

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

Project Group EAST_23 - UGS Chiren

Reasons for grouping [ENTSOE]

The project group is composed by a UGS project and its enabler.

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

The objective of the group is to create an integrated, competitive and sustainable internal energy market within the SEE region of the EU.

The group of projects aims at expanding the storage capacity in the SEE region, whilst increasing its flexibility and is an integral part of the development of the regional gas system consisting of interconnections (IGB, IBS), LNG terminals (GR) and storage facilities. In addition, it will create conditions for enhancing market competition, the liquidity of the Balkan gas hub and the security of supply to the Bulgarian and SEE natural gas markets through storage capacity increase and enhancement of the efficiency and reliability of the natural gas transmission system by its modernization and rehabilitation.



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
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

Technical Information

TYNDP Project Code	Diameter [mm]	Length [km]	Compressor Power [MW]
TRA-F-0298	700	23	-
TRA-F-0298	1000	20	-
TRA-F-0298	700	19	20
TRA-F-0298	700	58	-

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
UGS-A-138	GMS Chiren	Bulgartransgaz EAD (SSO)	Storage Bulgaria (NGTS)	51.07	2025	Transmission Bulgaria (NGTS)	48.9	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	UGS-A-138	Total Cost
CAPEX [min, EUR]	339.59	237.977	577.567
OPEX [min, EUR/y]	4.55	3.08	7.63
Range CAPEX (%)	7	20	-
Range OPEX (%)	2	20	-

Description of costs and range [Promoter]

The CAPEX of the projects 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.

C. Project Benefits

C.1 Summary of project benefits

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

National Trends

Benefits explained (but Sustainability) [ENTSOG]

> Security of Supply:

The project group allows to mitigate risk of **Demand Curtailment** in Bosnia and Herzegovina and Serbia in all years in Existing Infrastructure level in all climatic demand case as Modernization and rehabilitation of the Bulgarian GTS contains extension of the capacity between Bulgaria and Serbia allowing higher flow also to Bosnia and Herzegovina. In 2025 risk is fully mitigated in 2 Week and 2 Week DF demand cases. The project group allows as well for the increase of the **Remaining Flexibility** for Bosnia and Herzegovina and Serbia in Existing infrastructure level, 2025 for 2 Week and 2 Week DF climatic cases.

In Low Infrastructure level, project group mitigate risk of demand curtailment in Serbia and Bosnia and Herzegovina in case of disruption of **SLID-RS** (which in Low infrastructure level is interconnection with Bulgarian Transit - Kireevo (BG) / Zaychar – from project group TRA-F-592).

> Competition:

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

The project group increase **number of gas sources** that Bosnia and Serbia can use in Existing Infrastructure level thanks to better access to gas from National Production allowing more gas mainly from Bulgaria and Romania. Together with additional projects in Advanced infrastructure level, this project group allows the same for Bulgaria, Greece and North Macedonia in GBC 2025.

> Market integration:

The project has a positive impact in monetised term as a reduction of the cost of gas supply. In the reference supply price configuration this can be estimated around 7 Mln Eur/y (on average) in Existing infrastructure level. Such benefits are driven by the fact that the project allows tariff savings transferring Russian gas to Serbia by Bulgaria.

Distributed Energy

Benefits explained (but Sustainability) [ENTSOG]

> Security of Supply:

The project group allows to mitigate risk of **Demand Curtailment** in Bosnia and Herzegovina and Serbia in all years in Existing Infrastructure level in all climatic demand cases as Modernization and rehabilitation of the Bulgarian GTS contain extension of the capacity between Bulgaria and Serbia allowing higher flow also to Bosnia and Herzegovina. The project group allows as well for the increase of the **Remaining Flexibility** for Bosnia and Herzegovina and Serbia in Existing infrastructure level, 2025 for 2 Week and 2 Week DF climatic cases.

In Low Infrastructure level, project group mitigate risk of demand curtailment in Serbia and Bosnia and Herzegovina in case of disruption of **SLID-RS** (which in Low infrastructure level is interconnection with Bulgarian Transit - Kireevo (BG) / Zaychar – from project group TRA-F-592).

