

## HI EAST 2 C (Less-advanced)

### Interconnection Romania - Hungary with repurposing enhancement in 2039

#### Reasons for grouping [ENTSOG]

The project group aims at interconnecting future hydrogen infrastructure between Hungary and Romania, to the Greek border.

The group includes investments in Hungary (HYD-N-1259, HYD-N-789) and in Romania (HYD-N-999 and HYD-N-608)

#### Objective of the group [Promoter]

The project group helps ensure the hydrogen demand and transmission in Romania and Hungary. The project will establish a new supply route for hydrogen and will connect two neighboring countries: RO and HU. With this project Romania and Hungary will gain access to TR/GR/BG/RO/HU/SK, UA/RO hydrogen corridor. The South-East Europe region has huge RES potential and significant hydrogen quantities are expected to be imported from this region. Project will contribute to diversification of energy sources and supply routes, which would result in increase of energy (hydrogen) supply from third countries and EU member states as well. Project will also contribute to development of hydrogen economy in the involved countries. Increased interest in domestic hydrogen production and consumption in both countries is expected since this project will enable access to hydrogen transmission system and allow export and import of hydrogen. Project will establish a new hydrogen IP between Romania and Hungary. Hydrogen capacity in both RO-HU and HU-RO directions will be up to 2x76.8 GWh/d.



**HYD-N-999** Giurgiu - Nădlac corridor modernization for hydrogen transmission

Comm. Year 2029



**HYD-N-1259** HU hydrogen corridor V-1. HU/RO

Comm. Year 2029



**HYD-N-789** HU hydrogen corridor V HU/RO

Comm. Year 2035



## 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-999	Giurgiu - Podișor - Nădlac	Repurposing	800	650	42
HYD-N-1259	Csanádpalota-Kiskundorozsma	New	800	60	30
HYD-N-1259	Kiskundorozsma-Városföld	New	1000	67	
HYD-N-789	Csanádpalota-Algyő	Repurposing	700	47	19
HYD-N-789	Algyő-Kiskundorozsma	Repurposing	600	12.7	

### Capacity increment [ENTSOG]

TYNDP Project code	Point name	Operator	From system	To system	Capacity increment [GWh/d]	Comm. year
HYD-N-999	H2 IP RO-HU	SNTGN Transgaz S.A.	Transmission Hungary (HU Hydrogen)	Transmission Romania (RO Hydrogen)	76.8	2029
HYD-N-999	H2 IP RO-HU	SNTGN Transgaz S.A.	Transmission Romania (RO Hydrogen)	Transmission Hungary (HU Hydrogen)	76.8	2029
HYD-N-999	H2 IP RO-HU	SNTGN Transgaz S.A.	Transmission Hungary (HU Hydrogen)	Transmission Romania (RO Hydrogen)	76.8	2039
HYD-N-999	H2 IP RO-HU	SNTGN Transgaz S.A.	Transmission Romania (RO Hydrogen)	Transmission Hungary (HU Hydrogen)	76.8	2039
HYD-N-1259	H2 IP RO-HU	FGSZ Ltd.	Transmission Hungary (HU Hydrogen)	Transmission Romania (RO Hydrogen)	76.8	2029
HYD-N-1259	H2 IP RO-HU	FGSZ Ltd.	Transmission Romania (RO Hydrogen)	Transmission Hungary (HU Hydrogen)	76.8	2029
HYD-N-789	H2 IP RO-HU	FGSZ Ltd.	Transmission Hungary (HU Hydrogen)	Transmission Romania (RO Hydrogen)	76.8	2039
HYD-N-789	H2 IP RO-HU	FGSZ Ltd.	Transmission Romania (RO Hydrogen)	Transmission Hungary (HU Hydrogen)	76.8	2039

## 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-999	464.4	30 %	7	30 %
HYD-N-1259	322	30 %	15	25 %
HYD-N-789	100	25 %	15	25 %

#### Description of the cost and range [Promoter]

For project HYD-N-1259

- Description of CAPEX: the cost and range based on pre-feasibility study. During the preparation of TYNDP project submission ACER unit cost was not available for hydrogen project. FGSZ applied ACER based HU NRA guideline unit cost for natural gas 2022 multiplied by 1,3.
- Description of OPEX: the most significant impact on operating cost is the energy consumption of compressor stations. OPEX is estimated for max. capacity and electricity price 2022Q4, because FGSZ planned electric driven compressor units.

