

## Project Group EAST\_11B - Slovenian-Hungary-Italy interconnection

### Reasons for grouping [ENTSO G]

Project group represents a new interconnector between Hungary and Slovenia at Pince(SI)/Tornyszentmiklos(HU), both sides of the investment, as well as enabler project on the Slovenian side CS Ajdovščina (1st upgrade) TRA-N-092 which allows adjustment of the Slovenian NTS to the operating parameters of the Italian TSO as well as increasing transmission capacity.

### Objective of the project(s) in the group [Promoter]

The project group aims at: (1) establishing bidirectional gas flows between the Hungarian, Central-East and South-European gas market with Italian gas market via Slovenian gas system; (2) enabling the access of the Hungarian and Central-East and South-European gas suppliers to the new gas sources on the Western European gas markets (e.g. Italy) and access to the LNG sources in Italy and Northern Adriatic region; (3) enabling market integration and gas price differences mitigation between Italian gas hub and central European and Balkan price zone; (4) enabling access of Slovenian gas suppliers to Hungarian underground gas storage facilities; (5) increasing the security of supply in Slovenia and the improvement of the N1 infrastructure standard; (6) increasing the gas security of supply in the region (regarding the possible events in the regional transmission systems).

The project is scalable, and the final technical capacity can be adjusted to the market demand.



## Projects constituting the group

TYNDP Project Code	Project Name	Promoter	Hosting Country	Project Status	4th PCI List Code	First Comm. Year	Last Comm. Year	Compared to TYNP 2018
TRA-N-0092	CS Ajdovščina, 1st phase of upgrade	Plinovodi d.o.o.	SI	Less-Advanced	6.23	2025	2029	-
TRA-N-0112	R15/1 Pince - Lendava - Kidričevo	Plinovodi d.o.o.	SI	Less-Advanced	6.23	2023	2029	Rescheduled
TRA-N-0299	M3/1 Šempeter - Vodice	Plinovodi d.o.o.	SI	Less-Advanced	-	2026	2029	-
TRA-N-0325	Slovenian-Hungarian interconnector	FGSZ	HU	Less-Advanced	6.23	2023	2029	Rescheduled
TRA-N-1227	Gorizia plant upgrade	Snam Rete Gas	IT	Less-Advanced	6.23	2026	2029	-

## Technical Information

TYNDP Project Code	Diameter [mm]	Length [km]	Compressor Power [MW]
TRA-N-0092	-	-	5
TRA-N-0112	500	73	6
TRA-N-0112	600	73	6
TRA-N-0299	800	24	-
TRA-N-0299	800	30	-
TRA-N-0299	800	47	-
TRA-N-0325	600	41	-
TRA-N-0325	600	150	12
TRA-N-1227*	-	-	-

\* No technical information is displayed as project involves upgrade of Gorizia plant and does not require new pipeline/CS investment.

## Capacity Increment

The capacity increment values for each project are provided at all related Interconnection points (IP), both for “exit” and “entry” directions, being indicated the operator of the IP as well as the associated commissioning years of the capacity increments.

This information is presented in the table below and should be read per each line as follows: a certain project, TRA-N-123, can bring at a specific “Point Name” operated by “Operator X” an “exit” capacity increment “From System Y” “To System Z” which has associated an “Increment Commissioning Year”. Equally, for the same “Point Name” and operated by the same “Operator X”, an “entry” (reverse) capacity increment can be available to system “Y” from system “Z” which at its turn has associated an “Increment Commissioning Year”.

