HI WEST 21 B (Less-advanced)

AquaDuctus

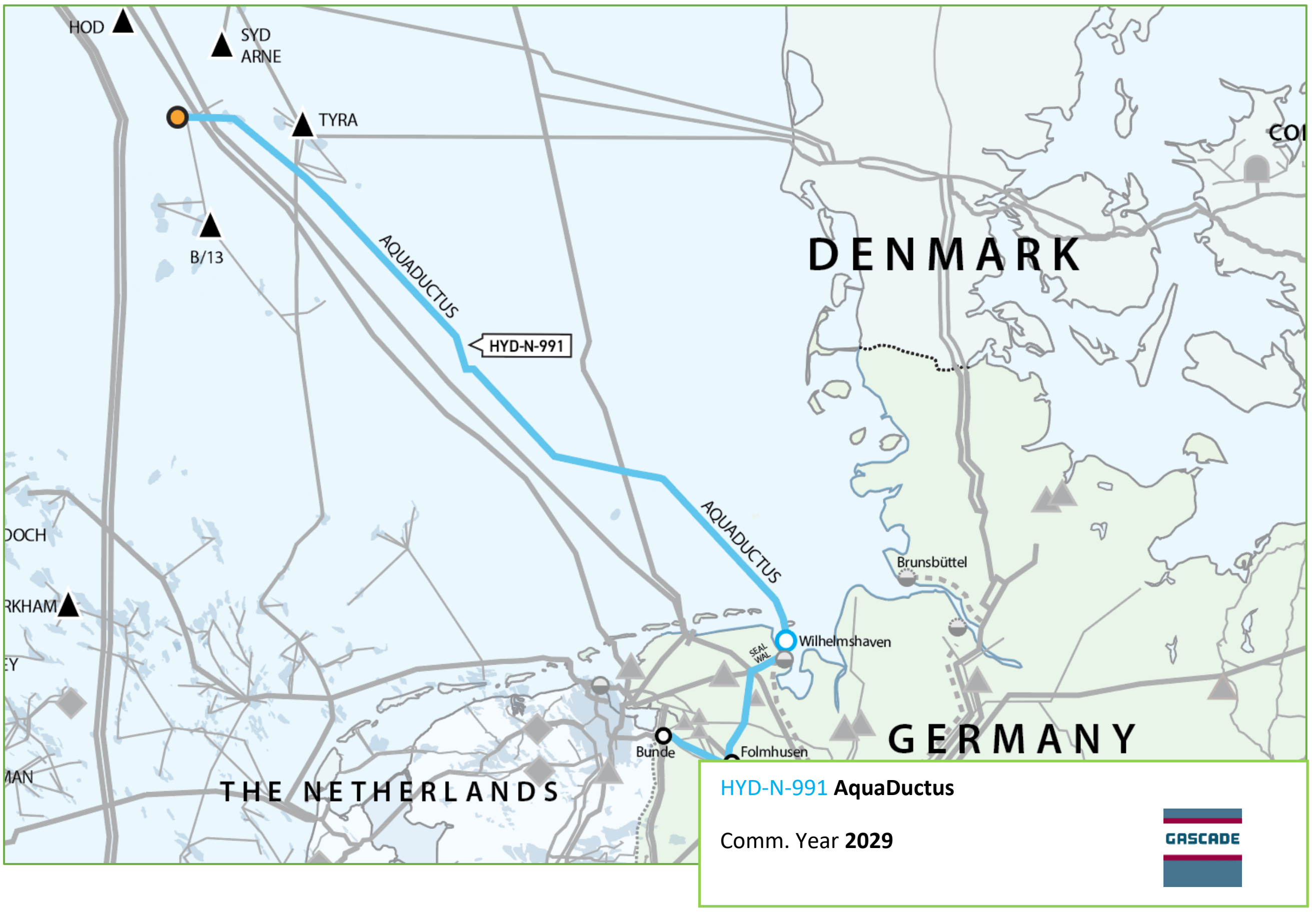
Reasons for grouping [ENTSOG]

The project group enables the transport of green hydrogen produced offshore in the German North Sea. Potential connections to other North Sea states are possible.

The project group consists of an offshore pipeline in Germany with landing in Wilhelmshaven and further onshore connection until Bunde (HYD-N-991).

Objective of the group [Promoter]

AquaDuctus will be an offshore hydrogen pipeline and connect the first large-scale offshore hydrogen wind farm site SEN-1 (up to 1 GW generation capacity) located in the German EEZ, 150 km north-west of the island of Heligoland. The 48” offshore pipeline will transport green hydrogen to Wilhelmshaven, Germany. Through an additional onshore pipeline, a direct link to HyPerLink and H2ercules will secure downstream connection to hydrogen users. AquaDuctus will be capable to pick up additional hydrogen quantities e.g., from further hydrogen wind farm sites, re-powering of existing wind farms and/or the interconnection of adjacent offshore hydrogen pipelines (e.g., from DK, NL, UK or NOR) aiming for export of local hydrogen production to the European market. Hence, AquaDuctus (total length of approx. 300km) will already be designed to transport vast amounts of hydrogen (capacity up to ca. 20 GW).



A. Project group technical information [Promoter/ ENTSOG]

Project technical information [Promoter]

Hydrogen Transmission

TYNDP Project code	Section name	New / Repurposing	Nominal Diameter [mm]	Section Length [km]	Compressor power [MW]	Maximum depth [m]
HYD-N-991	SEN-1 connection	New	1200	295	-	-
HYD-N-991	EEZ Extension	New	1200	221	-	-

Capacity increment [ENTSOG]

TYNDP Project code	Point name	Operator	From system	To system	Capacity increment [GWh/d]	Comm. year
HYD-N-991	NPcDEhe	GASCADE Gastransport GmbH	National Production Germany (Electrolyser)	Transmission Germany (DE Hydrogen)	24	2029
HYD-N-991	NPcDEhe	GASCADE Gastransport GmbH	National Production Germany (Electrolyser)	Transmission Germany (DE Hydrogen)	120	2039
HYD-N-991	NPcDEhe	GASCADE Gastransport GmbH	National Production Germany (Electrolyser)	Transmission Germany (DE Hydrogen)	336	2045

B. Project Cost Information

During the TYNDP 2022 Project Data Collection, promoters were asked to indicate whether their costs were confidential or not. The following tables display the non-confidential costs provided by the promoters (as of December 2022, end of PCI project collection). The amounts provided can differ from the figures used by the project promoters in other contexts, where costs can be updated and/or evaluated using different methodologies or assumptions.

[ENTSOG]

TYNDP Project code	CAPEX [M€]	CAPEX range [%]	OPEX [M€]	OPEX range [%]
HYD-N-991	1500	30	15	30

Description of the cost and range [Promoter]

CAPEX and OPEX are based on best estimates at the time of project submission in December 2022 and might be subject to changes, e.g. due to supplier price adjustments or concretization of project scope. Cost deviations are already considered in both CAPEX and OPEX cost ranges.

