HI WEST 39 (Less-Advanced)
DK/DE Hydrogen IP

Reasons for grouping [ENTSOG]

The project group aims at interconnecting future hydrogen infrastructure between Germany and Denmark.

The project group includes the German side of the investment HyperLink (HYD-N-1001) and the West Denmark Hydrogen System (HYD-N-1236).

Objective of the group [Promoter]

The group combines two projects to create a cross-border open access transport infrastructure between Germany (project Hyperlink) and Denmark (Danish backbone West) for Hydrogen. Gasunie and Energinet jointly work on planning and realization of a cross border pipeline connection supporting the transportation needs. Start of operation is planned for end of 2028. Project is coordinated with national hydrogen infrastructure planning in both Denmark and Germany to reach both Danish hydrogen production centres and German hydrogen demand centres. The project goes in line with the Joint Declaration of Intent on the Cooperation on Green Hydrogen and the Realization of a Land-based Hydrogen Pipeline between Northern Germany and Western Denmark which was concluded on the 24th of March 2023 between Denmark and Germany.

HYD-N-1001 **Danish-German Hydrogen Network = HyperLink Phase III**

Comm. Year **2028**

HYD-N-1236 **DK Hydrogen Pipeline - West DK Hydrogen System**

Comm. Year **2028**

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]
HYD-N-1001	Base Case	Mix	900 and 600	114 + 79 + 4.5	
HYD-N-1001	Network extension Scenario 1	Mix	900 and 600	114 + 79 + 4.5	55
HYD-N-1001	Network extension Scenario 2	Mix	900 and 600	114 + 79 + 4.5	55 + 90
HYD-N-1236	DK Hydrogen Pipeline (Base case)	Mix	900 and 700	90 +271	
HYD-N-1236	DK Hydrogen Pipeline (enhancer 1)	Mix	900 and 700	90 +271	55
HYD-N-1236	DK Hydrogen Pipeline (enhancer 2)	Mix	900 and 700	90 +271	55 + 90

Capacity increment [ENTSOG]

TYNDP Project code	Point name	Operator	From system	To system	Capacity increment [GWh/d]	Comm. year
HYD-N-1001	H2_IP_DK-DE	Gasunie Energy Development GmbH	Transmission Denmark (DK Hydrogen)	Transmission Germany (DE Hydrogen)	60	2028
HYD-N-1001	H2_IP_DK-DE	Gasunie Energy Development GmbH	Transmission Denmark (DK Hydrogen)	Transmission Germany (DE Hydrogen)	60	2028
HYD-N-1236	H2_IP_DK-DE	Energinet	Transmission Germany (DE Hydrogen	Transmission Denmark (DK Hydrogen)	60	2028
HYD-N-1236	H2_IP_DK-DE	Energinet	Transmission Denmark (DK Hydrogen)	Transmission Germany (DE Hydrogen	60	2028

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-1001	546	50	3,6	30
HYD-N-1236	1546	50	12	20

Description of the cost and range [Promoter]

For project HYD-N-1001 (Hyperlink 3)

The costs were calculated based on market prices and costs of similar investment projects. The costs are best estimated in this project phase.

For project HYD-N-1236 (Danish backbone West)

The costs were calculated based on market prices and costs of similar investment projects. The costs are best estimate in this project phase.

