

Before going through the content of each specific Project Fiche, please read the introduction document.

Project Group EAST_24a - Modernization Bulgarian GTS+ Interconnector IBS and IGB+ UGS Chiren

Reasons for grouping [ENTSO G]

The project group represents the investments related to the construction of the Bulgarian gas hub concept. It includes:

- Increase of transmission capacity of the Bulgarian GTS;
- New interconnection Bulgaria-Serbia;
- Connection of Bulgarian Transmission system with IGB;

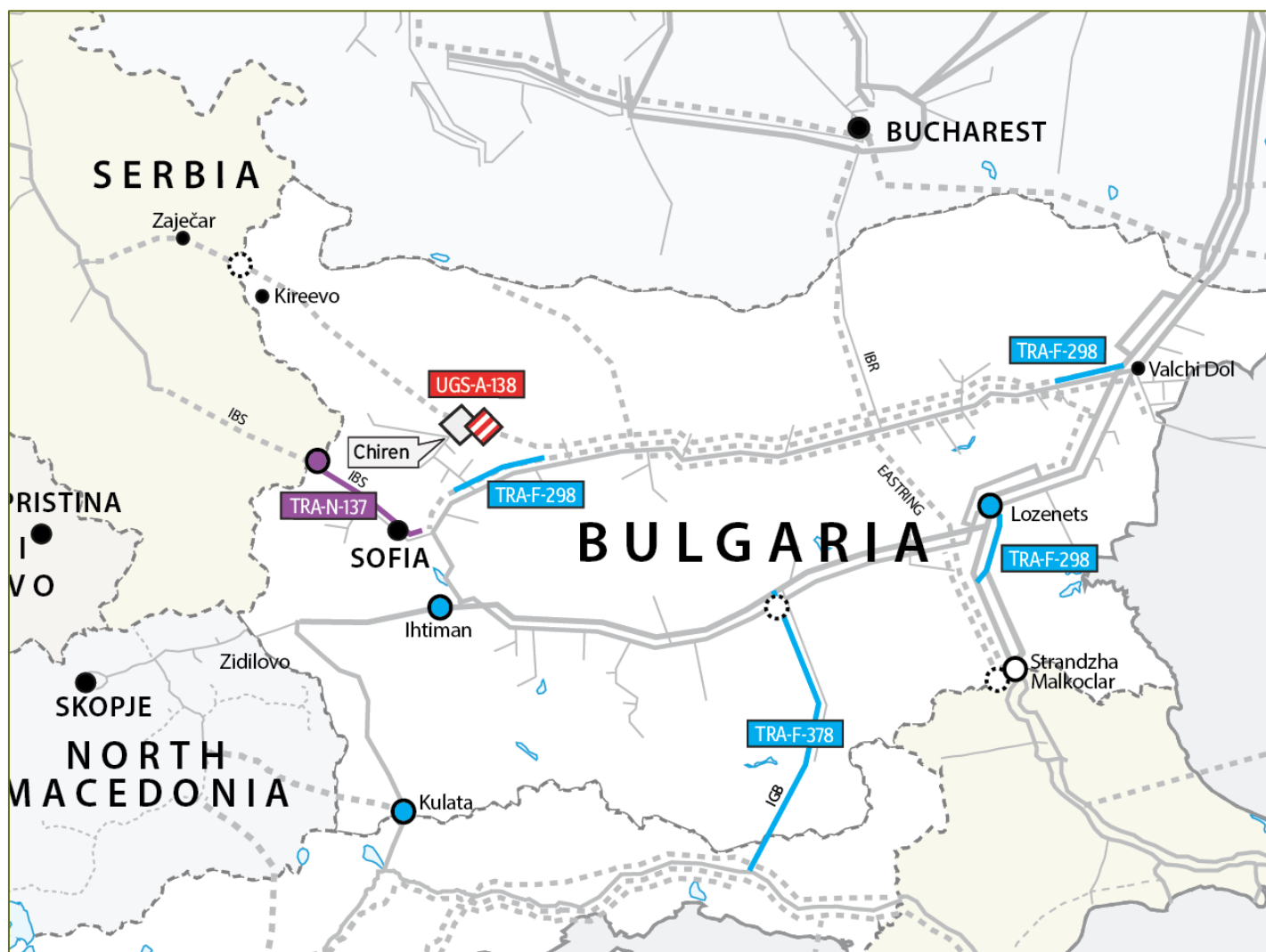
Additionally, it also includes:

- Increase of injection and withdrawal capacities at Chiren underground storage.

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

The objective of the group is to contribute to the development of a trade gas distribution centre on the territory of Republic of Bulgaria (Balkan Gas Hub) thus connecting and integrating the markets of the countries of the Balkan region, Central and Eastern Europe with the Western European markets and boosting competition on the gas market in the SEE region.

The group of projects aims at enhancing the security of supply by securing additional volumes of natural gas in the region, incl. through storage capacity increase and enhancement of the efficiency and reliability of the natural gas transmission system by its modernization and rehabilitation; contributing to diversification of entry routes and sources to Bulgaria the SEE region, incl. by further connecting the transmission system to new sources of gas; improving market integration and reducing energy infrastructure bottlenecks; enhancing interoperability, system flexibility and competition.



