

POLITICAL CONTEXT

North Sea region countries (Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway and Sweden) have agreed to further strengthen their energy cooperation.

A political declaration and action plan signed by nine Ministers, Vice-President for Energy Union Maroš Šefčovič and Commissioner for Climate Action and Energy Miguel Arias Cañete, will also facilitate the building of missing electricity links, allow more trading of energy and further integration of energy markets.

Vice-President Maroš Šefčovič said: *"Today's declaration is an important step towards an Energy Union that will deliver the climate commitments we made in Paris last year. Close regional cooperation and pooling together of energy sources will be essential to unlock the full potential of the North Sea resources at the lowest cost."* (Luxembourg, June 2016)

Commissioner Miguel Arias Cañete said: *"Today marks a turning point in cooperation in the North Seas region. We now have a concrete action plan that will deliver results. This strategy will boost interconnection and renewables capacity, help fight climate change and bolster energy security, which are the central goals of the Energy Union"* (Luxembourg, June 2016)

This political declaration paves the way for successfully achieving the objectives enclosed in the PROMOTiON project.

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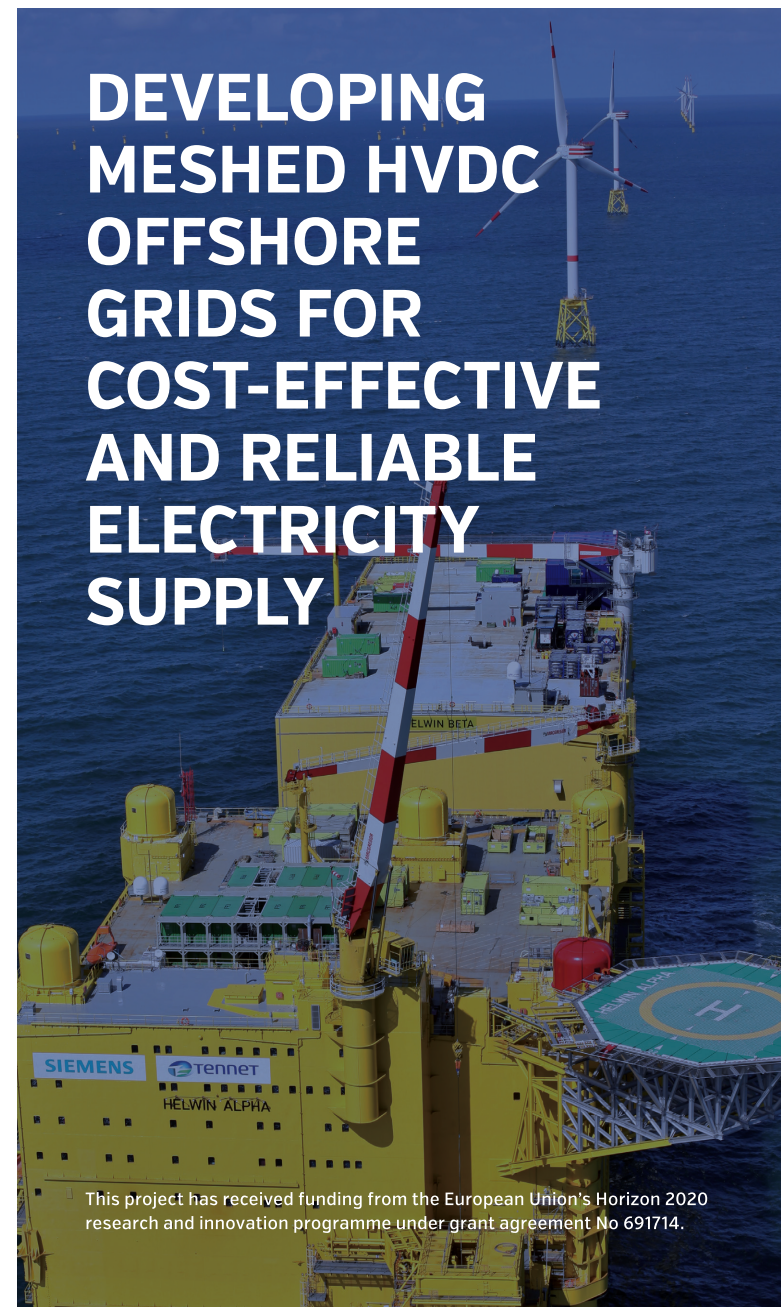
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PICTURE CREDIT

HelWin alpha HVDC converter @ TenneT TSO GmbH



DEVELOPING MESHED HVDC OFFSHORE GRIDS FOR COST-EFFECTIVE AND RELIABLE ELECTRICITY SUPPLY



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PROMOTiON SEEKS TO DEVELOP MESHED HVDC OFFSHORE GRIDS ON THE BASIS OF COST-EFFECTIVE AND RELIABLE TECHNOLOGICAL INNOVATION IN COMBINATION WITH A SOUND POLITICAL, FINANCIAL AND LEGAL REGULATORY FRAMEWORK.

Based on the broad range of challenges involved, the PROMOTiON project partners set themselves a number of fundamental, non-negotiable goals.