C. Project Benefits [ENTSOG]

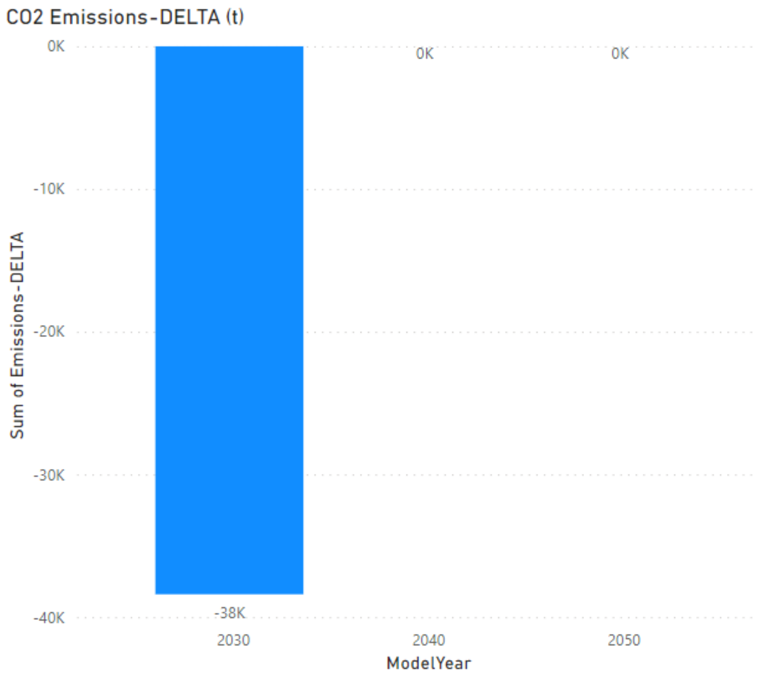
C.1 Summary of benefits

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].

Distributed Energy

Sustainability benefits

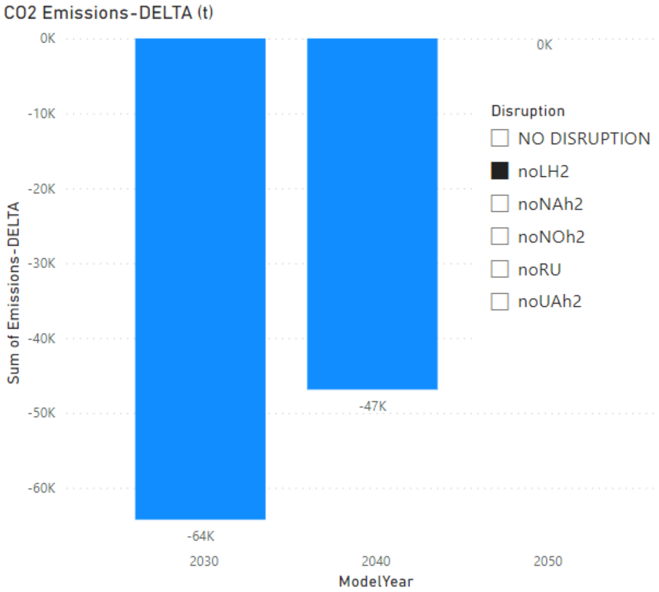
In 2028, the new interconnection between Denmark and Germany allows hydrogen to flow from Denmark to Germany and the rest of the European countries. In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group will contribute to sustainability by reducing overall CO2 emissions by 38 kt in 2030. This can be explained as in 2030 the project group will enable the replacement of blue hydrogen imports from Norway with green hydrogen.

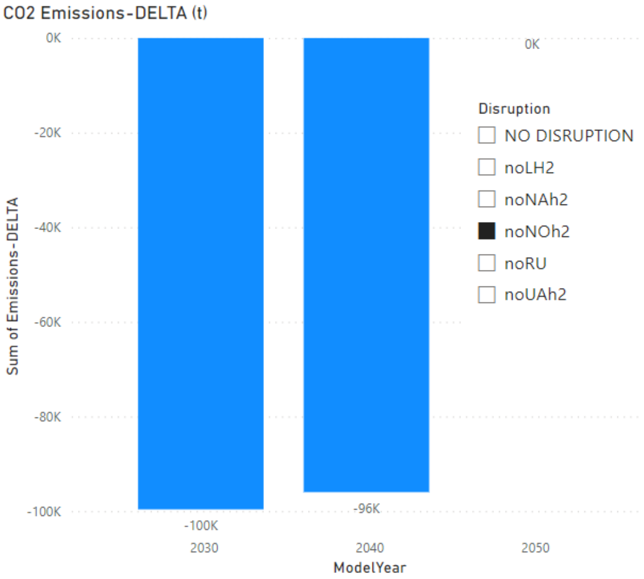


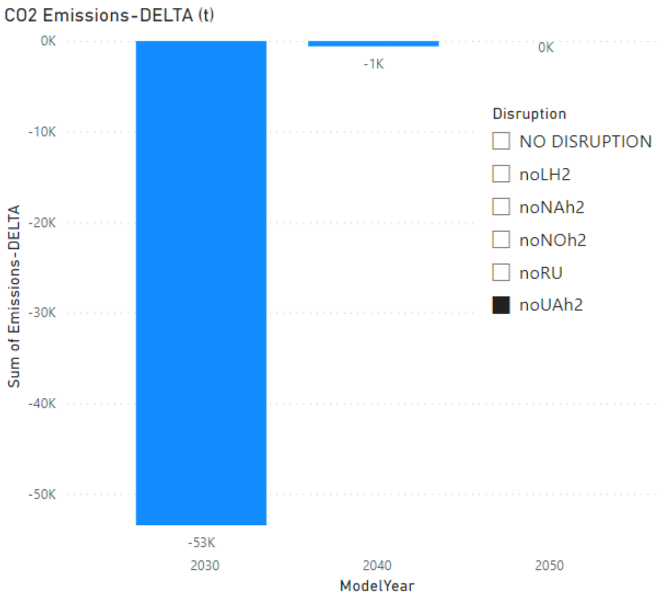
[1] https://www.entsog.eu/sites/default/files/202304/ENTSOG_TYNDP_2022_Annex_D_Methodology_230411.pdf