TYNDP Project Code	Point Name	Operator	From System	Exit Capacity [GWh/d]	Increment Comm. Year	To System	Entry Capacity [GWh/d]	Increment Comm. Year
TRA-N-112	Pince (SI) / Tornyszentmiklós (HU)	Plinovodi d.o.o.	Transmission Slovenia	12.9	2023	Transmission Hungary (MGP)	12.9	2023
TRA-N-112	Pince (SI) / Tornyszentmiklós (HU)	Plinovodi d.o.o.	Transmission Slovenia	46.4*	2029	Transmission Hungary (MGP)	46.4*	2029
TRA-N-1227	Gorizia (IT) / Šempeter (SI)	Snam Rete Gas S.p.A.	Transmission Italia (PSV)	17.3	2029	Transmission Slovenia	44.3	2029

TRA-N-299	Gorizia (IT) / Šempeter (SI)	Plinovodi d.o.o.	Transmission Slovenia	51.6	2029	Transmission Italia (PSV)	49	2029
TRA-N-325	Pince (SI) / Tornyszentmiklós (HU)	FGSZ Ltd.	Transmission Hungary (MGP)	12.8	2023	Transmission Slovenia	12.8	2023
TRA-N-325	Pince (SI) / Tornyszentmiklós (HU)	FGSZ Ltd.	Transmission Hungary (MGP)	46.5	2029	Transmission Slovenia	46.5	2029

\*Total capacity is 59.3 GWh/d – Variant 2 in TYNDP 2020.

## B. Project Cost Information

During the TYNDP 2020 Project Data Collection, promoters were asked to indicate whether their costs were confidential or not. The following tables display the costs provided by the promoters (as of June 2019, end of TYNDP 2020 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. For the purposes of this project fiche, in case promoters identified their costs as confidential, alternative costs have been provided by the promoter. The alternative costs are identified with “\*”.

	TRA-N-112	TRA-N-1227	TRA-N-299	TRA-N-325	TRA-N-92	Total Cost
<b>CAPEX [min, EUR]</b>	112.8*	3	169*	205*	12.2*	<b>502</b>
<b>OPEX [min, EUR/y]</b>	1.28*	0.01	0.9*	10*	1.93*	<b>14.12</b>
<b>Range CAPEX (%)</b>	10	30	10	25	10	-
<b>Range OPEX (%)</b>	10	30	10	15	10	-

### Description of costs and range [Promoter]

#### For project TRA-N-112:

- Description of CAPEX: the pipeline (construction, connections and other costs) represents 70% of CAPEX, CS Kidričevo (civil works, equipment and other costs) represents 26% of the cost and BMRS Pince (civil works, equipment and other costs) represents 4% of the cost.
- Description of OPEX: 45% of costs represent the cost of own consumption of gas (for the operation of the compressor station – CS Kidričevo), 50% of costs represent operation and maintenance cost, and 5% are labour costs.

#### For project TRA-N-92:

- Description of CAPEX: the compressor station CS Ajdovščina (civil works, equipment and other costs) represents 100% of the cost.
- Description of OPEX: 90% of costs represent the cost of own consumption of gas (for the operation of the compressor station – CS Ajdovščina), 10% of costs represent operation and maintenance cost. There are no additional labour costs – extension of existing compressor station.

#### For project TRA-N-299:

- Description of CAPEX: the pipeline (construction, connections and other costs) represents 83% of CAPEX and BMRS Vrtojba (civil works, equipment and other costs) represents 17% of the cost.
- Description of OPEX: 100% of costs represent operation and maintenance cost.

#### For project TRA-N-325:

- Description of CAPEX: the cost and range based on feasibility study.
- Description of OPEX: the most significant impact on operating cost is the energy consumption of compressor stations.

## C. Project Benefits

### C.1 Summary of project benefits

This section provides a summarised analysis by ENTSG of the main benefits stemming from the realisation of the overall group and according to the guidelines included in the ENTSG 2nd CBA Methodology. More details on the indicators are available in sections D and E.

#### National Trends

##### Benefits explained (but Sustainability) [ENTSG]

###### > Security of Supply:

The project group **increases the remaining flexibility** in Slovenia from 2025 in the existing infrastructure level, reaching higher remaining flexibility levels (up to 100% in most of the climatic stress cases) in 2030-2040 with the commissioning (in 2025) of the second capacity increment of the Hungary-Slovenia interconnection. Regarding the low and advanced infrastructure levels, the project group will increase the remaining flexibility in Slovenia up to 100% (during peak day demand situation) while for 2-week cold spell and 2-week dunkelflaute climatic stress cases, Slovenia has already reached 100% remaining flexibility thanks to FID and advanced-status projects.

