Project Sheet

Viking DKW-GB

Project type	transmission
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Key Information

Cross Border Project
Offshore DC transmission cable
New

PCI number 1.14 (4th list, 31 Oct. 2019)
Under Construction

Description

2x700 MW HVDC subsea link across the North Seas. New substations on both sides; Bicker Fen (GB); Revsing (DK)

Project promoters

Energinet.dk
National Grid

Countries

Denmark
United Kingdom

National development plan(s)

Denmark: RUS-plan 2018 p. 24 and 37

Additional information on the project

Project Website:

http://viking-link.com

Project sheet backlog

6 Nov. 2020 - Publication as part of the draft TYNDP 2020 package for consultation

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Project Description & Context

Project Investments

Main investment(s): 2 x700 MW HVDC subsea link across the North Seas. New substations on both sides; Bicker Fen (GB); Revsing (DK)

Type of element	Total route length (km)	From substation 1	To substation 2	Present status	Commissioning year	Progress of the investment	Explanation in case of delay or reclustering
Offshore DC transmission cable	770	Revsing (DKW)	Bicker Fen (GB)	Under Construction	2023	Investment on time	

Is the project in the reference grid?

Yes

System Needs addressed by the project

Project promoter(s) selected up to 4 system needs that are addressed by their project in a predefined list. Available needs ranged from reduction of price differentials between countries, improvement of system flexibility and stability, enabling cost-efficient connection of high volumes of RES, improvement of voltage stability...
As part of the TYNDP 2020, ENTSO-E released a study investigating cross-border system needs in the 2030 and 2040 horizons.

Need		How the project addresses each need (explanation provided by the project promoter(s))
	Infrastructure to address system adequacy deficiencies and/or mitigate the risk of power failures.	facilitates exchange of RES and reserves
ITEG	Infrastructure to tackle a Need identified by one of the European ITEG indicators referring to the 15% interconnection target for 2030:1. Reduce the price differential between EU countries to below 2EUR/MWh.2. Contribute to pushing ratio between nominal transmission capacity and installed RES capacity past 30%.3. Contribute to pushing ratio between nominal transmission capacity and peak load past 30%.	project connects two market areas
	Infrastructure to improve system flexibility and stability e.g. improve system or local ramp rate, improve transient stability	Uses VSC technology, facilitating

Need		How the project addresses each need (explanation provided by the project promoter(s))
	or RoCoF to meet system Needs.	independent control of active and reactive power
	Infrastructure designed to enable cost-efficient grid connection of high volumes of RES and/or reduce RES curtailment	connects two low correlated wind areas

Interconnection targets

In 2017, the Interconnection Target Expert Group proposed alternative indicators to the 15% interconnection criteria for every country and electrified island with a new methodology developed collaboratively between the European Commission, ENTSO-E, ENTSOG, industry, universities and other experts. The methodology is based on three indicators:
1. Price differential between EU countries, with an objective to reduce it below 2 EUR/MWh
2. Ratio between nominal transmission capacity and installed RES capacity, with a target of past 30%
3. Ratio between nominal transmission capacity and peak load, with a target of past 30%

The following maps show the ITEG methodology applied to the TYNDP 2030 scenarios, with the 2020 grid.

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Project Assessment

Transfer capacity increase (National Trends 2025)

	Border	A B	B A
Transfer capacity increase (in MW)	Denmark (DKw) - United Kingdom	1400	1400

Boundary capacity diagram

Network boundary the projects helps mitigate

Great Britain – Continental Europe and Nordics

Boundary capacity diagram

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CBA results

ENTSO-E has assessed the benefits delivered by each project in 2025 (scenario National Trends 2025) and in 2030 (three scenarios: National Trends, Distributed Energy and Global Ambition). Indicators B1 to B6 were computed by ENTSO-E, while promoters had the possibility to compute and submit so-called project-level benefits (B7 to B10). The benefits must be understood as benefits for Europe as a whole, not for the promoters of the project.
Results are presented per scenario.

This project chose not to request a cost-benefit analysis in the TYNDP 2020. The possibility to opt out of the CBA was offered to projects under construction or to very long-term project commissioning after 2035.

Residual impact

Information on the residual impact of the project was provided by the project promoter(s).

Project Costs

The project costs were provided by the project promoter(s).

	CAPEX (Meuro)	Uncertainty range (%)	OPEX
998. Viking Link DKW-GB, TYNDP ID 167.998	1655		16
Total	1655		16

Explanation provided by the project promoter on the CAPEX uncertainty range:

998

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