



Installation work at a Vattenfall wind farm off the UK west coast

DanTysk offshore wind farm

With 836 megawatts of installed power in nine offshore wind farms, Vattenfall is one of the largest producers of offshore wind energy. The company is expanding its wind energy portfolio and will be investing around four billion euros over the coming years. The focal areas will include projects in the German North Sea.

DanTysk project description

With a capacity of 288 megawatts, the DanTysk offshore wind farm is one of the largest offshore wind farms to be built in the German North Sea. The installation of a total of 80 wind energy turbines in the 3.6 megawatt class will begin at the end of 2012. The project is being carried out as a joint venture between the energy companies Vattenfall and Stadtwerke München. Vattenfall owns a 51 percent share and is responsible for the construction and operation of the wind farm. The start of operations at DanTysk is planned for the beginning of 2014.

The project area

The DanTysk wind farm is being built around 70 kilometres west of the island of Sylt in the exclusive economic zone (EEZ), directly bordering Denmark. The elongated layout of the farm reduces shadowing effects and thus increases the efficiency of the wind turbines. Not visible from land, even from the closest point on the coast of Sylt, the curvature of the earth means that the farm is situated beyond the horizon. The base port for the installation of the turbines is 90 kilometres away in Esbjerg, Denmark. The port of Esbjerg is a proven support location for the offshore wind industry.

The turbines

The turbines are being constructed over an area of 70 square kilometres and will produce around 1.3 billion kilowatt hours of electricity every year. This is enough to supply up to 400,000 households with environmentally friendly energy. Monopiles, which are anchored at depths of up to 32 metres, are being used for the founda-

tion structures. 110 kilometres of submarine cable connect the turbines to the transforming station in the wind farm, where the electricity generated is transformed to a higher voltage and transported to the grid connection point at Büttel via 205 kilometres of direct current cable. The offshore network connection and the associated converter station fall under the responsibility of the network operator Tennet.

DanTysk at a glance

Location: in the exclusive economic zone around 70 kilometres west of the island of Sylt, North Sea

Area: 70 square kilometres

Depth of water: 21 to 32 metres

Rotor diameter: 120 metres

Total output: 288 megawatts with 80 turbines

Production: 1.3 billion kWh per year (to supply up to 400,000 households)

Start of construction: end of 2012

Planned start of operations: start of 2014

Total investment: over one billion euros

Main suppliers

Turbines: Siemens (model SWT-3.6-120)

Transforming station: Strukton/Hollandia consortium

Installation ship: "Pacific Osprey" from the Swire Blue Ocean shipping company

Farm cabling: Van Oord

Foundations: Aarsleff/Bilfinger Berger joint venture

Sandbank offshore wind farm – a project with the potential for expansion

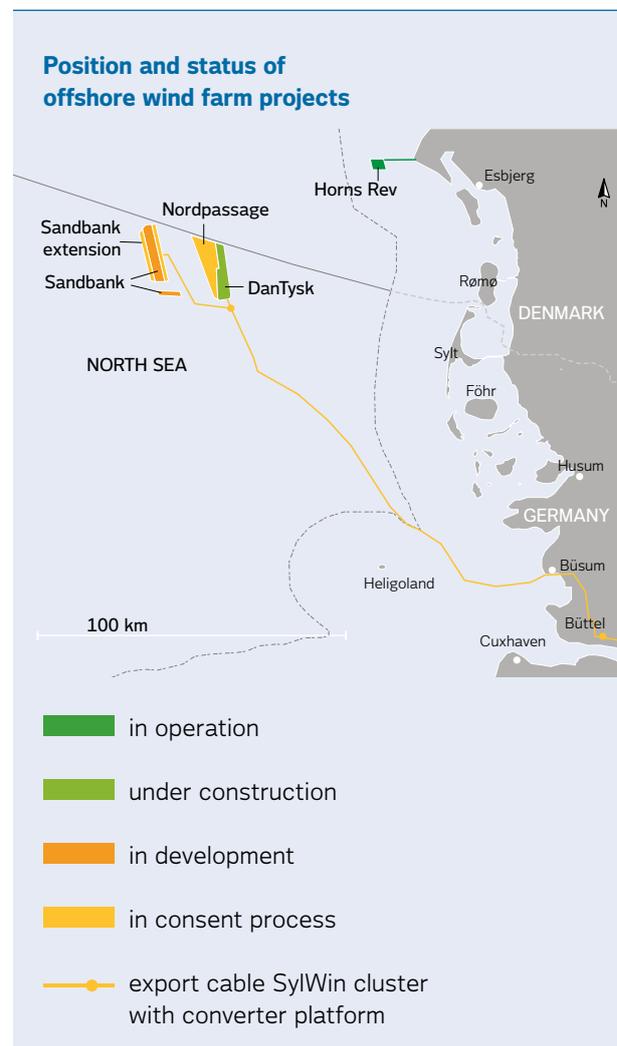
Vattenfall will continue to take advantage of the good wind conditions in the North Sea area around DanTysk. In November 2011, Vattenfall purchased the Sandbank offshore project, with the aim of erecting a wind farm in direct proximity to DanTysk.

The construction area is located 90 kilometres west of the island of Sylt. The distance of only 20 kilometres between the two wind farms brings many advantages for joint, efficient operation.

Sandbank was granted consent in 2004 and is now at an advanced stage of development. The area has capacity for around 500 megawatts of installed power. Construction is planned to commence in 2015. The project area also has the potential to be expanded by 40 additional turbines, which are currently in the consent process. Collectively, this North Sea area off the coast of Sylt provides Vattenfall with production potential for supplying more than one million households in Germany with clean energy.

Focus on Europe

In Germany, Vattenfall has already carried out pioneering work as one of three project partners responsible for the construction of the country's first offshore wind farm: the alpha ventus wind farm, which has been in operation since April 2010. Specific challenges, such as the relatively deep water and the great distance from the coast, mean that Vattenfall has gained valuable experience from this project. The United Kingdom is also a key focus for the expansion of offshore wind energy. Together with ScottishPower Renewables, Vattenfall is planning the East Anglia wind farm off the east coast of the UK, which will have approximately 7,200 megawatts of installed power. This capacity is equivalent to around ten large power plants and sufficient to supply around five million households with clean electricity.



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