In case of **SLID-Slovenia (Murfeld (AT)/Ceršak(SI) IP)**, in the existing infrastructure level the project group **reduces the exposure to demand curtailment** of Slovenia in 2025 and **fully mitigates the risk of demand curtailment** from 2030 in Croatia and Slovenia. For this same indicator, in the low and advanced infrastructure levels, the project group mitigates the risk of demand curtailment only in Slovenia from 2030 as FID and advanced-status project commissioned in Croatia already mitigated the risk in this country.

###### > Competition:

The project group improves the **diversification of entry capacities** (LICD indicator) in Hungary, Italy, and Slovenia in the existing and low infrastructure levels. In the advanced infrastructure level, only Hungary and Slovenia further improve the diversification of entry capacities.

###### > Market integration:

The project group brings benefits in monetised terms as a **reduction of the cost of gas supply**, however only under cheap Russian supply and expensive LNG supply price configurations (up to 7.5 MEur/y on average in the existing infrastructure level), from 2030 onwards thanks to the commissioning (in 2025) of the second capacity increment of the interconnection. Such benefits are driven by tariffs savings thanks to the utilisation of this alternative and cheaper route, and subsequently, reducing flows from more expensive routes, mainly decrease of Russian flows through Austria. This is confirmed by the sensitivity analysis on tariffs that shows variation in the size of benefits depending on the level of tariffs (higher or lower compared to the reference one) considering for this new route and in case of higher tariffs, the sensitivity analysis tables shows in fact considerably lower benefits (up to 3 MEur/y) attributed to this new alternative route.

In case of the low and advanced infrastructure levels, the project group brings less benefits compared to existing infrastructure level due to the commissioning of FID and advanced projects in the neighbouring countries that reduce the use of the new interconnection.

Compared to group EAST\_11a, the project group EAST\_11b shows similar benefits from supply cost savings for National Trends demand scenario as the interconnection Italy-Slovenia is not used for this demand scenario.

The project group **improves bidirectionality** between Italy and Slovenia and between Hungary and Slovenia up to 100%.

## Distributed Energy

### Benefits explained (but Sustainability) [ENTSO G]

#### > Security of Supply:

The project group **increases the remaining flexibility** under peak-day climatic stress case in Slovenia from 2025 up to 100% already in the existing infrastructure level.

In case of **SLID-Slovenia (Murfeld (AT)/Ceršak(SI) IP)**, for all infrastructure levels, the project group **reduces the exposure to demand curtailment** of Slovenia in 2025. From 2030, with the commissioning of the second capacity increment of the project group, that will allow for full mitigation of this risk.

#### > Competition:

The project group improves the **diversification of entry capacities** (LICD indicator) in Hungary, Italy, and Slovenia in the existing and low infrastructure levels. In the advanced infrastructure level, only Hungary and Slovenia further improve the diversification of entry capacities.

In the low infrastructure level together with the implementation of FID projects in the neighbouring countries, the project group will allow Hungary to decrease its dependence on Russian gas from 2030 by increasing the interconnection with Slovenia and Italy, Hungary can access alternative supply sources arriving to these countries.

#### > Market integration:

The project group brings benefits in monetised terms as a **reduction of the cost of gas supply**, however only under cheap Russian supply and expensive LNG supply price configurations (up to 7 MEur/y on average in the existing infrastructure level), from 2030 onwards thanks to the commissioning (in 2025) of the second capacity increment of the interconnection. Such benefits are driven by tariffs savings thanks to the utilisation of this alternative and cheaper route, and subsequently, reducing flows from more expensive routes, mainly decrease of Russian flows through Austria to Slovenia. This is confirmed by the sensitivity analysis on tariffs that shows variation in the size of benefits depending on the level of tariffs (higher or lower compared to the reference one) considering for this new route and in case of higher tariffs, the sensitivity analysis tables shows in fact considerably lower benefits (up to 1.5 MEur/y) attributed to this new alternative route.

