BEMIP HYD 6 (Less-Advanced)

H2 Interconnection Lithuania - Poland - Germany

Reasons for grouping [ENTSOG]

The project group aims at interconnecting future hydrogen infrastructure between Lithuania, Poland and Germany.

The group includes investments in Lithuania (HYD-N-1239), Poland (HYD-N-1144) and Germany (HYD-N-1310).

Objective of the group [Promoter]

The group is composed of the Lithuanian, Polish and German sections of the **Nordic-Baltic Hydrogen Corridor**. The whole Corridor project also covers the domestic sections Latvia, Estonia and Finland. The objective of the Nordic-Baltic Hydrogen Corridor is to transport abundant sources of renewable hydrogen from the Baltic Sea region across the Baltic States to Eastern and Central Europe, especially Poland and Germany. This in turn will allow to make full use of renewables when decarbonizing hard-to-abate industries in Finland, the Baltic States, Poland and Germany.

HYD-N-1144 **Nordic-Baltic Hydrogen Corridor - PL section**
Comm. Year **2029**

HYD-N-1310 **Nordic-Baltic Hydrogen Corridor - DE section**
Comm. Year **2029**

HYD-N-1239 **Nordic-Baltic Hydrogen Corridor - LT section**
Comm. Year **2029**

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-1144	Nordic-Baltic Hydrogen Corridor - PL section	New		818	
HYD-N-1310	Construction of H2-IP at the border PL/DE	New		-	
HYD-N-1310	Pipeline from Eisenhüttenstadt to the border PL/DE	New		5	
HYD-N-1310	Pipeline from Ketzin to Wefensleben	New		130	
HYD-N-1239	Nordic-Baltic Hydrogen Corridor - LT section	New		500	

Capacity increment [ENTSOG]

TYNDP Project code	Point name	Operator	From system	To system	Capacity increment [GWh/d]	Comm. year
HYD-N-1144	H2_IP_DE-PL	GAZ-SYSTEM S.A.	Transmission Germany (DE Hydrogen)	Transmission Poland (PL Hydrogen)	100	2029
HYD-N-1144	H2_IP_DE-PL	GAZ-SYSTEM S.A.	Transmission Poland (PL Hydrogen)	Transmission Germany (DE Hydrogen)	200	2029
HYD-N-1310	H2_IP_DE-PL	ONTRAS Gastransport GmbH	Transmission Poland (PL Hydrogen)	Transmission Germany (DE Hydrogen)	200	2029
HYD-N-1310	H2_IP_DE-PL	ONTRAS Gastransport GmbH	Transmission Germany (DE Hydrogen)	Transmission Poland (PL Hydrogen)	100	2029
HYD-N-1144	H2_IP_LT-PL	GAZ-SYSTEM S.A.	Transmission Lithuania (LT Hydrogen)	Transmission Poland (PL Hydrogen)	200	2029
HYD-N-1144	H2_IP_LT-PL	GAZ-SYSTEM S.A.	Transmission Poland (PL Hydrogen)	Transmission Lithuania (LT Hydrogen)	100	2029

HYD-N-1239	H2_IP_LT-PL	AB Amber Grid	Transmission Poland (PL Hydrogen)	Transmission Lithuania (LT Hydrogen)	100	2029
HYD-N-1239	H2_IP_LT-PL	AB Amber Grid	Transmission Lithuania (LT Hydrogen)	Transmission Poland (PL Hydrogen)	200	2029

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-1144	2454	40%	49	40%
HYD-N-1310	326	40%	3	40%
HYD-N-1239	840	40%	21,8	40%

Description of the cost and range [Promoter]

HYD-N-1310: The cost figures reflect initial estimations for the German section of the Nordic-Baltic-Hydrogen Corridor.

HYD-N-1144: The cost figures reflect initial estimation for the whole section in Poland of approx. 818 km. CAPEX and OPEX figures were calculated based on preliminary coefficients.

HYD-N-1239: The cost figures reflect initial estimations for the Lithuanian section of the Nordic-Baltic Hydrogen Corridor.

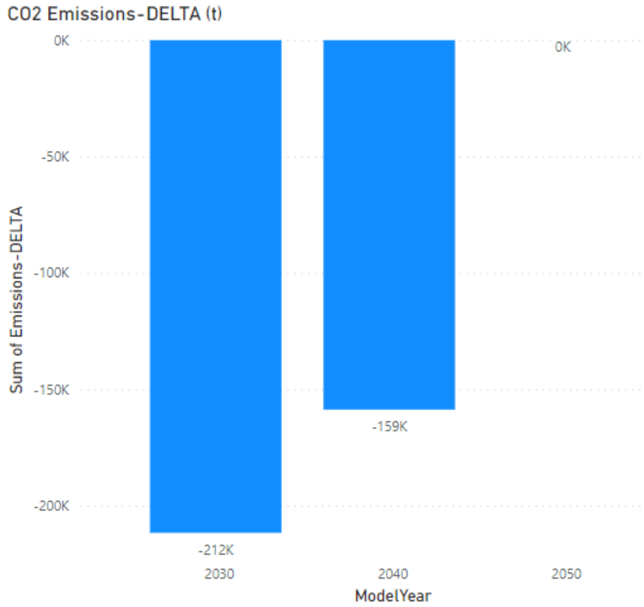
C. Project Benefits [ENTSOG]

