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# BOSNIA AND HERZEGOVINA ENERGY POLICY ACTIVITY

REPORT ON THE PROGRESS OF TRANSMISSION PIPELINES  
THAT WILL TRANSPORT GAS FROM SOURCES OTHER  
THAN RUSSIA, ALONG WITH OTHER PIPELINES  
BRINGING RUSSIAN GAS TO EUROPE

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## ACRONYMS AND ABBREVIATIONS

BCM	Billion cubic meters
BiH	Bosnia and Herzegovina
BIO	Biomethane development projects
CEF	Connecting Europe Facility
ENTSO	European Network of Transmission System Operators for Gas
EU	European Union
FEED	Front End Engineering Design
FID	Final Investment Decision
HYD	New or repurposed infrastructure to carry hydrogen
IAP	Ionian Adriatic Pipeline
IBS	Interconnector Bulgaria – Serbia
ICGB	Interconnector Greece – Bulgaria
LNG	Liquefied Natural Gas
MCM	Million Cubic Meters
OTH	Other infrastructure-related projects
PCI	Projects of Common Interest
PECI	Projects of Energy Community Interest
PMI	Projects of Mutual Interest
RET	Projects for retrofitting infrastructure to further integrate hydrogen
TANAP	Trans-Anatolian Natural Gas Pipeline
TAP	Trans Adriatic Pipeline
TEN-E	Trans-European Networks – Energy
TRA	Gas transmission pipeline projects including compressor stations
TRA-A	Transport Projects in Advanced Stage
TRA-F	Transport Projects with Final Investment Decision Made
TRA-N	Transport Projects in Less-Advanced Stage
TYNDP	Ten-Year Network Development Plan
UGS	Underground Gas Storage
USA	United States of America

# I INTRODUCTION

Natural gas is a fossil fuel, but when burned it emits far less pollutants and greenhouse gases compared to coal and oil. It is used in a variety of ways for industrial, commercial, residential and transportation purposes. Thus, gas is mainly used for power generation, household heating and industrial processes, but also for cooking and powering certain vehicle types.

The world's top ten (10) natural gas-producing countries in the last few years are as follows: United States of America (USA), Russia, Iran, China, Qatar, Canada, Australia, Norway, Saudi Arabia and Algeria<sup>1</sup>. However, the ranking of leading gas exporting countries is slightly different; Russia, USA, Qatar, followed by Norway and Australia<sup>2</sup>, including both, pipeline and liquefied natural gas (LNG) exports.

When it comes to European Union (EU) countries, the main gas suppliers are from Russia, Norway and Algeria. Between January and November 2022, Russia (pipeline gas + LNG) stood for less than a quarter of all the gas imports (803.8 TWh), another quarter came from Norway (812.9 TWh), and 11.6% from Algeria (378.8 TWh). LNG imports mainly delivered from the USA, Qatar and Nigeria (excluding Russia) had a market share of 25.7% (838.8 TWh)<sup>3</sup>.

Since the war in Ukraine, EU countries have significantly reduced gas imports from Russia. This reduction has mainly been compensated for by a continuous diversification of gas suppliers, especially by a sharp increase in imports of LNG, particularly from the USA. In the period between January and November 2022, LNG imports from the USA accounted for more than twice (over 50 bcm) the LNG imports in the whole of 2021 (over 22 bcm). Additionally, between August 2022 and January 2023, EU countries have collectively reduced the amount of natural gas consumed by 19%, as a result of common rules, adopted in summer 2022, which set a voluntary natural gas consumption reduction target of 15% for the period August 2022 to March 2023 compared to EU's average consumption over the past five years<sup>4</sup>.

An overview of existing gas transmission pipelines in and around Europe is shown in Figure I.

This report provides an overview on the progress of main transmission pipeline network projects to and within Europe, with a particular focus on projects of interest to Bosnia and Herzegovina (BiH). The main source of potential transmission pipeline projects used for the preparation of this report is the Ten-Year Network Development Plan (TYNDP) issued on a biennial basis by the European Network of Transmission System Operators for Gas (ENTSOG). For the purpose of writing the 2023 edition of this report, relevant data has been taken from the drafted TYNDP 2022, which for the first time, besides natural gas, assesses hydrogen and biomethane infrastructure projects<sup>5</sup>. The TYNDP issued in 2023 was prepared to include REPowerEU Plan ambitions and support EU climate and energy targets for carbon neutrality by 2050.

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<sup>1</sup> Statista, <https://www.statista.com/statistics/264771/top-countries-based-on-natural-gas-production/> January 2023

<sup>2</sup> Statista, <https://www.statista.com/statistics/217856/leading-gas-exporters-worldwide/> March 2023

<sup>3</sup> European Council, Council of the European Union: <https://www.consilium.europa.eu/en/infographics/eu-gas-supply/> February 2023

<sup>4</sup> European Council, Council of the European Union: [Gas demand reduction in the EU - Consilium \(europa.eu\)](https://www.consilium.europa.eu/en/infographics/eu-gas-supply/) April 2023

<sup>5</sup> ENTSOG, The Hydrogen and Natural Gas TYNDP 2022: <https://www.entsog.eu/tyndp#entsog-ten-year-network-development-plan-2022> April 2023

The TYNDP includes different types of projects in different stages of implementation. According to infrastructure categories, projects are divided into the following groups:

- TRA - Gas transmission pipeline projects including compressor stations
- LNG - Reception, storage and regasification or decompression facilities for LNG or compressed projects
- UGS - Underground gas storage facilities
- HYD - New or repurposed infrastructure to carry hydrogen
- RET - Projects for retrofitting infrastructure to further integrate hydrogen
- BIO - Biomethane development projects
- OTH - Other infrastructure-related projects.

The last four (4) project categories have been introduced for the first time in TYNDP preparation activities to emphasize energy transition projects that facilitate the integration of renewables, the achievement of decarbonization and efficiency targets, reduction of air pollutants, and sector coupling initiatives, better allowing for sector-specific insights and displaying development trends.



**Figure 1 - Map of existing transmission pipelines to and within Europe**

In terms of projects' stages of implementation, projects within the TYNDP are divided into the following groups:

- Final Investment Decision (FID) projects – correspond to projects that have taken the final investment decision before the closure of the TYNDP project collection period.
- Non-FID projects:
  - Non-FID Advanced projects – correspond to projects with a commissioning year expected at the latest by December 31, 2028 and whose permitting phase has started ahead of the TYNDP project data collection, or projects where the Front End



Engineering Design (FEED<sup>6</sup>) has started (or the project has been selected for receiving Connecting European Facility<sup>7</sup> [(CEF) grants for FEED] ahead of the TYNDP project data collection.

