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

Project Group EAST_16A - South Bosnia-Croatia interconnection

Reasons for grouping [ENTSOG]

The project group represents a new interconnection between Bosnia *and* Herzegovina and Croatia at IP Posušje and includes the two sides of the investment.

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

Group will integrate BiH with the Croatian gas transmission system and enable BiH to supply gas from other markets (LNG Krk, European and Caspian and Middle East sources from TAP and IAP). Having a single point of entry of gas supplies poses a significant risk of disruption of gas supply to BiH; therefore, the need for an alternative supply route and source is evident. Additionally, capacity of the existing transmission system (constructed in 1979) is not large enough to meet BiH current demand during winter season, nor for the planned market enhancement. Project is planned as bi-directional.
Group will additionally enable gas market development in southern Croatia and BiH where natural gas is unavailable.

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-0851	Southern Interconnection pipeline BiH/CRO	BH Gas d.o.o.	BA	Less-Advanced	-	2023	2023	Rescheduled
TRA-A-0302	Interconnection Croatia-Bosnia and Herzegovina (South)	Plinacro Ltd	HR	Advanced	-	2023	2023	Rescheduled

Technical Information

TYNDP Project Code	Diameter [mm]	Length [km]	Compressor Power [MW]
TRA-A-0302	500	22	-
TRA-N-0851	500	162	-

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-A-302	Posušje	Plinacro Ltd	Transmission Ionic-Adriatic Pipeline Croatia	81	2023	Transmission Bosnia Herzegovina	81	2023
TRA-N-851	Posušje	BH Gas d.o.o.	Transmission Bosnia Herzegovina	38	2023	Transmission Ionic-Adriatic Pipeline Croatia	73	2023

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-A-302	TRA-N-851	Total Cost
CAPEX [min, EUR]	16.12*	101	**117.12**
OPEX [min, EUR/y]	0.29*	1	**1.29**
Range CAPEX (%)	0	5	-
Range OPEX (%)	0	1	-

Description of costs and range [Promoter]

- TRA-N-0302 Interconnection Croatia-Bosnia and Herzegovina (South)

Description of CAPEX: 100% of the CAPEX of the Interconnection Croatia-Bosnia and Herzegovina (South) refers to the costs of designing and engineering, civil works, assembly and installation works, material and equipment.
Description of OPEX: 100% of the cost refers to the operation and maintenance cost. There are no additional costs of own consumption (fuel gas) and labour cost.
CAPEX and OPEX represent best estimations available to project promoters at the moment of TYNDP 2020 call for projects (start of 2020).

- TRA-N-0851 Southern Interconnection pipeline BiH/CRO

Estimated CAPEX includes investments in the construction of the pipeline (114 km of the main route and 48 km of branch to Mostar) and aboveground facilities, land acquisition, project documentation and permits. Data source: PFS 2013, CBA 2018. CAPEX range is estimated as 5% because of the age and maturity of available data. Once when FS and Preliminary Design will be developed, CAPEX data will be more accurate.

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 realisation of the interconnection between Croatia and Bosnia Herzegovina allows to **fully mitigate the risk of demand curtailment** in Bosnia and Herzegovina in 2030 and 2040 under peak day climatic stress conditions and also **increases remaining flexibility** of Bosnia and Herzegovina from 2025 up to maximum level and **slightly increases remaining flexibility** of Croatia in 2025 under all climatic stress cases. However, only in the advanced infrastructure level, since the interconnection between Croatia and Bosnia and Herzegovina will be connected to the Croatian gas transmission network through the Ionian Adriatic Pipeline project that is included in this infrastructure level.

Regarding the disruption of the single largest infrastructure of Bosnia and Herzegovina **SLID-BA indicator** (, in the advanced infrastructure level, the project group together with the Ionian Adriatic Pipeline project **fully mitigates the risk of demand curtailment** in this country in 2025 and from 2030, due to the gas demand increase in Bosnia, the project group will partially mitigates the risk of demand curtailment in Bosnia.

> **Market integration:**

The project group brings benefits in monetised term as a **reduction of the cost of gas supply** only in the advanced infrastructure enabled by the Ionian Adriatic Pipeline project included in this infrastructure level. In the reference supply price configuration this can be estimated around 2.8 MEur/y (on average) only in advanced infrastructure level. Such benefit is explained by the savings in the cost of gas supply in Bosnia linked to the access to new supply sources and savings in transportations cost thanks to the new from Croatia.
Slightly higher benefits compared to the reference situation can be observed in the case of expensive Russian gas (2.94 MEur/y on average) as Bosnia could further benefit from cheaper sources arriving to Croatia (such as LNG) while rely on this alternative gas supply sources in case of expensive Russian gas.
Additionally, the project group helps to **improve the convergence of the gas price between markets in the region** in advanced infrastructure level and allows prices in Bosnia and Herzegovina to converge more with the countries in region.