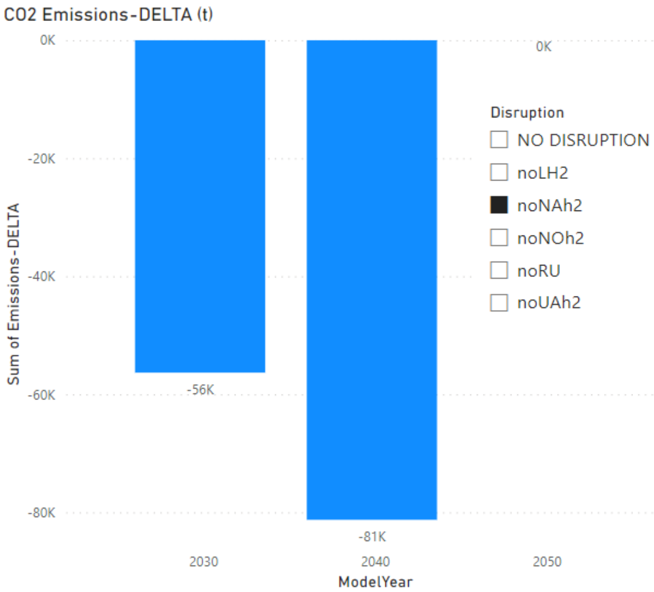
Sustainability benefits are increased under all supply disruption cases for 2030 and 2040. For example, in case of Norway disruption the project group will reduce CO2 emissions by 100 kt in 2030 and by 96 kt in 2040.

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









Security of Supply:[2]

> Reference case:

2030 DE- Benefits

2040 DE- Benefits

2050 DE- Benefits

In the reference case, the project is contributing to the mitigation of hydrogen demand curtailment risk by 1% for benefitting countries in average summer and average winter for 2050.

> Climatic stress cases:

Under 2 -week and 2-week dunkelflaute climatic stress case, as well as under peak day climatic case the project group is mitigating the risk of hydrogen demand curtailment by 1-2% for Italy, Austria, Slovakia, and Czech Republic in 2030. In 2040 Germany can reduce the risk of demand of curtailment by 1% thanks to the Project.

2030 DE- Benefits

2040 DE- Benefits

2050 DE- Benefits

[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) 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.*

> Disruption cases (S-1):

Similar under all supply disruption cases and refence yearly demand, the project group mitigates the risk of demand curtailment by 1-2% for many European countries in 2040 and 2050.

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

1 noLH2 : LH2 disruption

2030 DE- Benefits

2040 DE- Benefits

2050 DE- Benefits

2 noNOh2 : Norway disruption

2030 DE- Benefits

2040 DE- Benefits

2050 DE- Benefits

3 noUAh2 : Ukraine disruption

2030 DE- Benefits

2040 DE- Benefits

2050 DE- Benefits

4 noNAh2 : North Africa disruption

2030 DE- Benefits

2040 DE- Benefits

2050 DE- Benefits

> Single largest capacity disruption (SLCD):

In case of single largest capacity disruption (SLCD), the project group mitigates the risk of demand curtailment in Denmark for all the three time-stamps by 40-50%. Furthermore, under SLCD the project group is mitigating the risk of demand curtailment by 1-2% in other respective countries in 2030, 2040 and 2050.