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-0137	Interconnection Bulgaria - Serbia	Bulgartransgaz EAD	BG	Less-Advanced	6.8.3	2022	2022	Delayed
UGS-A-0138	UGS Chiren Expansion	Bulgartransgaz EAD	BG	Less-Advanced	6.20.2	2025	2025	Delayed
TRA-F-0298	Modernization and rehabilitation of the Bulgarian GTS	Bulgartransgaz EAD	BG	FID	6.8.2	2021	2024	Delayed
TRA-F-0378	Interconnector Greece-Bulgaria (IGB Project)	ICGB AD	BG	FID	6.8.1	2020	2025	Delayed

Technical Information

TYNDP Project Code	Diameter [mm]	Length [km]	Compressor Power [MW]
TRA-F-0298	700	19	20
TRA-F-0298	700	23	-
TRA-F-0298	1000	20	-
TRA-F-0298	700	58	-
TRA-F-0378	813	182	12
TRA-N-0137	700	108	-
TRA-N-0137	700	62	-

TYNDP Project Code	Injection Capacity Increment [mcm/d]	Withdrawal Capacity Increment [mcm/d]	WGV Increment [mcm]
UGS-A-0138	4.8	4.6	450

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-F-298	Kulata (BG) / Sidirokastron (GR)	Bulgartransgaz EAD	Transmission Bulgarian Transit Bulgaria (GTNTT)	13.78	2021	Transmission Greece	-	-
TRA-F-298	Strandzha (BG) / Malkoclar (TR)	Bulgartransgaz EAD	Transmission Bulgarian Transit Bulgaria (GTNTT)	58.08	2021	Transmission Turkey (Exports)	-	-
TRA-F-298	Interconnector BG RS	IBS Future Operator	Transmission Bulgaria (NGTS)	19.36	2024	Transmission Serbia	19.36	2024
TRA-F-378	Stara Zagora - IGB / BG	ICGB a.d.	Transmission Interconnector Greece-Bulgaria	90	2021	Transmission Bulgaria (NGTS)	-	-

TRA-F-378	Stara Zagora - IGB / BG	ICGB a.d.	Transmission Interconnector Greece-Bulgaria	60	2025	Transmission Bulgaria (NGTS)	-	-
TRA-F-378	Komotini - TAP / IGB	ICGB a.d.	Transmission Trans-Adriatic Pipeline Greece	-	-	Transmission Interconnector Greece-Bulgaria	90	2020
TRA-F-378	Komotini (DESFA) - GR / IGB	ICGB a.d.	Transmission Greece (Komotini)	-	-	Transmission Interconnector Greece-Bulgaria	90	2020
TRA-F-378	Komotini - TAP / IGB	ICGB a.d.	Transmission Trans-Adriatic Pipeline Greece	-	-	Transmission Interconnector Greece-Bulgaria	60	2025
TRA-F-378	Komotini (DESFA) - GR / IGB	ICGB a.d.	Transmission Greece (Komotini)	-	-	Transmission Interconnector Greece-Bulgaria	60	2025
TRA-N-137	Interconnector BG RS	IBS Future Operator	Transmission Bulgaria (NGTS)	58.5	2022	Transmission Serbia	58.5	2022
UGS-A-138	GMS Chiren	Bulgartransgaz EAD (SSO)	Storage Bulgaria (NGTS)	48.9	2025	Transmission Bulgaria (NGTS)	51.07	2025

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-F-298	TRA-F-378	TRA-N-137	UGS-A-138	Total Cost
CAPEX [min, EUR]	339.59	240	48	237.977	865.567
OPEX [min, EUR/y]	4.55	4.5	1	3.08	13.13
Range CAPEX (%)	7	10	20	20	-
Range OPEX (%)	2	15	20	20	-

Description of costs and range [Promoter]

The CAPEX of TRA-F-298 and UGS-A-138 includes all the costs for the implementation of the projects until their commissioning, incl. FEED, supervision, construction works, delivery of materials, project management, publicity, etc. The OPEX figures are a preliminary estimation by the project promoter.

The CAPEX of TRA-F-0137 includes the planned expenses for gas pipelines linear part and the following technological facilities: pigging facilities (PF), valve assemblies (VA), two automated gas regulating stations (AGRS) at Slivnitsa and Dragoman as well as a gas metering station (GMS) at Kalotina.

The TRA-F-378 CAPEX is expected to be EUR 240 mln, (excluding VAT) and includes all the costs related to the implementation of the project namely: line pipe, block valves, stations and related facilities (Gas metering/ Automated gas regulation / pigging station and etc.), construction and installation, as well as other facilities - cathodic protection, SCADA system, external infrastructure connections etc; Project management and supervision during construction; Archaeology, Land Acquisition, and all other expenses related to the development of the Project, prior construction start, as FEED, EIA and Permitting activities. All the tender procedures have been awarded and the contracts related to the construction activities are concluded. The construction started in November 2019 and a process of costs update is ongoing based on the actual evolution of the project during the construction. Please note, that the current CAPEX forecast does not include the potential upgrade in 2025 as it is subject to future market test results. The expected range of fluctuations in the CAPEX is around 10%. OPEX includes the following expenses: payroll; utilities; public services; hired and third-party services; expenditure for spare parts and materials and etc., the range of the OPEX is approx. 10 %.