C. Project Benefits [ENTSOG]

C.1 Summary of benefits

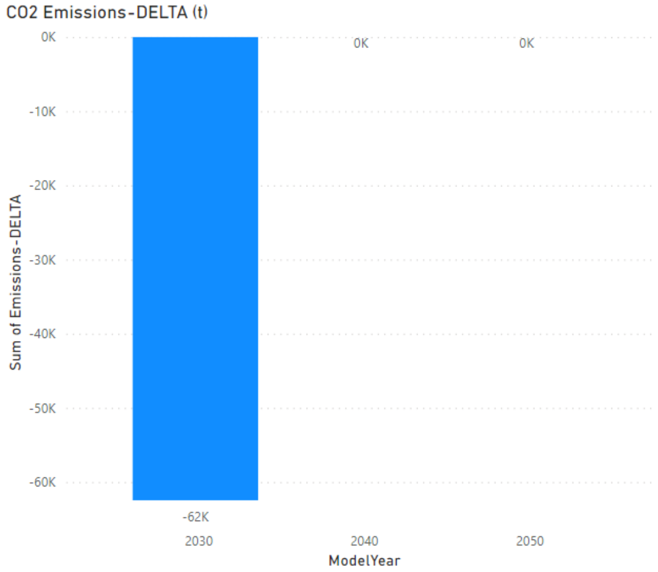
This section provides a summarised analysis by ENTSOG of the main benefits stemming from the realisation of the overall group. More details on the indicators are available in Annex D of TYNDP 2022[1].

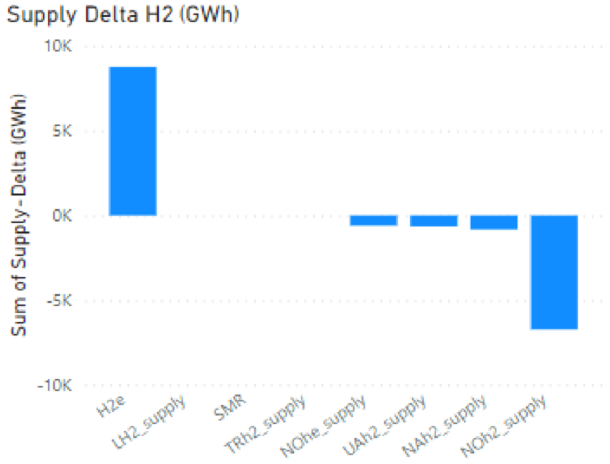
[1] https://www.entsog.eu/sites/default/files/2023-04/ENTSOG_TYNDP_2022_Annex_D_Methodology_230411.pdf

Distributed Energy

Sustainability benefits

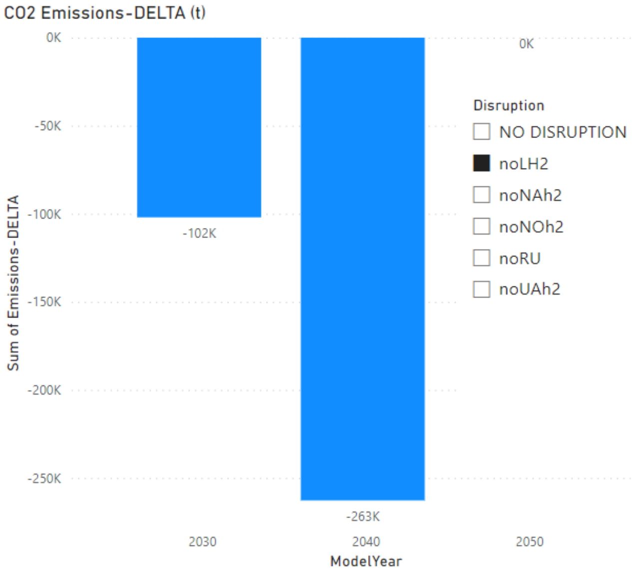
Thanks to the projects group, from 2029, the newly built infrastructure will bring green offshore hydrogen to the German hydrogen network and helps to improve and diversifies hydrogen supply in Europe. In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group will contribute to sustainability by reducing overall CO2 emissions by 62 kt in 2030. This can be explained as in 2030 the project group enables mainly the replacement of blue hydrogen imports from Norway by transporting green hydrogen produced offshore.

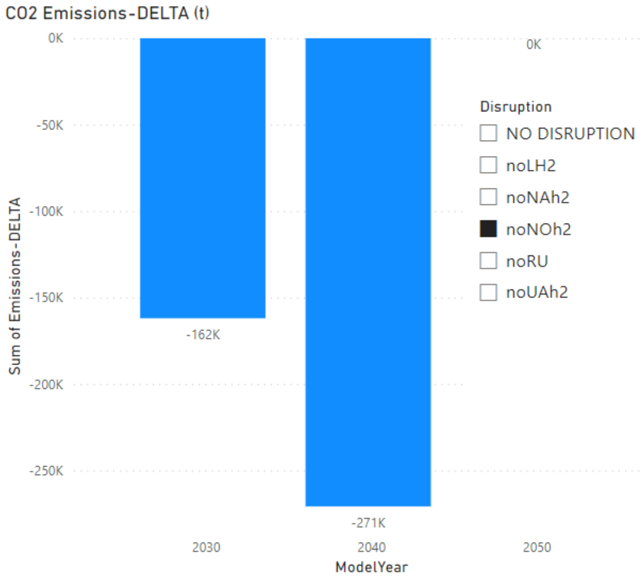


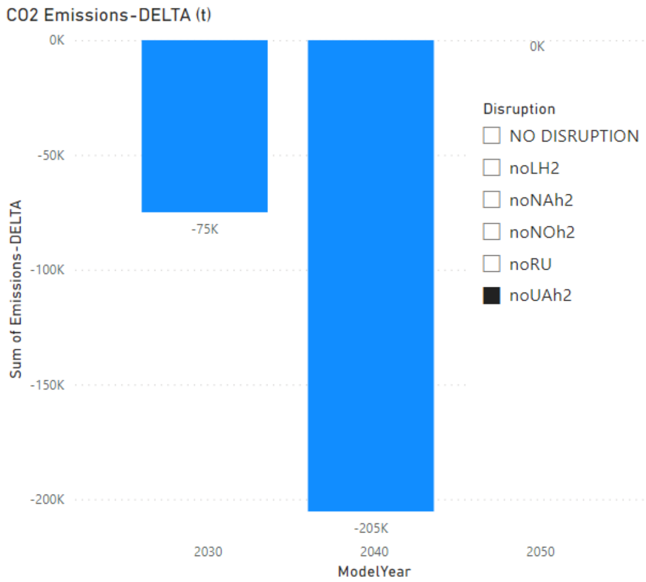


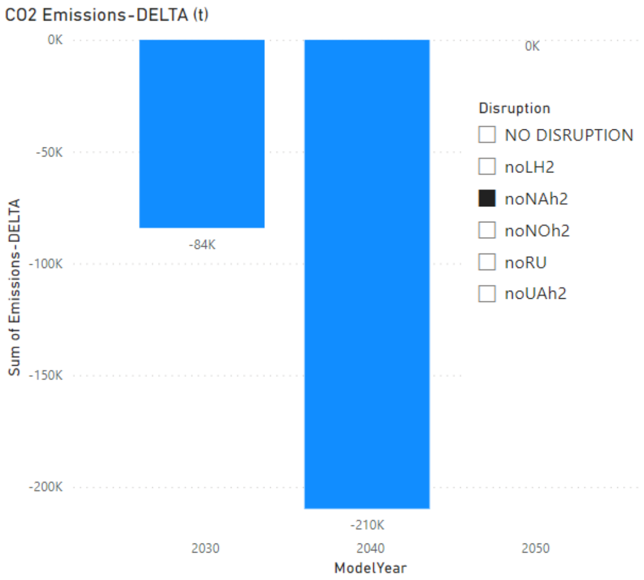
Sustainability benefits are increased under all supply disruption cases for 2030 and 2040. For example, in case of Norway disruption the project group will reduce CO2 emissions by 162 kt in 2030 and by 271 kt in 2040.