In case of the low and advanced infrastructure levels, the project group brings less benefits compared to existing infrastructure level due to the commissioning of FID and advanced projects in the neighbouring countries that reduce the use of the new interconnection.

Compared to group EAST\_11a, the project group EAST\_11b shows similar benefits from supply cost savings for Distributed Energy demand scenario as the interconnection Italy-Slovenia is not used.

The project group **improves bidirectionality** between Italy and Slovenia and between Hungary and Slovenia up to 100%.

## Global Ambition

### Benefits explained (but Sustainability) [ENTSOG]

#### > Security of Supply:

The project group **increases the remaining flexibility** in Slovenia from 2025 and reaching 100% in 2030 for all climatic stress conditions and infrastructure levels.

In Global Ambition demand scenario, overall European gas demand for peak-day climatic stress case is higher than in National Trends or Distributed Energy, this leads to a higher need for cooperation between countries to avoid the risk demand curtailment. More specifically, in case of infrastructure disruptions, such as SLID-Slovakia, SLID-Austria and SLID-Slovenia in the existing infrastructure level, as these infrastructures are part of the Ukrainian import route, and therefore, share a similar impact regarding risk of demand curtailment.

In case of **SLID-Slovakia (Uzhgorod (UA)/Velké Kapušany (SK))**, in the existing infrastructure level, the project group **slightly reduces the risk of demand curtailment** of Slovenia, Austria, and Czech Republic in 2030.

In case of **SLID-Austria (Baumgarten)**, in the existing infrastructure level, the project group **fully mitigates the risk of demand curtailment** of Austria and Switzerland and **partially mitigates the risk of demand curtailment** of Slovenia.

In case of **SLID-Slovenia (Murfeld (AT)/Ceršak(SI) IP)**, the project group helps to **mitigate the risk of demand curtailment** in Slovenia in 2025 and **fully mitigates the risk of demand curtailment** from 2030 in Slovenia for all infrastructure levels.

#### > Competition:

The project group improves the **diversification of entry capacities** (LICD indicator) in Hungary, Italy, and Slovenia in the existing and low infrastructure levels. In the advanced infrastructure level, only Hungary and Slovenia further improve the diversification of entry capacities.

In the low infrastructure level together with the implementation of FID projects in the neighbouring countries, the project group will allow Hungary and Croatia to **decrease its dependence on Russian gas** in 2030 by increasing the interconnection with Slovenia and Italy, Hungary and Croatia could rely on alternative supply sources arriving to these countries.

#### > Market integration:

The project group brings benefits in monetised terms as a **reduction of the cost of gas supply**, in reference case (around 2.3 MEur/y on average in the existing infrastructure level) mainly under cheap Russian supply and expensive LNG supply price configurations (up to 9 MEur/y on average in the existing infrastructure level), from 2030 onwards thanks to the commissioning (in 2025) of the second capacity increment of the interconnection. Such benefits are driven by tariffs savings thanks to the utilisation of this alternative and cheaper route, and subsequently, reducing flows from more expensive routes, mainly decrease of Russian flows through Austria to Slovenia. This is confirmed by the sensitivity analysis on tariffs that shows variation in the size of benefits depending on the level of tariffs (higher or lower compared to the reference one) considering for this new route and in case of higher tariffs, the sensitivity analysis tables shows in fact considerably lower benefits (up to 2.6 MEur/y) attributed to this new alternative route.

In case of the low and advanced infrastructure levels, the project group brings less benefits compared to existing infrastructure level due to the commissioning of FID and advanced projects in the neighbouring countries that reduce the use of the new interconnection.

Compared to group EAST\_11a, the project group EAST\_11b shows similar benefits from supply cost savings for Distributed Energy demand scenario as the interconnection Italy-Slovenia is not used for the different supply price configurations.

The project group **improves bidirectionality** between Italy and Slovenia and between Hungary and Slovenia up to 100%.