> Competition:

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

The project group increase **number of gas sources** that Bosnia and Serbia can use in Existing Infrastructure level thanks to better access to gas from National Production allowing more gas mainly from Bulgaria and Romania. Together with additional projects in Advanced infrastructure level, this project group allows the same for Bulgaria, Greece and North Macedonia in GBC 2025.

> Market integration:

The project has a positive impact in monetised term as a reduction of the cost of gas supply. In the reference supply price configuration this can be estimated around 8 Mln Eur/y (on average) in Existing infrastructure level. Such benefits are driven by the fact that the project allows tariff savings transferring Russian gas to Serbia by Bulgaria.

In 2040 when NP in the region is significantly higher and satisfy higher part of demand, project groups allows for additional monetised benefits in the Existing infrastructure level in case of expensive gas from Russia (11 Mln Eur/y on average).

Global Ambition

Benefits explained (but Sustainability) [ENTSO G]

> Security of Supply:

The project group allows to mitigate risk of **Demand Curtailment** in Bosnia and Herzegovina and Serbia in all years in Existing Infrastructure level in all climatic demand cases as Modernization and rehabilitation of the Bulgarian GTS contains extension of the capacity between Bulgaria and Serbia allowing higher flow also to Bosnia and Herzegovina. The project group allows as well for the increase of the **Remaining Flexibility** for Bosnia and Herzegovina and Serbia in Existing infrastructure level, 2025 for 2 Week and 2 Week DF climatic cases.

In Low Infrastructure level, project group mitigate risk of demand curtailment in Serbia and Bosnia and Herzegovina in case of disruption of **SLID-RS** (which in Low infrastructure level is interconnection with Bulgarian Transit - Kireevo (BG) / Zaychar – from project group TRA-F-592).

> Competition:

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

The project group increase **number of gas sources** that Bosnia and Serbia can use in Existing Infrastructure level thanks to better access to gas from National Production allowing more gas mainly from Bulgaria and Romania. Together with additional projects in Advanced infrastructure level, this project group allows the same for Bulgaria, Greece and North Macedonia in GBC 2025.

> Market integration:

The project has a positive impact in monetised term as a reduction of the cost of gas supply. In the reference supply price configuration this can be estimated around 7 Mln Eur/y (on average) in Existing infrastructure level. Such benefits are driven by the fact that the project allows tariff savings transferring Russian gas to Serbia by Bulgaria.

Sustainability benefits explained [ENTSO G]

The ENSTOG 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 0.2-0.6 MEUR/y under the existing infrastructure level. 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 is observed under the existing infrastructure level. In particular, benefits are observed in Serbia thanks to the implementation of project TRA-F-298 that creates capacity between Bulgaria and Serbia.

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)													
	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	5,026	-4,974	10,000	5,026	-4,974	10,000	5,026	-4,974	10,000	5,026	-4,974
	Serbia	10,000	6,949	-3,051	10,000	6,956	-3,044	10,000	7,294	-2,706	10,000	7,306	-2,694
Security of Supply													
Curtailment Rate 2-Week Cold Spell (%)													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	-10%	8%	-14%	-4%	10%
	Serbia	-7%	0%	7%	-7%	0%	7%	-18%	-8%	9%	-13%	-3%	10%
Curtailment Rate 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	-10%	8%	-14%	-4%	10%
	Serbia	-7%	0%	7%	-7%	0%	7%	-18%	-9%	9%	-13%	-4%	10%
Curtailment Rate Peak Day (%)													
	Bosnia Herzegovina	-18%	-8%	10%	-18%	-8%	10%	-36%	-28%	8%			
	Serbia	-17%	-8%	9%	-17%	-8%	9%	-34%	-27%	7%	-36%	-28%	8%
Remaining Flexibility 2-Week Cold Spell (%)													
	Bosnia Herzegovina	0%	81%	81%	0%	81%	81%						
	Serbia	0%	3%	3%	0%	3%	3%						
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	0%	81%	81%	0%	81%	81%						
	Serbia	0%	3%	3%	0%	3%	3%						
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	86%	76%	-10%	86%	76%	-10%	90%	82%	-8%	90%	84%	-6%
	Serbia	84%	75%	-9%	84%	75%	-9%	88%	81%	-7%	89%	82%	-7%

