

Eastern Europe Natural Gas Partnership



Institute of Energy of Southeast Europe Gas Markets in Transition in SE Europe

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The United States Energy Association (USEA) is an association of public and private energy-related organizations, corporations, and government agencies. USEA represents the broad interests of the U.S. energy sector by increasing the understanding of energy issues, both domestically and internationally.

USEA Mission Statement:

USEA's mission is "to promote the sustainable supply and use of energy for the greatest benefit of all."



ETAG Program Components



Black Sea Regional Transmission Planning Project (BSTP)

Plan for robust, reliable cross-border transmission interconnections as the backbone infrastructure for cross border trade and exchange of electricity generated by clean and innovative energy technologies.



Southeast Europe Cooperation Initiative Transmission Planning Project (SECI)

Develop technical rules, guidelines and network infrastructure assessments to accelerate integration of clean and innovative energy technologies.



Eastern Europe Natural Gas Partnership (EE-NGP)

Improve security of supply in distribution systems by supporting optimization planning; line loss education; asset management programs; smart grid technology; and region wide disaster preparedness and emergency response programs.



Southeast Europe DSO Security of Supply Working Group (SEEDSO)

Fortify the capability of electric power and natural gas utilities to defend against cyber-attacks and improve their capacity to restore service in a timely and effective manner

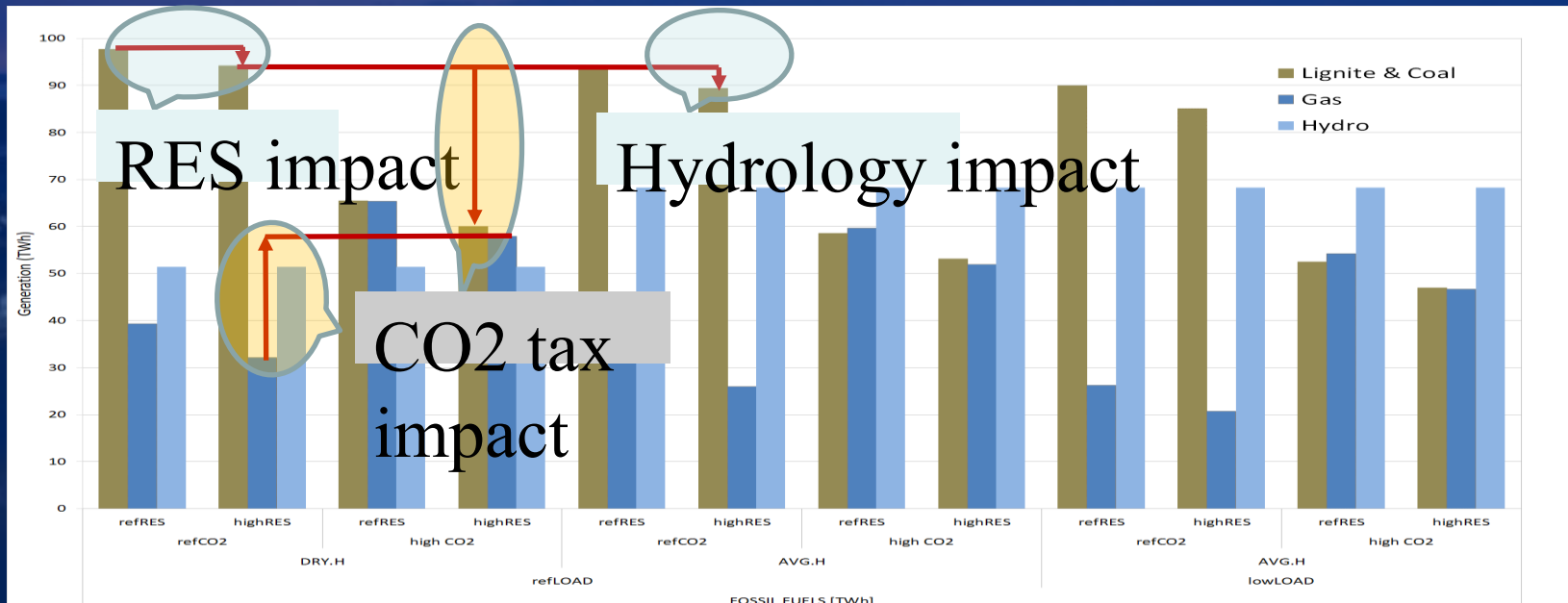


Electricity Market Initiative (EMI)