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:

In peak day, **the risk of demand curtailment is fully mitigated** in 2025 and 2030 and **mitigated** in 2040 in Bosnia and Herzegovina and Serbia, in Existing infrastructure level. Serbia is and remains the only gas supply for Bosnia Herzegovina and, in Existing infrastructure level, without the project group, the sum of the capacities of the entries to Serbia (Hungary plus Bulgaria from the project) is not enough to cover the demands of both countries. In 2025 & 2030, the project bringing gas from Bulgaria to Serbia solves the situation but, in 2040, the project is not sufficient and some disruption remains.

In Low infrastructure level, the connection from Bulgaria to Serbia solves this disruption.

The projects group **increases remaining flexibility** for Bosnia and Herzegovina and Serbia in Existing infrastructure level.

In the case of **SLID-Serbia**, the projects group reduces the risk of demand curtailment in Bosnia and Herzegovina and Serbia in Existing and Low infrastructure levels.

> Competition:

The projects group **improves the diversification of capacities** (LICD indicator) in entry in Bulgaria and Serbia, all infrastructure levels, thanks to interconnection between Greece and Bulgaria and between Bulgaria and Serbia.

In Existing infrastructure level, the projects group **decreases the dependence of Russian gas** for Bosnia and Herzegovina and Serbia in 2025.

In low Infrastructure level, the projects group **decreases the dependence of Russian gas** for Bosnia and Herzegovina, Bulgaria, North Macedonia and Serbia in 2025, 2030 and 2040. The projects group is **decreasing the dependence of Russian gas for Romania** in 2025.

In Existing infrastructure level, **the projects group also increases the number of supply sources (National Production)** that Bosnia and Herzegovina and Serbia have access to in 2025 and 2030.

In Low infrastructure level, **the projects group also increases the number of supply sources (LNG)** that Bosnia and Herzegovina, Serbia, Bulgaria, and North Macedonia have access to in 2025, 2030 and 2040 (not for North Macedonia). Thanks to the realization of the project the South East region improves the access mainly to LNG and Norwegian gas in Romania in 2025 and 2040 for LNG and in 2030 for both.

In Advanced infrastructure level, **the projects group also increases the number of supply sources (LNG)** that Bulgaria, Greece and North Macedonia have access to in 2025. Thanks to the realization of the project the South East region improves the access mainly to LNG.

> Market integration:

Bidirectionality is fully established with the creation of capacity between Bulgaria and Serbia.

The project group has a positive impact on the EU bill in reference case of about 19.5 Mln EUR/y in average in the LOW infrastructure level. It reaches 36 Mln EUR/y with Russia supply minimisation configuration when the project group helps to reduce the supply from Russia (through Belarus and Ukraine).

With the Advanced infrastructure level, this benefit is slightly reduced to 18 Mln EUR/y with the reference prices and 30 Mln EUR/y with Russia supply minimisation configuration.

The marginal price is reduced in most cases in Bosnia Herzegovina and Serbia (also in Croatia and Hungary with Russia minimisation or LNG maximisation) thanks to the project group. The effect of LOW and Advanced infrastructure levels is a higher decrease of the marginal price in Bulgaria.

There is a new connection between BG and RS perfectly balanced from 2025. But the connection with GR (from BG/BGT) is still slightly less balanced.

Distributed Energy

Benefits explained (but Sustainability) [ENTSO G]

> Security of Supply:

In peak day, **the risk of demand curtailment is fully mitigated** in 2025 and 2030 and **mitigated** in 2040 in Bosnia and Herzegovina and Serbia, in Existing infrastructure level. Serbia is and remains the only gas supply for Bosnia Herzegovina and, in Existing infrastructure level, without the project group, the sum of the capacities of the entries to Serbia (Hungary plus Bulgaria from the project) is not enough to cover the demands of both countries. In 2025 & 2030, the project bringing gas from Bulgaria to Serbia solves the situation but, in 2040, the project is not sufficient and some disruption remains.

In Low infrastructure level, the connection from Bulgaria to Serbia solves this disruption.

The projects group **increases remaining flexibility** for Bosnia and Herzegovina and Serbia in Existing infrastructure level.

In the case of **SLID-Serbia**, the projects group **reduces the risk of demand curtailment** in Bosnia and Herzegovina and Serbia in Existing and Low infrastructure levels.

> Competition:

The projects group **improves the diversification of capacities** (LICD indicator) in entry in Bulgaria and Serbia, all infrastructure levels, thanks to interconnection between Greece and Bulgaria and between Bulgaria and Serbia.

In Existing infrastructure level, the projects group **decreases the dependence of Russian gas** for Bosnia and Herzegovina and Serbia in 2025 and 2030 thanks to the new interconnection from Bulgaria and Serbia which allow Serbia to cooperate with Bosnia and Herzegovina.

In low Infrastructure level, the projects group **decreases the dependence of Russian gas** for Bosnia and Herzegovina, Bulgaria, North Macedonia, Romania and Serbia in 2025, 2030 and 2040 thanks to FID projects which allow this South East area to access new sources (LNG).