- Non-FID Less-Advanced – correspond to projects that do not meet the FID, nor the Advanced criteria.

For the purpose of writing this Report, only TRA projects are considered.

This report also addresses Projects of Common Interest (PCI) as adopted by the European Commission. Since the last reporting edition, no new list of PCI has been adopted, thus, projects from the 5<sup>th</sup> List of PCI<sup>8</sup> from November 2021 remain as actual and their eventual progress will be elaborated.

Additionally, the Energy Community selects Projects of Energy Community Interest (PECI), similar to PCI projects in the EU. Projects between two Contracting Parties are considered PECI projects and projects between a Contracting Party and an EU Member State are considered Projects of Mutual Interest (PMI). These projects will be addressed in this Report, too. However, by the Ministerial Council Decision 2021/11/MC-EnC, amending Decision 2015/09/MC-EnC on the implementation of Regulation (EU) No 347/2013, the adoption of the Energy Community list of energy infrastructural projects every two years has been suspended, pending the adoption by the EU of a new Trans-European Networks – Energy (TEN-E) Regulation and its subsequent incorporation and adoption in the Energy Community acquis Communautaire. The revised TEN-E was adopted in June 2022 by the EU and is currently in the process of sharing and discussing with the Energy Community Contracting Parties. The process for preparing the new PECI list (and the PMI list, accordingly) is planned for January 2024 and expected to be approved at the Ministerial Council meeting at the end of 2024. Until the establishment of a new list, the lists annexed to Decision 2020/04/MC-EnC and Recommendation 2020/01/MC-EnC remain valid<sup>9</sup>.

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<sup>6</sup> FEED - Front End Engineering Design as the basic engineering activity conducted after completion of the conceptual design or the (pre-)feasibility study.

<sup>7</sup> CEF is an EU-funding instrument defined in Art. 14 of Regulation (EU) 347/2013 (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0347&from=en>).

<sup>8</sup> Projects of Common Interest for the EU are key infrastructure projects that link the energy systems of EU countries. European Commission, Annex to Commission Delegated Regulation (EU) No 347/2013, amending Regulation (EU) No 347/2013 of the European Parliament and of the Council as Regards the Union List of Projects of Common Interest, 2021. [https://ec.europa.eu/energy/sites/default/files/fifth\\_pci\\_list\\_19\\_november\\_2021\\_annex.pdf](https://ec.europa.eu/energy/sites/default/files/fifth_pci_list_19_november_2021_annex.pdf).

<sup>9</sup> <https://www.energy-community.org/regionalinitiatives/infrastructure/selection.html> , [Me18thMC\\_Recommendation\\_2020-01\\_PECI%20\(2\).pdf](#)



## 2 TRANSMISSION PIPELINES OF INTEREST TO EUROPE

Being the largest gas exporter to Europe, in the past years, most Russian gas flowed through existing pipeline infrastructure in Ukraine (Figure 2a). Part of the gas was supplied via a pipeline through Belarus and Poland (Yamal pipeline) to Germany, another part from the Crimean Peninsula. One route is via Turkey, the Blue Stream pipeline under the Black Sea and the Turkish Stream pipeline (TurkStream) commissioned in 2020 (Figure 2b). The Nord Stream 1 pipeline is the longest subsea pipeline in the world, accounting for about 40% of all natural gas exported from Russia to Europe. A parallel pipeline, Nord Stream 2, was built by September 2021, but is still waiting for regulators in Germany to allow it to operate, due to the Russian invasion on Ukraine. Nord Stream 2 follows the route laid down by the Nord Stream pipeline and runs through the Baltic Sea from the St. Petersburg region (Russia) to Baltic Coast in north-east Germany.



**Figure 2 - Maps of existing transmission pipelines to and within Europe**

The Groningen gas field is the largest in Europe, making the Netherlands one of the few major gas producers in Europe. However, extraction of the field's reserves has increasingly brought earthquakes, leading to a decision by the Dutch government to restrict its output. Extraction is expected to end in fall 2023 or by 2024 at the latest.

In the past years, two thirds of Spain and Portugal's annual gas imports were provided from North Africa, Algeria via the Medgaz and Maghreb pipeline passing through Morocco (Figure 2c).

Europe's second largest gas producer, Norway, satisfies most of the United Kingdom's gas needs (Langeled pipeline shown in Figure 2d), combined with LNG shipments, predominantly from Qatar.

## 2.1 PROGRESS OF TRANSMISSION PIPELINE PROJECTS IN THE EU COUNTRIES

In response to the hardships and global energy market disruption caused by Russia's invasion of Ukraine, the European Commission presented the REPowerEU Plan in May 2022. The REPowerEU Plan is the European Commission's plan to rapidly reduce dependence on Russian fossil fuel imports, fast forward the green transition, provide energy savings, produce clean energy and diversify energy supplies<sup>10</sup>.

Alongside the REPowerEU Plan, other major European initiatives to ease strains on gas markets also included the following actions<sup>11</sup>:

- Introduction of minimum gas storage obligations: The European Union adopted a new storage regulation in June 2022, according to which storage sites have to be filled to at least 80% of their capacity before the winter of 2022-23, and to 90% ahead of all following winter periods.
- A regulation on coordinated demand reduction measures for gas: This targets a 15% voluntary reduction in EU gas demand between August 1, 2022 and March 31, 2023, compared with its five-year average. The European Commission has adopted the European Gas Demand Reduction Plan with best practices and guidance for member states to help them reduce gas demand.
- EU Action Plan to digitalize the energy system: the European Commission presented an Action Plan in October 2022 on the digitalization of the energy sector to improve the efficient use of energy resources, facilitate the integration of renewables into the grid, and save costs for EU consumers and energy companies.
- Energy diplomacy: the European Union intensified its international outreach to strengthen energy partnerships with key natural gas and LNG suppliers. The EU and the United States announced a Joint Task Force in March 2022 to strengthen European energy security. Among other such initiatives, the European Commission signed a Memorandum of Understanding in June 2022 on a Strategic Partnership in the Field of Energy with Azerbaijan.
- Several interconnectors were commissioned ahead of the 2022-23 heating season that facilitated internal gas flows and diversification of gas supply, including between Central and Eastern European countries that have historically had a higher reliance on Russian pipeline gas.

Thus, gas infrastructure development activities since last year were guided by the above-mentioned decisions and action plans, addressing objectives in reducing Russian gas imports, but also the set target of 10 million tonnes of domestic renewable hydrogen production and 10 million tonnes of renewable hydrogen imports by 2030 defined in REPowerEU Plan.