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													
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,724	-4,276	10,000	5,724	-4,276	10,000	5,724	-4,276	10,000	5,724	-4,276
	Serbia	10,000	6,949	-3,051	10,000	6,956	-3,044	10,000	7,294	-2,706	10,000	7,306	-2,694
Security of Supply													
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	18%	8%	-10%	18%	8%	-10%	36%	28%	-8%			
	Serbia	17%	8%	-9%	17%	8%	-9%	34%	27%	-7%	36%	28%	-8%

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						
	Greece	3	4	1	3	4	1						
	North Noth Macedonia	3	4	1	2	3	1						
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,724	-4,276	10,000	5,724	-4,276	5,782	4,626	-1,156	5,741	4,581	-1,161
	Serbia	3,688	3,082	-606	3,692	3,086	-606	3,931	3,321	-610	3,940	3,330	-610

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	5,026	-4,974	10,000	5,026	-4,974	10,000	5,026	-4,974	10,000	5,026	-4,974
	Serbia	10,000	6,949	-3,051	10,000	6,956	-3,044	10,000	7,294	-2,706	10,000	7,306	-2,694
Security of Supply													
Curtailment Rate 2-Week Cold Spell (%)													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	-8%	10%	-20%	-12%	8%
	Serbia	-7%	0%	7%	-7%	0%	7%	-17%	-7%	9%	-19%	-10%	9%
Curtailment Rate 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-18%	-8%	10%	-20%	-12%	8%
	Serbia	-7%	0%	7%	-7%	0%	7%	-17%	-7%	9%	-19%	-10%	9%
Curtailment Rate Peak Day (%)													
	Bosnia Herzegovina	-18%	-8%	10%	-18%	-8%	10%	-36%	-28%	8%			
	Serbia	-17%	-8%	9%	-17%	-8%	9%	-34%	-27%	7%	-36%	-28%	8%
Remaining Flexibility 2-Week Cold Spell (%)													
	Bosnia Herzegovina	0%	81%	81%	0%	81%	81%						
	Serbia	0%	3%	3%	0%	3%	3%						
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	0%	81%	81%	0%	81%	81%						
	Serbia	0%	3%	3%	0%	3%	3%						
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	86%	76%	-10%	86%	76%	-10%	90%	82%	-8%	90%	84%	-6%
	Serbia	84%	75%	-9%	84%	75%	-9%	88%	81%	-7%	89%	82%	-7%

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													
Commercial Supply Access (CSA)													
	Romania							3	4	1			
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,724	-4,276	10,000	5,724	-4,276	10,000	5,724	-4,276	10,000	5,724	-4,276
	Serbia	10,000	6,949	-3,051	10,000	6,956	-3,044	10,000	7,294	-2,706	10,000	7,306	-2,694
Security of Supply													
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	18%	8%	-10%	18%	8%	-10%	36%	28%	-8%			
	Serbia	17%	8%	-9%	17%	8%	-9%	34%	27%	-7%	36%	28%	-8%

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													
Commercial Supply Access (CSA)													
	Bulgaria				3	4	1						
	Greece	3	4	1	3	4	1						
	North Noth Macedonia	3	4	1	2	3	1						
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,724	-4,276	10,000	5,724	-4,276	5,548	4,365	-1,183	5,653	4,482	-1,171
	Serbia	3,688	3,082	-606	3,692	3,086	-606	3,931	3,321	-610	3,940	3,330	-610