## Sustainability benefits explained [ENTSOG]

Compared to EAST\_11A, project group EAST\_11B do not show significant changes in terms of benefits under flow-based allocation. The ENTSOG analysis shows that, in the yearly assessment, the projects group realisation enhances the replacement of more polluting fuels with natural gas, which enables fuel switch savings in Slovenia between 0.5-1.2 MEUR/y under existing infrastructure level and Global Ambition scenarios. The table below shows the related reduction in terms of CO<sub>2</sub>eq/y for each scenario and infrastructure level and over the 25-years assessment period of the project group. The contribution of the project group to the CO<sub>2</sub>eq/y emissions (positive number indicate reduction in CO<sub>2</sub>eq/y emissions) is also displayed for the three simulation configurations that consider different level of tariffs for the project group.

Sustainability		EXISTING			LOW			ADVANCED		
CO <sub>2</sub> and Other externalities (KtCO <sub>2</sub> eq/y)	Reference	0 / 0	0 / 0	25 / 26	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
	Lower Tariff Sensitivity	0 / 0	0 / 7	25 / 43	0 / 0	0 / 13	0 / 8	0 / 0	0 / 0	0 / 0
	Higher Tariff Sensitivity	0 / 2	0 / 0	0 / 25	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0

The minimum and the maximum values displayed in the table above refer respectively to the CO<sub>2</sub>eq/y savings in case emissions from the additional gas demand increase not replacing other more polluting fuels are counted in the overall CO<sub>2</sub>eq emissions assessment or they are considered neutral. For more information, please consult the Project Fiche introduction document and the TYNDP 2020 Annex D.

Savings have been allocated to the project group based on the flows resulting from ENSTOG simulations under the reference supply price configurations and according to the methodology described in TYNDP 2020 Annex D. Such methodology is also based on the assumption that the use of the infrastructures already included in the different infrastructure levels (versus which the project group is assessed) is always prioritised.

Observing the evolution of benefits among the assessed years (section C.3), savings are allocated to the project group only between 2030-2040 and only in Global Ambition scenario.

TYNDP 2020 ENTSOG and ENTSO-E scenario storylines have identified for Distributed Energy and Global Ambition scenarios the need for hydrogen imports to satisfy the hydrogen demand that cannot be covered by European production of hydrogen (e.g. through power-to-gas). In the future, hydrogen demand not satisfied by locally produced hydrogen could be covered by directly imported hydrogen through hydrogen-compatible infrastructures and/or by natural gas through natural gas pipelines or LNG terminal. In TYNDP 2020 ENTSOG has considered fuel switch benefits from hydrogen import in the form of natural gas import then converted into hydrogen in Europe. For project group EAST\_11B, such benefits represent around 85% of the benefits from fuel switch in Global Ambition scenarios in 2030.

## Sustainability benefits explained [Project Promoter]

No additional benefits were provided by promoters.

## 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. Some of those benefits are measured through quantitative indicators (i.e. SLID and Curtailment rate) and monetised ex-post. Their monetised value is displayed in section E. When assessing those type of benefits, it is important to avoid any double counting considering them both in quantitative and monetised terms.

### EXISTING Infrastructure Level – National Trends

Sum of Value		Column Labels											
		2025			2030			2040					
		CBG			GBC			NT			NT		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
Commercial Supply Access (CSA)													
	Croatia							2	3	1	2	3	1
	Slovenia										2	3	1
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	4,532	4,181	-351	4,532	4,181	-351	4,532	3,538	-994	4,532	3,538	-994
	Italy							3,736	3,602	-133	3,736	3,602	-133
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,238	2,974	-1,264	4,253	2,978	-1,275
Security of Supply													
Remaining Flexibility 2-Week Cold Spell (%)													
	Italy							75%	77%	2%	58%	59%	1%
	Slovenia	53%	71%	18%	40%	59%	18%	71%	100%	29%	67%	100%	33%
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Italy							72%	74%	2%	55%	56%	1%
	Slovenia	46%	65%	18%	35%	53%	18%	57%	100%	43%	61%	100%	39%
Remaining Flexibility Peak day (%)													
	Slovenia	20%	37%	17%	13%	30%	17%	33%	100%	67%	39%	100%	61%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Croatia							25%	1%	-24%	24%	0%	-24%
	Slovenia	53%	37%	-17%	53%	37%	-17%	54%	0%	-54%	54%	0%	-54%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%