In Existing infrastructure level, **the projects group also increases the number of supply sources (National Production)** that Bosnia and Herzegovina and Serbia have access to in 2025 and 2030.

In Low infrastructure level, **the projects group also increases the number of supply sources (LNG)** that Bosnia and Herzegovina, Serbia, Bulgaria, and North Macedonia have access to in 2025, 2030 and 2040 (not for North Macedonia). Thanks to the realization of the project the South East region improves the access mainly to LNG and Norwegian gas in Romania in 2025 and 2040 for LNG and in 2030 for both.

In Advanced infrastructure level, **the projects group also increases the number of supply sources (LNG)** that Bulgaria, Greece and North Macedonia have access to in 2025. Thanks to the realization of the project the South East region improves the access mainly to LNG.

> Market integration:

Bidirectionality is fully established with the creation of capacity between Bulgaria and Serbia.

The project group has a positive impact on the EU bill of about 23 Mln EUR/y in average in the Existing infrastructure level and about 13 Mln EUR/y in average in the LOW infrastructure level. It reaches 23.5 Mln EUR/y with Russia supply minimisation configuration in LOW infrastructure level when the project group helps to reduce the supply from Russia (through Belarus and Ukraine).

In the Advanced infrastructure level, this benefit is around 11 Mln EUR/y with the reference prices and 24 Mln EUR/y with Russia supply minimisation configuration.

The marginal price is reduced in most cases in Bosnia Herzegovina and Serbia (also in Croatia and Hungary with Russia minimisation or LNG maximisation) thanks to the project group. The effect of LOW and Advanced infrastructure levels is a higher decrease of the marginal price in Bulgaria.

There is a new connection between BG and RS perfectly balanced from 2025. But the connection with Greece (from BG/BGT) is still slightly less balanced.

Global Ambition

Benefits explained (but Sustainability) [ENTSOG]

> Security of Supply:

In peak day, **the risk of demand curtailment is fully mitigated** in 2025 and 2030 and **mitigated** in 2040 in Bosnia and Herzegovina and Serbia, in Existing infrastructure level. Serbia is and remains the only gas supply for Bosnia Herzegovina and, in Existing infrastructure level, without the project group, the sum of the capacities of the entries to Serbia (Hungary plus Bulgaria from the project) is not enough to cover the demands of both countries. In 2025 & 2030, the project bringing gas from Bulgaria to Serbia solves the situation but, in 2040, the project is not sufficient and some disruption remains.

In Low infrastructure level, the connection from Bulgaria to Serbia solves this disruption.

The projects group **increases remaining flexibility** for Bosnia and Herzegovina and Serbia in Existing infrastructure level.

In the case of **SLID-Serbia**, the projects group **reduces the risk of demand curtailment** in Bosnia and Herzegovina and Serbia in Existing and Low infrastructure levels.

> Competition:

The projects group **improves the diversification of capacities** (LICD indicator) in entry in Bulgaria and Serbia, all infrastructure levels, thanks to interconnection between Greece and Bulgaria and between Bulgaria and Serbia.

In Existing infrastructure level, the projects group **decreases the dependence of Russian gas** for Bosnia and Herzegovina and Serbia in 2025 and 2030 thanks to the new interconnection from Bulgaria and Serbia which allow Serbia to cooperate with Bosnia and Herzegovina.

In low Infrastructure level, the projects group **decreases the dependence of Russian gas** for Bosnia and Herzegovina, Bulgaria, North Macedonia, Romania and Serbia in 2025, 2030 and 2040 thanks to FID projects which allow this South East area to access new sources (LNG).

In Existing infrastructure level, **the projects group also increases the number of supply sources (National Production)** that Bosnia and Herzegovina and Serbia have access to in 2025 and 2030.

In Low infrastructure level, **the projects group also increases the number of supply sources (LNG)** that Bosnia and Herzegovina, Serbia, Bulgaria, and North Macedonia have access to in 2025, 2030 and 2040 (not for North Macedonia). Thanks to the realization of the project the South East region improves the access mainly to LNG and Norwegian gas in Romania in 2025 and 2040 for LNG and in 2030 for both.

In Advanced infrastructure level, **the projects group also increases the number of supply sources (LNG)** that Bulgaria, Greece and North Macedonia have access to in 2025. Thanks to the realization of the project the South East region improves the access mainly to LNG.

> Market integration:

Bidirectionality is improved with the creation of capacity between Bulgaria and Serbia.

The project group has a positive impact on the EU bill of about 19 Mln EUR/y in average with the LOW infrastructure level. It reaches 29.5 Mln EUR/y with Russia supply minimisation configuration when the project group helps to reduce the supply from Russia (through Belarus and Ukraine).

With the Advanced infrastructure level, this benefit is reduced to 13 Mln EUR/y with the reference prices and 24 Mln EUR/y with Russia supply minimisation configuration.

The marginal price is reduced in most cases in Bosnia Herzegovina and Serbia (also in Croatia and Hungary with Russia minimisation or LNG maximisation) thanks to the project group. The effect of LOW and Advanced infrastructure levels is a higher decrease of the marginal price in Bulgaria.

