

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

Project Group EAST_20 - Bilciuresti UGS capacity increase

Reasons for grouping [ENTSO G]

The project group is composed by a UGS stand-alone project which aims at increasing withdrawal capacity of existing Bilciuresti UGS.

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

The project aims to:

- a) Facilitate the cross-border and regional availability of existent UGS capacities
- b) increase the delivery capacities and to ensure flexibility in terms of increasing consumption, all the more so because of the location of the UGS in the vicinity of the largest consumption area of Romania
- c) contribute to the sustainability and flexibility of the transmission system especially of high pressure pipelines
- d) reduce dependency on Russian import gas in every scenario
- e) support Romania's gas export potential connecting new Black Sea resources to the EU infrastructure.



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-F-0311	Bilciuresti daily withdrawal capacity increase	DEPOGAZ Ploiesti SRL	RO	FID	-	2025	2025	On time

Technical Information

TYNDP Project Code	Injection Capacity Increment [mcm/d]	Withdrawal Capacity Increment [mcm/d]	WGV Increment [mcm]
UGS-F-0311	0	65.1	0

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
UGS-F-311	VIP Romgaz UGS (RO)	DEPOGAZ	Storage Romania	65.1	2025	Transmission Romania	-	-

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 “*”.

	UGS-F-311	Total Cost
CAPEX [min, EUR]	59	59
OPEX [min, EUR/y]	2.8	2.8
Range CAPEX (%)	20	-
Range OPEX (%)	20	-

Description of costs and range [Promoter]

Description of costs [EUR]

- Acquisition procedure for EPCC contract: 333,450
- Land acquisition: 725,979
- Obtaining the Building Permit: 456,528
- Construction: 57,030,517
- Pre commissioning and commissioning, performance testing and training personnel: 399,179

TOTAL 58,945,653 [EUR]

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 **slightly increases the remaining flexibility** in Romania from 2030 onwards for all climatic stress conditions in Existing and Low infrastructure levels and only in 2040 in Advanced infrastructure level.

Regarding the supply import routes disruptions, in case of **Ukraine disruption**, the project group **helps to decrease the risk of demand curtailment** in Romania in Existing and Low infrastructure level.

In the case of **SLID-Romania**, the project group reduces or even fully mitigates the risk of demand curtailment in Romania in Existing and Low infrastructure levels.

Distributed Energy

Benefits explained (but Sustainability) [ENTSG]

> Security of Supply:

The project group slightly increases the remaining flexibility in Romania from 2030 onwards in Peak day and 2-week DF climatic stress conditions in Existing and Low infrastructure levels. In this scenario Romania has the highest indigenous production coming from renewable gases compared with the other scenarios.

Regarding the supply import routes disruptions, in case of **Ukraine disruption**, the project group **fully mitigates the risk of demand curtailment** in Romania, year 2020, 2Week-DF in Existing infrastructure level.

Global Ambition

Benefits explained (but Sustainability) [ENTSG]

> Security of Supply:

The project group slightly increases the remaining flexibility in Romania from 2030 onwards for all climatic stress conditions in Existing and Low infrastructure levels.

Regarding the supply import routes disruptions, in case of **Ukraine disruption**, the project group **fully mitigates the risk of demand curtailment** in Romania, year 2020, Peak Day in Existing infrastructure level.

Sustainability benefits explained [ENTSG]

Project groups EAST_20 does not show significant benefits from fuel switch under flow-based allocation.

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					
		2030			2040		
		NT			NT		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply							
Remaining Flexibility 2-Week Cold Spell (%)							
	Romania	62%	68%	6%	34%	39%	5%
Remaining Flexibility 2-Week Cold Spell (%) --- DF							
	Romania	54%	60%	6%	32%	37%	5%
Remaining Flexibility Peak day (%)							
	Romania	32%	38%	5%	14%	19%	5%
Single Largest Infrastructure Disruption (SLID)-Romania							
	Romania	5%	0%	-5%	21%	16%	-5%
Ukraine Disruption Curtailment Rate 2-Week Cold Spell (%)							
	Romania	-6%	-1%	5%	-28%	-22%	5%
Ukraine Disruption Curtailment Rate 2-Week Cold Spell (%) --- DF							
	Romania	-10%	-4%	6%	-29%	-23%	5%
Ukraine Disruption Curtailment Rate Peak Day (%)							
	Romania	-22%	-17%	5%	-38%	-33%	5%

LOW Infrastructure Level – National Trends

Sum of Value		Column Labels					
		2030			2040		
		NT			NT		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply							
Remaining Flexibility 2-Week Cold Spell (%)							
	Romania	71%	80%	9%	36%	44%	8%
Remaining Flexibility 2-Week Cold Spell (%) --- DF							
	Romania	63%	71%	8%	35%	42%	8%
Remaining Flexibility Peak day (%)							
	Romania	40%	47%	7%	16%	24%	7%
Single Largest Infrastructure Disruption (SLID)-Romania							
	Romania				19%	12%	-7%
Ukraine Disruption Curtailment Rate 2-Week Cold Spell (%)							
	Romania				-25%	-17%	8%
Ukraine Disruption Curtailment Rate 2-Week Cold Spell (%) --- DF							
	Romania	-3%	0%	3%	-26%	-18%	8%
Ukraine Disruption Curtailment Rate Peak Day (%)							
	Romania	-15%	-7%	7%	-35%	-28%	7%

ADVANCED Infrastructure Level – National Trends

Sum of Value		Column Labels					
		2030			2040		
		NT			NT		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply							
Remaining Flexibility 2-Week Cold Spell (%)							
	Romania				89%	97%	8%
Remaining Flexibility 2-Week Cold Spell (%) --- DF							
	Romania				86%	94%	8%
Remaining Flexibility Peak day (%)							
	Romania	99%	100%	1%	61%	68%	7%