1 noLH2 : LH2 disruption / 2 noNOh2 : Norway disruption / 3 noUAh2 : Ukraine disruption/ 4 noNAh2 : North Africa disruption





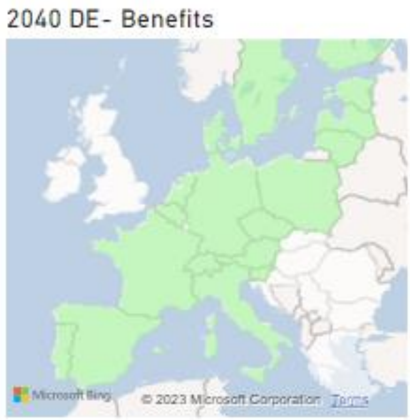




Security of Supply:[2]

> Reference case:

In the reference case, the project is mitigating hydrogen demand curtailment risk in average summer and average winter for many European countries in 2040 and 2050. Respective countries can reduce the risk of demand curtailment by 1-2% in 2040 and increased benefits are recorded for 2050, with a maximum for Germany, Poland, Czechia, Sweden and Finland with 9%.



[2] *As for the hydrogen system there is no existing infrastructure level available yet, ENTSOG has identified a possible hydrogen network according to the information provided by promoters in their project submission for the TYNDP/PCI process (i.e., H2 Infrastructure level). Therefore, the System Assessment shows the results that could be reached (for different timestamps) under the hypothesis of a full commissioning of the H2 infrastructure projects that were submitted by project promoters but that are not yet in place. Therefore, even in configurations where no demand curtailment is identified (e.g., average winter in 2030)*

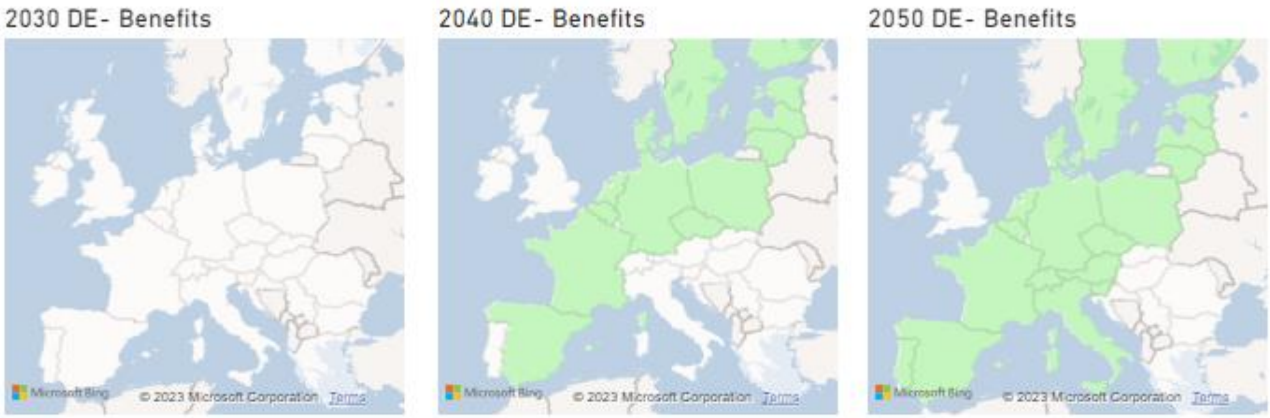
> Climatic stress cases:

Under 2 -week and 2-week dunkelflaute climatic stress case, as well as under peak day climatic case the project group mitigates further the risk of demand curtailment for all European countries in 2040 and for many European countries in 2050. In 2040 European countries can reduce the risk of demand curtailment by 1-2% and in 2050 respective countries mitigate the risk by 5-6%.

> Disruption cases (S-1):

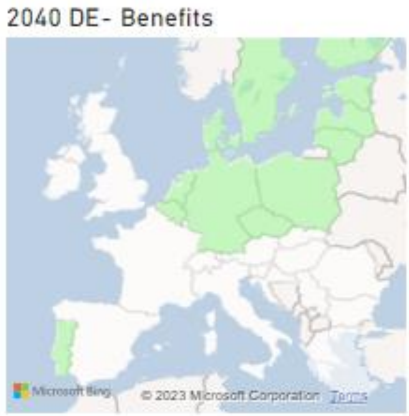
Similar under all supply disruption cases and refence yearly demand, the project group mitigates the risk of demand curtailment for many European countries in 2040 and 2050. For example, under Ukraine supply disruption the project group mitigates the risk of demand curtailment for all European countries by 2-3% in 2040 and by 6-8% in 2050.

1 noLH2: LH2 disruption

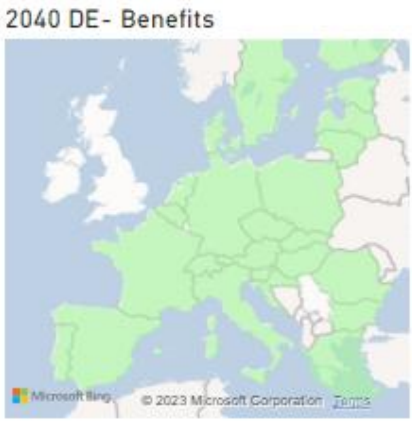


2 noNOh2: Norway disruption

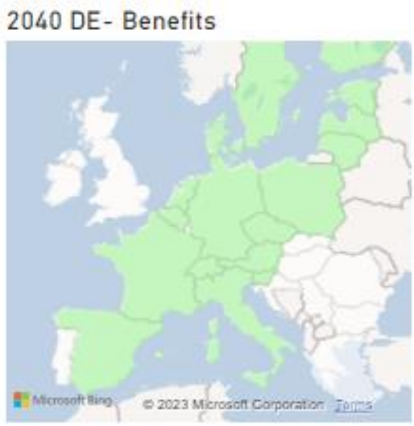
these results should not be read as an absence of H2 infrastructure needs for the given scenario. On the contrary, the full availability of the planned infrastructures composing the H2 infrastructure level is assumed to avoid the potential demand curtailment.



3 noUAh2: Ukraine disruption

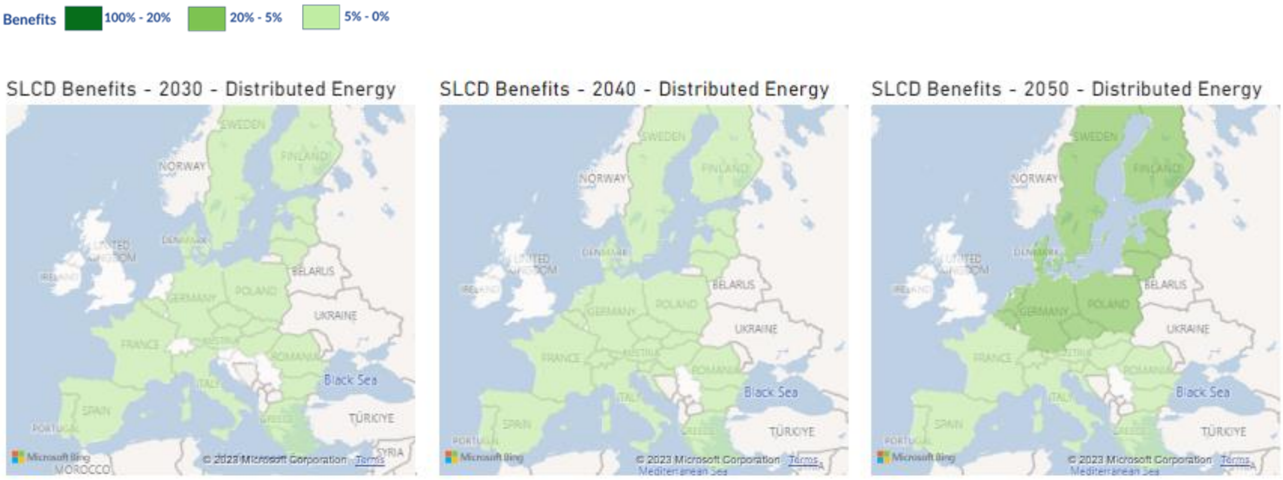


4 noNAh2: North Africa disruption



> Single largest capacity disruption (SLCD):

In case of SLCD many European countries benefitting from this project group by mitigating the risk of demand curtailment from 2030 onwards. In 2030 respective countries can mitigate the demand curtailment by 1%, whereas in 2040 risk can be reduced by 2-4% and in 2050 countries such as Belgium, Netherlands, Germany, Denmark, Czech Republic, Poland, Lithuania, Latvia, Estonia, Finland and Sweden can mitigate the risk of demand curtailment by 7-8%.