There is a new connection between BG and RS perfectly balanced from 2025. But the connection with GR (from BG/BGT) is still slightly less balanced.

Sustainability benefits explained [ENTSOG/Project Promoter]

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 between 0.2-1.2 MEUR/y under the existing infrastructure level and between 0.2-0.5 MEUR/y. The table below shows the related reduction in terms of CO₂eq/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 CO₂eq/y emissions (positive number indicate reduction in CO₂eq/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 ₂ and Other externalities (KtCO ₂ eq/y)	Reference	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
	Lower Tariff Sensitivity	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
	Higher Tariff Sensitivity	0 / 0	0 / 0	0 / 0	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 CO₂eq/y savings in case emissions from the additional gas demand increase not replacing other more polluting fuels are counted in the overall CO₂eq 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. Therefore, the highest contribution of the project group is observed under the existing infrastructure level.

In particular, benefits allocated to project group EAST 24A are observed in Serbia (thanks to the implementation of project TRA-F-298 that creates capacity between Bulgaria and Serbia) and, to a minor extent, in Bulgaria (thanks to the implementation of project TRA-F-378, interconnection between Greece and Bulgaria).

Observing the evolution of benefits among the assessed years (section C.3), it can be noted that most of the benefits materialise in National trend scenarios in the period 2021-2030 with the project group contributing to fuel switch towards natural gas in Serbia and Bulgaria. The project is assessed by ENTSOG from its first full year of operation, in this case year 2021.

In line with the analysis described in the “market integration” section, the sensitivity on tariffs shows that the contribution of the project to the savings varies when the project group tariffs change, particularly under low and advanced infrastructure levels.

Sustainability benefits explained [ENTSOG/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					
Row Labels		CBG	GBC			NT			NT				
		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
Commercial Supply Access (CSA)													
	Bosnia Herzegovina	2	3	1	2	3	1	2	3	1			
	Serbia	2	3	1	2	3	1	2	3	1			
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	6,530	-3,470	10,000	6,530	-3,470	10,000	6,530	-3,470	10,000	6,530	-3,470
	Serbia	10,000	5,007	-4,993	10,000	5,007	-4,993	10,000	5,082	-4,918	10,000	5,086	-4,914
MASD-RU													
	Bosnia Herzegovina	44%	39%	-5%	46%	40%	-6%						
	Serbia	44%	39%	-5%	46%	40%	-6%						
Security of Supply													
Curtailment Rate 2-Week Cold Spell (%)													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	0%	18%	-14%	0%	14%
	Serbia	-7%	0%	7%	-7%	0%	7%	-18%	0%	18%	-13%	0%	13%
Curtailment Rate 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	0%	18%	-14%	0%	14%
	Serbia	-7%	0%	7%	-7%	0%	7%	-18%	0%	18%	-13%	0%	13%
Curtailment Rate Peak Day (%)													
	Bosnia Herzegovina	-18%	0%	18%	-18%	0%	18%	-36%	-27%	9%			
	Serbia	-17%	0%	17%	-17%	0%	17%	-34%	-2%	32%	-36%	-3%	33%
Remaining Flexibility 2-Week Cold Spell (%)													
	Bosnia Herzegovina	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	54%	54%
	Serbia	0%	35%	35%	0%	35%	35%	0%	20%	20%	0%	28%	28%
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	47%	47%
	Serbia	0%	35%	35%	0%	35%	35%	0%	20%	20%	0%	28%	28%
Remaining Flexibility Peak day (%)													
	Bosnia Herzegovina	0%	94%	94%	0%	94%	94%						
	Serbia	0%	21%	21%	0%	21%	21%						
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	86%	48%	-38%	86%	48%	-38%	90%	60%	-30%	90%	62%	-28%
	Serbia	84%	47%	-37%	84%	47%	-37%	88%	59%	-30%	89%	60%	-29%
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

LOW 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)													
	Bosnia Herzegovina	2	3	1	2	3	1	2	3	1	2	3	1
	Bulgaria	1	3	2	1	3	2	1	3	2	1	2	1
	North Noth Macedonia	1	2	1	1	2	1	1	2	1			
	Romania							2	3	1	1	2	1
	Serbia	2	3	1	2	3	1	2	3	1	2	3	1
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,411	-4,589	10,000	5,411	-4,589	10,000	5,411	-4,589	10,000	5,411	-4,589
	Serbia	10,000	5,007	-4,993	10,000	5,007	-4,993	10,000	5,082	-4,918	10,000	5,086	-4,914
MASD-RU													
	Bosnia Herzegovina	31%	23%	-8%	34%	27%	-7%	32%	12%	-20%	32%	13%	-19%
	Bulgaria	31%	23%	-8%	34%	27%	-7%	32%	12%	-20%	32%	13%	-19%
	North Noth Macedonia	31%	23%	-8%	34%	27%	-7%	32%	12%	-20%	32%	13%	-19%
	Romania	30%	24%	-7%	33%	27%	-6%						
	Serbia	31%	23%	-8%	34%	27%	-7%	32%	12%	-20%	32%	13%	-19%
Security of Supply													
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	18%	0%	-18%	18%	0%	-18%	36%	27%	-9%			
	Serbia	17%	0%	-17%	17%	0%	-17%	34%	2%	-32%	36%	3%	-33%
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

