

### Energy Sector Power Transmission Division

Erlangen, Germany, June 11, 2010

#### **Siemens receives order from transpower to connect offshore wind farms via HVDC link**

Order worth more than EUR500 million for the consortium

**A consortium of Siemens Energy and Prysmian Powerlink has received an order worth more than EUR500 million from the German transmission grid company transpower. The BorWin2 offshore consortium will connect two North Sea offshore wind farms to the grid on behalf of transpower, a subsidiary of the Dutch grid operator TenneT. The Veja Mate and Global Tech 1 offshore wind farms, which will have a combined power generating capacity of as much as 800 megawatts (MW), will be connected to the grid via a submarine cable link carrying high-voltage direct current (HVDC).**

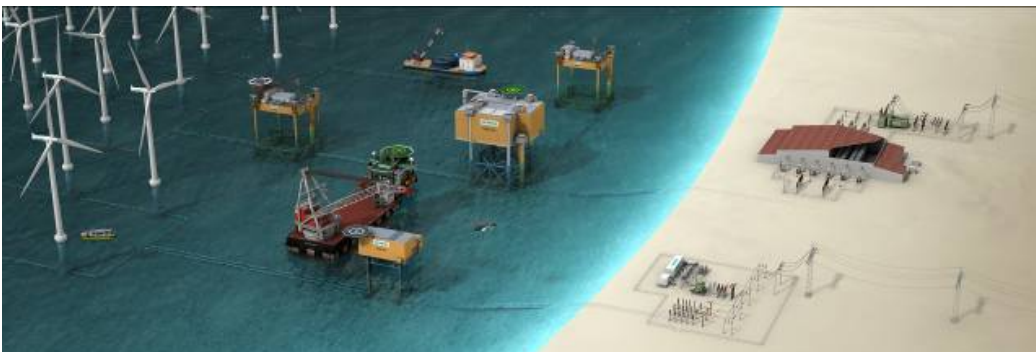
"The BorWin 2 turnkey offshore grid connection is a challenging project where we can apply our broad-based experience and know-how in this field," said Dr. Udo Niehage, CEO of the Power Transmission Division of Siemens Energy. The Veja Mate and Global Tech 1 wind farms are located approximately 125 kilometers offshore – northwest of the island of Borkum – and are designed to generate as much as 800 MW of renewable power. Siemens will supply the world's largest Voltage Sourced Converter (VSC) system – using Siemens HVDC Plus technology - with a rating of 800 MW.

The converter will be installed on an offshore platform, where the voltage level will be stepped up from 155 kilovolts (kV) to 300 kV alternating current (AC) and then converted to direct current (DC) at the same voltage level. The platform will accommodate all the requisite electrical equipment for the HVDC converter, primarily the converter itself, two transformers, four AC cable compensation reactors and high-voltage gas-insulated switchgear (GIS). The Siemens Wind Power Offshore Substation (WIPOS) will be designed as a floating, self-lifting platform. This platform will be towed by tugs to its destination at sea, where the water is about 40 meters deep. By virtue of its design a large heavy-duty crane vessel is not needed to lift the topside onto its foundation.

The wind power will be transported via submarine and land cable to Diele near Papenburg, where an onshore substation will reconvert it from DC to AC for further transmission and distribution within the 400-kV AC grid. The design and engineering phase for BorWin 2 will be completed by mid-2011. The onshore substation will be built in 2011, with installation of the offshore platform planned for mid-2012. Cable laying is scheduled for completion in 2012, too. The whole transmission link is expected to begin operation in 2013.

The use of HVDC technology reduces transmission losses. Cable connections of more than 80 kilometers require HVDC as the power transport technology because a major portion of the energy would be lost with an AC connection of that length and rating. BorWin 2 will be the first offshore wind farm connection ever realized applying VSC multilevel technology with a rating of 800 MW. For applications like these Siemens has developed HVDC Plus, the first multilevel VSC system. This modular multilevel VSC technology reduces complexity and therefore the space required for installation. It provides a nearly ideal sinusoidal-shaped AC waveform and a smooth DC voltage with nearly no need for high-frequency or harmonic filters.

The **Siemens Energy Sector** is the world's leading supplier of a complete spectrum of products, services and solutions for the generation, transmission and distribution of power and for the extraction, conversion and transport of oil and gas. In fiscal 2009 (ended September 30), the Energy Sector had revenues of approximately EUR25.8 billion and received new orders totaling approximately EUR30 billion and posted a profit of EUR3.3 billion. On September 30, 2009, the Energy Sector had a work force of more than 85,100. Further information is available at: [www.siemens.com/energy](http://www.siemens.com/energy).



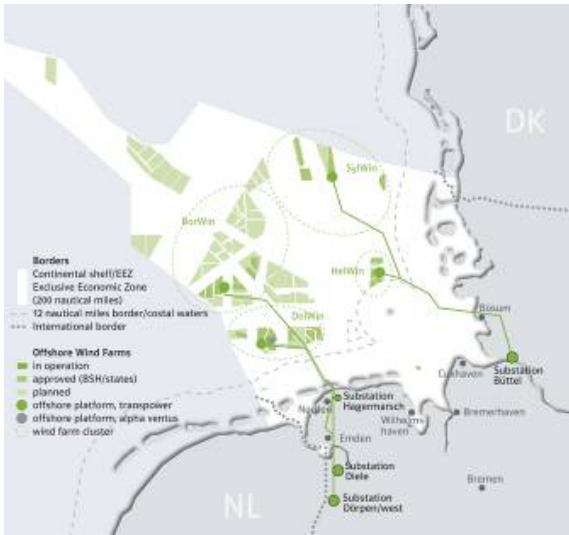
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