Benefits
100% - 20%
20% - 5%
5% - 0%
SLCD Benefits - 2030 - Distributed Energy
SLCD Benefits - 2040 - Distributed Energy
SLCD Benefits - 2050 - Distributed Energy
NORWAY
SWEDEN
FINLAND
BELARUS
UKRAINE
GERMANY
POLAND
FRANCE
SPAIN
ROMANIA
Black Sea
TÜRKIYE
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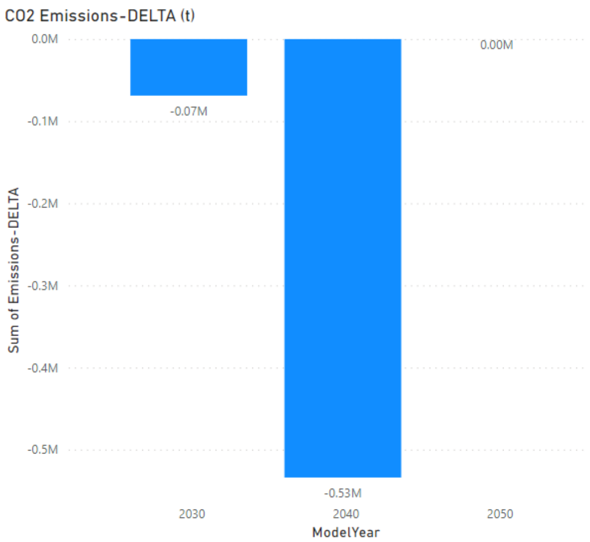
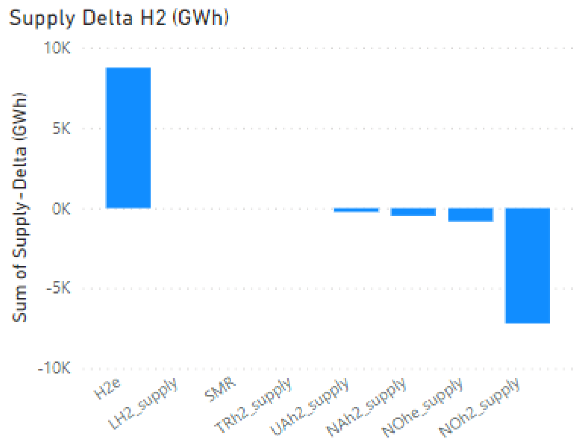
Global Ambition

Sustainability benefits

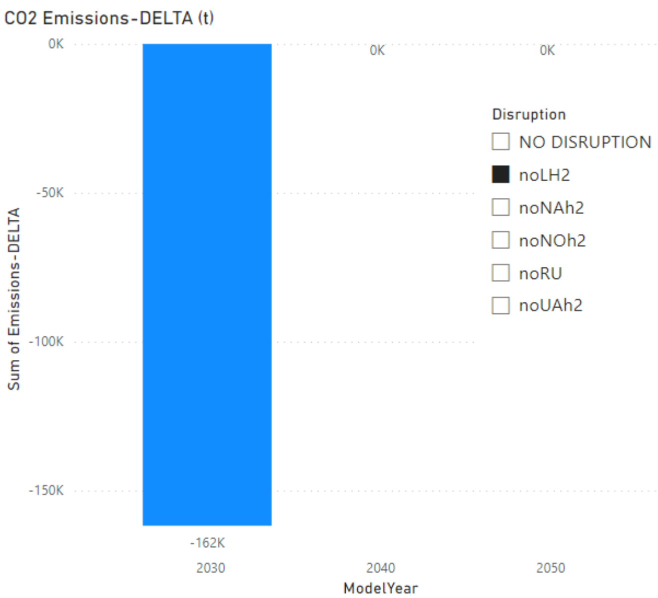
In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group will contribute to sustainability by reducing overall CO2 emissions by 70 kt in 2030 and by 530 kt in 2040. In 2030 the project group is enabling the replacement of blue hydrogen imports from Norway and in 2040 the project group is enabling the replacement of locally produced blue hydrogen (i.e. SMR) with green hydrogen produced offshore.

