SIEMENS

Fact Sheet
HVDC Platform HelWin1

Status: August 2013

Siemens has successfully installed the HelWin1 offshore platform in the North Sea. HelWin1 is one of four North Sea grid connections being constructed by Siemens. Second half of 2014 HelWin1 will link the Nordsee-Ost and Meerwind offshore wind farms to the mainland. To get the electric power onshore without major losses, high-voltage direct-current (HVDC) technology is used: the AC power generated at sea is converted to DC. on the HVDC platform. This is necessary to be able to transport the power over large distances with low losses. The power generated in the wind power plants is transmitted via a submarine cable to the German mainland 85 kilometers away. Thanks to the DC technology used, the transmission loss is less than four percent. A second converter station on the mainland converts the low-loss DC power back into AC and feeds it into the German power grid. The supporting substructure of the HelWin1 HVDC platform, known as the baseframe, was already installed in June 2013. It is anchored in the North Sea, which is 23 meters deep at this point, with ten up to 100-meter-long piles. The steel piles are up to 3.2 meters in diameter with walls 8 centimeters thick. After commissioning, which is scheduled for the second half of 2014, the platform will operate unmanned.

Technical data:

- Capacity: 576 megawatts – enough to supply 500,000 households
- Dimensions: 75 meters (long) x 50 meters (wide)
- Surface area: 3,750 square meters – more than half the size of a regular soccer field (7,140 square meters)
- Overall height: 23 meters – over seven decks, accommodating not only the HVDC technology but also living quarters and a helicopter landing pad
- Weight: 12,000 tons – heavier than 20 fully loaded and fueled Airbus A380 super airliners

Transportation and installation:

- On its way from the dockyard in Wismar to its installation location 20 kilometers north-west of Helgoland, HelWin1 traveled 990 kilometers and was underway for seven days.
- After four days of installation work at sea, the platform is safely anchored in its final position.
- More than 100 workers will be involved with the subsequent installation and commissioning work at sea.
- During this phase an on-site jack-up platform will provide supplies and lodging for the crew, saving them a transit time of two hours each way by helicopter or 16 hours by ship.

Milestones

- July 2010: the consortium formed by Siemens and Prysmian gets the order for the HelWin1 offshore grid link-up
- May 2011 – July 2013: Nordic Yards builds the platform at its dockyard in Wismar under contract to Siemens
- June 2013: transport and installation of the baseframe
- July 2013: HVDC platform HelWin1completed
- August 2013: transport and installation of the HVDC platform HelWin1
- September 2013: connection of the submarine cable
- Second half of 2014: End of commissioning phase (scheduled)