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	5,026	-4,974	10,000	5,026	-4,974	10,000	5,026	-4,974	10,000	5,026	-4,974
	Serbia	10,000	6,949	-3,051	10,000	6,956	-3,044	10,000	7,294	-2,706	10,000	7,306	-2,694
Security of Supply													
Curtailment Rate 2-Week Cold Spell (%)													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-24%	-14%	10%	-26%	-18%	8%
	Serbia	-7%	0%	7%	-7%	0%	7%	-23%	-14%	9%	-25%	-16%	9%
Curtailment Rate 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	-8%	0%	8%	-8%	0%	8%	-24%	-14%	10%	-26%	-18%	8%
	Serbia	-7%	0%	7%	-7%	0%	7%	-23%	-14%	9%	-25%	-16%	9%
Curtailment Rate Peak Day (%)													
	Bosnia Herzegovina	-18%	-8%	10%	-18%	-8%	10%	-36%	-28%	8%			
	Serbia	-17%	-8%	9%	-17%	-8%	9%	-34%	-27%	7%	-36%	-28%	8%
Remaining Flexibility 2-Week Cold Spell (%)													
	Bosnia Herzegovina	0%	81%	81%	0%	81%	81%						
	Serbia	0%	3%	3%	0%	3%	3%						
Remaining Flexibility 2-Week Cold Spell (%) --- DF													
	Bosnia Herzegovina	0%	81%	81%	0%	81%	81%						
	Serbia	0%	3%	3%	0%	3%	3%						
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	86%	76%	-10%	86%	76%	-10%	90%	82%	-8%	90%	84%	-6%
	Serbia	84%	75%	-9%	84%	75%	-9%	88%	81%	-7%	89%	82%	-7%

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)													
	Bulgaria	10,000	5,724	-4,276	10,000	5,724	-4,276	10,000	5,724	-4,276	10,000	5,724	-4,276
	Serbia	10,000	6,949	-3,051	10,000	6,956	-3,044	10,000	7,294	-2,706	10,000	7,306	-2,694
Security of Supply													
Single Largest Infrastructure Disruption (SLID)-Serbia													
	Bosnia Herzegovina	18%	8%	-10%	18%	8%	-10%	36%	28%	-8%			
	Serbia	17%	8%	-9%	17%	8%	-9%	34%	27%	-7%	36%	28%	-8%

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						
	Greece	3	4	1	3	4	1						
	North Noth Macedonia	3	4	1	2	3	1						
LNG and Interconnection Capacity Diversification (LICD)													
	Bulgaria	10,000	5,724	-4,276	10,000	5,724	-4,276	5,574	4,394	-1,180	5,640	4,467	-1,173
	Serbia	3,688	3,082	-606	3,692	3,086	-606	3,931	3,321	-610	3,940	3,330	-610

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 ENTSG 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	6.8	7.8	6.8	0.0	1.2	0.7	0.0	2.4	2.3
	Supply Maximization	7.3	10.7	6.9	1.1	3.5	2.0	2.3	5.1	4.9
Security of Supply	Design Case	1.3	1.3	1.4	0.6	0.6	0.7	0.0	0.0	0.2
	2-weeks Cold Spell	7.5	7.5	7.5	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	7.5	7.5	8.2	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	0.2 / 0.6	0.2 / 0.3	0.1 / 0.2	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	6.8	6.8	6.8	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	6.9	6.9	6.9	0.1	0.1	0.1	4.2	4.2	4.2
Security of Supply	Design Case	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	6.6	1.3	0.6	0.6	0.6	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	0.6/2	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	0.0	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	6.8	6.8	6.8	0.0	0.2	0.0	0.0	5.8	5.2	6.8	9.1	6.9	0.0	2.6	1.6	0.1	0.6	0.7
	Supply Maximization	8.4	6.8	6.8	1.6	2.4	1.3	1.3	7.8	7.7	6.8	17.0	7.1	1.2	6.4	3.6	1.7	4.7	3.3
Security of Supply	Design Case	1.3	1.3	1.5	0.6	0.6	1.9	0.0	0.0	0.3	1.3	6.6	1.3	0.6	0.6	0.6	0.0	0.0	0.2
	2-weeks Cold Spell	8.1	8.1	8.1	0.0	0.0	0.0	0.0	0.0	0.0	8.1	8.1	8.1	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	8.1	8.1	10.5	0.0	0.0	0.0	0.0	0.0	0.0	8.1	8.1	8.1	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

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.

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.		

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.

- 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-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.

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

No other benefits were provided by the promoter.

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

- 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

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