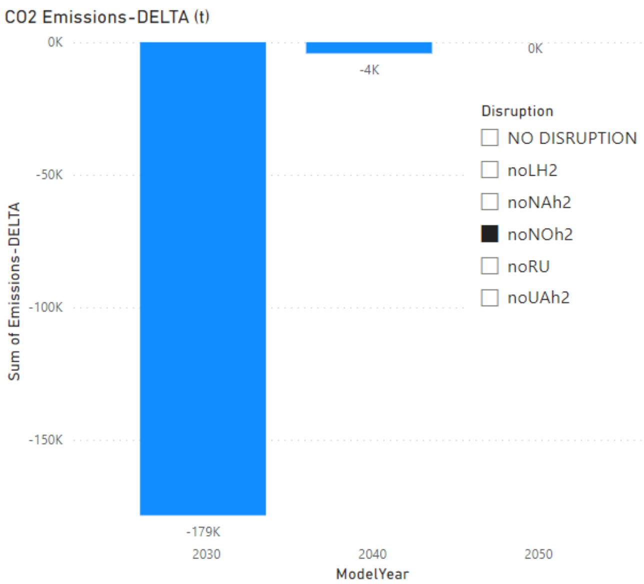


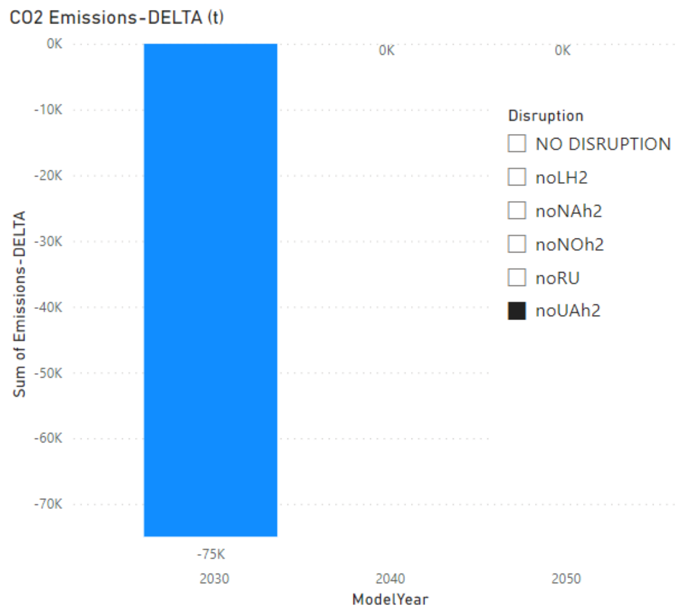


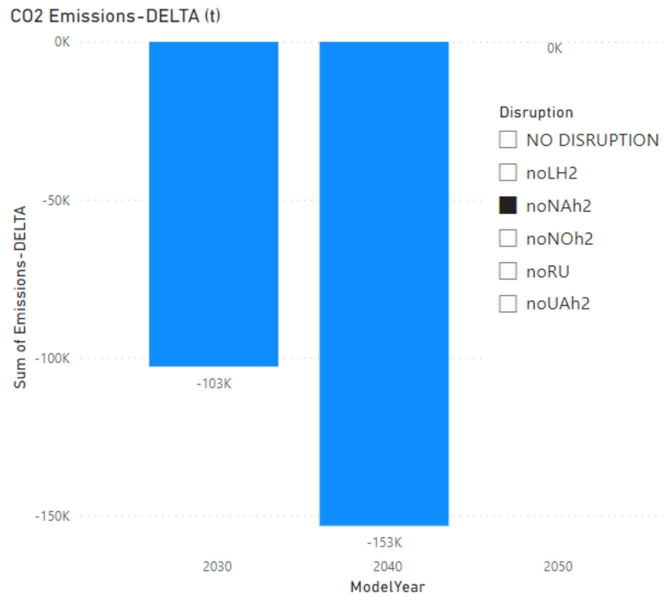
Sustainability benefits are increased under all supply disruption cases for 2030. For example, in case of North Africa disruption the project group will reduce CO2 emissions by 103 kt in 2030.

1 noLH2 : LH2 disruption / 2 noNOh2 : Norway disruption / 3 noUAh2 : Ukraine disruption/ 4 noNAh2 : North Africa disruption





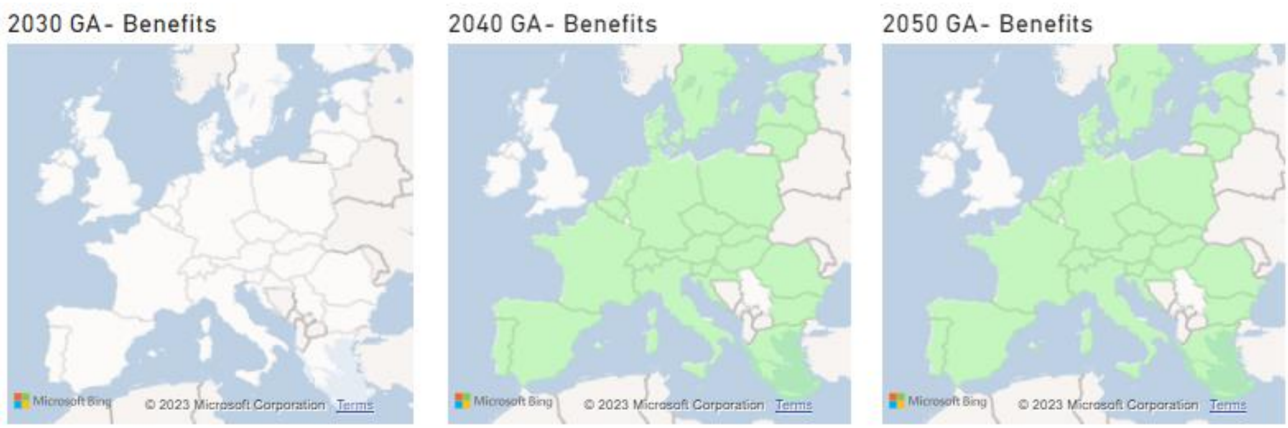




Security of supply:

> Reference case

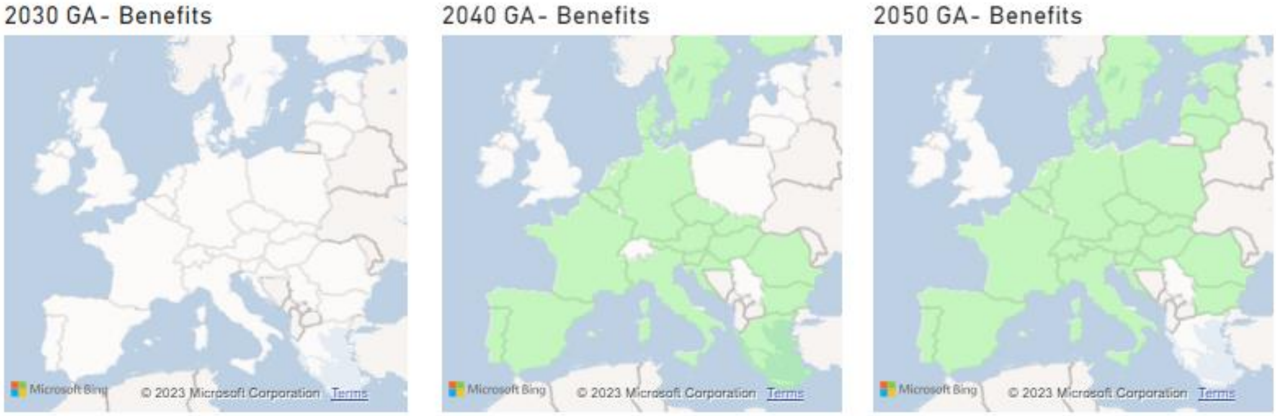
Thanks to the project green hydrogen will be transported and in the reference case, the projects group mitigates risk of demand curtailment in almost all European countries in 2040 and 2050. In 2040 respective countries can mitigate the risk of demand curtailment by 2-3% and in 2050 countries such as Germany, the Netherlands, Belgium, Czech Republic and all Baltic states can reduce the risk of demand curtailment by 6%.



> Climatic stress cases

> Single largest capacity disruption (SLCD):

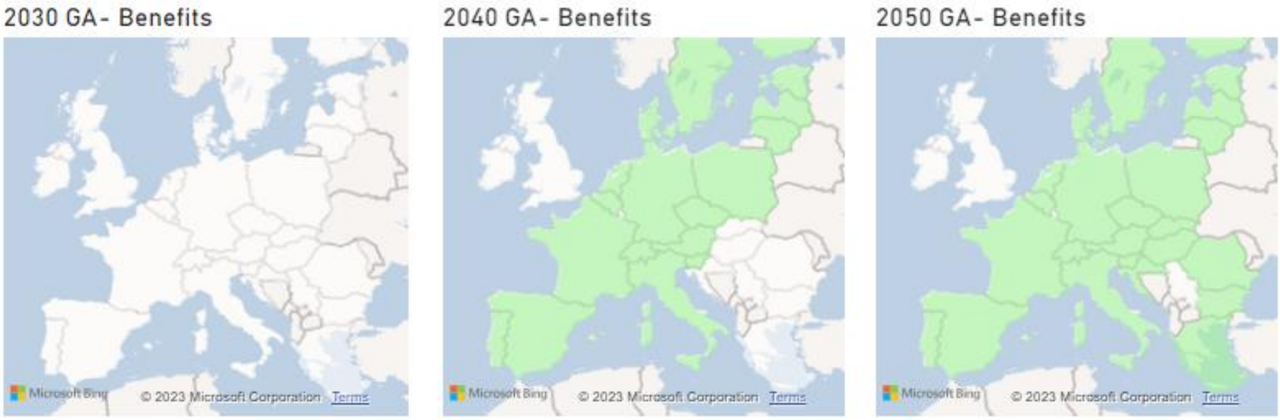
Similar under 2 -week and 2-week dunkelflaute climatic stress case, as well as under peak day climatic case the project group maintains the positive security of supply benefits for many European countries in 2040 and 2050.