Benefits 100% - 20% 20% - 5% 5% - 0%

SLCD Benefits - 2030 - Distributed Energy

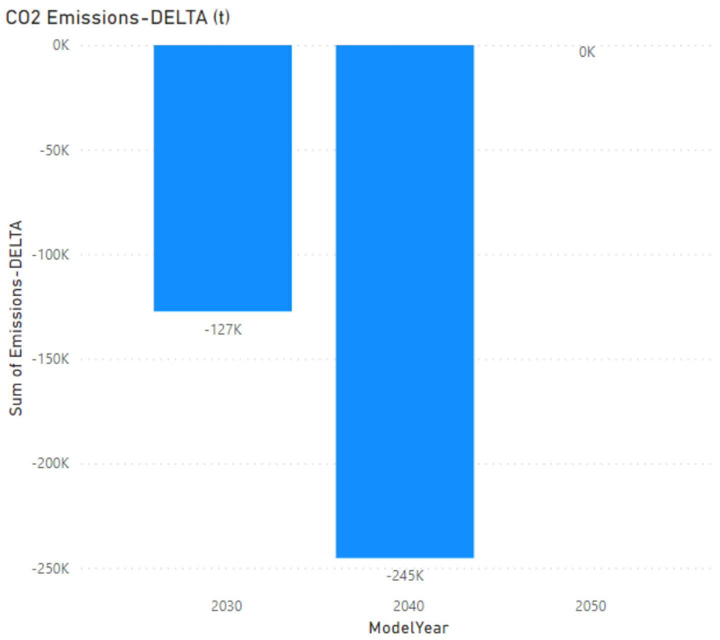
SLCD Benefits - 2040 - Distributed Energy

SLCD Benefits - 2050 - Distributed Energy

Global Ambition

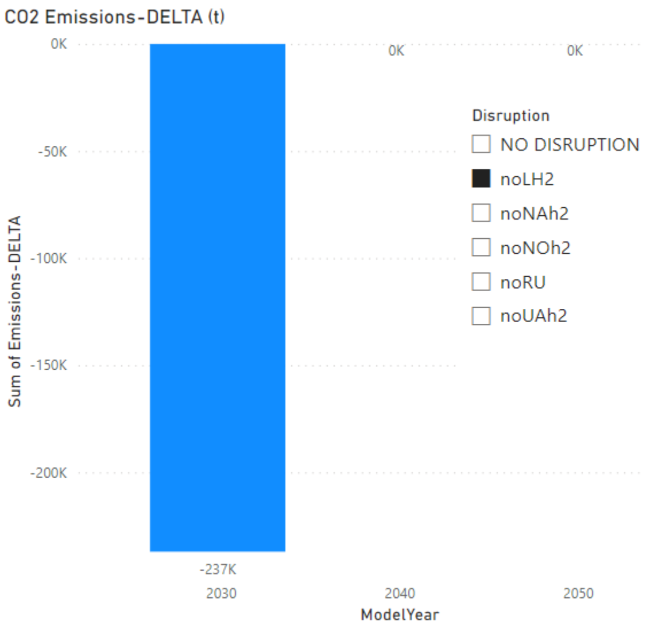
Sustainability

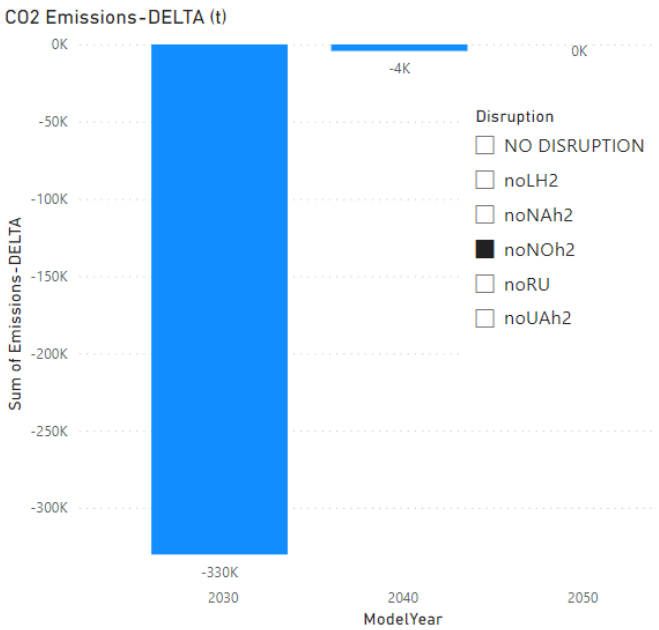
In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group will contribute to sustainability by reducing overall CO_2 emissions by 127 kt in 2030 and by 245 kt in 2040. This can be explained as in 2030 the project group will enable the replacement of blue hydrogen imports from Norway and in 2040 the project group will enable the replacement of locally produced blue hydrogen (i.e. SMR) with green hydrogen.