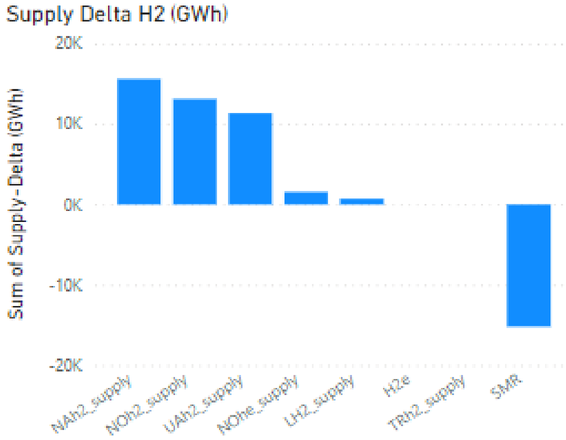
C.1 Summary of benefits

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

In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group is contributing to sustainability by reducing CO2 emission by 212 kt in 2030. This is explained as the project group will enable replacement of SMRs supplies and, therefore, will reduce natural gas imports, through the access to hydrogen supply sources. Moreover, in 2040 project is also contributing to sustainability by reducing CO2 emission by 159 kt.

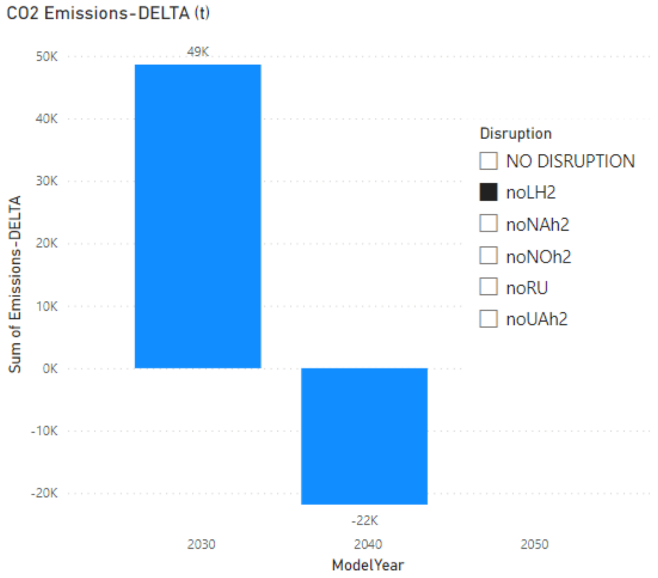


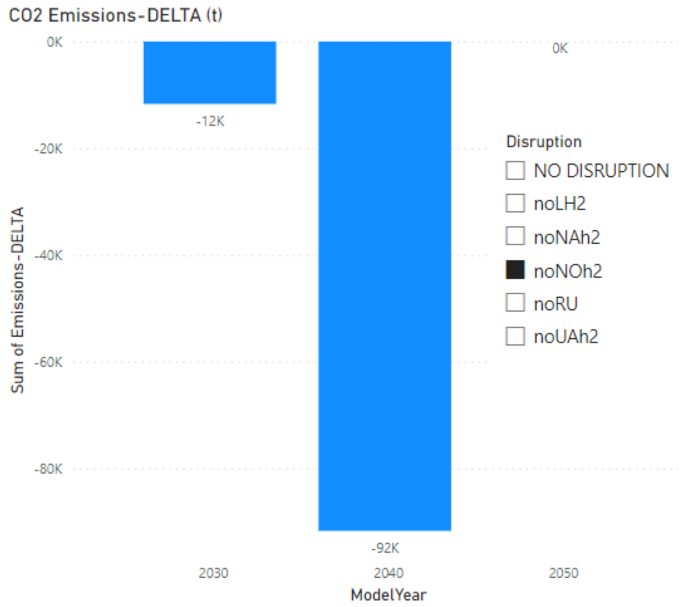


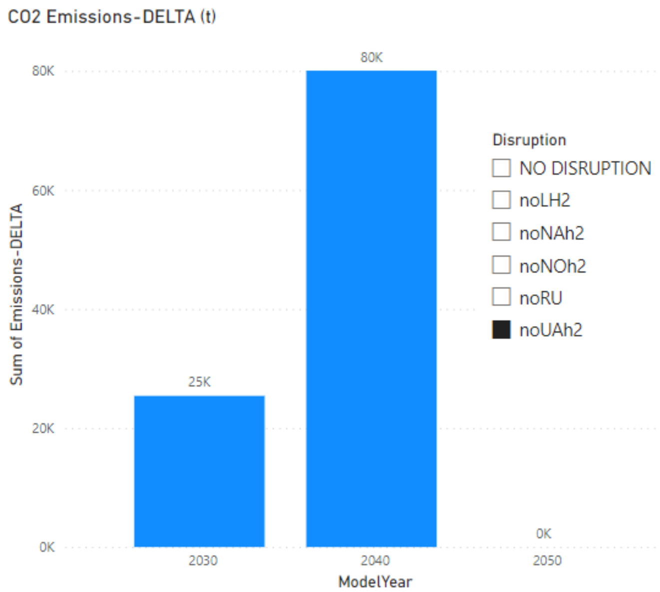
Under supply disruption more SMR is needed to reduce demand curtailment and hence overall CO2 emissions increase.