- Identify technical requirements and investigate possible topologies for meshed HVAC/DC offshore grids
- Develop protection components and schemes for offshore grids
- Establish interoperability of components and initiate standardisation
- Develop recommendations for a coherent EU and national regulatory framework regarding DC offshore grids
- Develop recommendations for financing mechanisms for offshore grid infrastructure deployment
- Demonstrate cost-effective offshore HVDC equipment
- Develop deployment plans for HVDC grid implementation

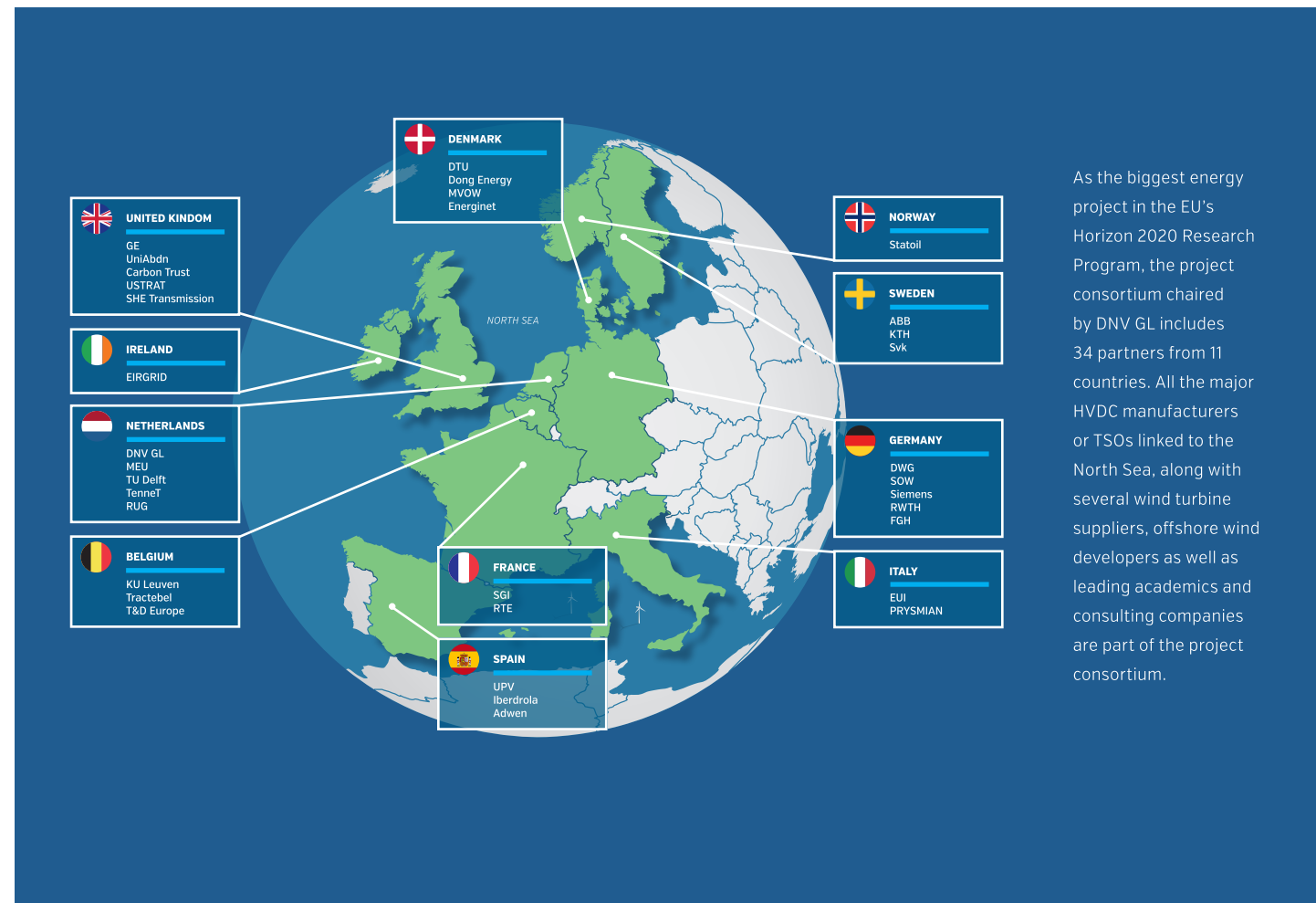
THE PROJECT

A meshed European offshore transmission grid connecting off-shore wind farms to shore could provide significant financial, technical and environmental benefits to the European electricity market. Launched in January 2016, PROMOTiON aims to explore and identify these potential benefits.

The main objective of PROMOTiON is the further development and demonstration of three key technologies: diode rectifier offshore converters, multi-vendor HVDC (high-voltage direct

current) grid protection systems, and full power testing of HVDC circuit breakers. Complementary to this end, a regulatory and financial framework will be developed for the coordinated planning, construction and operation of integrated offshore infrastructures, including an offshore grid deployment plan (road-map) for the future offshore grid system in Europe.

Currently, the high cost of converter technology and a lack of experience with protection systems and fault clearance components, hamper the deployment of meshed HVDC offshore grids. In addition, deployment is hindered by limitations inherent to existing European regulations regarding the development of cross-border offshore infrastructures, national legal and regulatory barriers as well as financing issues.



As the biggest energy project in the EU's Horizon 2020 Research Program, the project consortium chaired by DNV GL includes 34 partners from 11 countries. All the major HVDC manufacturers or TSOs linked to the North Sea, along with several wind turbine suppliers, offshore wind developers as well as leading academics and consulting companies are part of the project consortium.