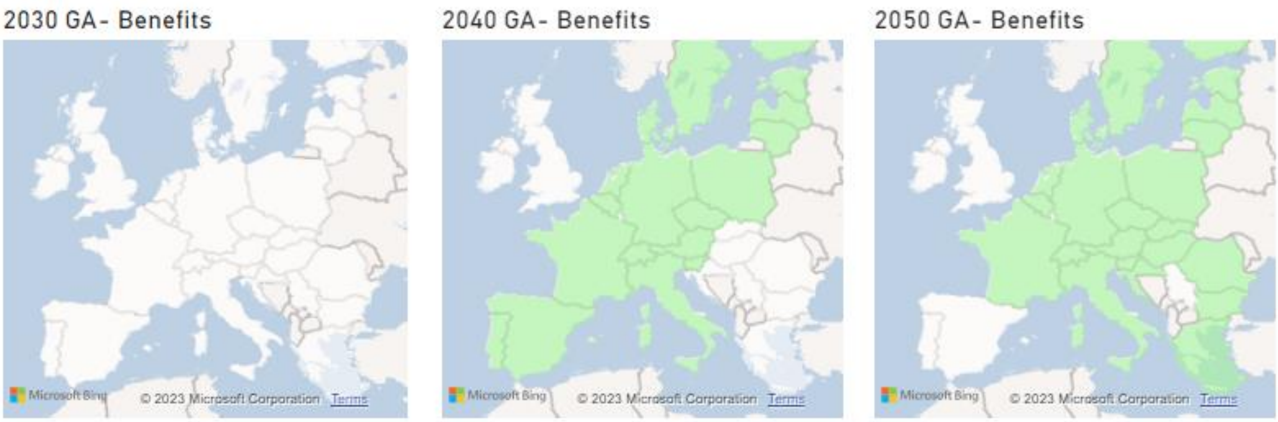
> Disruption cases (S-1)

Under all hydrogen supply disruption cases and refence yearly demand, the project group mitigates the risk of demand curtailment for many European countries by 2-4% in 2040 and by 3-7% in 2050.

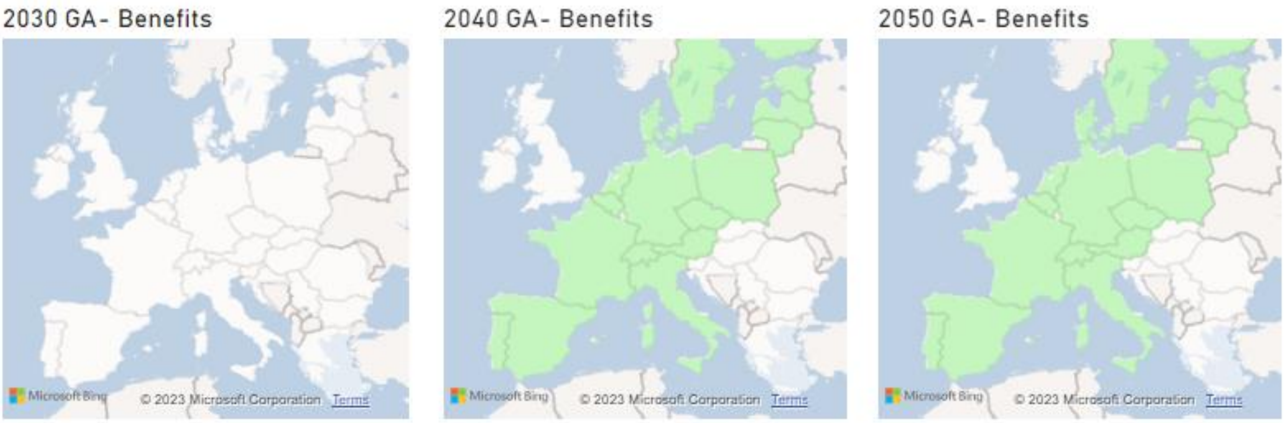
1 noLH2: LH2 disruption



2 noNOh2: Norway disruption



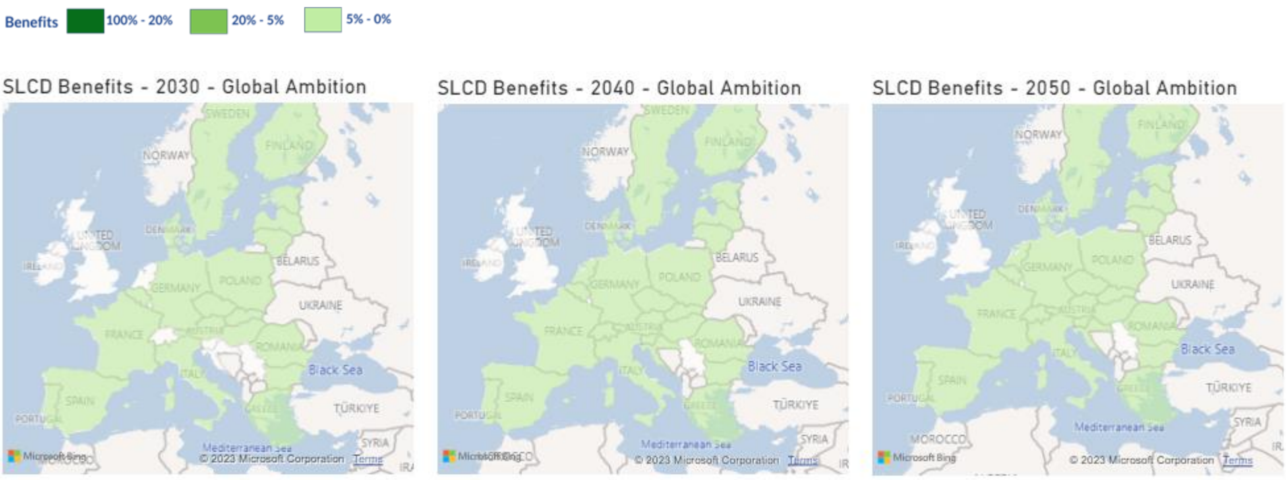
3 noUAh2: Ukraine disruption



4 noNAh2: North Africa disruption

> Single largest capacity disruption (SLCD):

In case of SLCD almost all European countries are benefiting from this project group by mitigating the risk of demand curtailment from 2030 onwards. In 2030 all respective countries can reduce the risk of demand curtail by 1% under SLCD, in 2040 by 2-3% and in 2050 by 3-4%.



C.2 Quantitative benefits [ENTSOG]

The following tables display all the benefits quantified by ENTSOG through specific indicators and stemming from the realisation of the considered project group.