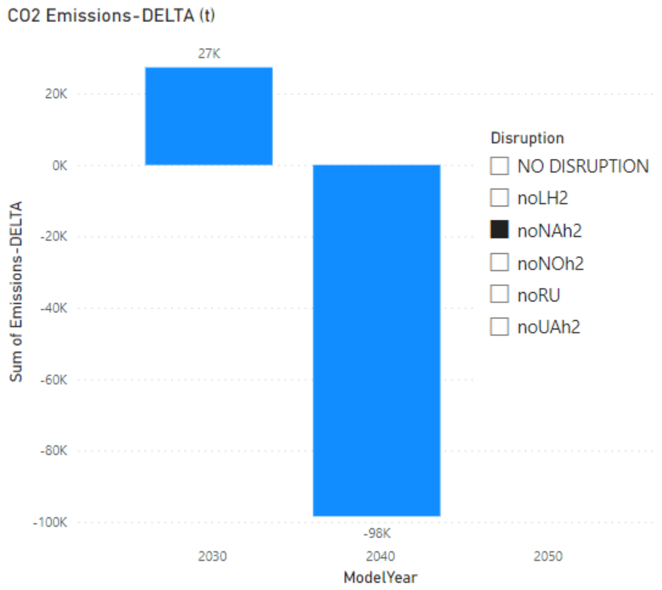
[1] https://www.entsog.eu/sites/default/files/2023-04/ENTSOG_TYNDP_2022_Annex_D_Methodology_230411.pdf

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





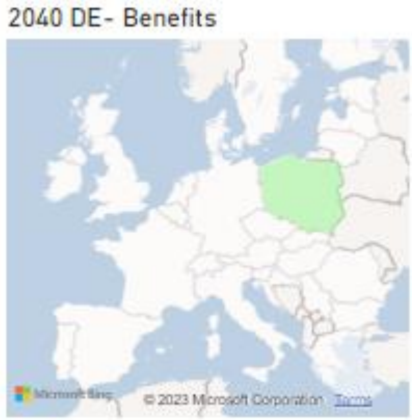




Security of Supply:

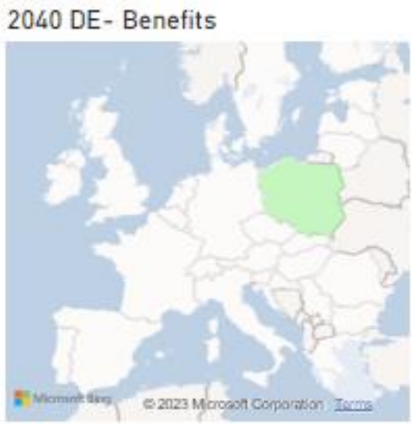
> Reference case

In the reference case, the project is contributing to mitigation of hydrogen demand curtailment risk in average summer and average winter mainly in Poland, by 41% in 2030, 46% in 2040 and 31% in 2050.



> Climatic stress cases

Similarly, under 2 -week and 2-week dunkelflaute climatic stress case, as well as under peak day climatic case the project group is showing security of supply benefits up to 53% in Poland.



> Disruption cases (S-1):

Similar benefits are expected under any disruption case.

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

> SLCD:

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

SLCD Benefits - 2030 - Distributed Energy

SLCD Benefits - 2040 - Distributed Energy

SLCD Benefits - 2050 - Distributed Energy

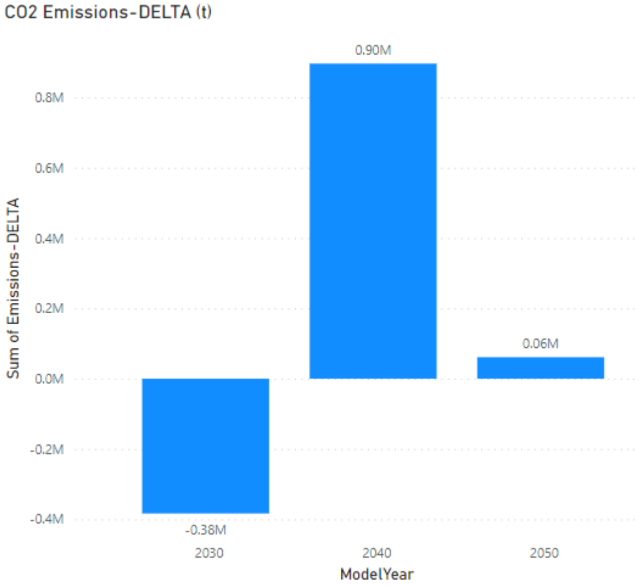
In case of single largest capacity disruption (SLCD), the project group mitigates the risk of demand curtailment in 2030 by 46% in Poland, by 9% in Lithuania, by 9% in Latvia, by 8% in Estonia. In addition, in 2040 it reduces by 41% in Poland, by 17% in Lithuania, by 12% in Latvia and 9% in Estonia. In 2050, more benefits are expected by 47% in Poland, by 23% in Lithuania, by 13% in Latvia and 11% in Estonia.

