



**SIEMENS**

# Fact Sheet

## HelWin2 HVDC Platform

Status: June 2015

Siemens handed over the HelWin2 offshore platform to the customer TenneT in June 2015. Thus the link has taken up commercial operation. HelWin2 is one of five North Sea grid connections for which Siemens was contracted by the German-Dutch network operator TenneT. These links have a total transmission capacity of more than 3.8 gigawatts. High-voltage direct-current (HVDC) transmission technology is used to ensure efficient transfer of the electrical energy to land: The alternating current that is produced is converted to direct current power at the HVDC platform. This is necessary to transport energy over great distances with only low losses. The electricity produced in the wind farms is transported to the German mainland by a subsea cable. Thanks to HVDC technology, transmission losses are less than four percent. The direct current power is then converted back into alternating current at a second converter station on land and fed in to the German power grid.

### Technical specifications:

- Capacity: 690 megawatts – enough to supply around nearly 900,000 households
- Voltage: Input: 155 kilovolts (AC/alternating current)  
HVDC link: +/- 320 kilovolts (DC/direct current)  
output: 400 kilovolts (AC/alternating current) on land

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- HVDC transformers: 2 offshore, each with a rating of 508 MVA, 2 onshore, each at 506 MVA
- Dimensions: Topside: 98 meters x 42 meters x 26 meters (length x width x height)  
(without mountings) Baseframe: 64 m x 42.5 m x 48.5 m (length x width x height)
- Construction: 7 decks incl. upper deck – total height of 26 m net / 40 m (incl. crane)
- Crew quarters: no (pedestrian bridge to HelWin1 platform)
- Heliport: no (pedestrian bridge to HelWin1 platform)
- Local sea depth: 24 meters
- Bottom of platform: 24 meters above sea level
- Loading cranes: 1 on upper deck with 10 t load carrying capacity at maximal extension
- Total weight: 18,000 tons  
(10,500 t platform / 7,500 t baseframe incl. steel piling supports)
- DC submarine cable: 2 cables with steel wire reinforcement (Prysmian)
  - each 131 km long (68 km in sea, 17 km in Wadden Sea, 46 km on land)
  - . Sea approx. 12 cm cable diameter, weight of around 31.5 kg/m  
conductor cross-section of 800 mm<sup>2</sup> (approx. 3.4 cm copper core diameter)
  - . Wadden Sea approx. 13 cm cable diameter, weight of around 36.5 kg/m  
conductor cross-section of 1,100 mm<sup>2</sup> (approx. 4 cm copper core diameter)
  - . Land approx. 12 cm cable diameter, weight of around 13 kg/m  
conductor cross-section of 1,800 mm<sup>2</sup> (approx. 5.2 cm aluminium core diam.)
- Foundation: 6 pilings (up to 119 m long, embedded up to 69 m in the seabed, 2.4 m in diameter each)
- Emergency Power Supply: 1 emergency diesel generator at 625 kVA  
2 uninterrupt power supply (UPS) units, each at 80 kVA  
2 UPS units, each at 250 kVA
- Cooling: Seawater cooling with a heat exchanger to the fresh-water cooling system  
1,370 cubic meters/h flow rate (equivalent to 114 bathtubs per minute)
- Land-based station: Büttel
- Shipyard: Heerema
- Order received: 2011
- Platform installation: 2014
- Commissioning: 2015