## LOW Infrastructure Level – National Trends

Sum of Value		Column Labels			2025			2030			2040		
Row Labels		CBG			GBC			NT			NT		
		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	3,044	2,861	-183	3,044	2,861	-183	3,044	2,522	-521	3,044	2,522	-521
	Italy							3,736	3,602	-133	3,736	3,602	-133
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,238	2,974	-1,264	4,253	2,978	-1,275
Security of Supply													
Remaining Flexibility Peak day (%)													
	Slovenia	93%	100%	7%	93%	100%	7%	89%	100%	11%	89%	100%	11%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Slovenia	53%	37%	-17%	53%	37%	-17%	54%	0%	-54%	54%	0%	-54%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

## ADVANCED Infrastructure Level – National Trends

Sum of Value		Column Labels			2025			2030			2040		
Row Labels		CBG			GBC			NT			NT		
		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	2,754	2,615	-140	2,754	2,615	-140	2,405	2,147	-258	2,221	1,968	-253
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,238	2,974	-1,264	4,253	2,978	-1,275
Security of Supply													
Remaining Flexibility Peak day (%)													
	Slovenia	93%	100%	7%	93%	100%	7%	89%	100%	11%	89%	100%	11%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Slovenia	53%	37%	-17%	53%	37%	-17%	54%	0%	-54%	54%	0%	-54%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

## EXISTING Infrastructure Level – Distributed Energy

Sum of Value		Column Labels											
		2025						2030			2040		
		CBG			GBC			DE			DE		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	3,044	2,861	-183	3,044	2,861	-183	3,044	2,522	-521	3,044	2,522	-521
	Italy							3,736	3,602	-133	3,736	3,602	-133
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,153	2,946	-1,206	4,292	2,988	-1,304
MASD-RU													
	Hungary							28%	17%	-11%	7%	4%	-3%
	Romania										6%	3%	-3%
Security of Supply													
Remaining Flexibility Peak day (%)													
	Slovenia	93%	100%	7%	93%	100%	7%				95%	100%	5%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Slovenia	53%	37%	-17%	53%	37%	-17%	39%	0%	-39%	32%	0%	-32%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

## LOW Infrastructure Level – Distributed Energy

Sum of Value		Column Labels											
		2025						2030			2040		
		CBG			GBC			DE			DE		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	3,044	2,861	-183	3,044	2,861	-183	3,044	2,522	-521	3,044	2,522	-521
	Italy							3,736	3,602	-133	3,736	3,602	-133
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,153	2,946	-1,206	4,292	2,988	-1,304
MASD-RU													
	Hungary							28%	17%	-11%	7%	4%	-3%
	Romania										6%	3%	-3%
Security of Supply													
Remaining Flexibility Peak day (%)													
	Slovenia	93%	100%	7%	93%	100%	7%				95%	100%	5%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Slovenia	53%	37%	-17%	53%	37%	-17%	39%	0%	-39%	32%	0%	-32%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

## ADVANCED Infrastructure Level – Distributed Energy

Sum of Value		Column Labels											
		2025			2030			2040					
		CBG			GBC			DE			DE		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	2,754	2,615	-140	2,754	2,615	-140	2,268	2,014	-253	2,213	1,960	-253
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,153	2,946	-1,206	4,292	2,988	-1,304
Security of Supply													
Remaining Flexibility Peak day (%)													
	Slovenia	93%	100%	7%	93%	100%	7%				95%	100%	5%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Slovenia	53%	37%	-17%	53%	37%	-17%	39%	0%	-39%	32%	0%	-32%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