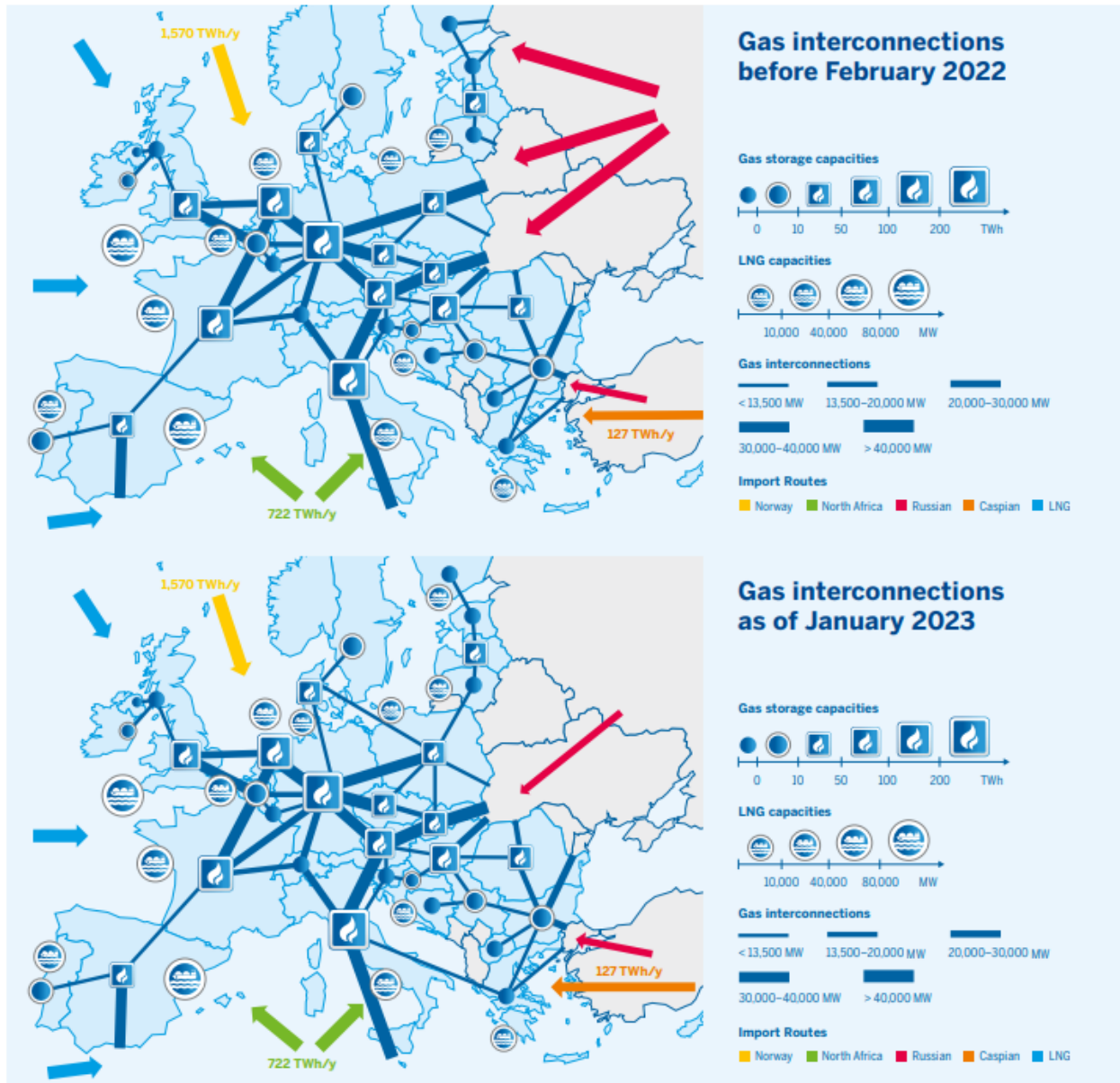
Figure 3 gives shows a glance at the European gas infrastructure before the Russian invasion of Ukraine (above) and infrastructure as of January 2023 (below)<sup>12</sup>. As it can be notified, gas imports from Russia to Europe have been significantly decreased, resulting in the non-usage of several interconnection, whereby few new ones between European countries have been commissioned.

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<sup>10</sup> European Commission, REPowerEU Plan: [https://eur-lex.europa.eu/resource.html?uri=cellar:fc930f14-d7ae-11ec-a95f-01aa75ed71a1.0001.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:fc930f14-d7ae-11ec-a95f-01aa75ed71a1.0001.02/DOC_1&format=PDF), May 2022.

<sup>11</sup> International Energy Agency – IEA: How to Avoid Gas Shortages in the EU in 2023: [How to Avoid Gas Shortages in the European Union in 2023 \(windows.net\)](https://www.iea.org/reports/how-to-avoid-gas-shortages-in-the-eu-in-2023) December 2022.

<sup>12</sup> Op. cit., fn. 5.



**Figure 3 – The European gas infrastructure in February 2022 and January 2023**

In total, 358 investments have been included in the TYNDP 2022. Figure 4 shows the categorization of TYNDP 2022 projects by infrastructure type<sup>13</sup>.

According to the implementation stage, the 108 transmission and compressor station investment projects are categorized as follows:

- 23 FID projects
- 48 Advanced projects and
- 37 Less-Advanced projects.

<sup>13</sup> Ibid.



The map given in Figure 5 shows all projects that have been completed from the last TYNDP edition<sup>14</sup>. Over the years between TYNDP editions in 2020 and 2023, 32 investments were commissioned. In addition to those 32, 25 investments with either FID or Advance status are expected to be commissioned by the end of 2023. Most of those investments are TRA projects, with five (5) LNG projects and even one (1) HYD.