For project HYD-N-789

- Description of CAPEX: the cost and range based on pre-feasibility study. During the preparation of TYNDP project submission ACER unit cost was not available for hydrogen project. FGSZ applied ACER based HU NRA guideline unit cost for natural gas 2022 multiplied by 1.3 in case of new compressor unit, in case of repurposed pipeline multiplied by 0.3 and in case of repurposed compressor station multiplied by 0.5 .
- Description of OPEX: the most significant impact on operating cost is the energy consumption of compressor stations. OPEX is estimated for max. capacity and electricity price 2022Q4, because FGSZ planned electric driven compressor units.

For project HYD-N-999

- Description of CAPEX: During the preparation of TYNDP project submission ACER unit cost was not available for hydrogen project, so the estimated costs at the concept phase of the project were determined based on specific costs published by the European Hydrogen Backbone initiative (EHB).
- Description of OPEX: the most significant impact on operating costs is the fuel consumption required to run the compressor stations. OPEX is estimated for maximum capacity taking into account some specific cost elements published by the European Hydrogen Backbone initiative (EHB).

## 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<sup>1</sup>.

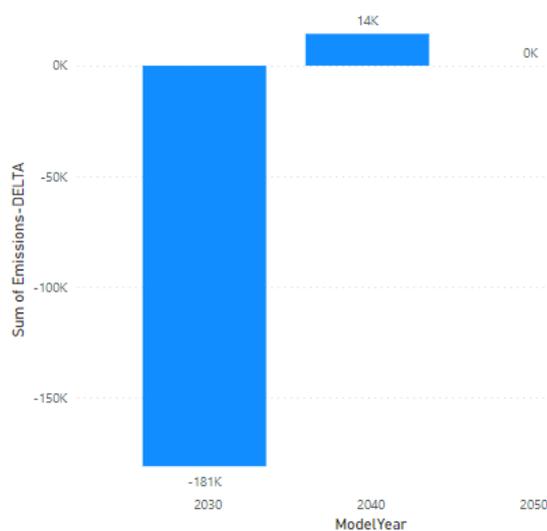
#### Distributed Energy

#### Security of supply benefits

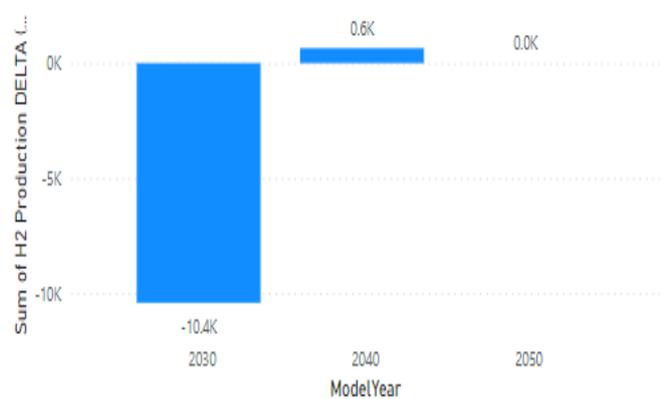
#### Sustainability:

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<sub>2</sub> emissions by 182 kt in 2030. This is explained as the project group will enable replacement of SMRs supplies, mainly by green hydrogen from Ukraine and North Africa to be used in interconnected countries and will therefore reduce natural gas imports. In 2040, to avoid demand curtailment SMRs are used, so we can see a little increase of CO<sub>2</sub> emission.

CO<sub>2</sub> Emissions-DELTA (t)