## EXISTING Infrastructure Level – Global Ambition

Sum of Value		Column Labels			2025			2030			2040		
Row Labels		CBG			GBC			GA			GA		
		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	4,532	4,181	-351	4,532	4,181	-351	4,532	3,538	-994	4,532	3,538	-994
	Italy							3,736	3,602	-133	3,736	3,602	-133
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,281	2,986	-1,295	4,515	3,035	-1,480
Security of Supply													
Remaining Flexibility 2-Week Cold Spell (%)													
	Slovenia	53%	71%	18%	40%	59%	18%				95%	100%	5%
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Slovenia	46%	65%	18%	35%	53%	18%				88%	100%	12%
Remaining Flexibility Peak day (%)													
	Slovenia	20%	37%	17%	13%	30%	17%	73%	100%	27%	63%	100%	37%
Single Largest Infrastructure Disruption (SLID)-Austria													
	Austria							2%	0%	-2%			
	Slovenia							4%	2%	-2%			
	Switzerland							2%	0%	-2%			
Single Largest Infrastructure Disruption (SLID)-Slovakia													
	Austria							24%	22%	-2%			
	Czechia							24%	22%	-2%			
	Slovakia							24%	22%	-2%			
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Croatia							4%	0%	-4%			
	Slovenia	53%	37%	-17%	53%	37%	-17%	53%	0%	-53%	50%	0%	-50%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

## LOW Infrastructure Level – Global Ambition

Sum of Value		Column Labels											
		2025			2030			2040					
		CBG			GBC			GA			GA		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	3,044	2,861	-183	3,044	2,861	-183	3,044	2,522	-521	3,044	2,522	-521
	Italy							3,736	3,602	-133	3,736	3,602	-133
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,281	2,986	-1,295	4,515	3,035	-1,480
MASD-RU													
	Croatia							30%	27%	-3%			
	Hungary							32%	27%	-5%			
Security of Supply													
Remaining Flexibility 2-Week Cold Spell (%)													
	Slovenia										95%	100%	5%
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Slovenia										88%	100%	12%
Remaining Flexibility Peak day (%)													
	Slovenia	93%	100%	7%	93%	100%	7%	81%	100%	19%	63%	100%	37%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Slovenia	53%	37%	-17%	53%	37%	-17%	53%	0%	-53%	50%	0%	-50%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

## ADVANCED Infrastructure Level – Global Ambition

Sum of Value		Column Labels											
		2025			2030			2040					
		CBG			GBC			GA			GA		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
LNG and Interconnection Capacity Diversification (LICD)													
	Hungary	2,754	2,615	-140	2,754	2,615	-140	2,269	2,016	-253	2,227	1,974	-253
	Slovenia	4,205	3,273	-932	4,252	3,320	-932	4,281	2,986	-1,295	4,515	3,035	-1,480
Security of Supply													
Remaining Flexibility 2-Week Cold Spell (%)													
	Slovenia										95%	100%	5%
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Slovenia										88%	100%	12%
Remaining Flexibility Peak day (%)													
	Slovenia	93%	100%	7%	93%	100%	7%	81%	100%	19%	63%	100%	37%
Single Largest Infrastructure Disruption (SLID)-Slovenia													
	Slovenia	53%	37%	-17%	53%	37%	-17%	53%	0%	-53%	50%	0%	-50%
Market Integration													
Bi-directionality - Country													
	HU <=> SI	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%
	IT <=> SI							76%	98%	23%	76%	98%	23%
Bi-directionality - Point													
	Gorizia (IT) /Šempeter (SI)							76%	100%	24%	76%	100%	24%

### C.3 Monetised benefits [ENTSOG]

This section includes all benefits stemming from the realisation of a project that are quantified and monetised. Some benefits are monetised ex-post while others directly as a result of the simulations and are impacted by the modelling assumptions chosen (e.g. tariffs or supply price assumptions). Monetised benefits are showed at EU level. In order to keep the results in a manageable number, those have been aggregated per Infrastructure Level and Demand Scenarios. In line with the CBA Methodology, promoters could provide additional benefits related to Sustainability or Gasification. In the tables below these benefits are displayed separately from the ones computed directly by ENTSOG and are labelled as “(Promoter)”. More information on how to read the data in this section is provided in the Introduction Document.