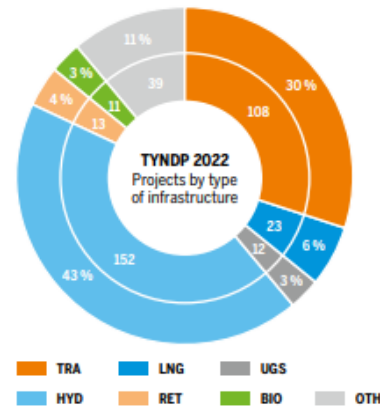


Figure 4 – Investment inclusion in TYNDP 2022 by type of infrastructure

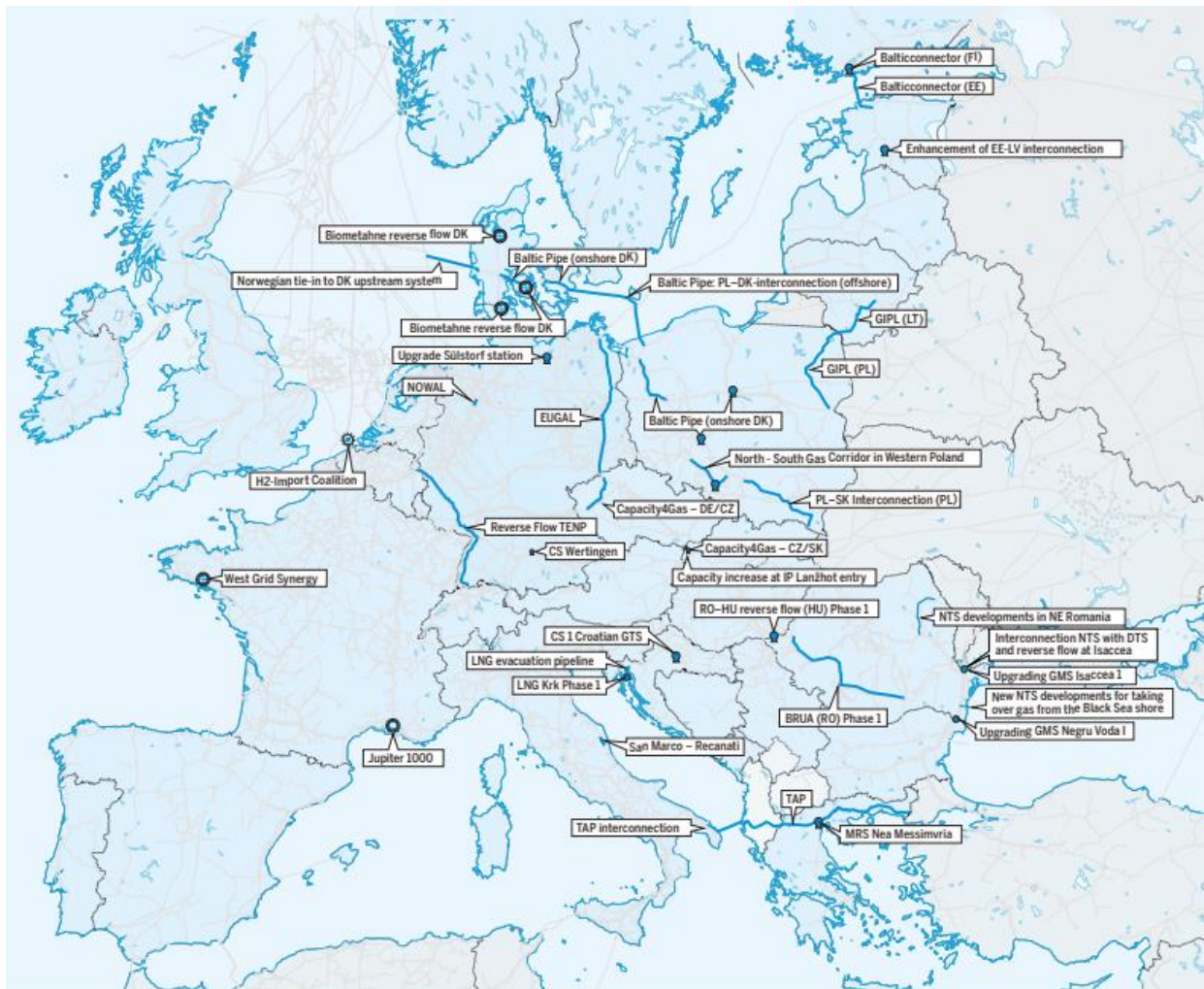


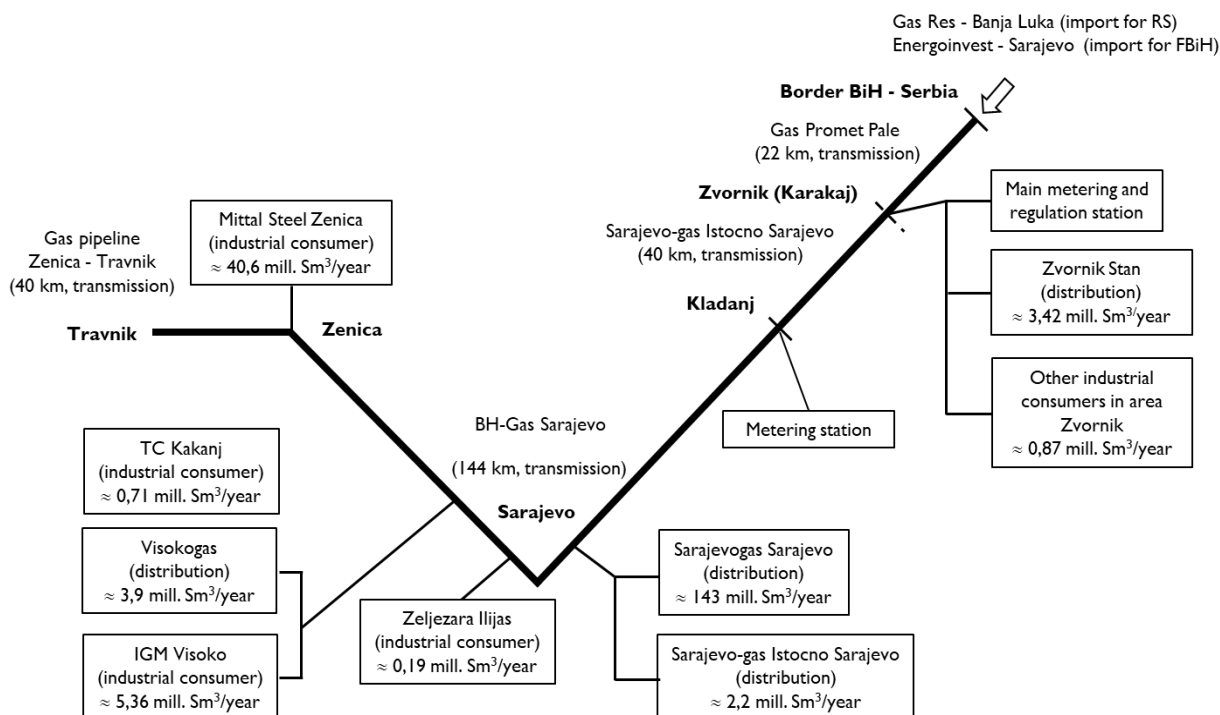
Figure 5 – Map of projects commissioned since 2020

<sup>14</sup> Ibid.

## 2.2 PROGRESS OF TRANSMISSION PIPELINE PROJECTS OF PARTICULAR INTEREST TO BIH

This report puts a particular focus on transmission pipeline projects of interest to BiH.

The gas transmission network in BiH consists of one transmission line that has a total length of 246 km and is shown in Figure 6<sup>15</sup>. Having a single point of entry of gas supplies poses a significant risk of disruption of gas supply to BiH, therefore the need for alternative supply routes and sources is evident.