CO2 Emissions:

ModelYear	Disruption	Scenario	Unit	Emissions-DELTA	Emissions-PLUS	Emissions-MINUS
2030	NO DISRUPTION	DE	tonne	-62448,81	538677299	538739747,9
2030	noLH2	DE	tonne	-102008,26	540175890,2	540277898,5
2030	noNAh2	DE	tonne	-84150,88	539785356,1	539869507
2030	noNOh2	DE	tonne	-161979,92	538877197,8	539039177,7
2030	noUAh2	DE	tonne	-74979,66	539378771,9	539453751,6
2030	NO DISRUPTION	GA	tonne	-68817,83	592910448,4	592979266,3
2030	noLH2	GA	tonne	-161804,71	594817481,2	594979285,9
2030	noNAh2	GA	tonne	-102801,23	594141433,2	594244234,4
2030	noNOh2	GA	tonne	-178515,25	593310994,3	593489509,5
2030	noUAh2	GA	tonne	-74979,66	593627617,9	593702597,6
2040	NO DISRUPTION	DE	tonne	0,00	392077044	392077044
2040	noLH2	DE	tonne	-262725,28	392213883,4	392476608,6
2040	noNAh2	DE	tonne	-209764,20	392188097,7	392397861,9
2040	noNOh2	DE	tonne	-270800,53	392144022,6	392414823,2
2040	noUAh2	DE	tonne	-205322,56	392399182,9	392604505,4
2040	NO DISRUPTION	GA	tonne	-533985,86	396523251,6	397057237,5
2040	noLH2	GA	tonne	0,00	397455196,7	397455196,7
2040	noNAh2	GA	tonne	-153220,09	397301976,6	397455196,7
2040	noNOh2	GA	tonne	-4219,61	397450977,1	397455196,7
2040	noUAh2	GA	tonne	0,00	397478498,3	397478498,3
2050	NO DISRUPTION	DE	tonne	0,00	232557734,8	232557734,8
2050	noLH2	DE	tonne	0,00	232557734,8	232557734,8
2050	noNAh2	DE	tonne	0,00	232557734,8	232557734,8
2050	noNOh2	DE	tonne	0,00	232557734,8	232557734,8
2050	noRU	DE	tonne	0,00	232557734,8	232557734,8
2050	noUAh2	DE	tonne	0,00	232557734,8	232557734,8
2050	NO DISRUPTION	GA	tonne	0,00	228306706,5	228306706,5
2050	noLH2	GA	tonne	0,00	228306706,5	228306706,5
2050	noNAh2	GA	tonne	0,00	228306706,5	228306706,5
2050	noNOh2	GA	tonne	0,00	228306706,5	228306706,5
2050	noRU	GA	tonne	0,00	228306706,5	228306706,5
2050	noUAh2	GA	tonne	0,00	228306706,5	228306706,5

Curtailment Rate (SLCD):

Country	2030-DE-DELTA	2030-GA-DELTA	2040-DE-DELTA	2040-GA-DELTA	2050-DE-DELTA	2050-GA-DELTA
Czechia	-1%	-1%	-4%	-3%	-8%	-3%
Latvia	-1%	-1%	-4%	-2%	-7%	-3%
Lithuania	-1%	-1%	-4%	-2%	-7%	-3%
Poland	-1%	-1%	-4%	-2%	-7%	-3%
Portugal	-1%	-1%	-4%	-2%	-5%	-3%
Slovenia	0%	0%	-4%	-2%	-5%	-3%
France	-1%	-1%	-4%	-2%	-5%	-3%
Germany	-1%	-1%	-4%	-3%	-7%	-3%
Austria	-1%	-1%	-3%	-2%	-5%	-3%
Belgium	-1%	-1%	-3%	-3%	-7%	-3%
Denmark	-1%	-1%	-3%	-3%	-7%	-3%
Estonia	-1%	-1%	-3%	-2%	-7%	-3%
Finland	-1%	-1%	-3%	-2%	-7%	-4%
Italy	-1%	-1%	-3%	-2%	-4%	-3%
Spain	-1%	-1%	-3%	-2%	-5%	-3%
Sweden	-1%	-1%	-3%	-2%	-7%	-4%
Switzerland	0%	0%	-3%	-2%	-5%	-3%
The Netherlands	0%	0%	-3%	-3%	-7%	-4%
Bulgaria	-1%	-1%	-2%	-1%	-4%	-3%
Croatia	0%	0%	-2%	-2%	-4%	-3%
Greece	-1%	-1%	-2%	-2%	-4%	-3%
Hungary	-1%	-1%	-2%	-2%	-4%	-3%
Romania	-1%	-1%	-2%	-2%	-4%	-3%
Slovakia	-1%	-1%	-2%	-2%	-5%	-3%

Curtailment Rate (Climatic Stress):

SimulationPeriod	Country	2030-DE-DELTA	2030-GA-DELTA	2040-DE-DELTA	2040-GA-DELTA	2050-DE-DELTA	2050-GA-DELTA
Average2W	Austria	-1%	-1%	-2%	-2%	-6%	-3%
Average2W	Belgium	-1%	-1%	-2%	-2%	-5%	-3%
Average2W	Bulgaria	0%	-1%	-2%	-2%	0%	-3%
Average2W	Croatia	0%	0%	-1%	-2%	0%	-3%
Average2W	Cyprus	0%	0%	0%	0%	0%	0%
Average2W	Czechia	-1%	-1%	-2%	-2%	-6%	-3%
Average2W	Denmark	-1%	-1%	-2%	-2%	-6%	-4%
Average2W	Estonia	-1%	-1%	-2%	-2%	-5%	-3%
Average2W	Finland	-1%	-1%	-2%	-2%	-6%	-4%
Average2W	France	-1%	-1%	-2%	-2%	-5%	-4%
Average2W	Germany	-1%	-1%	-2%	-1%	-5%	-3%
Average2W	Greece	0%	-1%	-2%	-1%	0%	0%
Average2W	Hungary	0%	-1%	-1%	-2%	0%	-3%
Average2W	Ireland	0%	0%	0%	0%	0%	0%
Average2W	Italy	-1%	0%	-2%	-2%	-5%	-2%
Average2W	Latvia	-1%	-1%	-2%	-2%	-5%	-3%

Average2W	Lithuania	-1%	-1%	-2%	-2%	-5%	-3%
Average2W	Luxembourg	0%	0%	0%	0%	0%	0%
Average2W	Malta	0%	0%	0%	0%	0%	0%
Average2W	Poland	-1%	-1%	-2%	-2%	-5%	-4%
Average2W	Portugal	-1%	-1%	-2%	-2%	0%	-3%
Average2W	Romania	0%	-1%	-1%	-2%	0%	-3%
Average2W	Serbia	0%	0%	0%	0%	0%	0%
Average2W	Slovakia	-1%	-1%	-1%	-2%	0%	-3%
Average2W	Slovenia	0%	0%	-2%	-2%	-5%	-3%
Average2W	Spain	-1%	-1%	-2%	-1%	-5%	-3%
Average2W	Sweden	-1%	-1%	-2%	-1%	-6%	-4%
Average2W	Switzerland	0%	0%	-2%	-2%	-5%	-2%
Average2W	The Netherlands	0%	0%	-2%	-2%	-5%	-3%
Average2W	United Kingdom	0%	0%	0%	0%	0%	0%
Average2WDF	Austria	-1%	-1%	-2%	-2%	-6%	-4%
Average2WDF	Belgium	-1%	-1%	-2%	-2%	-5%	-3%
Average2WDF	Bulgaria	0%	-1%	-2%	-2%	0%	-3%
Average2WDF	Croatia	0%	0%	-2%	-2%	0%	-3%
Average2WDF	Cyprus	0%	0%	0%	0%	0%	0%
Average2WDF	Czechia	-1%	-1%	-2%	-2%	-6%	-4%
Average2WDF	Denmark	-1%	-1%	-2%	-2%	-6%	-4%
Average2WDF	Estonia	-1%	-1%	-2%	-1%	-5%	-3%
Average2WDF	Finland	-1%	-1%	-2%	-2%	-6%	-3%
Average2WDF	France	-1%	-1%	-2%	-2%	-5%	-4%
Average2WDF	Germany	-1%	-1%	-2%	-2%	-5%	-3%
Average2WDF	Greece	0%	-1%	-2%	-2%	0%	0%
Average2WDF	Hungary	0%	-1%	-2%	-2%	0%	-3%
Average2WDF	Ireland	0%	0%	0%	0%	0%	0%
Average2WDF	Italy	-1%	0%	-2%	-1%	-5%	-3%
Average2WDF	Latvia	-1%	-1%	-2%	-1%	-5%	-3%
Average2WDF	Lithuania	-1%	-1%	-2%	-1%	-5%	-4%
Average2WDF	Luxembourg	0%	0%	0%	0%	0%	0%
Average2WDF	Malta	0%	0%	0%	0%	0%	0%
Average2WDF	Poland	-1%	-1%	-2%	-1%	-5%	-4%
Average2WDF	Portugal	-1%	-1%	-2%	-2%	0%	-2%
Average2WDF	Romania	0%	-1%	-1%	-1%	0%	-3%
Average2WDF	Serbia	0%	0%	0%	0%	0%	0%
Average2WDF	Slovakia	-1%	-1%	-2%	-2%	0%	-3%
Average2WDF	Slovenia	0%	0%	-2%	-2%	-5%	-4%
Average2WDF	Spain	-1%	-1%	-2%	-2%	-5%	-2%
Average2WDF	Sweden	-1%	-1%	-2%	-2%	-6%	-3%
Average2WDF	Switzerland	0%	0%	-2%	-1%	-5%	-3%
Average2WDF	The Netherlands	0%	0%	-2%	-2%	-5%	-3%
Average2WDF	United Kingdom	0%	0%	0%	0%	0%	0%
DC	Austria	-1%	-1%	-1%	-1%	-5%	-3%
DC	Belgium	-1%	-1%	-2%	-1%	-4%	-2%