Distributed Energy

Benefits explained (but Sustainability) [ENTSOG]

> **Security of Supply:**

The realisation of the interconnection between Croatia and Bosnia Herzegovina allows to **fully mitigate the risk of demand curtailment** in Bosnia and Herzegovina in 2030 and 2040 under peak day climatic stress conditions and also **increases remaining flexibility** of Bosnia and Herzegovina from 2025 up to maximum level and **slightly increases remaining flexibility** of Croatia in 2025 under all climatic stress conditions. However, only in the advanced infrastructure level, since the interconnection between Croatia and Bosnia and Herzegovina will be connected to the Croatian gas transmission network through the Ionian Adriatic Pipeline project that is included in this infrastructure level.

Regarding the disruption of the single largest infrastructure of Bosnia and Herzegovina **SLID-BA** (, in the advanced infrastructure level, the project group together with the Ionian Adriatic Pipeline project **fully mitigates the risk of demand curtailment** in this country in 2025 and from 2030, due to the gas demand increase in Bosnia, the project group will partially mitigates the risk of demand curtailment in Bosnia.

> **Market integration:**

The project group brings benefits in monetised term as a **reduction of the cost of gas supply** only in the advanced infrastructure enabled by the Ionian Adriatic Pipeline project included in this infrastructure level. In the reference supply price configuration this can be estimated around 4.2 MEur/y (on average) only in advanced infrastructure level. Such benefit is explained by the savings in the cost of gas supply in Bosnia linked to the access to new supply sources and savings in transportations cost thanks to the new from Croatia.
Slightly higher benefits compared to the reference situation can be observed in the case of expensive Russian gas (4.3 MEur/y on average) as Bosnia could further benefit from cheaper sources arriving to Croatia (such as LNG) while rely on this alternative gas supply sources in case of expensive Russian gas.
Additionally, the project group helps to **improve the convergence of the gas price between markets in the region** in advanced infrastructure level and allows prices in Bosnia and Herzegovina to converge more with the countries in region.

Global Ambition

Benefits explained (but Sustainability) [ENTSOG]

> **Security of Supply:**

The realisation of the interconnection between Croatia and Bosnia Herzegovina allows to **fully mitigate the risk of demand curtailment** in Bosnia and Herzegovina in 2030 and 2040 under peak day climatic stress conditions and also **increases remaining flexibility** of Bosnia and Herzegovina from 2025 up to maximum level and **slightly increases remaining flexibility** of Croatia in 2025 under all climatic stress conditions. However, only in the advanced infrastructure level, since the interconnection between Croatia and Bosnia and Herzegovina will be connected to the Croatian gas transmission network through the Ionian Adriatic Pipeline project that is included in this infrastructure level.

Regarding the disruption of the single largest infrastructure of Bosnia and Herzegovina **SLID-BA** (, in the advanced infrastructure level, the project group together with the Ionian Adriatic Pipeline project **fully mitigates the risk of demand curtailment** in this country in 2025 and from 2030, due to the gas demand increase in Bosnia, the project group will partially mitigates the risk of demand curtailment in Bosnia.

> **Market integration:**

The project group brings benefits in monetised term as a **reduction of the cost of gas supply** only in the advanced infrastructure enabled by the Ionian Adriatic Pipeline project included in this infrastructure level. In the reference supply price configuration this can be estimated around 3.9 MEur/y (on average) only in advanced infrastructure level. Such benefit is explained by the savings in the cost of gas supply in Bosnia linked to the access to new supply sources and savings in transportations cost thanks to the new from Croatia.
Additionally, the project group helps to **improve the convergence of the gas price between markets in the region** in advanced infrastructure level and allows prices in Bosnia and Herzegovina to converge more with the countries in region.

Sustainability benefits explained [ENTSOG]

Project groups EAST_16A does not show significant benefits from fuel switch under flow-based allocation.

Sustainability benefits explained [Promoter]

In addition to ENTSOG's analysis on Sustainability, the promoter complements this analysis with the following country-specific information.

