barge on self propelled modular transporters (SPMTs).

Topside sailed to installation site by barge for rendezvous with Heavy Lift Vessel Gulliver.

Image source: Scaldis

Gulliver lifts the 2200mT Topside off the barge and places on the monopile foundation.

Installation complete.

Offshore Cable Installation

Image source: Global Marine

The 33kV array cable spooling off the Normand Clipper.

A trenching ROV which buries the Cable in the sea bed.

Image source: 50 Hertz

45km of 33kV inter array cables were installed at Arcadis Ost using the Vessel Normand Clipper. 220kV export cable connects Arcadis Ost and neighboring Baltic Eagle Wind Farm to the German HV Grid.

Logistical Challenges for New Zealand

- Distance from established supply chains
- Rough sea conditions, rapidly changing weather
- Short installation windows
- Extent of port infrastructure upgrades.

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