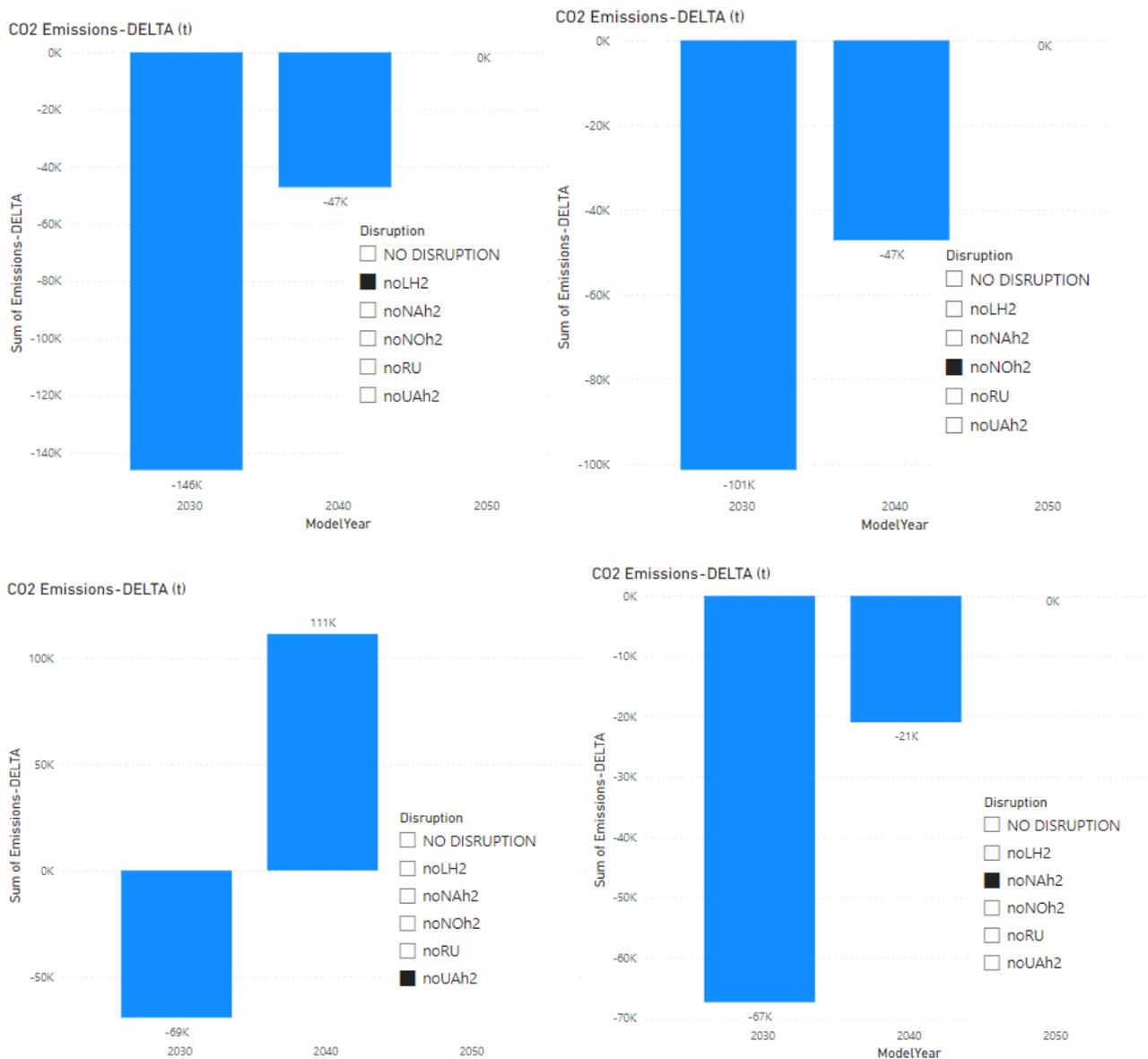
H<sub>2</sub> Production DELTA (GWh) by ModelYear



Slightly reduced sustainability benefits are expected under supply disruption cases for 2030 and 2040, except for Ukrainian disruption in 2040, where SMRs are needed to avoid demand curtailment.

1 noLH2 : LH<sub>2</sub> disruption / 2 noNOh<sub>2</sub> : Norway disruption / 3 noUAh<sub>2</sub> : Ukraine disruption / 4 noNAh<sub>2</sub> : North Africa disruption

<sup>1</sup> [https://www.entsog.eu/sites/default/files/2023-04/ENTSOG\\_TYNDP\\_2022\\_Annex\\_D\\_Methodology\\_230411.pdf](https://www.entsog.eu/sites/default/files/2023-04/ENTSOG_TYNDP_2022_Annex_D_Methodology_230411.pdf)



### Security of Supply:<sup>2</sup>

> Reference case

In the reference case, the project group mitigates the risk of hydrogen demand curtailment in Romania, Bulgaria, and Greece in 2030 by 18%. Whereas from 2040, the project group mitigates demand curtailment in Slovakia, Hungary, and Croatia, up to 12% in 2050. In general, the interconnection improve cooperation between South Eastern Countries.

<sup>2</sup> 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.

2030 DE- Benefits



2040 DE- Benefits



2050 DE- Benefits



> Climatic stress cases:

Similar security of supply benefits re expected for 2030 under 2-week and 2-week dunkelflaute climatic stress cases and under peak day climatic case up to 23% in Romania.

2030 DE- Benefits



2040 DE- Benefits



2050 DE- Benefits



> Disruption cases (S-1):

Similar trend is expected under any disruption.