EXISTING Infrastructure Level – Distributed Energy

Sum of Value		Column Labels					
		2030			2040		
		DE			DE		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply							
Remaining Flexibility 2-Week Cold Spell (%) --- DF	Romania				72%	79%	7%
Remaining Flexibility Peak day (%)	Romania	85%	92%	7%	68%	74%	6%
Ukraine Disruption Curtailment Rate 2-Week Cold Spell (%) --- DF	Romania				-2%	0%	2%

LOW Infrastructure Level – Distributed Energy

Sum of Value		Column Labels					
		2030			2040		
		DE			DE		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply							
Remaining Flexibility 2-Week Cold Spell (%) --- DF	Romania				76%	85%	9%
Remaining Flexibility Peak day (%)	Romania	96%	100%	4%	71%	80%	9%

ADVANCED Infrastructure Level – Distributed Energy

No benefits.

EXISTING Infrastructure Level – Global Ambition

Sum of Value		Column Labels					
		2030			2040		
		GA			GA		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply							
Remaining Flexibility 2-Week Cold Spell (%)							
Romania		90%	97%	7%	90%	97%	7%
Remaining Flexibility 2-Week Cold Spell (%) --- DF							
Romania		88%	95%	7%	76%	83%	7%
Remaining Flexibility Peak day (%)							
Romania		72%	78%	7%	65%	72%	7%
Ukraine Disruption Curtailment Rate Peak Day (%)							
Romania					-4%	0%	4%

LOW Infrastructure Level – Global Ambition

Sum of Value		Column Labels					
		2030			2040		
		GA			GA		
Row Labels		WITHOUT	WITH	DELTA	WITHOUT	WITH	DELTA
Security of Supply							
Remaining Flexibility 2-Week Cold Spell (%)							
Romania		99%	100%	1%	94%	100%	6%
Remaining Flexibility 2-Week Cold Spell (%) --- DF							
Romania		99%	100%	1%	81%	90%	10%
Remaining Flexibility Peak day (%)							
Romania		81%	91%	10%	69%	79%	9%

ADVANCED Infrastructure Level – Global Ambition

No benefits.

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	Reference Supply	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
With Tariffs	Supply Maximization	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Security of Supply	Design Case	2.0	0.0	0.4	2.6	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell	12.4	0.0	0.0	15.1	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	13.2	3.1	0.6	14.0	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
	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	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	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	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	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	0.0	0.0	0.0	0.0	0.0	0.0
Security of Supply	Design Case	2.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.6	3.1	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7	0.0	0.0	19.9	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	13.7	0.0	0.0	6.3	0.0	0.0	0.0	0.0	0.0	13.7	4.1	0.8	19.9	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

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.

The project is designed in order to raise and assure the independence of gas resources allowing the operators to have a sustainable exploitation of the gas resources all year long no matter of the fact that the consumption is different in the winter and in the summer.

The implementation of the Action will result in gaining benefits in terms of efficiency and GHG emissions reductions.

- (i) The implementation of the project will contribute to sustainability as the UGS will be upgraded with state of the art energy-efficient equipment, which will reduce emissions. Located in the immediate vicinity of the metropolitan area of the capital of Romania and of the industrial platforms in Prahova region, the upgraded UGS will contribute to reducing CO emissions in one of the most polluted areas of Romania, with the largest urban agglomeration in the country, by replacing classic fuels (coal and wood) in the production of energy and heat in both industrial and domestic consumption
- (ii) The use of modern technology and last generation equipment ensures the energy efficiency increase in order to mitigate climate changes

Overall implementation of the project will sustain the raise of the gas consumption at country level, achieved through a more developed gas infrastructure, which combined with diversified gas supply sources, will contribute to the reduction of fossil fuel use, by reducing air pollution from coal burning processes in order to produce electrical energy.

The project has a huge impact on the development of national gas infrastructure in order to assure the access of population to a highly efficient source of energy, this way stepping forward to diminishing the energy poverty at country level.

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

The implementation of this project will bring benefits, such as optimizing the costs of gas supply, supporting and ensuring the stability and safety of the regional gas transmission systems, increasing flexibility of the national and regional supply. Through an increase in storage deliverability and by expanding the geographical area of impact for the gas storage facilities, the threat of congestions will be eliminated and the transmission routes will be shortened while supplying the final consumer, thus creating the premises for potential exports to neighbouring countries.

Reducing the cost of electricity production by partially replacing conventional energy sources with natural gas, given that conventional energy sources, through the production cycle, are not competitive in terms of operational costs, reduction of greenhouse gas emissions and pollutant emissions.

- The implementation of the project will have a significant impact on the role of natural gas in the energy mix;
- Additionally, the price evolution of ETS emission certificates in the context of European decarbonisation policies indicates a continuous increase in emission costs of up to EUR 40/tCO₂ in 2030, in order to facilitate the achievement of targets.

The implementation of this project will increase the delivery capacities and will ensure flexibility in terms of increasing consumption, all the more so because of the location of the UGS in the vicinity of the largest consumption area of Romania, in continuous growth, in the immediate vicinity of the metropolitan area of the capital of Romania, Bucharest, an area that comprises a great number of industrial platforms.

F. Useful Links

The project website https://www.depogazploiesti.ro/application/files/3715/8340/1903/Fisa_Proiect_Bilciuresti.pdf

Network Development Plan : <https://www.transgaz.ro/sites/default/files/PDSNT%20%202018%20-%202027%20FINAL%2014.03.2018.pdf>

PCI Fiche: https://www.depogazploiesti.ro/application/files/3715/8340/1903/Fisa_Proiect_Bilciuresti.pdf