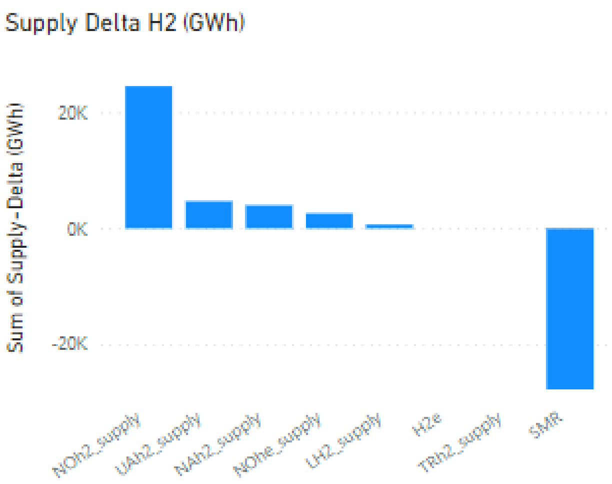
Global Ambition

Sustainability benefits

In the reference case, which analyses yearly demand in two periods (average winter and average summer), the project group is contributing to sustainability by reducing CO2 emission by 383 kt in 2030. This is explained as the project group will enable replacement of SMRs supplies and, therefore, will reduce natural gas imports, through the access to hydrogen supply sources.

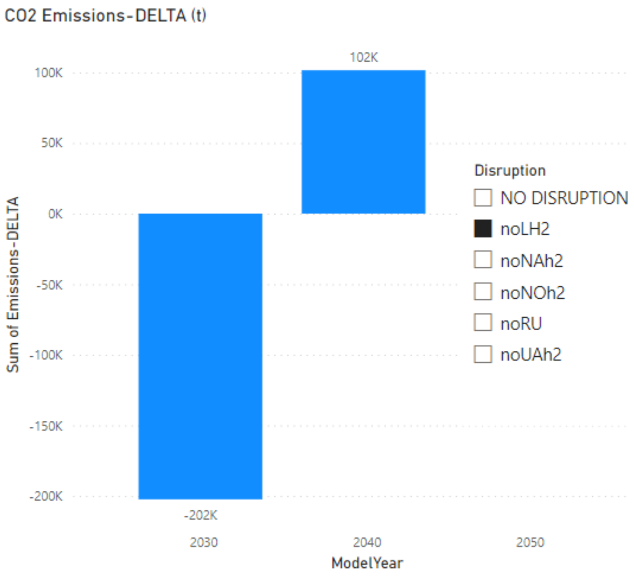
As all green hydrogen supply sources (both locally produced and imported) are already used at their maximum capacity, an increase in blue hydrogen (i.e. SMR) is needed to satisfy the hydrogen demand in 2040 and reduce demand curtailment.