2030 DE- Benefits



2040 DE- Benefits



2050 DE- Benefits



No LH2/no NA/ no NO

2030 DE- Benefits



2040 DE- Benefits



2050 DE- Benefits



> Single largest capacity disruption (SLCD):

In 2030, the projects group mitigates risk of demand curtailment in Romania and Bulgaria by 26%, and also by 9% in Hungary and by 15% in Greece. From 2040, the project groups mitigates risk of demand curtailment in all European countries with a better impact in the South Eastern countries, by at least 15% in 2040.

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

Sum of 2030-DE-DELTA by Country



Sum of 2040-DE-DELTA by Country



Sum of 2050-DE-DELTA by Country

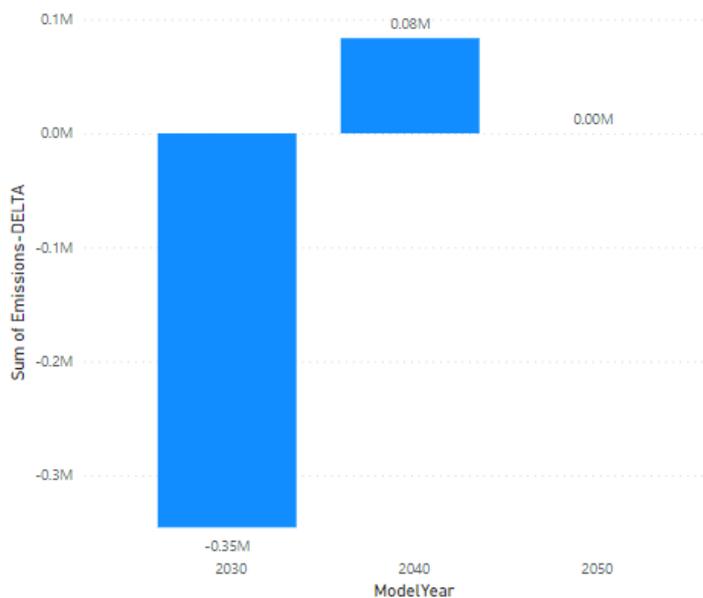


## Global Ambition

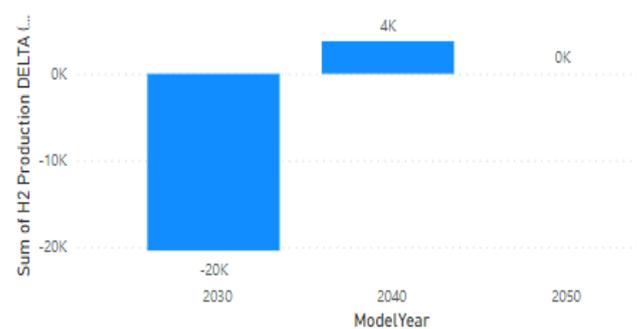
### Sustainability

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 CO2 emissions by 345 kt in 2030. This is explained as the project group will enable replacement of SMRs supplies, mainly by green hydrogen from Ukraine and North Africa to be used in interconnected countries and will therefore reduce natural gas imports. In 2040, to avoid demand curtailment SMRs are used, so we can see a little increase of CO2 emission.

CO2 Emissions-DELTA (t)



