

# Cables and Accessories for Denmark's Biggest Offshore Wind Farm

Nexans, worldwide expert in the cable industry, has been awarded a contract by DONG Energy, based in Fredericia, Denmark, to supply the submarine cables and related accessories for the Anholt Offshore Wind Farm. The order, worth around €30 million, also includes the installation and commissioning of the cables.

Roughly 160 km of medium voltage 34 kV cables are required to connect the 111 wind turbines with each other and to link them to the offshore transformer station. The cables are manufactured in three different cross sections to meet the different transmission requirements. The cables will be produced at the Nexans plant based in Hannover in Germany and delivery is scheduled for the second quarter of 2012.

"This new project illustrates once again Nexans' position and competence in the energy infrastructure market," says Dr Francis Krähenbühl, Nexans Executive Vice President Central Europe. "The volume of the order – actually the largest individual order



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Like Walney Offshore Wind Farm (see photo) Anholt Offshore Wind Farm will use a multitude of 3.6 MW wind turbines for the power generation. The cables to connect them with each other and to link them to the offshore transformer station will be manufactured at the Nexans plant in Hannover.

placed to date in the history of the Nexans plant of Hannover – received and the fact that this is the third order we have received from DONG Energy to supply submarine cables and installation for an offshore wind

farm is a reference to the quality and competitiveness of our products."

The Anholt Offshore Wind Farm is located in the Kattegatt, a sea area between Denmark and Sweden, approximately 20 km off the Danish coast between Djursland and Anholt Island. A total of 111 wind turbines, each generating 3.6 MW (in total 400 MW) of electrical power, are to be placed over an area of 88 km<sup>2</sup>. The operator, DONG Energy, would like to start generating electricity at the Anholt Offshore Wind Farm as early as the end of next year. The generated electrical power will cover the electricity needs of around 400,000 households. In the future, the wind farm will thus be able to cover around 4 percent of total Danish electricity consumption and make a significant contribution to meeting the country's climate protection goals.

## Successful Test of World's First HVDC Superconducting Power Transmission System

In July 2010, Nexans has successfully completed the test of the world's first HVDC high temperature superconductor (HTS) power transmission cable designed for 200 kV. This result constitutes an important step in demonstrating the capability of underground HVDC HTS cables to transfer bulk power at the gigawatt levels required by proposed supergrid projects such as the Tres Amigas renewable energy market hub in the US. The voltage tests were carried out at the Nexans high voltage laboratory in Hannover, Germany. A prototype HVDC HTS cable together with a termination was subjected to a series of tests according to CIGRE (International Council on Large Electric Systems) test recommendations. They included testing at a voltage of 360 kV, representing 1.8 times the 200 kV operating voltage, during several hours. In addition the system was successfully submitted to superimposed overvoltages such as the ones occurring during lightning or switching events. HVDC HTS cables contained in underground pipelines would transfer gigawatts of power with nearly 100 percent efficiency between each of the hub's three converter stations. HTS cables are not only more efficient than any other transmission option, they offer a significantly greater power density, so that more power can be

transferred within a smaller footprint on the ground.

The next step for Nexans is to adapt this HTS cable system to the very high currents (up to 12,500 A) required to transfer several gigawatts of power in order to take full advantage of the low-loss power transmission capabilities of HTS cables. Nexans will also develop suitable joints to enable the installation of long lengths of HTS cable as well as for repairs.



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View of the Nexans high voltage laboratory in Hannover

## About Nexans Deutschland

Nexans Deutschland is one of Europe's foremost cable manufacturers. The company offers a comprehensive range of high-performance cables, systems and components for the tele-communications and power sectors. The product line is complemented by superconducting materials and components, Cryoflex transfer systems and specialised machines for the cable industry. The company's products are manufactured in Germany and abroad by a workforce of around 7,260 employees. In 2010 the company generated a total turnover of approximately €810 million.

■ [www.nexans.de](http://www.nexans.de)