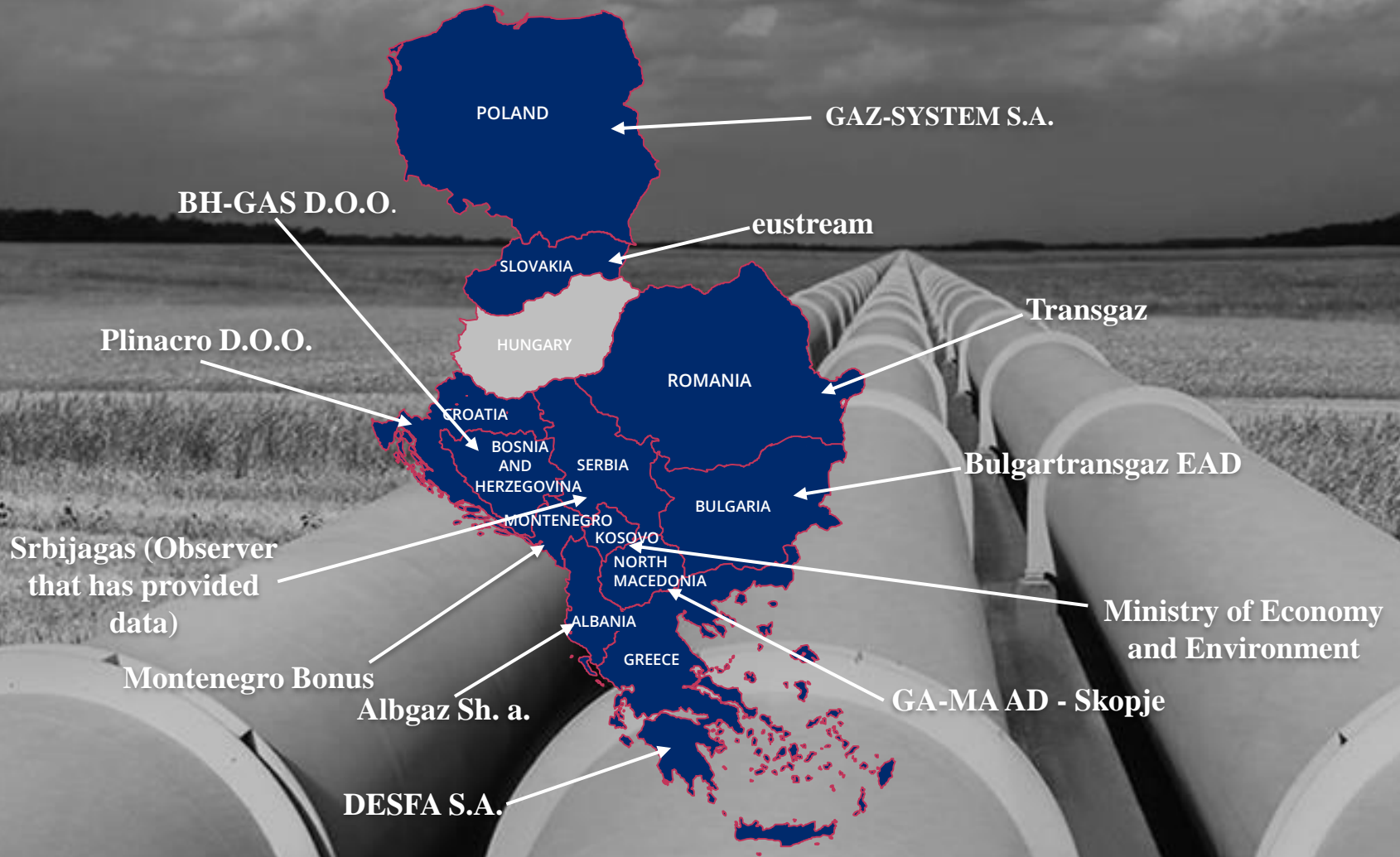
Utility Cyber Security Initiative (UCSI)

