

NOBELWIND

A new offshore wind park in the Belgian North Sea 23 October 2015



Belgian Offshore Wind Power Plants - overview





Nobelwind – bathymetrie





WTG type: V-112 3,3MW MHI Vestas







An engineering based upon proven technologies, combined with prudently chosen innovations



Novelties : Nobelwind – Northwind cable sharing 220 kV technology Jan De Nul – Willem De Vlaeminck





- 2 Export Cables:
 - 220 kV interconnector cable to the Northwind OHVS
 - 220 kV Northwind export cable
- First time that the 220 kV technology was used
- Both cables are already installed in 2013, by Jan De Nul who was offered an entrance into the cable laying market
- The Northwind cable is shared and is designed to transport the production of Northwind and Nobelwind.
- The Northwind cable (incl permits, etc...) is transferred to Cableco NV, owned by Northwind and Nobelwind.
- Follows the route (mostly with 50m intermediate) of the Belwind export cable
- Grid connection 220/150 kV in Zeebrugge
- The actual Belgian ELIA grid has sufficient capacity (no need to wait for the STEVIN grid reinforcement)
- The Northwind cable (incl permits, etc...) is transferred to Cableco NV, owned by Northwind and Nobelwind.





Schematic Electrical infrastructure





Novelties in the Foundation Design - Internal Inter Array Cables Offshore energy



Nobelwind



J-tubes are replaced by internal cables

*image from BWD

- The Engineering Team of NBW has chosen for <u>internal</u> <u>inter-array cables</u> instead of the I/J-tubes solution used on Belwind and Northwind
- Industry shift to internal cables solution
- Main Advantages:
 - Steel saving: no I/J-tubes + saving Primary Steel
 - Shorter Array cables \rightarrow (no loops)
 - Less wear and tear

Novelties in the Foundation Design – bolted connection Monopile - Transition Piece





Northwind

 The Engineering Team of NBW has chosen for the <u>bolted connection</u> instead of the grouted connection (Belwind and Northwind)

Main advantages:

- Engineering: easier to model and analyse
- Certification process more straightforward
- Reduced grouting activity and interface with WTG installation (no load bearing grout)







Novelties in the Foundation Design – Internal work platform – gasfree zone - safety





- An **internal work platform** and sealed cables have been installed within the transition piece.
- Main advantage:
 - Safe working conditions in confined space
 - Easier access
 - Enhanced corrosion conditions and control
 - Improved O&M

Novelties in the Foundation Design -

ICCP anti-corrosion instead of sacrificial annodes





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Anti Corrosion :

- ICCP Impressed Current Cathodic Protection
 - An electric current stream compensates for the corrosion
 - In stead of 5 Tons of Aluminium Annodes

Main advantages:

- Steel savings (Secondary & primary steel)
- Smaller, cheaper
- Allows continued controlling and monitoring of the corrosion
- Better seabed penetration (protection under the seabed)

OHVS Nobelwind





OHVS Belwind







FINANCE

A successful project financing with experienced stakeholders



Sponsors & Shareholders overview



- Nobelwind → Experienced and committed shareholders
 - \rightarrow with strong track records and financial capacity



Shareholders Profile



parkwind

- Main operational sponsor
- Leading company in Europe active in the development, financing, construction and operation of offshore wind farms, with offices in Leuven and Ostend, Belgium
- Parkwind has developed and constructed Belwind and Northwind and currently operates both
- The current shareholders of Parkwind are Colruyt (60.1%), PMV (16.4%) and Korys (23.5%)
 - Colruyt is a Belgian discount retailer
 - Korys is the investment structure of the Colruyt family
 - PMV is an independent investment company

. Mr meewind

- Dutch investment fund that offers individuals, businesses and governments the opportunity to invest in renewable energy
- Currently has two funds under management, more specifically Zeewind 1 and Regionaal Duurzaam 1
- Zeewind 1 is the fund that participates in Belwind, Northwind and now also Nobelwind



- One of the largest and financially sound companies in Japan with a net income of USD 2.3b in 2014
- Investments in conventional power plants (5.4GW) and wind power plants (790MW) globally as well as solar PV IPP assets in Spain, France and Italy
- Investing in European offshore wind farms is one of the core strategies for Sumitomo's future growth

Nobelwind Financial Strategy - Timing











European Investment Bank ELECE ELECE

Total Debt Financing: € 460m

Funding		Risk
EIB	100 000 000,00	EIB
EIB	150 000 000,00	EKF
BNPP	20 000 000,00	GIEK
Com. banks	161 783 941,21	Com. banks
Sub-total	431 783 941, 21	
Com. banks contingency	26 600 000,00	Com. banks
Revolving capital facility	10 000 000,00	TDB
Total	468 383 941,21	



Advisor	Proposed Advisor
Employer's Financial Advisor	BNP Paribas Fortis
Employer's Insurance Advisor	Marsh / Profin
Employer's Legal Advisor	Loyens & Loeff
Employer's tax Advisor	KPGM
Lenders' Energy Yield Advisor	3E
Lenders' Technical Advisor	Mott MacDonald
Lenders' Legal Advisor	White & Case
Lenders' Insurance Advisor	JLT
Foundation Certifying Body of DD	DNV- GL



Thank you!





Scale 1/3 – Pilot transition piece already produced

Shareholders & Management thank the whole team for their great effort!