**Figure 6 – Natural gas transmission network in BiH**

According to the current gas grid outlook, BiH can only connect to the European network via the transmission networks in Croatia and Serbia, as currently the third country bordering BiH, Montenegro, does not have a natural gas transmission network.

The selection criteria to identify the most important gas projects for BiH has been specified in the report, *Methodology and Assessment Criteria to Monitor Natural Gas Projects Relevant for BiH Security of Supply*<sup>16</sup>, and the key conclusions from that report are as follows:

- Natural gas transmission pipelines of interest to BiH are those that can impact the gas networks in Croatia and Serbia. Additionally, only projects in advanced implementation stages are of interest, as many projects are promoted but never get constructed.
- The main source of potential projects is the TYNDP.

<sup>15</sup> USAID EPA, Guidelines on Meeting the Preconditions to Join the Regional Natural Gas Market and Obtaining Access to Natural Gas Storage Facilities, March 2023

<sup>16</sup> USAID EPA, Methodology and Assessment Criteria to Monitor Natural Gas Projects Relevant for BiH Security of Supply, 2020

Thus, trans-European and regional projects of interest to BiH are those that connect directly or pass through countries bordering Croatia and Serbia and can impact the gas supply in BiH. Those projects contained within the actual TYNDP, PCI, PEI and PMI lists will be assessed in this Report.

The projects in the region surrounding BiH are shown in Figure 7<sup>17</sup>. Project codes for FID projects are denoted as TRA-F; Non-FID Advanced projects are denoted as TRA-A, and Non-FID Less-Advanced projects are denoted as TRA-N. If the project is also a PCI project, the code is provided in a red box; otherwise, the box is black. Transmission lines are shown with different line types, depending on their status, as shown in the legend of Figure 7.



Figure 7 – Map of TRA projects in the region surrounding BiH

<sup>17</sup> Op. cit., fn. 5.



## 2.2.1 TRA-F PROJECTS OF INTEREST TO BIH

The project of interest to BiH with the most mature stage of implementation, as per the TYNDP categorization, is currently only the one in Serbia:

- TRA-F-137 Interconnection Bulgaria – Serbia.

TRA-F projects that were part of the Report edition 2022, namely TRA-F-90 LNG Evacuation pipeline Omišalj – Zlobin, TRA-F-334 Compressor station I at the Croatian gas transmission system, and TRA-F-592 Necessary expansion of the Bulgarian gas transmission system, have been commissioned between 2020 and 2021.

### 2.2.1.1 Interconnection Bulgaria - Serbia (TRA-F-137)

The Interconnection Bulgaria-Serbia (IBS) is a project for a new reverse gas interconnection, which will connect the transmission systems of Bulgaria – town Novi Iskar and Serbia – city of Nis, with 1.8 bcm/y planned capacity. By connecting the systems of Bulgaria and Serbia, direct infrastructure connectivity will be established between the gas markets of four (4) EU member states, namely Bulgaria, Romania, Greece, and Hungary with the gas markets of the other countries in Southeast Europe. The route of the IBS is shown in Figure 8<sup>18</sup> and will have a length of 170 km (62 km in Bulgaria and 108 km in Serbia)<sup>19</sup>.



Figure 8 – Route of the IBS

The IBS is also an essential part of the concept for establishment of a gas distribution center in Bulgaria – the Balkan Gas Hub – which aims at connecting the markets of the Balkan region, Central and Eastern Europe with the markets of Western Europe. Thus, the project provides an opportunity for Bulgaria and

<sup>18</sup> The map given in the TYNDP 2022 wrongly indicates IBS as the “N” category project. It shall be upgraded to an “F” category project.

<sup>19</sup> Op. cit., fn. 8.



the region to diversify the natural gas supply by ensuring new natural gas supply sources and routes, enhancing system flexibility and contributing to the security of supply within the region<sup>20</sup>.

The IBS is of interest to BiH as it shall provide a new supply source for Serbia and consequently BiH, as Bulgaria will be connected to Greece via the Interconnector Greece – Bulgaria (ICGB). The ICGB connects directly to the Trans Adriatic Pipeline (TAP) that transports gas from the Caspian region to Greece, Albania, and Italy. The ICGB became operational on October 1, 2022. Bulgaria is already connected to Turkey; and through IBS, Serbia would gain access to the gas markets of Greece and Turkey. However, the amount of gas that could reach Serbia and consequently BiH from these sources, depends on the capacities of IBS, ICGB and Bulgarian interconnectors with Turkey.

The interconnector capacities are 58.50 GWh/day<sup>21</sup>. The construction of the pipeline started in February 2023<sup>22</sup> and the finalization is expected by Q4 of 2023.

The project is contained within the 5<sup>th</sup> PCI list.

## 2.2.2 TRA-A PROJECTS OF INTEREST TO BIH

Advanced transmission projects of interest to BiH are:

- TRA-A-66 Interconnection Croatia - Bosnia and Herzegovina (Slobodnica- Bosanski Brod)
- TRA-A-68 Ionian Adriatic Pipeline
- TRA-A-70 Interconnection Croatia - Serbia (Slobodnica – Sotin - Bačko Novo Selo)
- TRA-A-75 LNG evacuation pipeline Zlobin – Bosiljevo – Sisak - Kozarac
- TRA-A-86 Interconnection Croatia - Slovenia (Lucko - Zabok - Jezerisce - Sotla)
- TRA-A-302 Interconnection Croatia - Bosnia and Herzegovina (South)
- TRA-A-851 Southern Interconnection pipeline Bosnia and Herzegovina - Croatia
- TRA-A-1058 LNG evacuation pipeline Kozarac - Slobodnica
- TRA-A-1268 Interconnection Romania - Serbia

### 2.2.2.1 Interconnection Croatia - Bosnia and Herzegovina (TRA-A-66)

The Interconnection Croatia – Bosnia and Herzegovina pipeline will go from Slavonski Brod (Slobodnica) in Croatia and cross the Sava River to Bosanski Brod in BiH with further extension to the town of Zenica. The route is shown on the map given in Figure 9. The gas pipeline is planned to be bi-directional, and together with the Southern Interconnection BiH – Croatia, it shall be part of the Energy Community Gas Ring.

The project will integrate BiH with the Croatian gas transmission system and enable gas supply to BiH from other gas sources (i.e., from LNG Krk and European gas market via interconnection pipelines Croatia - Slovenia and Croatia - Hungary; also, from Caspian and Middle East sources from the TAP and the Ionian Adriatic Pipeline [IAP]). Additionally, it should contribute to the gasification of the northern part of BiH up to Zenica.