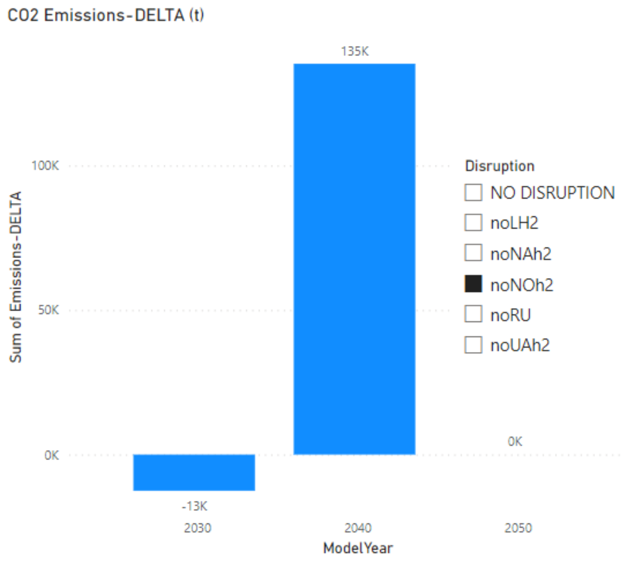


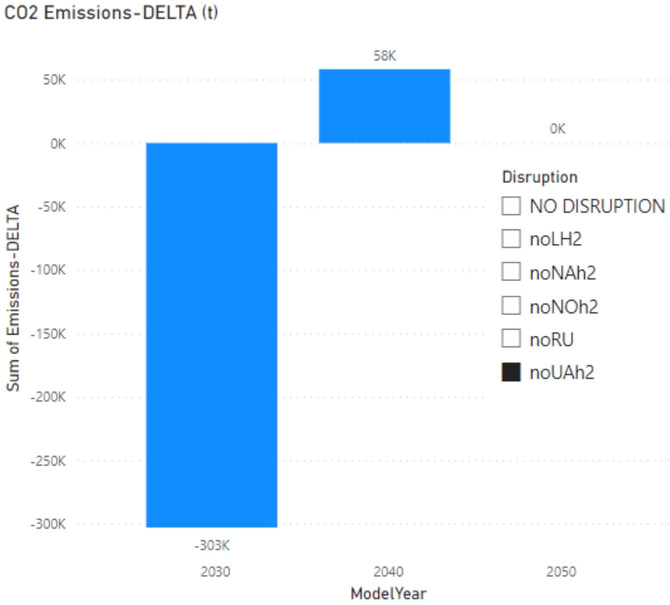


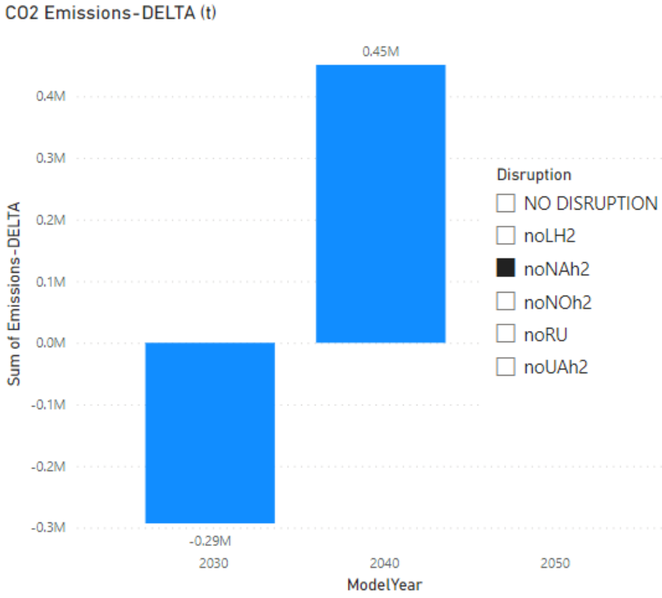
Similar trend is expected under any supply disruption.

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









Security of supply benefits

> Reference case

In the reference case, the project is contributing to mitigation of hydrogen demand curtailment risk in average summer and average winter mainly in Poland, by 18% in 2030, 51% in 2040 and 42% in 2050.

> Climatic Stress cases

Similarly, under 2 -week and 2-week dunkelflaute climatic stress case, as well as under peak day climatic case the project group is showing security of supply benefits in Poland up to 48% in Poland in 2030.

> Disruption cases (S-1)

Similar benefits are expected under any disruption case.

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

2030 GA- Benefits

2040 GA- Benefits

2050 GA- Benefits

> SLCD

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

SLCD Benefits - 2030 - Global Ambition

SLCD Benefits - 2040 - Global Ambition

SLCD Benefits - 2050 - Global Ambition

In case of single largest capacity disruption (SLCD), the project group mitigates the risk of demand curtailment in 2030 by 48% in Poland, by 7% in Lithuania, by 8% in Latvia, by 7% in Estonia. In addition, in 2040 it reduces by 26% and by 22% in Poland in 2050.

C.2 Quantitative benefits [ENTSOG]

The following tables display all the benefits quantified by ENTSOG through specific security of supply and sustainability indicators.

CO2 Emissions:

ModelYear	Disruption	Scenario	Unit	Emissions-DELTA	Emissions-PLUS	Emissions-MINUS
2030	NO DISRUPTION	DE	tonne	-211591,91	538677299	538888891
2030	noLH2	DE	tonne	48621,56	540175890,2	540127268,7
2030	noNAh2	DE	tonne	27318,86	539785356,1	539758037,2
2030	noNOh2	DE	tonne	-11693,13	538877197,8	538888891
2030	noUAh2	DE	tonne	25399,41	539378771,9	539353372,5
2030	NO DISRUPTION	GA	tonne	-383369,49	592910448,4	593293817,9
2030	noLH2	GA	tonne	-202340,86	594817481,2	595019822
2030	noNAh2	GA	tonne	-293017,88	594141433,2	594434451
2030	noNOh2	GA	tonne	-12502,20	593310994,3	593323496,5
2030	noUAh2	GA	tonne	-302887,82	593627617,9	593930505,7
2040	NO DISRUPTION	DE	tonne	-158682,63	392077044	392235726,6
2040	noLH2	DE	tonne	-21843,28	392213883,4	392235726,6
2040	noNAh2	DE	tonne	-98419,89	392188097,7	392286517,6
2040	noNOh2	DE	tonne	-91704,03	392144022,6	392235726,6
2040	noUAh2	DE	tonne	80058,61	392399182,9	392319124,3
2040	NO DISRUPTION	GA	tonne	896371,59	396523251,6	395626880
2040	noLH2	GA	tonne	101589,36	397455196,7	397353607,4
2040	noNAh2	GA	tonne	451074,34	397301976,6	396850902,3
2040	noNOh2	GA	tonne	135238,20	397450977,1	397315738,9
2040	noUAh2	GA	tonne	58158,18	397478498,3	397420340,2
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	61112,12	228306706,5	228245594,4
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	61112,12	228306706,5	228245594,4
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
Poland	-48%	-48%	-41%	-26%	-47%	-22%
Lithuania	-9%	-7%	-17%	1%	-23%	1%
Latvia	-9%	-8%	-12%	1%	-13%	1%
Estonia	-8%	-7%	-10%	1%	-11%	1%
Belgium	3%	0%	0%	1%	0%	0%
Czechia	3%	0%	0%	0%	-1%	0%
Germany	3%	3%	0%	1%	0%	0%
Slovenia	0%	0%	0%	1%	0%	0%
The Netherlands	0%	0%	0%	0%	-1%	0%
Italy	0%	0%	0%	0%	-1%	0%
France	3%	3%	0%	1%	0%	1%
Austria	0%	0%	1%	1%	-1%	0%
Denmark	3%	0%	1%	1%	0%	1%
Finland	3%	3%	1%	1%	0%	1%
Sweden	3%	3%	1%	1%	-1%	1%