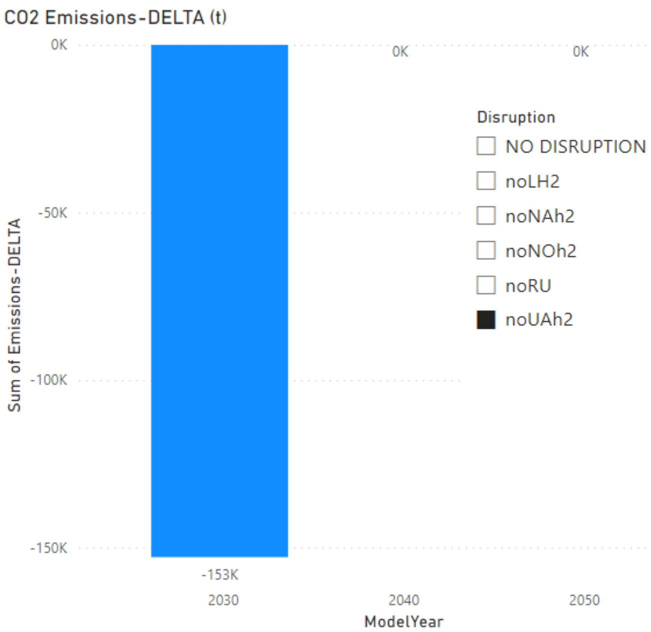


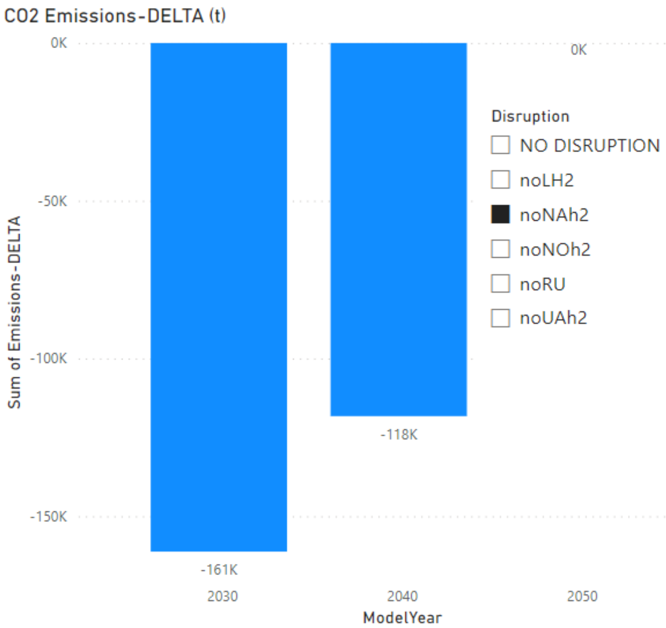
Sustainability benefits are increased under all supply disruption cases for 2030. For example, in case of North Africa disruption the project group will reduce CO_2 emissions by 161 kt in 2030.

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









Security of supply

> Reference case

In reference case, the project group is showing positive security of supply benefits for Greece and Latvia by mitigating the risk of hydrogen demand curtailment by 1% in 2040.

2030 GA- Benefits

2040 GA- Benefits

2050 GA- Benefits

> Climatic stress cases

Under 2 -week and 2-week dunkelflaute climatic stress case, as well as under peak day climatic case the project group is contributing the security of supply benefits by mitigating the risk of hydrogen demand curtailment for many European countries by 1-2% in 2030.

2030 GA- Benefits

2040 GA- Benefits

2050 GA- Benefits

> Disruption cases (S-1):

Similar under all supply disruption cases and refence yearly demand, the project group mitigates the risk of demand curtailment by 1% for many European countries in 2040 and 2050.

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

1 noLH2 : LH2 disruption

2030 GA- Benefits

2040 GA- Benefits

2050 GA- Benefits

2 noNOh2 : Norway disruption

2030 GA- Benefits

2040 GA- Benefits

2050 GA- Benefits

3 noUAh2 : Ukraine disruption

2030 GA- Benefits

2040 GA- Benefits

2050 GA- Benefits

4 noNAh2 : North Africa disruption

> Single largest capacity disruption (SLCD):

In case of single largest capacity disruption (SLCD), the project group reduces the risk of demand curtailment in Denmark in all the three time-stamps. In 2030 the project group mitigates the risk of hydrogen demand curtailment with a maximum of 58%. In 2040 by 31% and in 2050 by 28%. Furthermore, under SLCD the project group is mitigating the risk of demand curtailment by 1-2% in other respective countries in 2030, 2040 and 2050.