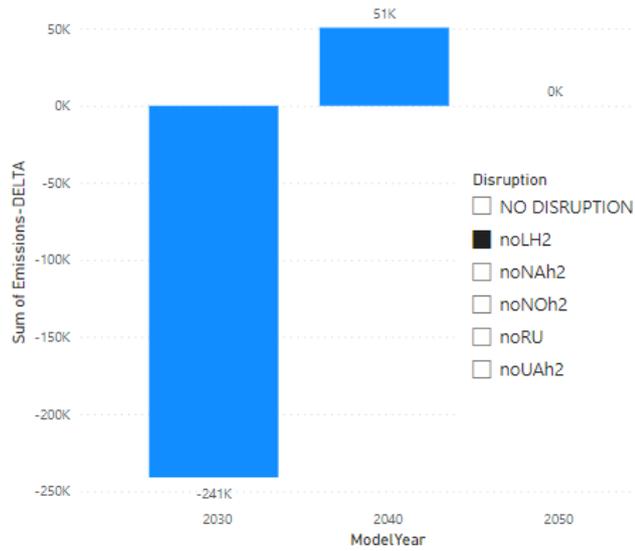
H2 Production DELTA (GWh) by ModelYear



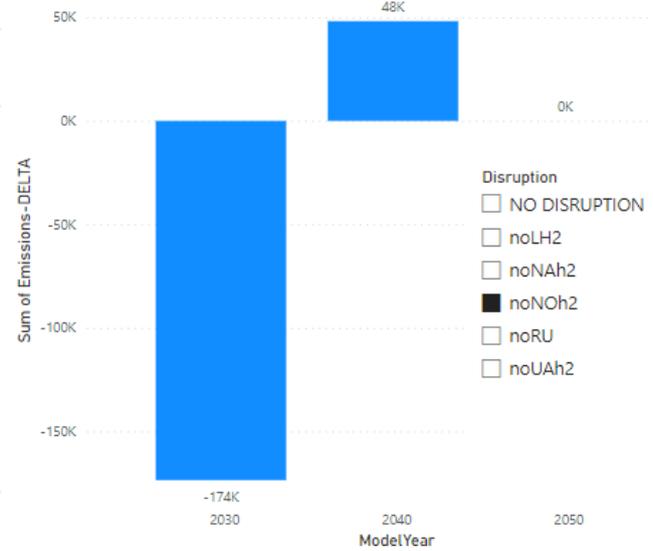
Similar trend is expected under any disruption.

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

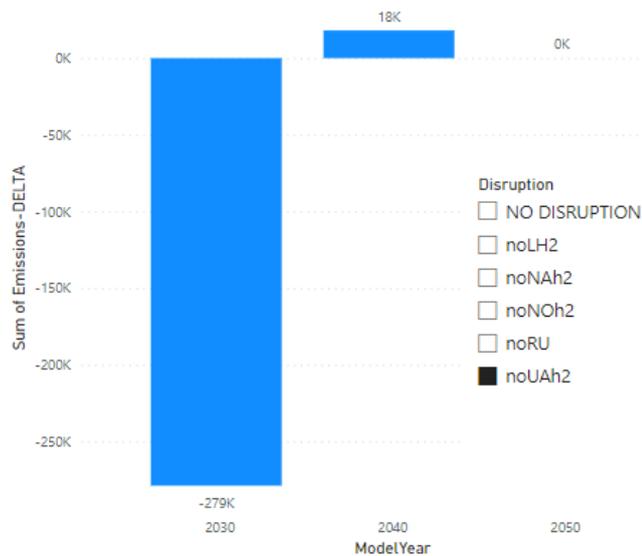
CO2 Emissions-DELTA (t)



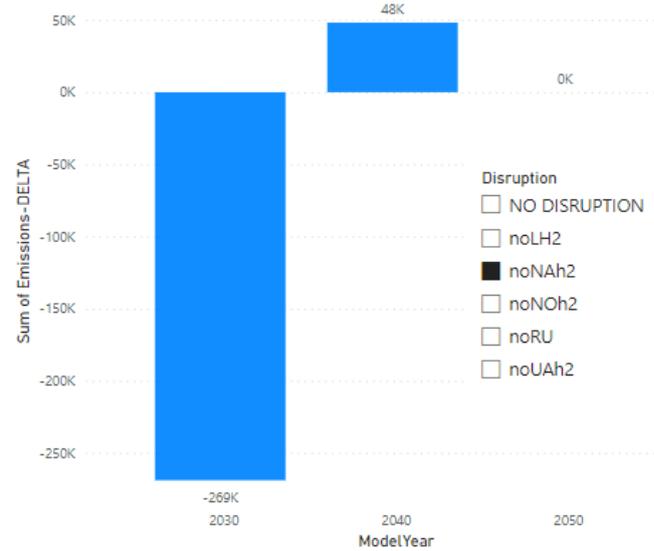
CO2 Emissions-DELTA (t)



CO2 Emissions-DELTA (t)



CO2 Emissions-DELTA (t)



Security of supply :

> Reference case

In the reference case the project group is mitigating risk of demand curtailment in Slovakia, Hungary and Croatia by 2% in 2040. More benefits are expected in Romania, Bulgaria and Greece up to 15% in 2050.

2030 GA- Benefits



2040 GA- Benefits



2050 GA- Benefits



> Climatic stress cases

Under 2-week and 2-week dunkelflaute climatic stress cases, the project group will enable cooperation between Hungary and Romania, allowing security of supplies benefits in Romania, Bulgaria and Greece. Therefore the project mitigates risk of curtailment by 15% in Greece and Bulgaria and up to 27% in Romania in 2030. Lower benefits are expected in the same countries in those same countries from 2040.

