Project Sheet

ALEGrO

Project type	transmission
Project id	92
Created by	
Created on	Feb 8, 2021 3:05:43 PM

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Key Information

Cross Border Project
DC transmission line
New

Under Construction

Description

This project realizes the first interconnection between Belgium (Lixhe) and Germany (Oberzier) as a 100 km HVDC link with a bidirectional rated power of 1.000 MW capacity.

Project motivation:

This project increases the degree of interconnectivity between the Belgian and German bidding zone. The possibility of higher market exchanges between these two bidding zones leads to a higher price convergence in more hours of the year and reduces therefore the price differentials. Due to the future RES increase in whole CWE, the RES spillage will rise significantly especially beyond 2030. This interconnector project allows a better integration of RES in the entire region and especially in Germany. Belgium and Germany face decreasing figures of installed conventionals especially due to the nuclear phaseout in both countries and bad market conditions for other conventionals. The interconnector contributes to meet adecacy not only in both countries but also in the entire CWE-region. Based on the above, the project also directly contributes to the 2020 interconnection targets.

Project promoters

AMPRION
ELIA

Countries

Belgium
Germany

National development plan(s)

NDP1, Belgium, 2015-2025, p85; NDP2, Germany, Netzentwicklungsplan 2030 Version 2019, Project AMP-P65, p. 306

Additional information on the project

More information about the project can be found following these links:

- Project websites:
http://netzausbau.amprion.net/projekte/alegro-deutschland-belgien
and
https://www.elia.be/en/infrastructure-and-projects/infrastructure-projects/alegro?clang=en

"

- National Development Plan:
https://www.elia.be/-/media/project/elia/elia-site/infra-and-projects/investment-plans/federal-development-plan-2020-2030/nl/20190516_federaal-ontwikkelingsplan_nl.pdf?la=en

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): "Connection between the Oberzier substation in Germany and the Lixhe substation in Belgium via a +-100 km HVDC underground cable, including 2 DC/AC convertor stations to integrate the DC cable with the AC substations at Lixhe & Oberzier."

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
DC transmission line	90	Oberzier (DE)	Lixhe (BE)	Under Construction	2020	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 reduce price differentials between EU and/or non-EU countries	This project increases the degree of interconnectivity between the Belgian and German bidding zone. The possibility of higher market exchanges between these two bidding zones leads to a higher price convergence in more hours of the year and reduces therefore the price differentials.
⚖	Infrastructure to address system adequacy deficiencies and/or mitigate the risk of power failures.	Belgium and Germany face decreasing figures of installed conventionals especially due to the nuclear phase out in both countries and bad market conditions for other conventionals. The interconnector contributes to meet adequacy not only in both countries but also in the entire CWE-region.
	Infrastructure designed to	Due to the future RES increase in whole CWE the RES

Need		How the project addresses each need (explanation provided by the project promoter(s))
	enable cost-efficient grid connection of high volumes of RES and/or reduce RES curtailment	spillage will rise significantly especially beyond 2030. This interconnector project allows a better integration of RES in the entire region.

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)	Belgium - Germany	1000	1000

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.

Non scenario-dependent indicator(s)

B8.0 Stability (Transient, Voltage and Frequency Stability)	Transient stability	Voltage stability	Frequency stability	
ALEGrO (New HVDC)	++	++	+ (between sync areas)	Qualitative assessment by ENTSO-E based on information on the project technology provided by the project promoter(s). This indicator is not dependent on scenarios or time horizons.

Residual impact

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

Residual environmental impact

Investment	Investment status	Distance (km)	Type of sensitivity
ALEGrO	Under Construction	2	Habitats Directive (92/43/EEC)

Residual social impact

Investment	Investment status	Distance (km)	Type of sensitivity

ALEGrO	Under Construction	48	Sensitivity regarding population density - Land that is close to densely populated areas

Project Costs

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

	CAPEX (Meuro)	Uncertainty range (%)	OPEX
146. ALEGrO	560	6%	4.2
Total	560		4.2

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

146 Uncertainty range is based on provided information in the PCI process. Uncertainty range is needed due to uncertainties in material costs and permitting issues and unknown final routing in case of projects in early planning status.