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	-76805,80	1077270522	1077347328
2030	noLH2	DE	tonne	-128488,62	1080214592	1080343081
2030	noNAh2	DE	tonne	-56324,71	539724826,7	539781151,4
2030	noNOh2	DE	tonne	-99619,41	538768132,8	538867752,2
2030	noUAh2	DE	tonne	-53478,09	539320162	539373640,1
2030	NO DISRUPTION	GA	tonne	-127319,72	592778015,6	592905335,3
2030	noLH2	GA	tonne	-237026,25	594569752,8	594806779
2030	noNAh2	GA	tonne	-161190,97	593974315,4	594135506,4
2030	noNOh2	GA	tonne	-330219,40	592967497,5	593297716,9
2030	noUAh2	GA	tonne	-152817,81	593470370,1	593623187,9
2040	NO DISRUPTION	DE	tonne	0,00	392077044	392077044
2040	noLH2	DE	tonne	-46879,11	392499400,3	392546279,4
2040	noNAh2	DE	tonne	-81264,41	392420653,6	392501918
2040	noNOh2	DE	tonne	-95981,66	392437614,8	392533596,5
2040	noUAh2	DE	tonne	-581,65	392604505,4	392605087,1
2040	NO DISRUPTION	GA	tonne	-245238,13	396523673,1	396768911,2
2040	noLH2	GA	tonne	0,00	397455196,7	397455196,7
2040	noNAh2	GA	tonne	-118258,70	397300443,1	397418701,8
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
Denmark	-32%	-45%	-39%	-31%	-38%	-28%
Austria	-1%	0%	-1%	-1%	-1%	-1%
Belgium	-1%	0%	-1%	-1%	-1%	-1%
Bulgaria	-1%	0%	-1%	-1%	0%	-1%
Croatia	0%	0%	-1%	-1%	-1%	-1%
Czechia	-1%	0%	-1%	-1%	-1%	-1%
Estonia	-1%	0%	-1%	-1%	-1%	-1%
Finland	-1%	0%	-1%	-1%	-1%	-1%
France	0%	0%	-1%	-1%	-1%	-1%
Germany	0%	0%	-1%	-1%	-1%	-1%
Greece	-1%	0%	-1%	-1%	0%	-1%
Hungary	-1%	0%	-1%	-1%	0%	-1%
Italy	0%	0%	-1%	-1%	-1%	-1%
Latvia	-1%	0%	-1%	-1%	-1%	-1%
Lithuania	-1%	0%	-1%	-1%	-1%	-1%
Poland	-1%	0%	-1%	-1%	-1%	-1%
Portugal	-1%	0%	-1%	-1%	-1%	-1%
Slovakia	-1%	0%	-1%	-1%	-1%	-1%
Slovenia	0%	0%	-1%	-1%	-1%	-1%
Spain	-1%	0%	-1%	-1%	-1%	-1%
Sweden	-1%	0%	-1%	-1%	-1%	-1%
Switzerland	0%	0%	-1%	-1%	-1%	-1%
The Netherlands	0%	0%	-1%	-1%	-1%	-1%
Romania	0%	0%	0%	-1%	0%	-1%

Curtailment Rate (Climatic Stress):

Country	2030-DE-DELTA	2030-GA-DELTA	2040-DE-DELTA	2040-GA-DELTA	2050-DE-DELTA	2050-GA-DELTA
Austria	-1%	0%	-1%	-1%	-1%	-1%
Belgium	0%	0%	-1%	-1%	-1%	-1%
Bulgaria	0%	0%	0%	-1%	0%	0%
Croatia	0%	0%	0%	-1%	0%	-1%
Cyprus	0%	0%	0%	0%	0%	0%
Czechia	-1%	0%	-1%	-1%	0%	-1%
Denmark	-4%	-19%	0%	0%	0%	0%
Estonia	0%	0%	-1%	-1%	-1%	-1%
Finland	0%	0%	-1%	-1%	-1%	-1%
France	0%	0%	-1%	-1%	-1%	0%
Germany	0%	0%	-1%	0%	-1%	-1%
Greece	0%	0%	0%	-1%	0%	0%
Hungary	0%	0%	0%	-1%	0%	0%
Ireland	0%	0%	0%	0%	0%	0%
Italy	0%	0%	-1%	-1%	0%	0%
Latvia	0%	0%	-2%	-1%	-1%	-1%

