Siemens to Provide HVDC Link for German Offshore Wind Farms

Siemens Energy and Prysmian Powerlink will connect two North Sea offshore wind farms to the German grid using a high voltage direct current (HVDC) link for transpower. The order awarded to the BorWin2 consortium is worth more than €500 millio.

The Veja Mate and Global Tech 1 offshore wind farms, which will have a combined power generating capacity of 800 MW, will be connected to the grid via a submarine cable link carrying HVDC. The offshore wind farms are located approximately 125 km offshore – northwest of the island of Borkum.

The converter will be installed on an offshore platform, where the voltage level will be stepped up from 155 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. It will be towed by tugs to its destination at sea, where the water is about 40 m 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 and the whole transmission link is expected to begin operation in 2013.

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