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<sup>20</sup> Op. cit., fn. 5.

<sup>21</sup> Ibid.

<sup>22</sup> [https://energy.ec.europa.eu/news/start-construction-works-launched-bulgarian-section-gas-interconnector-bulgaria-serbia-2023-02-01\\_en](https://energy.ec.europa.eu/news/start-construction-works-launched-bulgarian-section-gas-interconnector-bulgaria-serbia-2023-02-01_en).



**Figure 9 – Route of the Interconnection Croatia - Bosnia and Herzegovina**

According to the data provided in the TYNDP 2022<sup>23</sup>, commissioning is scheduled for the year 2027. The length of the section from Slobodnica to Bosanski Brod will be 6 km, and the pipeline diameter will be 700 mm. The project will be constructed as hydrogen ready.

### 2.2.2.2 Ionian Adriatic Pipeline (TRA-A-68)

Together with the Trans-Anatolian Natural Gas Pipeline (TANAP) and TAP, the IAP is a part of the South Gas Corridor that provides gas supply from the Caspian and Middle East regions to Europe, as shown in Figure 10.

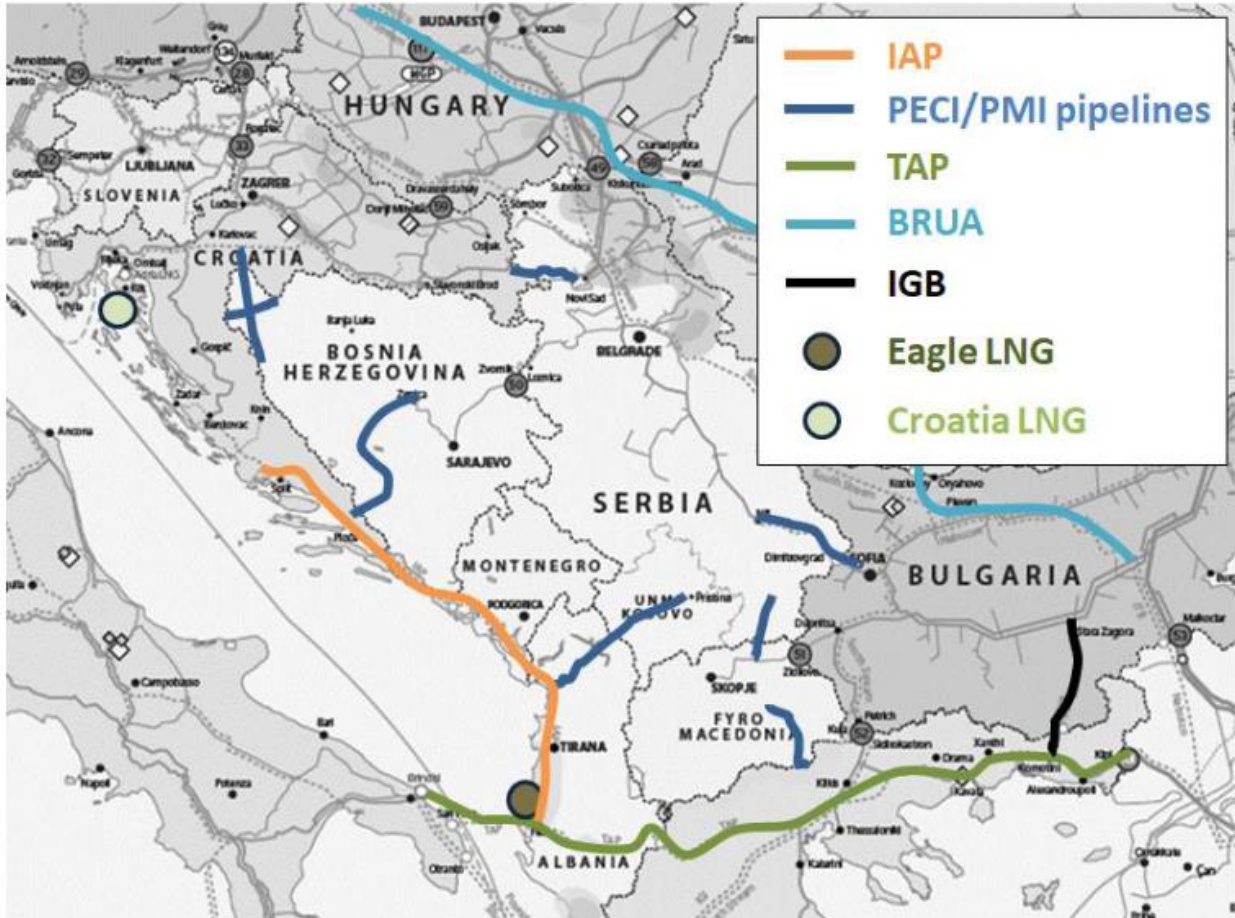
The TANAP runs through Turkey and connects to TAP which runs across Greece, Albania, over the Adriatic Sea, and ends in Italy. The TANAP was completed in December 2019, and TAP was completed in October 2020, with gas flow starting in December 2020<sup>24</sup>. The IAP connects to TAP in Albania and runs along the Adriatic coast connecting Albania, Montenegro, and Croatia (and BiH via the planned South Interconnection between BiH and Croatia). The IAP is very important for the diversification of supply sources for the Western Balkan countries, as it is designed to bring natural gas from the Middle East and Caspian region (Azerbaijan sector) into southern Europe and reduces the region's dependence on Russian imports. The project will also enable the gasification of Montenegro and northern Albania. Consequently, the project will have a significant cross-border impact.

The IAP will have a bi-directional gas flow and it will be fully compatible with the LNG terminal on the island of Krk. Additionally, it will be constructed as a hydrogen ready project. Of the pipeline's 5 bcm/y capacity, Albania is expected to take 1 bcm/y, Montenegro would take 0.5 bcm/y, southern BiH would

<sup>23</sup> Op. cit., fn. 5.

<sup>24</sup> <https://www.tap-ag.com/news/news-stories/tap-transport-first-1-bcm-of-natural-gas-to-europe>.

take 1 bcm/y, and Croatia would take 2.5 bcm/y for its own needs and the needs of countries in central and eastern Europe<sup>25</sup>.



**Figure 10 – IAP route<sup>26</sup>**

Since the last reporting edition, there has been no significant progress in the IAP implementation. According to the available data from the Energy Community’s Infrastructure Transparency Platform<sup>27</sup>, as well as PLINACRO’s Ten Year Network Development Plan<sup>28</sup> (still only available for the period 2021 - 2030), the project is in its planning stages. A feasibility study was completed in 2014, and the main / detailed design was expected to be completed by the end of 2022. Different pipeline sections envisage different construction years, but the overall commissioning of IAP is planned for 2028<sup>29</sup>.