Curtailment Rate (Climatci Stress):

SimulationPeriod	Country	2030-DE-DELTA	2030-GA-DELTA	2040-DE-DELTA	2040-GA-DELTA	2050-DE-DELTA	2050-GA-DELTA
Average2W	Austria	0%	0%	0%	0%	0%	0%
Average2W	Belgium	0%	0%	0%	0%	0%	0%
Average2W	Bulgaria	0%	0%	0%	0%	0%	0%
Average2W	Croatia	0%	0%	0%	0%	0%	0%
Average2W	Cyprus	0%	0%	0%	0%	0%	0%
Average2W	Czechia	0%	0%	0%	0%	0%	0%
Average2W	Denmark	0%	0%	0%	0%	0%	0%
Average2W	Estonia	0%	0%	0%	0%	0%	0%
Average2W	Finland	0%	0%	0%	0%	0%	0%
Average2W	France	0%	0%	0%	0%	0%	0%
Average2W	Germany	0%	0%	0%	0%	0%	0%
Average2W	Greece	0%	0%	0%	0%	0%	0%
Average2W	Hungary	0%	0%	0%	0%	0%	0%
Average2W	Ireland	0%	0%	0%	0%	0%	0%
Average2W	Italy	0%	0%	0%	0%	0%	0%
Average2W	Latvia	0%	0%	0%	0%	0%	0%
Average2W	Lithuania	0%	0%	0%	0%	0%	0%
Average2W	Luxembourg	0%	0%	0%	0%	0%	0%
Average2W	Malta	0%	0%	0%	0%	0%	0%
Average2W	Poland	-53%	-48%	-35%	-31%	-19%	-25%
Average2W	Portugal	0%	0%	0%	0%	0%	0%
Average2W	Romania	0%	0%	0%	0%	0%	0%
Average2W	Serbia	0%	0%	0%	0%	0%	0%

Average2W	Slovakia	0%	0%	0%	0%	0%	0%
Average2W	Slovenia	0%	0%	0%	0%	0%	0%
Average2W	Spain	0%	0%	0%	0%	0%	0%
Average2W	Sweden	0%	0%	0%	0%	0%	0%
Average2W	Switzerland	0%	0%	0%	0%	0%	0%
Average2W	The Netherlands	0%	0%	0%	0%	0%	0%
Average2W	United Kingdom	0%	0%	0%	0%	0%	0%
Average2WDF	Austria	0%	0%	0%	0%	0%	0%
Average2WDF	Belgium	0%	0%	0%	0%	0%	0%
Average2WDF	Bulgaria	0%	0%	0%	0%	0%	0%
Average2WDF	Croatia	0%	0%	0%	0%	0%	0%
Average2WDF	Cyprus	0%	0%	0%	0%	0%	0%
Average2WDF	Czechia	0%	0%	0%	0%	0%	0%
Average2WDF	Denmark	0%	0%	0%	0%	0%	0%
Average2WDF	Estonia	0%	0%	0%	0%	0%	0%
Average2WDF	Finland	0%	0%	0%	0%	0%	0%
Average2WDF	France	0%	0%	0%	0%	0%	0%
Average2WDF	Germany	0%	0%	0%	0%	0%	0%
Average2WDF	Greece	0%	0%	0%	0%	0%	0%
Average2WDF	Hungary	0%	0%	0%	0%	0%	0%
Average2WDF	Ireland	0%	0%	0%	0%	0%	0%
Average2WDF	Italy	0%	0%	0%	0%	0%	0%
Average2WDF	Latvia	0%	0%	0%	0%	0%	0%
Average2WDF	Lithuania	0%	0%	0%	0%	0%	0%
Average2WDF	Luxembourg	0%	0%	0%	0%	0%	0%
Average2WDF	Malta	0%	0%	0%	0%	0%	0%
Average2WDF	Poland	-53%	-48%	-35%	-30%	-19%	-25%
Average2WDF	Portugal	0%	0%	0%	0%	0%	0%
Average2WDF	Romania	0%	0%	0%	0%	0%	0%
Average2WDF	Serbia	0%	0%	0%	0%	0%	0%
Average2WDF	Slovakia	0%	0%	0%	0%	0%	0%
Average2WDF	Slovenia	0%	0%	0%	0%	0%	0%
Average2WDF	Spain	0%	0%	0%	0%	0%	0%
Average2WDF	Sweden	0%	0%	0%	0%	0%	0%
Average2WDF	Switzerland	0%	0%	0%	0%	0%	-1%
Average2WDF	The Netherlands	0%	0%	0%	0%	0%	0%
Average2WDF	United Kingdom	0%	0%	0%	0%	0%	0%
DC	Austria	0%	0%	0%	0%	0%	0%
DC	Belgium	0%	0%	0%	0%	0%	0%
DC	Bulgaria	0%	0%	0%	0%	0%	0%
DC	Croatia	0%	0%	0%	0%	0%	0%
DC	Cyprus	0%	0%	0%	0%	0%	0%
DC	Czechia	0%	0%	0%	0%	0%	0%
DC	Denmark	0%	0%	0%	0%	0%	0%
DC	Estonia	0%	0%	0%	0%	0%	0%