Lithuania	0%	0%	-2%	-1%	-1%	-1%
Luxembourg	0%	0%	0%	0%	0%	0%
Malta	0%	0%	0%	0%	0%	0%
Poland	0%	0%	-1%	-1%	-1%	0%
Portugal	0%	0%	-1%	-1%	0%	-1%
Romania	0%	0%	0%	-1%	0%	-1%
Serbia	0%	0%	0%	0%	0%	0%
Slovakia	-1%	0%	0%	-1%	0%	-1%
Slovenia	0%	0%	-1%	-1%	-1%	-1%
Spain	0%	0%	-1%	0%	-1%	0%
Sweden	0%	0%	-1%	0%	0%	0%
Switzerland	0%	0%	-1%	-1%	-1%	0%
The Netherlands	0%	0%	-1%	-1%	-1%	-1%
United Kingdom	0%	0%	0%	0%	0%	0%
Austria	-1%	0%	-1%	-1%	-1%	0%
Belgium	0%	0%	-1%	-1%	-1%	-1%
Bulgaria	0%	0%	0%	-1%	0%	-1%
Croatia	0%	0%	0%	-1%	0%	0%
Cyprus	0%	0%	0%	0%	0%	0%
Czechia	-1%	0%	-1%	-1%	0%	0%
Denmark	-4%	-19%	0%	0%	0%	0%
Estonia	0%	0%	-1%	-1%	-1%	-1%
Finland	0%	0%	-1%	0%	-1%	-1%
France	0%	0%	-1%	-1%	-1%	-1%
Germany	0%	0%	-1%	-1%	-1%	0%
Greece	0%	0%	0%	-1%	0%	0%
Hungary	0%	0%	0%	-1%	0%	0%
Ireland	0%	0%	0%	0%	0%	0%
Italy	0%	0%	-1%	0%	0%	0%
Latvia	0%	0%	-1%	-1%	-1%	0%
Lithuania	0%	0%	-1%	-1%	-1%	0%
Luxembourg	0%	0%	0%	0%	0%	0%
Malta	0%	0%	0%	0%	0%	0%
Poland	0%	0%	-1%	-1%	-1%	0%
Portugal	0%	0%	-1%	-1%	0%	0%
Romania	0%	0%	0%	-1%	0%	0%
Serbia	0%	0%	0%	0%	0%	0%
Slovakia	-1%	0%	0%	-1%	0%	-1%
Slovenia	0%	0%	-1%	-1%	-1%	0%
Spain	0%	0%	-1%	-1%	-1%	0%
Sweden	0%	0%	-1%	-1%	0%	-1%
Switzerland	0%	0%	-1%	-1%	-1%	-1%
The Netherlands	0%	0%	-1%	-1%	-1%	-1%
United Kingdom	0%	0%	0%	0%	0%	0%
Austria	0%	0%	0%	-1%	-1%	-1%
Belgium	0%	0%	0%	-1%	0%	0%
Bulgaria	0%	0%	0%	0%	0%	0%
Croatia	0%	0%	0%	0%	0%	-1%
Cyprus	0%	0%	0%	0%	0%	0%

Czechia	0%	0%	0%	-1%	-1%	-1%
Denmark	0%	-13%	0%	0%	0%	0%
Estonia	0%	0%	-1%	0%	-1%	-1%
Finland	0%	0%	0%	0%	-1%	0%
France	0%	0%	-1%	0%	-1%	0%
Germany	0%	0%	-1%	-1%	0%	-1%
Greece	0%	0%	0%	0%	0%	0%
Hungary	0%	0%	0%	0%	0%	0%
Ireland	0%	0%	0%	0%	0%	0%
Italy	0%	0%	-1%	0%	-1%	0%
Latvia	0%	0%	-1%	0%	0%	0%
Lithuania	0%	0%	-1%	0%	0%	0%
Luxembourg	0%	0%	0%	0%	0%	0%
Malta	0%	0%	0%	0%	0%	0%
Poland	0%	0%	-1%	0%	0%	0%
Portugal	0%	0%	-1%	-1%	0%	0%
Romania	0%	0%	0%	0%	0%	-1%
Serbia	0%	0%	0%	0%	0%	0%
Slovakia	0%	0%	0%	0%	0%	0%
Slovenia	0%	0%	-1%	0%	-1%	-1%
Spain	0%	0%	-1%	-1%	-1%	0%
Sweden	0%	0%	0%	0%	-1%	0%
Switzerland	0%	0%	0%	0%	-1%	0%
The Netherlands	0%	0%	0%	-1%	-1%	0%
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-1001	n.a	n.a	n.a
HYD-N-1236	n.a	n.a	n.a