The main goal of Southern Interconnection Project is to establish a new supply route for existing and new natural gas consumers in BiH providing reliable and diversified natural gas supply increasing security of supply (currently N-1 =0). Also, in addition to ensuring security of supply, retention of existing natural gas consumers and enabling the market development along the existing route, which is of the crucial importance for cities such are Sarajevo and Zenica because of extremely high air pollution caused by using of coal and heavy fuel in industry and commercial and residential sectors. Implementation of the project will create conditions for the introduction of natural gas as a new environmentally friendly fuel in new areas of BiH, and thus enable local and regional economic development in terms of the use of natural gas as a high-efficiency energy source in existing and new industrial processes, establishment of new distribution companies in cities along the Southern gas Interconnection pipeline and thereby increasing employment in the relevant areas.

When it comes to regional wider aspect, the Project will improve connectivity of BiH natural gas transmission systems with the neighbouring countries in this case Croatia that is through Hungary and Slovenia connected to the European gas transmission network. For BiH this means integration with the European gas market and creating the preconditions for access to the natural gas market hubs in Europe. From Croatian side, the Project will significantly contribute to diversification of entry/exit points of Croatian gas transmission system with neighbouring countries as well as increase the utilization of the Croatian existing transmission system including LNG.

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.

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
Security of Supply												
Curtailment Rate Peak Day (%)												
Bosnia Herzegovina							-27%	0%	27%	-41%	0%	41%
Remaining Flexibility 2-Week Cold Spell (%)												
Bosnia Herzegovina										54%	100%	46%
Croatia	84%	90%	6%	76%	82%	6%						
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Bosnia Herzegovina										47%	100%	53%
Croatia	79%	86%	6%	72%	78%	6%	96%	100%	4%			
Remaining Flexibility Peak day (%)												
Bosnia Herzegovina							0%	100%	100%	0%	100%	100%
Croatia	70%	75%	4%	64%	68%	4%						
Single Largest Infrastructure Disruption (SLID)-Bosnia Herzegovina												
Bosnia Herzegovina	100%	0%	-100%	100%	0%	-100%	100%	27%	-73%	100%	41%	-59%

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
Security of Supply												
Curtailment Rate Peak Day (%)												
Bosnia Herzegovina							-27%	0%	27%	-41%	0%	41%
Remaining Flexibility 2-Week Cold Spell (%)												
Bosnia Herzegovina										54%	100%	46%
Croatia	84%	90%	6%	76%	82%	6%						
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Bosnia Herzegovina										47%	100%	53%
Croatia	79%	86%	6%	72%	78%	6%						
Remaining Flexibility Peak day (%)												
Bosnia Herzegovina							0%	100%	100%	0%	100%	100%
Croatia	70%	75%	4%	64%	68%	4%						
Single Largest Infrastructure Disruption (SLID)-Bosnia Herzegovina												
Bosnia Herzegovina	100%	0%	-100%	100%	0%	-100%	100%	27%	-73%	100%	41%	-59%

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
Security of Supply												
Curtailment Rate Peak Day (%)												
Bosnia Herzegovina							-27%	0%	27%	-41%	0%	41%
Remaining Flexibility 2-Week Cold Spell (%)												
Bosnia Herzegovina										54%	100%	46%
Croatia	84%	90%	6%	76%	82%	6%						
Remaining Flexibility 2-Week Cold Spell (%) --- DF												
Bosnia Herzegovina										47%	100%	53%
Croatia	79%	86%	6%	72%	78%	6%						
Remaining Flexibility Peak day (%)												
Bosnia Herzegovina							0%	100%	100%	0%	100%	100%
Croatia	70%	75%	4%	64%	68%	4%						
Single Largest Infrastructure Disruption (SLID)-Bosnia Herzegovina												
Bosnia Herzegovina	100%	0%	-100%	100%	0%	-100%	100%	27%	-73%	100%	41%	-59%

C.3 Monetised benefits [ENTSOG]

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

		EXISTING			LOW			ADVANCED		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	0.0	0.0	0.0	0.0	0.0	0.0	2.8	4.2	3.9
	Supply Maximization	0.0	0.0	0.0	0.0	0.0	0.0	2.9	4.3	3.9
Security of Supply	Design Case	0.0	0.0	0.0	0.5	0.5	0.5	0.8	0.8	0.8
	2-weeks Cold Spell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2-weeks Cold Spell DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sustainability	CO2 and Other externalities savings	0 / 0	0 / 0	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	67.1	67.1	67.1
Gasification Benefits	Fuel Switch	0.0	0.0	0.0	0.0	0.0	0.0	51.0	51.0	51.0