DC	Finland	0%	0%	0%	0%	0%	0%
DC	France	0%	0%	0%	0%	0%	0%
DC	Germany	0%	0%	0%	0%	0%	0%
DC	Greece	0%	0%	0%	0%	0%	0%
DC	Hungary	0%	0%	0%	0%	0%	0%
DC	Ireland	0%	0%	0%	0%	0%	0%
DC	Italy	0%	0%	0%	0%	0%	0%
DC	Latvia	0%	0%	0%	0%	0%	0%
DC	Lithuania	0%	0%	0%	0%	0%	0%
DC	Luxembourg	0%	0%	0%	0%	0%	0%
DC	Malta	0%	0%	0%	0%	0%	0%
DC	Poland	-45%	-43%	-31%	-25%	-18%	-21%
DC	Portugal	0%	0%	0%	0%	0%	0%
DC	Romania	0%	0%	0%	0%	0%	0%
DC	Serbia	0%	0%	0%	0%	0%	0%
DC	Slovakia	0%	0%	0%	0%	0%	0%
DC	Slovenia	0%	0%	0%	0%	0%	0%
DC	Spain	0%	0%	0%	0%	0%	0%
DC	Sweden	0%	0%	0%	0%	0%	0%
DC	Switzerland	0%	0%	0%	0%	0%	0%
DC	The Netherlands	0%	0%	0%	0%	0%	0%
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-1310	Hydrogen infrastructure	The whole section on Germany estimated initially at the level of approx. 135 km.	To be determined at a later stage, i.e. during feasibility studies and FEED.
HYD-N-1239	Hydrogen infrastructure	The length of the section in the territory of Lithuania is about 500 km	To be determined during the EIA
HYD-N-1144	Hydrogen infrastructure	The whole section in Poland estimated initially at the level of approx. 818 km	To be determined at a later stage, i.e. during feasibility studies and FEED.

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
Germany. To be specially determined at a later stage, i.e. during feasibility studies and FEED.	To be determined at a later stage, i.e. during feasibility studies, FEED, permitting process. To ensure appropriate protection of environmentally sensitive areas the following (i. a.) mitigation measures are expected to be applied: > Consideration of different public interests (e.g. impact on climate, conservation, water resources, soil, noise etc.) during the plan approval;	To be determined at a later stage, i.e. during feasibility studies and FEED.	N/A

	> Close coordination with the nature conservation authorities for the implementation of any protective and compensatory measures; > Execution of feasibility studies (prior to the actual planning phase) to identify protected areas (nature reserves, bird sanctuaries, etc.) and corresponding assessment of the preferred route; > Early investigation of flora, fauna and nature already in the first planning stages with the aim of being able to estimate and minimize the impact as early as possible, if necessary also rerouting; > Waste will only incur in the construction phase of the project, will be eliminated immediately and will therefore not significantly harm the environment in the long-term; > Use of trenchless installation methods to protect/minimize the impact on sensitive areas; > Use of biodiesel wherever possible; > Extensive recultivation measures of the construction areas; > Shortened construction phases, in particular to keep the impact on nature to a minimum in terms of time;		
Poland. To be determined at a later stage, i.e. during feasibility studies and FEED. Due to type of infrastructure all	To be determined at a later stage, i.e. during feasibility studies, FEED, permitting process. To ensure	To be determined at a later stage, i.e. during feasibility studies and FEED.	N/A

impacts are expected to occur at the construction stage as a result of: cutting down shrubs and trees, dewatering of trenches, emission of noise, air pollutions, sewages and wastes. Range of impacts will be limited to the construction site.	appropriate protection of environmentally sensitive areas during the construction works the following mitigation measures are expected to be applied: > narrowed width of construction site in particularly valuable areas; > transplantation of habitats and re-transplantation on the surface after the construction; > preparing a site for construction, e.g. cutting down shrubs and trees, removing swards, beyond breeding season to protect birds; > protecting the construction site with a temporary sheet piles in places, where increased amphibians' migration may occur; > construction beyond 15/03 – 15/10 in breeding and wintering areas of amphibians; > construction beyond breeding season of birds in a selected area; > technical facilities' and storages' location i.a. out of rivers' valleys, flood areas, natural habitats, habitats of protected species, breeding and wintering areas of amphibians etc.; > crossing selected habitats (i.a. rivers' valleys, forests) with a trenchless technology (e.g. HDD);		