DC	Bulgaria	0%	-1%	-1%	-1%	0%	-2%
DC	Croatia	0%	0%	-1%	-1%	0%	-2%
DC	Cyprus	0%	0%	0%	0%	0%	0%
DC	Czechia	-1%	0%	-2%	-1%	-5%	-3%
DC	Denmark	-1%	-1%	-1%	-1%	-5%	-2%
DC	Estonia	0%	-1%	-2%	-1%	-5%	-3%
DC	Finland	0%	-1%	-2%	-1%	-5%	-2%
DC	France	-1%	0%	-2%	-1%	-4%	-2%
DC	Germany	-1%	0%	-2%	-2%	-4%	-3%
DC	Greece	0%	0%	-2%	-1%	0%	-1%
DC	Hungary	0%	0%	-1%	-1%	0%	-2%
DC	Ireland	0%	0%	0%	0%	0%	0%
DC	Italy	0%	-1%	-1%	-1%	-4%	-2%
DC	Latvia	0%	-1%	-2%	-1%	-4%	-3%
DC	Lithuania	0%	-1%	-2%	-1%	-5%	-2%
DC	Luxembourg	0%	0%	0%	0%	0%	0%
DC	Malta	0%	0%	0%	0%	0%	0%
DC	Poland	0%	-1%	-2%	-1%	-5%	-2%
DC	Portugal	-1%	0%	-2%	-1%	0%	-2%
DC	Romania	0%	-1%	-1%	-1%	0%	-3%
DC	Serbia	0%	0%	0%	0%	0%	0%
DC	Slovakia	-1%	-1%	-1%	-1%	0%	-2%
DC	Slovenia	0%	0%	-2%	-1%	-4%	-3%
DC	Spain	-1%	-1%	-1%	-1%	-4%	-2%
DC	Sweden	0%	-1%	-2%	-1%	-5%	-2%
DC	Switzerland	0%	0%	-2%	-1%	-5%	-2%
DC	The Netherlands	0%	0%	-1%	-1%	-5%	-2%
DC	United Kingdom	0%	0%	0%	0%	0%	0%

D. Environmental Impact [Promoter]

Any gas infrastructure has an impact on its surroundings. This impact is of particular relevance when crossing some environmentally sensitive areas. Mitigation measures are taken by the promoters to reduce this impact and comply with the EU and National regulations.

TYNDP Code	Type of infrastructure	Surface of impact	Environmentally sensitive area
HYD-N-991	H2 pipeline infrastructure	Sea ground	The pipeline will be constructed and operated offshore; being laid out on the sea ground

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
Construction	Construction noise emissions can be controlled with proven systems during pile driving for offshore installations. One 20 GW offshore pipeline can replace multiple HVDC submarine cables, reducing the space required for landing the energy onshore.	Detailed calculation not available yet	Not expected
Operation	The pipeline's operation is emission-free, utilizing wind turbines and hydrogen as complementary fuel, and potential malfunctions typically do not cause direct damage to third parties.	Detailed calculation not available yet	Not expected

Environmental Impact explained [Promoter]

AquaDuctus is related to the development of a new transmission network in form of construction of a dedicated hydrogen offshore pipeline. The project will not lead to significant GHG emissions, but will support to a reduction of GHG emissions significantly. The project has a capacity to transport up to 20 GW of green hydrogen. If the green hydrogen will substitute the use of coal in the industry it will be capable to reduce approx. 80 Mio tons of GHG (CO2) emissions per year.

AquaDuctus is an environmentally friendly solution for energy transport. It reduces the impact on people and nature compared to submarine cables. One 20 GW offshore pipeline can replace multiple cables, reducing the space needed for landing energy onshore. The pipeline operates without emissions, utilizing wind turbines and hydrogen as fuel. Construction noise emissions can be controlled during offshore installation.

E. Other benefits [Promoter]

Missing benefits are all benefits of a project which may be not captured by ENTSOG analysis.

As a necessary condition a missing benefit cannot have discrepancies with the benefits already covered by the assessment run by ENTSOG and this condition needs to be proved and justified.

Description of Other benefits [Promoter]

The AquaDuctus project aims to have wide-ranging positive effects on the economy and society beyond its immediate beneficiaries. It plans to establish an offshore transport infrastructure that connects to the onshore grid and enables the development of a European hydrogen backbone. Collaboration with neighboring countries like Denmark, the Netherlands, UK, and Norway will facilitate cross-border commercial relationships and the entry of new players into the commodity market, including small companies. Lessons learned from this project can be shared with other transmission system operators (TSOs) in Europe, fostering collaboration and facilitating the transformation of the natural gas business into a decarbonized and climate-neutral economy.

The project envisions a meshed European offshore hydrogen backbone in the North Sea, leveraging the potential of offshore wind capacity to produce large quantities of green hydrogen. AquaDuctus aims to exploit the offshore production potential in the North Sea and work towards standardization and interoperability with partners to ensure seamless integration with the European hydrogen backbone. The project also emphasizes spill-over effects in scientific, technical, economic, and social dimensions, including knowledge exchange, dissemination of project results, and collaboration with academic and research partners.

By participating in relevant conferences, organizing events, and contributing to publications, AquaDuctus aims to support confidence building, knowledge transfer, and future cooperation among network operators. The project also collaborates with component manufacturers to test and refine innovative technologies, which can be exported to other EU countries and strengthen European companies. Furthermore, AquaDuctus collaborates with academic and research partners to share project results and benefit from their expertise.

Overall, AquaDuctus aims to contribute to Europe's increasing hydrogen demand and establish a large-scale transport infrastructure that offers multiple benefits, including relieving other transport infrastructures, decreasing the need for dangerous goods transport, and promoting the growth of the hydrogen market.

F. Useful links [Promoter]

Useful links:

https://aquaductus-offshore.de/