Comparison between the assessed SCENARIOS

ENTSOG 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	0.3	0.3	0.3	0.3	0.3	0.3
	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
Gasification Benefits	Fuel Switch	0.0	0.0	0.0	0.0	0.0	0.0	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	3.6	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	2.9	5.6	5.0
	Supply Maximization	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.1	5.8	5.0
Security of Supply	Design Case	0.0	0.0	0.0	0.5	0.5	0.5	0.7	0.7	0.7	0.0	0.0	0.0	0.5	0.5	0.5	0.9	8.0	8.0
	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	30.0	30.0	30.0	0.00	0.00	0.00	0.0	0.0	0.0	133.0	133.0	133.0
Gasification Benefits	Fuel Switch	0.0	0.0	0.0	0.0	0.0	0.0	27.0	27.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	98.0	98.0	98.0

C.4 Sensitivities analysis on monetised benefits [ENTSOG]

In line with ENTSOG Adapted 2nd CBA Methodology, ENTSOG 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 (ENTSOG or Promoter), the sensitivity analysis has been caried out by ENTSOG and according to the criteria in the approved CBA Methodology.

EXISTING Infrastructure Level

		Commissioning Year Sensitivity			*Lower Tariff Sensitivity*			*Higher Tariff Sensitivity*			*Cost of Disruption Sensitivity*		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	0.0	0.0	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
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
	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
	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
Sustainability	CO2 and Other externalities savings (MEUR)	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
Gasification Benefits	Fuel Switch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LOW Infrastructure Level

		Commissioning Year Sensitivity			*Lower Tariff Sensitivity*			*Higher Tariff Sensitivity*			*Cost of Disruption Sensitivity*		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION
EU Bill benefits With Tariffs	Reference Supply	0.0	0.0	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
Security of Supply	Design Case	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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
	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
Sustainability	CO2 and Other externalities savings (MEUR)	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
Gasification Benefits	Fuel Switch	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ADVANCED Infrastructure Level

		Commissioning Year Sensitivity			*Lower Tariff Sensitivity*			*Higher Tariff Sensitivity*			*Cost of Disruption Sensitivity*		
Benefits (Meur/year)		NATIONAL TRENDS	DISTRIBUTED ENERGY	GLOBAL AMBITION	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	2.8	4.2	3.9	2.8	4.2	3.9	2.8	4.2	3.9	2.8	4.2	3.9
	Supply Maximization	2.9	4.3	3.9	2.9	4.3	3.9	2.9	4.3	3.9	2.9	4.3	3.9
Security of Supply	Design Case	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.6
	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
	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
Sustainability	CO2 and Other externalities savings (MEUR)	0 / 0	0 / 0	0 / 0	0 / 0	0.00	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0
	Additional benefit (Promoter)	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1	67.1
Gasification Benefits	Fuel Switch	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0

D. Environmental Impact [Promoter]

Any gas infrastructure has an impact on its surroundings. This impact is of particular relevance when crossing some environmentally sensitive areas. Mitigation measures are taken by the promoters to reduce this impact and comply with the EU and National regulations. The Tables have been filled in by the promoter.

TYNDP Code	Type of infrastructure	Surface of impact	Environmentally sensitive area
TRA-N-0302	Transmission gas pipeline	DN 500, length 22 km	NO
TRA-N-851	Transmission gas pipeline	The South Interconnection of BiH and Croatia project is located mainly on the territory of BiH in the length of 162 km. The project falls within the administrative boundaries of the following cantons: Herzegovina-Neretva, West Herzegovina, Canton 10 and Central Bosnia Canton.	Potential sensitive area will be identified during EIA procedure and development of Preliminary Design that are currently in progress..

