

# DolWin1 Offshore wind connection



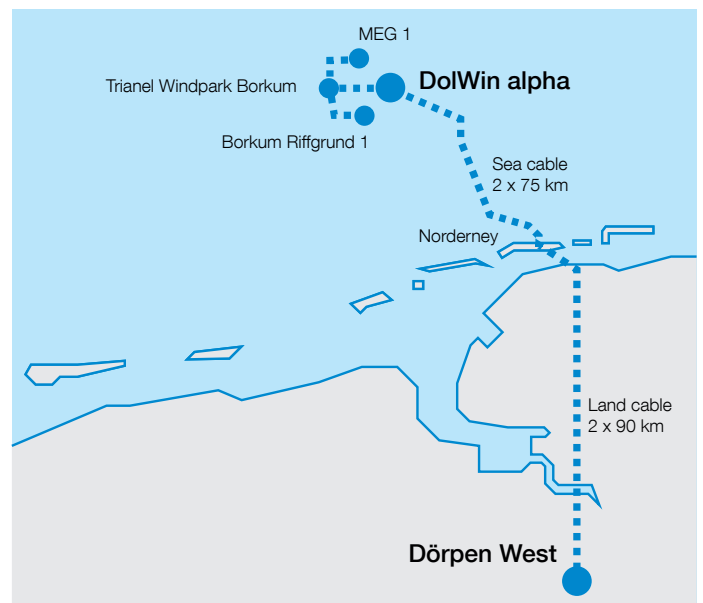
## Setting a new benchmark with VSC at +/-320 kV and minimizing environmental impact

The DolWin1 offshore wind HVDC connection was supplied by ABB to the Dutch-German transmission system operator TenneT. The 800 MW HVDC Light transmission system DolWin1 connects offshore wind farms located in the DolWin cluster in the North Sea to the German national grid.

The AC substations of the wind farms are connected with AC cables to the HVDC Light converter station installed on the offshore platform DolWin alpha in the North Sea. The turbine-generated power is converted here and transmitted via a 75 km long DC submarine cable system and a further 90 km long land cable system to an onshore HVDC converter station at the grid connection point Doerpen West in Heede.

The HVDC Light system has a total capacity of 800 MW at  $\pm 320$  kV, and provides numerous other environmental benefits, such as neutral electromagnetic fields, oil-free cables and compact converter stations, making it an ideal for connecting remote wind farms to mainland networks without distance limitations or constraints on the grid. The system features ABB power semiconductors that ensure high availability and minimize system losses.

ABB was responsible for system engineering including design, supply and installation of the offshore converter including the platform, submarine and land cable systems and the onshore converter station.



### Main data

Commissioning year	2015
Power rating	800 MW
No of circuits	1
AC voltage	155 kV (Plattform DolWin Alpha) 380 kV (Dörpen/West)
DC voltage	$\pm 320$ kV
Length of DC submarine cable	2 x 75 km
Length of DC underground cable	2 x 90 km
Main reason for choosing HVDC	Length of land and sea cables
Application	Offshore wind connections