2030 GA- Benefits



2040 GA- Benefits



2050 GA- Benefits



> Disruption cases (S-1)

Similar trend is expected under any disruption is expected as in DE scenario.

2030 GA- Benefits



2040 GA- Benefits



2050 GA- Benefits



*No LH2/no NA/no NO*

2030 GA- Benefits



2040 GA- Benefits



2050 GA- Benefits



*No UA*

> Single largest capacity disruption (SLCD)

In 2040, the project groups mitigates risk of demand curtailment in almost European countries, up to 20% in Romania, Bulgaria and Greece . However in 2050, benefits are limited except in Romania, Bulgaria and Greece, where risk is reduced by 13-14%.

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

Sum of 2030-GA-DELTA by Country



Sum of 2040-GA-DELTA by Country



Sum of 2050-GA-DELTA by Country



## 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	Emission Delta	Emission Plus	Emission Minus
2030	NO DISRUPTION	DE	tonne	-181.045	538.677.299	538.858.344
2030	NO DISRUPTION	GA	tonne	-345.631	592.910.448	593.256.079
2030	noLH2	DE	tonne	-146.142	540.175.890	540.322.033
2030	noLH2	GA	tonne	-241.112	594.817.481	595.058.593
2030	noNAh2	DE	tonne	-67.331	539.785.356	539.852.687
2030	noNAh2	GA	tonne	-268.864	594.141.433	594.410.297
2030	noNOh2	DE	tonne	-101.317	538.877.198	538.978.515
2030	noNOh2	GA	tonne	-173.576	593.310.994	593.484.570
2030	noUAh2	DE	tonne	-69.250	539.378.772	539.448.022
2030	noUAh2	GA	tonne	-278.734	593.627.618	593.906.352
2040	NO DISRUPTION	DE	tonne	14.423	392.077.044	392.062.621
2040	NO DISRUPTION	GA	tonne	83.463	396.523.252	396.439.789
2040	noLH2	DE	tonne	-47.146	392.213.883	392.261.029
2040	noLH2	GA	tonne	50.681	397.455.197	397.404.516
2040	noNAh2	DE	tonne	-20.918	392.188.098	392.209.015
2040	noNAh2	GA	tonne	48.248	397.301.977	397.253.728
2040	noNOh2	DE	tonne	-47.146	392.144.023	392.191.168
2040	noNOh2	GA	tonne	48.173	397.450.977	397.402.805
2040	noUAh2	DE	tonne	111.390	392.399.183	392.287.793
2040	noUAh2	GA	tonne	18.029	397.478.498	397.460.469
2050	NO DISRUPTION	DE	tonne	0	232.557.735	232.557.735
2050	NO DISRUPTION	GA	tonne	0	228.306.707	228.306.707
2050	noLH2	DE	tonne	0	232.557.735	232.557.735
2050	noLH2	GA	tonne	0	228.306.707	228.306.707
2050	noNAh2	DE	tonne	0	232.557.735	232.557.735
2050	noNAh2	GA	tonne	0	228.306.707	228.306.707
2050	noNOh2	DE	tonne	0	232.557.735	232.557.735
2050	noNOh2	GA	tonne	0	228.306.707	228.306.707
2050	noRU	DE	tonne	0	232.557.735	232.557.735
2050	noRU	GA	tonne	0	228.306.707	228.306.707
2050	noUAh2	DE	tonne	0	232.557.735	232.557.735

2050	noUAh2	GA	tonne	0	228.306.707	228.306.707
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### Curtailement Rate (SLCD):

Country	2030-DE-DELTA	2030-GA-DELTA	2040-DE-DELTA	2040-GA-DELTA	2050-DE-DELTA	2050-GA-DELTA
Greece	-15%	-14%	-19%	-19%	-6%	-13%
Bulgaria	-25%	-30%	-18%	-20%	-7%	-13%
Romania	-26%	-31%	-18%	-20%	-7%	-14%
Croatia	0%	0%	-15%	-4%	-19%	0%
Hungary	-9%	-11%	-15%	-4%	-19%	0%
Slovakia	0%	0%	-15%	-3%	-19%	0%
Belgium	0%	0%	-2%	-1%	-1%	0%
Czechia	0%	0%	-2%	-2%	-2%	0%
Estonia	0%	0%	-2%	-1%	-2%	0%
Finland	0%	0%	-2%	-1%	-2%	0%
Germany	0%	0%	-2%	-1%	-1%	-1%
Latvia	0%	0%	-2%	-1%	-1%	0%
Lithuania	0%	0%	-2%	-1%	-1%	-1%
Poland	0%	0%	-2%	-1%	-1%	0%
Portugal	0%	0%	-2%	-1%	-1%	0%
Slovenia	0%	0%	-2%	-1%	-2%	0%
Sweden	0%	0%	-2%	-1%	-2%	0%
Switzerland	0%	0%	-2%	-1%	-1%	0%
France	0%	0%	-2%	-1%	-1%	0%
The Netherlands	0%	0%	-1%	-1%	-2%	0%
Austria	0%	0%	-1%	-1%	-2%	0%
Denmark	0%	0%	-1%	-1%	-1%	0%
Italy	0%	0%	-1%	-1%	-2%	0%
Spain	0%	0%	-1%	-1%	-2%	0%