LIGNITE TPPs SERIOUSLY ENDANGERED WITH HIGHER CO2 EMISSION TAX IN 2030



- RES capacities increase and hydrological circumstances have small impact on lignite and gas fired plants operation
- But with increase in CO2 emission tax \square lignite fired plants economy is seriously endangered

Eastern Europe Natural Gas Partnership Members



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EE-NGP Analysis: Three Seas Market Integration Study

- The Initiative aims at stimulating rapid development of the Central and Eastern European energy infrastructure and connectivity through the North-South axis.
- The Initiative capitalizes on the new LNG terminal in Świnoujście in Poland, the FSRU being constructed on Krk island in Croatia, the expanded Revithoussa Terminal and the proposed LNG terminal in Alexandroupolis Terminal.
- The study optimizes the infrastructure to maximize the North-South/South-North throughput, security of supply and supply source diversification.
- The analysis identifies critical parts of the infrastructure and proposes new projects of regional interest which allow the additional supply of natural gas to the region.
- After completing a hydraulic analysis of the optimal pipeline configuration, the study will perform a market analysis to estimate the impact of investments on transmission tariffs.



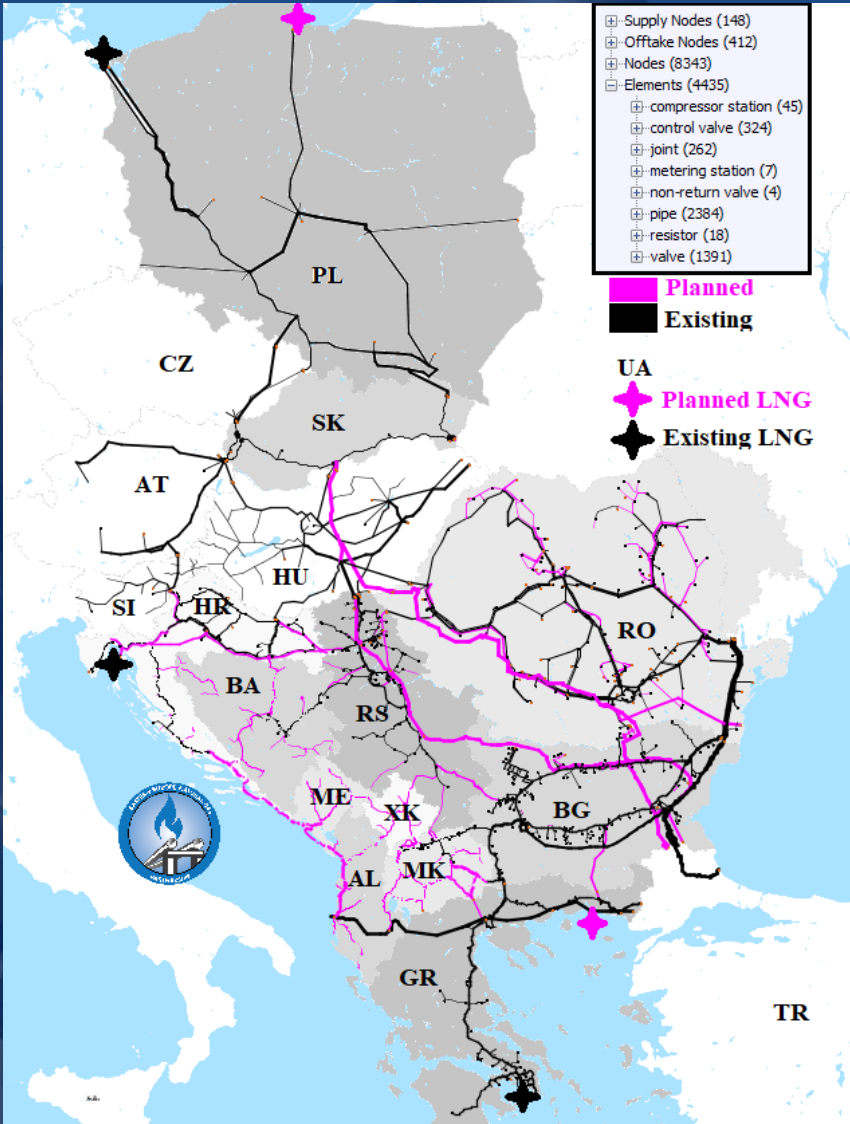
The image shows the cover of a report. At the top, there are three logos: USAID (United States Agency for International Development) with the tagline 'FROM THE AMERICAN PEOPLE', the logo for the Eastern Europe Natural Gas Partnership (EENG), and the logo for the United States Energy Association (USEA). Below the logos, the title 'Three Seas Initiative Natural Gas North-South Corridor Market Integration Study' is written in white text on a dark blue background. Underneath the title, it says 'Eastern Europe Natural Gas Partnership (EENG)' and 'Cooperative Agreement: AID-OAA-12-00036'. The central part of the cover features a photograph of a large industrial facility with several large, parallel pipes supported by metal structures, set against a blue sky with clouds. At the bottom of the cover, the date 'Friday, May 28, 2021' is printed. A disclaimer at the very bottom states: 'This report made possible by the support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the United States Energy Association and do not necessarily reflect the views of USAID or the United States Government.'