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
HYD-N-1001	n.a	n.a	n.a
HYD-N-1236	n.a	n.a	n.a

Environmental Impact explained [Promoter]

Setting up a cross-border hydrogen infrastructure between Denmark and Germany will significantly contribute to the CO_2 emission's reduction, which will have a positive impact on climate change. Hydrogen will play a key role in the energy transition for various sectors. Since 2020, the plans for build-out of renewable electricity and electrolysis in Denmark have accelerated significantly and the projected timeline for export of hydrogen has moved forward. Denmark expects to be a net exporter of hydrogen, whereas Germany expects to become a net importer. The volumes need to be imported which to a significant extent can be released through onshore pipelines. Already starting from 2028 a substantial volume of green hydrogen, produced in Denmark is planned to flow to Germany.

For project HYD-N-1001 (Hyperlink 3)

For the realisation of Hyperlink 3 project mainly existing natural gas pipelines will be repurposed for hydrogen transport. Therefore, the environmental impact will be low. For parts of the infrastructure which have to be newly constructed a careful assessment will take place to reduce environmental impacts to a minimum. The impacts associated with the construction of a pipeline and the related infrastructure are mainly temporary.

For project HYD-N-1236 (Danish backbone West)

For the realisation of West Denmark Hydrogen System, Energinet will follow the Environmental assessment impact process to reduce the environmental impacts during construction. Energinet is well experienced in these processes and in minimizing the impacts on the environment.

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]

By implementing the projects in Group HI WEST 39, Denmark and Germany will be future-proofed for the energy transition. The interconnection projects have a potential to reduce the yearly CO2 emission by up to 3.8 mill. tons as early as 2030 by replacing the consumption of natural gas with hydrogen. Furthermore, the infrastructure will be connected to hydrogen storages both in Denmark and Germany, thereby laying the foundation for a robust green hydrogen market with high security of supply, market integration, sustainability and strong interlinkage with the electricity and heat sectors.

Hyperlink 3 connects the Danish supply with green hydrogen to the German demand. Hyperlink 3 is an integral part of the hyperlink system planned by Gasunie (and will be connected to Hyperlink 1, 2, 4 and 5) as well as European Hydrogen Backbone. The Hyperlink hydrogen network provides direct access to the future hydrogen storages (e.g. SaltHy by Storengy), big industrial consumers and urban centers in northern Germany (such as Brunsbüttel, Heide, Hamburg, Bremen, Hannover, Salzgitter and others) and enables hydrogen supply to different industries (e.g. chemical industry, refinery, fertilizer industry, glass industry, steel industry), transport sector (urban and reginal transportation, ports, airports) and district heating.

The interlinkage between electricity production and the sectors of heating, transport and hydrogen will enable energy systems to handle high share of renewable energy in the total energy mix without compromising the security of supply. The hydrogen interconnection between Denmark and Germany is an enabler of flexible off-take to the electricity system by connecting both hydrogen consumption and storage to wind and solar power generation.

F. Useful links [Promoter]

Useful links:

Project Description Hyperlink 3:
Hyperlink 3 › Hyperlink (hyperlink-gasunie.de)

Energinet Hydrogen Activities:
Hydrogen (energinet.dk)

Joint Market Assessment Report (published by Energinet & Gasunie):
Energinet and Gasunie make progress on cross-border green hydrogen infrastructure. › Gasunie Deutschland Transport Services GmbH
Energinet and Gasunie make progress on cross-border green hydrogen infrastructure

Pre-Feasibility Study on Hydrogen Infrastructure (published by Energinet & Gasunie):
Energinet and Gasunie publish pre-feasibility study on hydrogen infrastructure
Energinet und Gasunie veröffentlichen Vor-Machbarkeitsstudie zur Wasserstoff-Infrastruktur › Gasunie Deutschland Transport Services GmbH

MoU between Gasunie and Energinet

Energinet and Gasunie strengthen collaboration on hydrogen infrastructure
Energinet and Gasunie strengthen collaboration on hydrogen infrastructure › Gasunie Deutschland Transport Services GmbH