### Curtailement 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	0%	0%	-1%	0%	-1%	0%
Average2W	Belgium	0%	0%	-1%	0%	0%	0%
Average2W	Bulgaria	-20%	-15%	0%	-2%	0%	-9%
Average2W	Croatia	0%	0%	-1%	0%	-11%	0%
Average2W	Cyprus	0%	0%	0%	0%	0%	0%
Average2W	Czechia	0%	0%	-1%	0%	-1%	0%
Average2W	Denmark	0%	0%	-1%	0%	-1%	0%
Average2W	Estonia	0%	0%	0%	0%	-1%	0%
Average2W	Finland	0%	0%	-1%	0%	-1%	0%
Average2W	France	0%	0%	-1%	0%	-1%	0%
Average2W	Germany	0%	0%	-1%	0%	0%	0%

Average2W	Greece	-20%	-15%	0%	-1%	0%	-4%
Average2W	Hungary	0%	0%	-1%	0%	-11%	0%
Average2W	Ireland	0%	0%	0%	0%	0%	0%
Average2W	Italy	0%	0%	-1%	0%	0%	0%
Average2W	Latvia	0%	0%	-1%	0%	0%	0%
Average2W	Lithuania	0%	0%	-1%	0%	0%	0%
Average2W	Luxembourg	0%	0%	0%	0%	0%	0%
Average2W	Malta	0%	0%	0%	0%	0%	0%
Average2W	Poland	0%	0%	-1%	0%	0%	0%
Average2W	Portugal	0%	0%	-1%	0%	0%	0%
Average2W	Romania	-23%	-27%	0%	-1%	0%	-10%
Average2W	Serbia	0%	0%	0%	0%	0%	0%
Average2W	Slovakia	0%	0%	-1%	0%	-10%	0%
Average2W	Slovenia	0%	0%	-1%	0%	-1%	0%
Average2W	Spain	0%	0%	-1%	0%	-1%	0%
Average2W	Sweden	0%	0%	-1%	0%	-1%	0%
Average2W	Switzerland	0%	0%	-1%	0%	0%	0%
Average2W	The Netherlands	0%	0%	-1%	0%	-1%	0%
Average2W	United Kingdom	0%	0%	0%	0%	0%	0%
Average2WDF	Austria	0%	0%	-1%	0%	-1%	0%
Average2WDF	Belgium	0%	0%	0%	0%	0%	0%
Average2WDF	Bulgaria	-20%	-15%	0%	-2%	0%	-9%
Average2WDF	Croatia	0%	0%	-1%	0%	-10%	0%
Average2WDF	Cyprus	0%	0%	0%	0%	0%	0%
Average2WDF	Czechia	0%	0%	-1%	0%	-1%	0%
Average2WDF	Denmark	0%	0%	-1%	0%	-1%	0%
Average2WDF	Estonia	0%	0%	-1%	0%	-1%	0%
Average2WDF	Finland	0%	0%	-1%	0%	-1%	0%
Average2WDF	France	0%	0%	-1%	0%	-1%	0%
Average2WDF	Germany	0%	0%	-1%	0%	0%	0%
Average2WDF	Greece	-20%	-15%	0%	-1%	0%	-4%
Average2WDF	Hungary	0%	0%	-1%	0%	-10%	0%
Average2WDF	Ireland	0%	0%	0%	0%	0%	0%
Average2WDF	Italy	0%	0%	-1%	0%	0%	0%
Average2WDF	Latvia	0%	0%	-1%	0%	0%	0%
Average2WDF	Lithuania	0%	0%	-1%	0%	0%	0%
Average2WDF	Luxembourg	0%	0%	0%	0%	0%	0%
Average2WDF	Malta	0%	0%	0%	0%	0%	0%
Average2WDF	Poland	0%	0%	-1%	0%	0%	0%
Average2WDF	Portugal	0%	0%	-1%	0%	0%	0%
Average2WDF	Romania	-23%	-27%	0%	-1%	0%	-10%
Average2WDF	Serbia	0%	0%	0%	0%	0%	0%
Average2WDF	Slovakia	0%	0%	-1%	0%	-10%	0%
Average2WDF	Slovenia	0%	0%	-1%	0%	-1%	0%
Average2WDF	Spain	0%	0%	-1%	0%	-1%	0%
Average2WDF	Sweden	0%	0%	-1%	0%	-1%	0%
Average2WDF	Switzerland	0%	0%	-1%	0%	0%	0%