	> construction in a wet trenches, in trenches with a sheet piles or during winter to avoid dewatering; > works that cause high level of noise emission (apart from trenchless technology HDD) nearby areas requiring protection against noise will be carried out during 6am – 22 pm; > supervision of hydrologist during dewatering, crossing rivers, construction nearby water intakes, reservoirs, marshy areas; environmental supervision during pipeline's construction.		
Lithuania. To be determined during EIA	N/A	N/A	N/A

Environmental Impact explained [Promoter]

Hydrogen is an integral part of the **German** energy transition and contribute to its success. Some sectors in which process-related emissions are unavoidable will be impossible or very difficult to electrify, even in the long term. This applies in particular to aviation, parts of heavy-duty transport, specific industries like chemical and steel production and the maritime transport, where many routes and applications cannot be operated using electricity alone. This is why the fossil input needs to be replaced by renewables-based alternatives like hydrogen. However, the domestic generation of green hydrogen will not be sufficient to cover all new demand, which is why most of the hydrogen needed will have to be imported. There Baltic Sea region offers great potential for producing green hydrogen which can be than delivered to main demand centres especially in East Germany like the steel production in Eisenhüttenstadt or the metropolitan area of Berlin.

Poland. Hydrogen production that is at the level of approx. 1.3 million tonnes per year. The production is entirely allocated to cover domestic needs. Hydrogen is currently produced mostly for the purpose of fertiliser, chemical, petrochemical and coking plants, mostly by using steam reforming and coal gasification.

On top of the current hydrogen consumers there is also a large industrial base in Poland that may be decarbonised using hydrogen. This concerns sectors that are considered as hard-to-abate including steel, ammonia, chemical, industries requiring high temperatures, maritime and heavy transport and district heating systems. The Polish section of the Baltic Sea with shallow water and very good wind conditions and inland Poland (especially the Northern part) with very good wind conditions and good insolation provides adequate conditions to generate renewable hydrogen. The domestically produced hydrogen, however, will not cover the demand for hydrogen in Poland. Thus, integrated hydrogen infrastructure, allowing the access to sources produced in other EU countries will be key to meet the growing needs from hard-to-abate industries in Poland.

Lithuania. Environmental impact assessment for the project has not been started yet. The preparation of Environmental Impact documents will be carried out in accordance with the applicable Environmental Law, adopted in accordance with EU legislation.

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]

SoS

- The three national projects in combination with the other national sections of the Nordic-Baltic Hydrogen Corridor create an opportunity for hydrogen consumers to get their energy from multiple suppliers and directions along the whole corridor. This will mitigate the SoS concerns from the start of an emerging H2-market.
- The projects will support the ramp-up of the hydrogen market in the Baltic Sea region based on renewable sources available in the EU by unlocking the potential for intra-EU production of hydrogen. This is extremally important under the current geopolitical situation, i.e. the Russian war in Ukraine and the use of energy supplies by Russia as a measure of coercion, while the EU energy independence is in the spotlight of the EU energy policy (e.g. goals set by REPowerEU).

Market Integration

- The three national projects in combination with the other national sections of the Nordic-Baltic Hydrogen Corridor will contribute towards creating an integrated infrastructure in the BEMIP region/Central Europe as the project foresees infrastructure linking Finland with the Baltic States, Poland and Germany.
- Ramp-up of domestic H2 markets based on the supply potential generated by the Nordic-Baltic Hydrogen Corridor.
- The projects are expected to be a part of the future pan-European hydrogen network and particularly aim at unlocking the potential for production and use of hydrogen in the BEMIP region by enabling the transport of hydrogen to supply consumption points and industrial clusters especially in Poland and in Germany. The projects will make a key contribution to spreading out the penetration of hydrogen in the industrial sector and integrating multiple and competitive hydrogen suppliers with consumers, what in consequence will positively affect the development of the integrated, liquid, secure and competitive hydrogen market.

Competition

- The three national projects in combination with the other national sections of the Nordic-Baltic Hydrogen Corridor will allow the access to multiple supply sources covering onshore and offshore domestic producers in the connected countries.

F. Useful links [Promoter]

Useful links:

https://www.ontras.com/en/aktuelles/newsroom/nordic-baltic-hydrogen-corridor

www.ambergrid.lt/en/for-media/news/six-partners-have-signed-a-cooperation-agreement-to-develop-nordic-baltic-hydrogen-corridor/697

https://www.gaz-system.pl/en