EE-NGP Total Peak Natural Gas Demand By Countries

Country	Unit	2020	2025	2030	2035	2040
Albania	[Nm3/h]	0	79 100	141 540	230 854	335 557
Austria*	[Nm3/h]	2 275 156	2 244 732	2 447 430	2 314 327	2 181 225
Bosnia and Herzegovina	[Nm3/h]	79 750	155 886	196 593	281 863	328 992
Bulgaria	[Nm3/h]	669 910	686 661	759 346	815 027	870 708
Croatia	[Nm3/h]	824 001	839 759	686 307	657 495	628 683
Czech Republic*	[Nm3/h]	2 967 290	3 231 571	2 441 589	2 911 014	3 380 440
Greece	[Nm3/h]	1 231 105	1 466 711	1 536 682	1 361 595	1 314 574
Hungary*	[Nm3/h]	3 427 181	3 299 649	2 207 944	1 902 301	1 596 658
Kosovo	[Nm3/h]	0	3 341	26 722	61 562	119 357
Montenegro	[Nm3/h]	0	1 944	38 350	66 032	88 558
North Macedonia	[Nm3/h]	75 280	153 413	189 734	228 503	237 173
Poland	[Nm3/h]	4 307 009	4 562 287	4 834 327	5 579 097	6 323 867
Romania	[Nm3/h]	2 624 611	2 704 332	2 659 657	2 725 360	2 791 063
Serbia	[Nm3/h]	662 237	784 961	925 818	926 131	926 444
Slovakia	[Nm3/h]	1 191 338	1 477 323	1 363 236	1 343 313	1 323 390
Slovenia*	[Nm3/h]	223 910	299 939	305 296	305 551	305 807
Total	[Nm3/h]	20 558 776	21 991 608	20 760 570	21 710 024	22 752 494

* - not members of the EE-NGP

EE-NGP Max 2040 Regional Network Planning Model



Catalog of Potential Eastern European Natural Gas Investment Projects in Support of the Three Seas Initiative

➤ Project Categories:

- Pipelines / Interconnections / Compressor stations
- Underground gas storage facilities
- LNG terminals