ADVANCED 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)													
	Bulgaria	3	4	1	3	4	1						
	Greece	3	4	1	3	4	1						
	North Noth Macedonia	3	4	1									
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,411	-4,589	10,000	5,411	-4,589	5,782	3,666	-2,115	5,741	3,648	-2,093
	Serbia	3,688	2,718	-969	3,692	2,720	-972	3,931	2,823	-1,108	3,940	2,828	-1,113
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

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													
Commercial Supply Access (CSA)													
	Bosnia Herzegovina	2	3	1	2	3	1	2	3	1			
	Serbia	2	3	1	2	3	1	2	3	1			
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	6,530	-3,470	10,000	6,530	-3,470	10,000	6,530	-3,470	10,000	6,530	-3,470
	Serbia	10,000	5,007	-4,993	10,000	5,007	-4,993	10,000	5,082	-4,918	10,000	5,086	-4,914
MASD-RU													
	Austria										23%	20%	-3%
	Bosnia Herzegovina	44%	39%	-5%	46%	40%	-6%	42%	32%	-10%			
	Croatia										23%	20%	-3%
	Czech Republic										23%	20%	-3%
	Germany										22%	20%	-2%
	Hungary										23%	20%	-3%
	Serbia	44%	39%	-5%	46%	40%	-6%	42%	32%	-10%			
	Slovenia										23%	20%	-3%
Security of Supply													
Curtailement Rate 2-Week Cold Spell (%)													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	0%	18%	-20%	0%	20%
	Serbia	-7%	0%	7%	-7%	0%	7%	-17%	0%	17%	-19%	0%	19%
Curtailement Rate 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	0%	18%	-20%	0%	20%
	Serbia	-7%	0%	7%	-7%	0%	7%	-17%	0%	17%	-19%	0%	19%
Curtailement Rate Peak Day (%)													
	Bosnia Herzegovina	-18%	0%	18%	-18%	0%	18%	-36%	-27%	9%			
	Serbia	-17%	0%	17%	-17%	0%	17%	-34%	-2%	32%	-36%	-3%	33%
Remaining Flexibility 2-Week Cold Spell (%)													
	Bosnia Herzegovina	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	54%	54%
	Serbia	0%	35%	35%	0%	35%	35%	0%	22%	22%	0%	19%	19%
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	47%	47%
	Serbia	0%	35%	35%	0%	35%	35%	0%	22%	22%	0%	18%	18%
Remaining Flexibility Peak day (%)													
	Bosnia Herzegovina	0%	94%	94%	0%	94%	94%						
	Serbia	0%	21%	21%	0%	21%	21%						
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	86%	48%	-38%	86%	48%	-38%	90%	60%	-30%	90%	62%	-28%
	Serbia	84%	47%	-37%	84%	47%	-37%	88%	59%	-30%	89%	60%	-29%
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

LOW Infrastructure Level – Distributed Energy

Sum of Value		Column Labels											
		2025			2030			2040					
Row Labels		CBG			GBC			DE			DE		
		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
Commercial Supply Access (CSA)													
	Bosnia Herzegovina	2	3	1	2	3	1	3	4	1	3	4	1
	Bulgaria	1	3	2	1	3	2	2	3	1	2	4	2
	Estonia										3	4	1
	Latvia										3	4	1
	North Noth Macedonia	1	2	1	1	2	1				3	4	1
	Romania							3	4	1	2	4	2
	Serbia	2	3	1	2	3	1	3	4	1	3	4	1
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,411	-4,589	10,000	5,411	-4,589	10,000	5,411	-4,589	10,000	5,411	-4,589
	Serbia	10,000	5,007	-4,993	10,000	5,007	-4,993	10,000	5,082	-4,918	10,000	5,086	-4,914
MASD-RU													
	Bosnia Herzegovina	31%	23%	-8%	34%	27%	-7%	29%	16%	-13%	9%	0%	-9%
	Bulgaria	31%	23%	-8%	34%	27%	-7%	29%	15%	-14%	9%	0%	-9%
	North Noth Macedonia	31%	23%	-8%	34%	27%	-7%	29%	16%	-13%	9%	0%	-9%
	Romania	30%	24%	-7%	33%	27%	-6%	29%	16%	-13%	9%	6%	-3%
	Serbia	31%	23%	-8%	34%	27%	-7%	29%	15%	-14%	9%	0%	-9%
Security of Supply													
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	18%	0%	-18%	18%	0%	-18%	36%	27%	-9%			
	Serbia	17%	0%	-17%	17%	0%	-17%	34%	2%	-32%	36%	3%	-33%
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

ADVANCED Infrastructure Level – Distributed Energy

Sum of Value		Column Labels											
		2025			2030			2040					
Row Labels		CBG			GBC			DE			DE		
		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Competition													
Commercial Supply Access (CSA)													
	Bosnia Herzegovina										4	5	1
	Bulgaria	3	4	1	3	4	1				4	5	1
	Greece	3	4	1	3	4	1						
	North Noth Macedonia	3	4	1							4	5	1
	Romania										4	5	1
	Serbia										4	5	1
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,411	-4,589	10,000	5,411	-4,589	5,548	3,574	-1,974	5,653	3,612	-2,041
	Serbia	3,688	2,718	-969	3,692	2,720	-972	3,931	2,823	-1,108	3,940	2,828	-1,113
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