Potential impact	Mitigation measures	Related costs included in project CAPEX and OPEX	Additional expected costs
During construction period the potential impacts on the environment are likely to appear in the following areas: air quality, noise, geomorphology, habitats, cultural heritage	For the project TRA-N-0302, EIA procedure has been carried out and a Decision on acceptability has been issued by the Croatian line Ministry. The Decision on acceptability issued by the Ministry includes prescribed relevant environmental protection measures for reducing the potential impacts to the lowest level. EIA procedures were carried out in accordance with the Croatian national legislation, that is, they have been aligned with the EU requirements.	Included in project CAPEX	Not expected
Major potentially environmental impact of the project occurs during the construction period (disturbance, impacts due to the dust, noise from transport and machineries). Impacts on the environment to be considered during EIA procedure are for: air quality, noise, geomorphology, habitats, flora and fauna, cultural heritage, occupational health, waste and accidents.	Mitigation measures to mitigate possible impacts to the lowest possible level will be proposed through the EIA procedure, all in line with national legislation and EU requirements. Mitigation measures during the construction phase, MM during operation, MM in case of accident, MM after termination of use and socio-economic MM will include responsibilities of design company, contractor, engineer, operator and potential other parties.	The environmental protection and mitigation measures costs will be assessed in EIA procedure	Related costs will be assessed in EIA procedure.

Environmental Impact explained [Promoter]

Major influences of the project **TRA-N-0302** on the economic and environmental dimensions are to be felt during the construction period (disturbance, traffic disturbance where secondary roads are cut, and impacts due to the dust, noise, transport machinery, and other machineries). The impacts on the environment are likely to appear in the following areas: air quality, noise, geomorphology, habitats, flora and fauna, cultural heritage, occupational health, waste and accidents. The proposed environmental protection measures include measures prescribed by national law and other regulations, protection measures in accidental situations, plans and technical solutions for environmental protection as well as other protective measures. Protection measures for reducing the possible impacts to the lowest possible level are proposed in the EIA procedures.

The preliminary EIA, which was conducted for project **TRA-N-0851** during the Pre-FS Report, considered potential impacts along the two potential pipeline routes. Most of the potential physical, biological and economic residual effects that could arise during construction and operation of the pipeline were considered to be reversible in the short- to medium-term. It was assessed that in no situation there was a high probability for the occurrence of a permanent or long-term residual effect that could not be technically or economically compensated. In conclusion, route Zagvozd-Posušje-N.Travnik with the main branch to Mostar was selected as more acceptable and was recommended for further development in the next stages of the Project. ESIA for South Interconnection of BiH and Croatia by the route Zagvozd – Posušje – N. Travnik that is currently in progress will determine all possible influences on the environment that could occur and will propose protection measures in order to reduce possible impacts to the lowest possible 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 ENTSOG and this condition needs to be proved and justified.

Other benefits explained

The implementation of the projects within this Group will have significant positive impact on the integration of the Croatian and BiH gas markets. The construction of the pipelines from this Group will enhance security of supply for BiH (current N-1 = 0) and provide additional volumes of gas available to the market. Group will create a potential for using gas for power generation in BiH. Natural gas consumption means using clean, environmentally friendly source of energy, because it is of low-carbon intensity compared to other fossil fuels. Therefore, use of gas for heating and power generation lead to reduction of environmental pollution i.e. reduction of CO2, SO2, NOx and PM emissions. Thus, Project will improve the situation with air pollution in BiH that significantly increases during the winter season and especially in urban areas. The main economic benefits from the implementation of the Project are the savings made on avoiding interruptions in gas supply when the existing connection is cut (because of the age and poor condition) and savings from the avoidance of gas disruptions on the route via Ukraine, from Russia. Other benefits include market enhancement, increased economic activity and employment growth, savings related to lower costs of gas purchase (potential less expensive supply sources become available) and increased bargaining power in negotiation with the current gas supplier.
Also, this Project Group will enable diversification of entry/exit points with neighbouring countries for Croatia (and provide gas transit and better utilisation of the Croatian gas transmission system.)
Additionally, Project expands the gas market for the planned Ionian-Adriatic Pipeline.

F. Useful Links

www.plinacro.hr
Network Development Plan:
PLINACRO:
http://www.plinacro.hr/UserDocsImages/dokumenti/Desetogodi%C5%A1nji%20plan%20razvoja%20PTS%202018-2027.pdf
(NDP 2018-2027, page 64)
BH-Gas:
Framework Energy Strategy of Bosnia and Herzegovina until 2035:
http://www.mvteo.gov.ba/data/Home/Dokumenti/Energetika/Framework_Energy_Strategy_of_Bosnia_and_Herzegovina_until_2035_ENG_FINAL....pdf

Conclusion of Government of Federation of BiH on Stategic importance of the South Interconnection of BiH and Croatia Gaspipeline Project, route Zagvozd (CRO) – Posušje (BiH) – Novi Travnik with branch to Mostar:
http://www.fbihvlada.gov.ba/bosanski/sjednica_v2.php?sjed_id=642&col=sjed_saopcenje