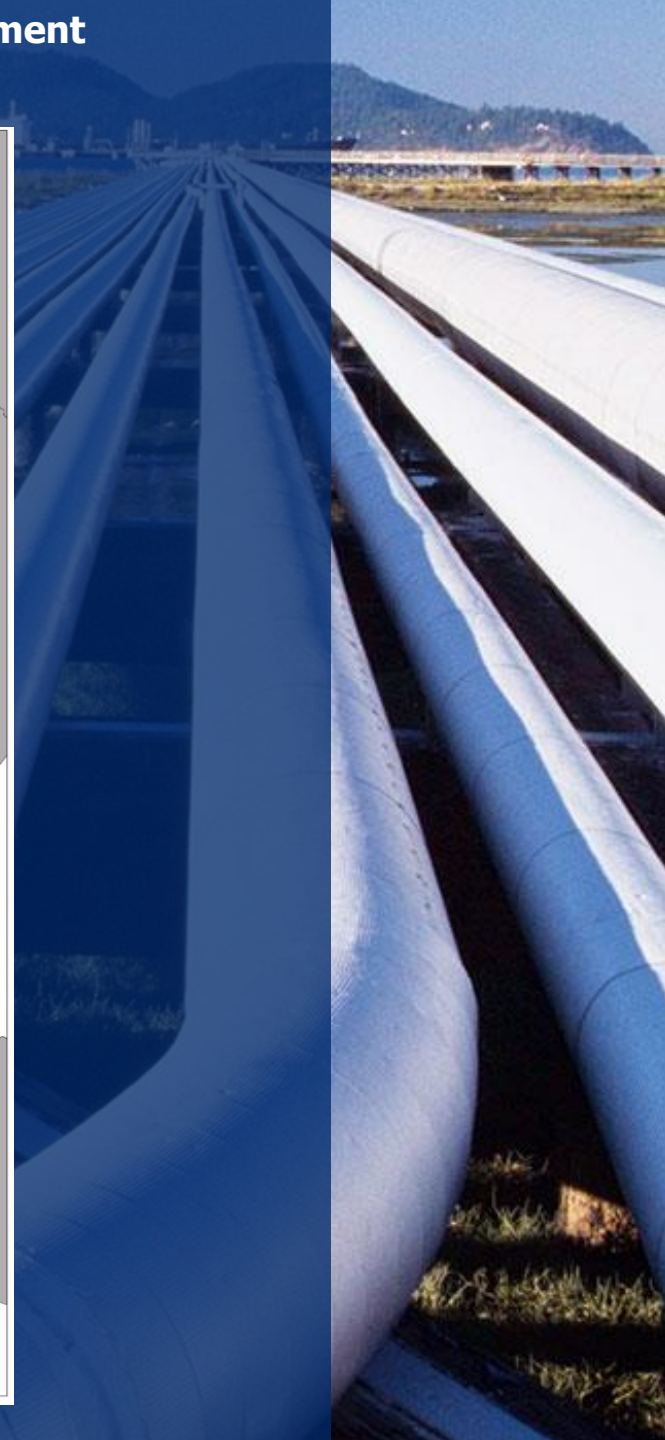
➤ Type of Data Collected:

- High reliance on solid fossil fuels for electricity generation (fragmented electricity and gas markets)

➤ Pipelines: start / end point, maturity status, diameter, length, CAPEX

- UGS: type of field, maturity status, working gas volume, withdrawal capacity, injection capacity
- LNG: yearly volume, project ship size, project storage capacity

Catalog of Potential Eastern European Natural Gas Investment Projects in Support of the Three Seas Initiative



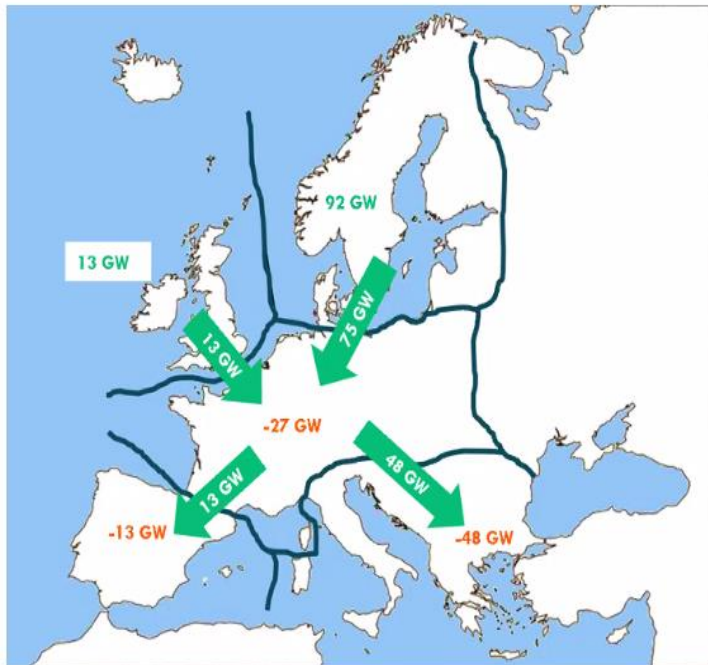
Gas and Decarbonization of Energy Community Countries

- Current situation:
 - High reliance on solid fossil fuels for electricity generation (fragmented electricity and gas markets)
- Carbon Taxes will reduce lignite/coal generation
- Competitive, robust and liquid gas market can bridge the transition in Southeast Europe
- Or, will the region substitute one era of energy dependence for another?