EXISTING 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													
Commercial Supply Access (CSA)													
	Bosnia Herzegovina	2	3	1	2	3	1	2	3	1	2	3	1
	Serbia	2	3	1	2	3	1	2	3	1	2	3	1
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	6,530	-3,470	10,000	6,530	-3,470	10,000	6,530	-3,470	10,000	6,530	-3,470
	Serbia	10,000	5,007	-4,993	10,000	5,007	-4,993	10,000	5,082	-4,918	10,000	5,086	-4,914
MASD-RU													
	Bosnia Herzegovina	44%	39%	-5%	46%	40%	-6%	48%	39%	-9%	42%	38%	-4%
	Serbia	44%	39%	-5%	46%	40%	-6%	48%	39%	-9%	42%	38%	-4%
Security of Supply													
Curtailment Rate 2-Week Cold Spell (%)													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-24%	0%	24%	-26%	0%	26%
	Serbia	-7%	0%	7%	-7%	0%	7%	-23%	0%	23%	-25%	0%	25%
Curtailment Rate 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-24%	0%	24%	-26%	0%	26%
	Greece							-10%	-8%	1%			
	Serbia	-7%	0%	7%	-7%	0%	7%	-23%	0%	23%	-25%	0%	25%
Curtailment Rate Peak Day (%)													
	Bosnia Herzegovina	-18%	0%	18%	-18%	0%	18%	-36%	-27%	9%			
	Serbia	-17%	0%	17%	-17%	0%	17%	-34%	-2%	32%	-36%	-3%	33%
Remaining Flexibility 2-Week Cold Spell (%)													
	Bosnia Herzegovina	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	54%	54%
	Serbia	0%	35%	35%	0%	35%	35%	0%	13%	13%	0%	10%	10%
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	47%	47%
	Serbia	0%	35%	35%	0%	35%	35%	0%	13%	13%	0%	10%	10%
Remaining Flexibility Peak day (%)													
	Bosnia Herzegovina	0%	94%	94%	0%	94%	94%						
	Serbia	0%	21%	21%	0%	21%	21%						
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	86%	48%	-38%	86%	48%	-38%	90%	60%	-30%	90%	62%	-28%
	Serbia	84%	47%	-37%	84%	47%	-37%	88%	59%	-30%	89%	60%	-29%
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

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													
Commercial Supply Access (CSA)													
	Bosnia Herzegovina	2	3	1	2	3	1	3	4	1	3	4	1
	Bulgaria	1	3	2	1	3	2	2	3	1	2	4	2
	North Noth Macedonia	1	2	1	1	2	1				2	3	1
	Romania							2	3	1	2	4	2
	Serbia	2	3	1	2	3	1	3	4	1	3	4	1
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,411	-4,589	10,000	5,411	-4,589	10,000	5,411	-4,589	10,000	5,411	-4,589
	Serbia	10,000	5,007	-4,993	10,000	5,007	-4,993	10,000	5,082	-4,918	10,000	5,086	-4,914
MASD-RU													
	Bosnia Herzegovina	31%	23%	-8%	34%	27%	-7%	34%	26%	-8%	28%	7%	-21%
	Bulgaria	31%	23%	-8%	34%	27%	-7%	34%	26%	-8%	28%	7%	-21%
	North Noth Macedonia	31%	23%	-8%	34%	27%	-7%	34%	26%	-8%	28%	7%	-21%
	Romania	30%	24%	-7%	33%	27%	-6%	34%	27%	-7%			
	Serbia	31%	23%	-8%	34%	27%	-7%	34%	26%	-8%	28%	7%	-21%
Security of Supply													
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	18%	0%	-18%	18%	0%	-18%	36%	27%	-9%			
	Serbia	17%	0%	-17%	17%	0%	-17%	34%	2%	-32%	36%	3%	-33%
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

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													
Commercial Supply Access (CSA)													
	Bulgaria	3	4	1	3	4	1						
	Greece	3	4	1	3	4	1						
	North Noth Macedonia	3	4	1									
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,411	-4,589	10,000	5,411	-4,589	5,574	3,583	-1,991	5,640	3,607	-2,033
	Serbia	3,688	2,718	-969	3,692	2,720	-972	3,931	2,823	-1,108	3,940	2,828	-1,113
Market Integration													
Bi-directionality - Country													
	BGn <=> RS	0%	100%	100%	0%	100%	100%	0%	100%	100%	0%	100%	100%

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.