Average2WDF	The Netherlands	0%	0%	-1%	0%	-1%	0%
Average2WDF	United Kingdom	0%	0%	0%	0%	0%	0%
DC	Austria	0%	0%	0%	0%	-1%	0%
DC	Belgium	0%	0%	0%	0%	0%	0%
DC	Bulgaria	-16%	-14%	0%	0%	0%	-6%
DC	Croatia	0%	0%	-1%	0%	-8%	0%
DC	Cyprus	0%	0%	0%	0%	0%	0%
DC	Czechia	0%	0%	0%	0%	-1%	0%
DC	Denmark	0%	0%	0%	0%	0%	0%
DC	Estonia	0%	0%	-1%	0%	-1%	0%
DC	Finland	0%	0%	0%	0%	0%	0%
DC	France	0%	0%	-1%	0%	0%	0%
DC	Germany	0%	0%	-1%	0%	0%	0%
DC	Greece	-15%	-13%	0%	0%	0%	-6%
DC	Hungary	0%	0%	-1%	0%	-8%	0%
DC	Ireland	0%	0%	0%	0%	0%	0%
DC	Italy	0%	0%	0%	0%	-1%	0%
DC	Latvia	0%	0%	-1%	0%	0%	0%
DC	Lithuania	0%	0%	-1%	0%	0%	0%
DC	Luxembourg	0%	0%	0%	0%	0%	0%
DC	Malta	0%	0%	0%	0%	0%	0%
DC	Poland	0%	0%	-1%	0%	0%	0%
DC	Portugal	0%	0%	-1%	0%	0%	0%
DC	Romania	-20%	-26%	0%	0%	0%	-7%
DC	Serbia	0%	0%	0%	0%	0%	0%
DC	Slovakia	0%	0%	-1%	0%	-8%	0%
DC	Slovenia	0%	0%	-1%	0%	0%	0%
DC	Spain	0%	0%	0%	0%	-1%	0%
DC	Sweden	0%	0%	-1%	0%	-1%	0%
DC	Switzerland	0%	0%	-1%	0%	-1%	0%
DC	The Netherlands	0%	0%	0%	0%	-1%	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-1259 HYD-N-789	N/A	N/A	N/A
HYD-N-999	N/A	N/A	N/A

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
HYD-N-1259 HYD-N-789	N/A	N/A	N/A
HYD-N-999	N/A	N/A	N/A

### Environmental Impact explained [Promoter]

#### For project HYD-N-1259 and HYD-N-789

All new pipelines will be built parallel with existing ones. Environmental impact on the Hungarian side is expected only during the construction phase, but not envisaged major difficulties. In case of repurposing the environmental impact more modest. Compressor will be electricity driven compressor.

#### Pentru proiectul HYD-N-999

All new pipelines will be built parallel with existing ones. Environmental impact on the Romanian side is expected during the construction and operation phase, but no major difficulties are envisaged. The compressor will be a compressor driven electrically or by hydrogen transmitted by pipeline.

## 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]

For project HYD-N-1259, HYD-N-789

Along the pipeline route hydrogen producers will have the possibility to establish electrolyzers and hydrogen entry points.

The project group will help development of hydrogen economy in South-Eastern and Central Hungary.

With this project Romania and Hungary will gain access to TR/GR/BG/RO/HU/SK corridor and the whole European Hydrogen Backbone system will be available for both countries.

For project HYD-N-999

Along the pipeline route, hydrogen producers will have the possibility to establish electrolyzers and hydrogen entry points in both countries.

The project group will help development of the hydrogen economy in South-Western Romania.

With this project, Romania and Hungary will gain access to the TR/GR/BG/RO/HU/SK corridor, and the whole European Hydrogen Backbone system will be available for both countries.

## F. Useful links [Promoter]

### Useful links:

HU/SI hydrogen corridor: [FGSZ Földgázz szállító Alcím dia 1](#)