The project is included in the actual PMI list.

<sup>25</sup> Infrastructure Transparency Platform (PLIMA), Energy Community <https://energy-community.org/regionalinitiatives/infrastructure/PLIMA.html>.

<sup>26</sup> IAP Feasibility Study, 2014

<sup>27</sup> Op. cit., fn. 25.

<sup>28</sup> Ten Year Network Development Plan of Natural Gas Transport System of Croatia 2021.-2030, <https://www.plinacro.hr/UserDocImages/dokumenti/Desetogodi%C5%A1nji%20plan%20razvoja%20PTS%202021-2030.pdf>.

<sup>29</sup> Op. cit., fn. 5.

### **2.2.2.3 Interconnection Croatia - Serbia (TRA-A-70)**

This interconnection route Slobodnica - Sotin (Croatia) - Backo Novo Selo (Serbia), would provide Serbia with a new supply route and enable access to the Croatian UGS and LNG Krk terminal. The route is shown on the map given in Figure 9.

There has not been much progress in the implementation of this project. The end of construction and commissioning of this project is planned for 2030<sup>30</sup>.

The project will be constructed as hydrogen ready and is included in the actual PMI list.

### **2.2.2.4 LNG evacuation pipeline Zlobin – Bosiljevo – Sisak – Kozarac (TRA-N-75)**

The gas pipeline Zlobin - Bosiljevo - Sisak – Kozarac, jointly with gas pipeline Omisalj - Zlobin and gas pipeline Kozarac - Slobodnica makes the LNG Main Evacuation Pipeline connecting LNG terminal on the island of Krk with Central Eastern European countries. The pipeline is a continuation of the existing Hungary – Croatia interconnection (gas pipeline Varosfoeld – Dravaszerdahely - Donji Miholjac - Slobodnica) which will be connected to the future IAP. This pipeline will be the backbone of the Croatian gas system and will be constructed as a hydrogen ready project. The route is shown on the map given in Figure 9.

The expected capacity is 51.21 GWh/day and the pipeline diameter is 800 mm. Works will be performed in phases. The main and detailed designs are prepared and the location permit is obtained. The planned commissioning year is 2025.

### **2.2.2.5 Interconnection Croatia - Slovenia (TRA-A-86)**

To increase the capacity of the interconnection between Slovenia and Croatia, the construction of the TRA-A-86 pipeline (Lucko – Zabok - Rogatec) is planned. The route is shown on the map in Figure 9 and will have a pipeline length in Croatia of 36 km and 34 km in Slovenia<sup>31</sup>. The interconnection will also become bidirectional by enabling gas from LNG Krk to be transported to Slovenia and further to Central Europe. Additionally, the project will be hydrogen ready.

The current interconnection capacity is 1.5 bcm/year and an increase to 5 bcm/year is planned. With this increase, Croatia would fulfill the N-1 criterion for the security of supply which is currently not met (the system can satisfy peak gas demand in the event of a disruption of the single largest infrastructure).

In the last reporting edition this project was considered a non-advanced investment. However, in TYNDP 2022 the project has been upgraded to the advanced maturity stage, since the environmental, location and construction permits has been obtained<sup>32</sup>. Commissioning has been planned for 2025.

This project is included in the actual 5<sup>th</sup> PCI list.

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<sup>30</sup> Ibid.

<sup>31</sup> Op. cit., fn. 8.

<sup>32</sup> Op. cit., fn. 5.

### 2.2.2.6 Southern Interconnection Croatia – Bosnia and Herzegovina (TRA-A-302 section in Croatia and TRA-A-851 section in Bosnia and Herzegovina)

The Southern Interconnection of Croatia and BiH will be a new supply route for BiH, enabling a more reliable and diversified natural gas supply. The source of gas could be IAP (Azerbaijan gas), LNG on the island of Krk, or Baumgarten via Slovenia, Croatia, and Hungary (Russian gas). The Southern Gas Interconnection Pipeline BiH – Croatia passes the cities of Split, Zagvozd, Posusje, and Novi Travnik, with a main branch to Mostar.

The Croatian sections of the interconnection between Croatia and BiH are the 52 km section, Dugopolje – Zagvozd, and the 22 km section, Zagvozd – Imotski – Croatia/BiH. The project is intended primarily for the supply of BiH and most of the gas pipeline is located within BiH (169 km).



Figure 11 – Route of the Interconnection Croatia - Bosnia and Herzegovina

The Croatian section TRA-A-302 is more advanced in terms of design documentation preparation and the section in BiH TRA-A-851 has been upgraded to an advanced project since the last reporting year. Thus, commissioning of the two sections is foreseen by 2024 and 2025, respectively.

The Southern Interconnection route is shown in Figure 11. The project is included in the actual PMI list and will be hydrogen ready.

### 2.2.2.7 LNG evacuation pipeline Kozarac – Slobodnica (TRA-A-1058)

The gas pipeline Kozarac – Slobodnica, jointly with gas pipeline system Zlobin – Bosiljevo – Sisak – Kozarac (TRA-A-75), and with gas pipeline Omisalj – Zlobin, makes the LNG Main Evacuation Pipeline connecting the LNG terminal on the island of Krk with Central Eastern European counties. The pipeline system is a continuation of the existing Hungary – Croatia interconnection (gas pipeline Varosfoeld – Dravaszerdahely – Donji Miholjac – Slobodnica) which will be connected to the future IAP. This pipeline will be the backbone of the Croatian gas system and will be constructed as a hydrogen ready project. The route is shown on the map given in Figure 9.

The expected pipeline diameter is 800 mm. The basic design is in its tendering phase. The implementation schedule depends on the LNG Krk 2<sup>nd</sup> phase and planned commissioning year is 2026.

### 2.2.2.8 Interconnection Romania - Serbia (TRA-A-1268)

The interconnection between Romania (North of Comlosu Mare) and Serbia (Nakovo) would improve security of supply and support market integration for Serbia. The project includes the construction of an approximately 97 km long pipeline, out of which about 85 km will be on the territory of Romania and 12 km on the territory of Serbia.



The interconnector capacities are as follows<sup>33</sup>:

- From Serbia to Romania 35.04 GWh/day
- From Romania to Serbia 46.03 GWh/day.

In the TYNDP 2022<sup>34</sup> the commissioning year is planned for 2023. However, the implementation is delayed, as it depends on the commissioning of other projects. Consequently, the commissioning year is expected to be postponed.

The project is included in the actual PMI list.