Benefits (Meur/year)		EXISTING			LOW			ADVANCED		
		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	26.3	22.6	26.3	19.5	13.2	19.2	17.8	11.0	13.4
	Supply Maximization	26.8	24.1	26.4	35.7	23.6	29.5	30.5	24.0	23.6
Security of Supply	Design Case	4.4	4.4	4.5	1.9	1.9	2.0	0.0	0.0	0.2
	2-weeks Cold Spell	10.5	12.4	16.9	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	10.6	13.4	17.7	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	1.8 / 2.5	0.7 / 2	0.2 / 1.2	0 / 0.1	0.2 / 0.5	0.1 / 0.3	0 / 0.1	0 / 0.4	0 / 0.3
	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	27.4	27.4	27.4	20.1	20.1	20.1	19.2	19.2	19.2
	Supply Maximization	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5	27.5	27.5	31.6	31.6	31.6	49.1	49.1	49.1
Security of Supply	Design Case	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	21.9	4.3	1.1	1.1	1.1	0.0	0.0	0.0
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8	5.8	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	5.8	5.8	5.8	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	6/7	6/7	6/7	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	27.4	25.7	27.4	19.2	18.8	20.0	17.7	16.9	18.9	27.4	18.9	27.5	21.5	5.0	19.8	18.7	1.6	6.1
	Supply Maximization	29.0	26.4	27.4	39.5	26.9	28.3	23.7	20.3	22.1	27.4	28.3	27.5	39.4	22.3	32.0	32.4	12.0	11.7
Security of Supply	Design Case	4.8	4.8	5.0	2.3	2.3	2.7	0.0	0.0	0.3	4.8	25.9	4.8	2.3	2.3	2.3	0.0	0.0	0.2
	2-weeks Cold Spell	15.7	14.4	21.2	0.0	0.0	0.0	0.0	0.0	0.0	10.9	17.1	23.5	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	15.8	14.5	23.6	0.0	0.0	0.0	0.0	0.0	0.0	11.2	18.8	23.8	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	0/2	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/0	0/0	0/0	0/0	0/0	1/1	0/1	0/0	0/0	1/1
	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
TRA-F-298	Gas pipelines; Compressor Stations	Two gas pipeline sections with a total length of about 81 km. Modernization of 3 Compressor Stations.	Protected areas are not affected.
TRA-N-0137	Gas pipeline	Length: 170 km (BG territory 62km)	The issued environmental permits are to be updated.

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
The impact on environmental components will have local effect (within the construction site and technological sites) and short-term, limited in the construction phase.	The construction works are carried out in strict compliance with the measures contained in the issued environmental permits.		
The issued environmental permits are to be updated.	The issued environmental permits are to be updated.		

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.

- **TRA-F-298 Rehabilitation, Modernization and Expansion of the NTS**

The project (two gas pipeline sections with a total length of about 81 km and the modernization of 3 Compressor Stations) is under construction. The construction works are carried out in strict compliance with the measures contained in the issued environmental permits.

- **TRA-N-0137 Interconnection Bulgaria - Serbia**

In the period 2012 – 2015 procedures assessing the impact of the project on the environment have been carried out and two opinions have been issued by the competent environment authority. Due to the expired time limits of these documents Bulgartransgaz EAD, shall submit the required documentation for updating the decisions. However, based on currently available information, the project is unlikely to cause any significant impacts on the environment.

- **UGS-A-138 UGS Chiren Expansion:**

The current status of the project is in the preparatory phase, including the completion of all necessary expansion studies (geological, geophysical and others).

- **TRA-N-0378 Interconnector Greece-Bulgaria (IGB Project)**

ICGB is fulfilling all the national legislation (Greek and Bulgarian) in relation to the Environmental Impact Assessment, as well as all the best practices and requirement imposed from the European Investment Bank, which is providing substantial part of the financing of the project and is monitoring closely all the EIA issues.

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

N-1 Infrastructure standard for Bulgaria.

The technical parameters of IGB pipeline will allow the transmission of 9.1 million cubic meters per day (with a load factor of 0.9) in the direction of Greece to Bulgaria or 3 billion cubic meters per year. Thus, the implementation of the project will lead to the increase of the N-1 infrastructure standard.

Further it should be noted that four of the five shippers that have reserved capacity through IGB are new participants on the Bulgarian market. This is expected to lead to an increase in the competition between natural gas traders.

F. Useful Links

- TRA-F-298:

The project website: <https://www.bulgartransgaz.bg/en/pages/rehabilitaciya-modernizaciya-i-razshirenje-na-sashtestvuvash-133.html>

PCI Fiche: https://ec.europa.eu/energy/maps/pci_fiches/PciFiche_6.8.2.pdf

- TRA-N-137:

The project website: <https://www.bulgartransgaz.bg/en/pages/6-8-3-mezhdusistemna-gazova-vrazka-balgariya-sarbiya-ibs-191.html>

PCI Fiche: https://ec.europa.eu/energy/maps/pci_fiches/PciFiche_6.8.3.pdf

- UGS-A-138:

The project website: <https://bulgartransgaz.bg/en/pages/razshirenje-kapaciteta-na-pgh-chiren-poi-6-20-2--134.html>

PCI Fiche: https://ec.europa.eu/energy/maps/pci_fiches/PciFiche_6.20.2.pdf

Bulgartransgaz EAD Network Development Plan:

https://www.bulgartransgaz.bg/files/useruploads/files/amd/TYNDP_2020_ENG.pdf

- TRA-N-378:

The project website: <https://www.icgb.eu/home>

PCI Fiche: https://ec.europa.eu/energy/maps/pci_fiches/PciFiche_6.8.1.pdf

Network Development Plan: <https://www.icgb.eu/commercial/documents>