Winter Afternoon/High Wind Case

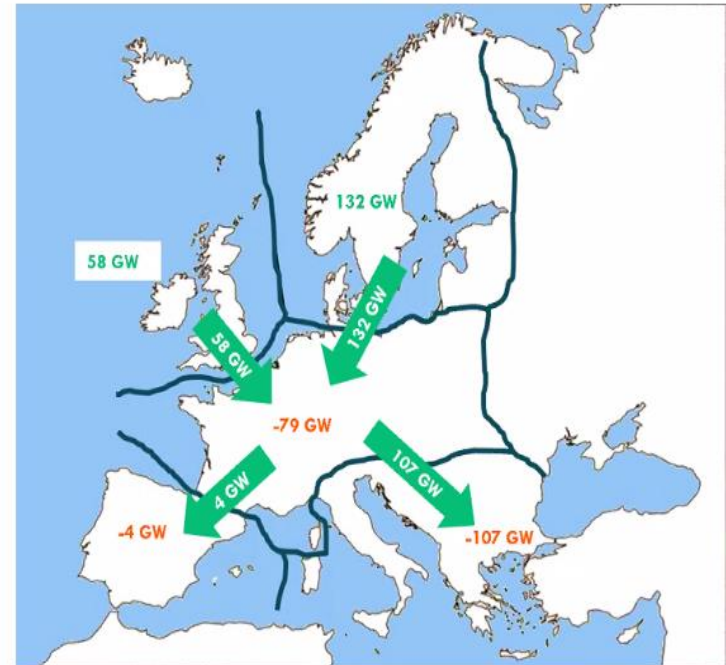
Business as Usual approach results in a cost of energy premium of €1.2 Trillion / 15% ¹

Business as Usual / Nationalistic Grids



3,180 GW of Generation and Storage

Pan-European Grid



2,900 GW of Generation and Storage

¹ Based on Winter Summer Cases average Cost of Energy over 30 years

EE-NGP Analysis: Findings to Date

- The study calculated that LNG supplies could cover approximately 19% of the region's gas demand in 2020 and could cover up to 43% of the forecasted gas demand in 2040. If we consider EE-NGP member countries only, up to 65% of the forecasted demand could be covered by LNG supplies in 2040.
- What should be “pushed” are the bigger pipelines that enable higher gas flows towards the north. The most important planned infrastructure are the following:
 - ❑ The Ionian Adriatic Pipeline (IAP), Greece-Bulgaria Interconnection, and to a lesser extent Greece-North Macedonia Interconnection.
 - ❑ The Eastring pipeline, which connects Turkey and Slovakia, via Bulgaria, Romania, and Hungary, bringing Caspian gas to the north but also provides gas from European gas hubs to SEE.

EE-NGP Analysis: Findings to Date

- Romania's plan to develop offshore gas resources will strongly contribute to the region both in terms of security of supply and the diversification of gas supply.
- The development of new pipelines to connect the Southern Gas Corridor, and with LNG facilities in the Aegean Sea, should be prioritized to enable gas connections throughout the Balkans.
- A bottleneck was identified in Poland due to a lack of interconnections with the Czech Republic and Slovakia. The Polish-Slovakian Interconnection is currently the only envisaged option to connect Poland with other countries on the North-South Corridor route. One of the infrastructure projects that should be implemented is the Poland-Czech Republic Interconnection (STORK 2).

EE-NGP Analysis: Three Seas Market Integration Study – Next Phase

- Analyze the impact of the European Green Deal and the decarbonization effort on the future of gas transmission networks in the region
- Update gas demand forecasts
- Assess the impact of proposed investments on the tariff levels in the EE-NGP
- Develop a gas market simulation model