		EXISTING			LOW			ADVANCED		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
	Supply Maximization	7.6	6.8	8.8	5.0	2.7	5.7	3.1	2.3	5.1
Security of Supply	Design Case	2.1	0.8	1.8	1.1	0.7	1.2	1.1	0.7	1.2
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	0/0	0/0	1.2 / 1.2	0/0	0/0	0/0	0/0	0/0	0/0
	Additional benefit (Promoter)	0	0	0	0	0	0	0	0	0

## Comparison between the assessed SCENARIOS

ENTSOE runs the assessment for 5-year-rounded years (2020, 2025, 2030 and 2040) and interpolates these results to compute the benefits for the 25-years economic lifetime of projects. The following tables show the benefits as computed in the specific assessment years.

Year of assessment		2020									2025								
		EXISTING			LOW			ADVANCED			EXISTING			LOW			ADVANCED		
Benefits (Meur/year)		NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA
EU Bill benefits With Tariffs	Reference Supply	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Supply Maximization	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0
Security of Supply	Design Case	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.2	0.8	0.4	0.4	0.4	0.4	0.4	0.4
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
	Additional benefit (Promoter)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Year of assessment		2030									2040								
		EXISTING			LOW			ADVANCED			EXISTING			LOW			ADVANCED		
Benefits (Meur/year)		NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA	NT	DE	GA
EU Bill benefits With Tariffs	Reference Supply	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Supply Maximization	8.6	8.1	12.2	6.5	7.9	8.3	4.4	7.2	9.3	8.6	7.5	8.4	6.1	0.7	6.4	3.5	0.3	4.6
Security of Supply	Design Case	2.5	0.8	3.0	1.3	0.8	1.5	1.3	0.8	1.3	2.5	0.8	1.5	1.3	0.8	1.5	1.3	0.8	1.5
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	0/0	0/0	3/3	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
	Additional benefit (Promoter)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

## C.4 Sensitivities analysis on monetised benefits [ENTSOG]

In line with ENTSG Adapted 2nd CBA Methodology, ENTSG has also run sensitivities on some relevant assumptions such as tariffs, commissioning year and lower supply source price differential. The results included in the tables below have to be compared with the ones included in section C.3. Further information is available in the common introduction (Pages 1-6) to all project fiches. Independently from the source of the input as described in C3 (ENTSG or Promoter), the sensitivity analysis has been carried out by ENTSG and according to the criteria in the approved CBA Methodology.

[illegible]



## 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. The Tables have been filled in by the promoter.

TYNDP Code	Type of infrastructure	Surface of impact	Environmentally sensitive area

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs

### Environmental Impact explained [Promoter]

Environmental impact assessments for the projects have not indicated any substantial and irreversible impacts on the environment. In order to ensure that environmental assessments are correct, environmental monitoring is carried out before, during and after the construction of the infrastructure.

## E. Other Benefits [Promoter]

Missing benefits are all benefits of a project which may be not captured by the current application in TYNDP 2020 of the 2nd CBA Methodology.

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

### Other benefits explained

With the project group a bidirectional transmission corridor will be established between Hungary and Italy via Slovenia. The individual countries will gain access to all gas sources reachable currently and in the future in all three countries involved as well as in the region as detailed above in the "Objective of the project(s) in the group" section.

## F. Useful Links

### The project website

HU:

<https://fgsz.hu/en/about-fgsz/activities-business-policy/international-projects/husit>

**Network Development Plan:**

HU:

[https://fgsz.hu/file/documents/1/1743/2020\\_07\\_09\\_ten\\_year\\_network\\_development\\_plan.pdf](https://fgsz.hu/file/documents/1/1743/2020_07_09_ten_year_network_development_plan.pdf)

**Plinovodi National Development Plan 2020-2029 link:**

<http://www.plinovodi.si/en/transmission-system/development-plan/>

<http://www.plinovodi.si/en/transmission-system/projects-of-common-interest-pci/>