### 2.2.3 TRA-N PROJECTS OF INTEREST TO BIH

Less advanced transmission projects of interest to BiH are:

- TRA-N-224 Gas pipeline Brod – Zenica
- TRA-N-303 Interconnection Croatia - Bosnia and Herzegovina (West)
- TRA-N-910 West Interconnection Bosnia and Herzegovina - Croatia
- TRA-N-1057 Compressor stations 2 and 3 at the Croatian gas transmission system

#### 2.2.3.1 Gas pipeline Brod – Zenica (TRA-N-224)

The gas pipeline Brod – Zenica project, i.e., Northern Interconnection Croatia – Bosnia and Herzegovina will contribute to the integration of the market in BiH into the European market and enable providing capacity to the Oil Refinery Brod and other industrial and residential consumers along this route, as shown in Figure 12. It will be bi-directional and together with the Southern Interconnection (TRA-A-851), it will create a part of the Energy Community Gas Ring.



Figure 12 – Routes of less advance projects of importance to Bosnia and Herzegovina

<sup>33</sup> Op. cit., fn. 25

<sup>34</sup> Op. cit., fn. 5

The length of the section Brod – Zenica is 140 km and the pipeline diameter is foreseen to be 500 mm. The planned commissioning year is 2027, bearing in mind the obstacles in lacking political support and primary gas legislation at the state level.

The interconnector capacities are as follows<sup>35</sup>:

- From Croatia to BiH 162.00 GWh/day
- From BiH to Croatia 42.00 GWh/day.

This project has been newly added to the TYNDP.

### **2.2.3.2 Interconnection Croatia - Bosnia and Herzegovina (West) (TRA-N-303)**

Interconnection Croatia – Bosnia and Herzegovina is on the route Licka Jesenica – Rakovica on the territory of Croatia to the border with BiH. The Bosnian part of the route starts on the border point near Trzac and continues to Bosanska Krupa, with branches to Bihac and Velika Kladusa, as shown in Figure 12. This project would enable the gasification of western parts of BiH and is planned to be hydrogen ready.

The lengths of the sections Licka Jesenica – Rakovica and Rakovica – Bihac are 20 km and 10 km, respectively. The pipeline diameter is foreseen to be 500 mm. This project has been newly added to the TYNDP but has been contained earlier within the actual PMI list. The planned commissioning year is 2027, bearing in mind the obstacles in lacking political support and primary gas legislation at the state level.

### **2.2.3.3 West Interconnection Croatia - Bosnia and Herzegovina (TRA-N-910)**

The Western Interconnection Bosnia and Herzegovina – Croatia (Trzac - Bosanska Krupa with branches to Bihac and Velika Kladusa) is the project that, together with the project Licka Jesenica - Rakovica (TRA-N-303) located in Croatia, will connect BiH with the existing Croatian gas transmission system and enable gasification of the Una-Sana Canton in the western parts of BiH. The route is shown in Figure 12.

The length of the section Trzac – Bosanska Krupa is 35 km and the pipeline diameter is foreseen to be 500 mm. This project has been newly added to the TYNDP and the planned commissioning year is 2028, bearing in mind the obstacles in lacking political support and primary gas legislation at the state level.

### **2.2.3.4 Croatian compressor stations 2 and 3 (TRA-N-1057)**

This project is related to the increase in capacity of the Interconnection Slovenia - Croatia. In addition to laying a new pipeline, compression stations are necessary to enable increased capacity to Slovenia. The new compressor stations will provide sufficient transmission capacities in both directions on all existing and planned interconnections with the systems of neighboring countries and increase the flexibility of the Croatian transmission system. The location is shown in Figure 12.

The project has been rescheduled, as currently there is little interest in the increased capacity it would provide. The commissioning is planned for 2029.

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<sup>35</sup> Ibid.



### 3 CONCLUSION

This report provides an overview of the progress of main transmission pipeline network projects to and within Europe, with a particular focus on projects of interest to BiH. The main changes and takeaways compared to the last Report edition can be summarized as follows:

- Since the war in Ukraine, between August 2022 and January 2023, EU countries have collectively reduced the amount of natural gas consumed by 19%, as a result of common rules, adopted in summer 2022, which set a voluntary natural gas consumption reduction target of 15% for the period August 2022 to March 2023 compared to the EU's average consumption over the past five years. Consequently, EU countries have significantly reduced gas imports from Russia. This reduction has mainly been compensated for by a continuous diversification of gas suppliers, especially by a sharp increase in imports of LNG. As a result of this situation, the efforts to develop new natural gas transmission infrastructure in the EU have been intensified.
- For the first time, the TYNDP 2022 (issued in April 2023) assesses hydrogen and biomethane in addition to natural gas infrastructure projects and was prepared to support EU climate and energy targets for carbon neutrality by 2050. Additionally, it includes the REPowerEU Plan ambitions to rapidly reduce dependence on Russian fossil fuel imports, fast forward the green transition, provide energy savings, produce clean energy, and diversify energy supplies.
- Since the TYNDP 2020, progress has been made in terms of gas infrastructure projects. Overall, 32 investments were completed between the last two (2) TYNDP editions.
- In terms of projects of particular interest to BiH, TRA-F projects that were part of the 2020 Report edition (namely TRA-F-90 LNG Evacuation pipeline Omišalj – Zlobin, TRA-F-334 Compressor station I at the Croatian gas transmission system, and TRA-F-592 Necessary expansion of the Bulgarian gas transmission system) have been commissioned between 2020 and 2021.
- Compared to the TYNDP 2020, one (1) project has been upgraded to the TRA-F from the TRA-N stage, i.e., TRA-F-137 Interconnection Bulgaria - Serbia.
- In terms of TRA-A projects of interest to BiH, four (4) new projects have been introduced in the TYNDP 2022 edition (namely, TRA-A-66 Interconnection Croatia - Bosnia and Herzegovina, TRA-A-75 LNG evacuation pipeline Zlobin – Bosiljevo – Sisak – Kozarac, TRA-A-85I Southern Interconnection pipeline Bosnia and Herzegovina – Croatia, and TRA-A-1058 LNG evacuation pipeline Kozarac – Slobodnica), whereby one (1) project has been upgraded to the advanced stage of maturity (TRA-A-86 Interconnection Croatia - Slovenia) from the less advanced stage reported in the 2020 edition.
- Regarding TRA-N projects of interest to BiH, three (3) new projects have been introduced in the TYNDP 2022 edition (namely, TRA-N-224 Gas pipeline Brod – Zenica, TRA-N-303 Interconnection Croatia - Bosnia and Herzegovina (West), and TRA-N-910 West Interconnection Bosnia and Herzegovina – Croatia).
- The diversification of gas submission options and the increase in security of gas supply (currently N-I = 0) in BiH remains one of the main problems. Solving those shall be considered one of the country's top priorities in the energy sector.

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