

#### "CHALLENGES AND OPPORTUNITIES FOR THE DEVELOPMENT OF THE WESTERN BALKAN REGIONAL GAS INFRASTRUCTURE"

#### "Southern IAP (S-IAP) an alternative option for the EastMed gas"

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### Context

Fossil fuels at the start of their decline, but natural gas is set to play a key role during the energy transition;

- Least CO<sub>2</sub> emissions compared to all fossil fuels
- Natural gas piping system is the first infrastructure for blended H<sub>2</sub> transportation
- Natural gas combined with CCUS can contribute to blue H<sub>2</sub>
- OCGT & CCGT, important contributors for the management of disbalances caused by RES in the power system

Support for gas pipelines is expected to continue particularly when combined with H<sub>2</sub>

# TAP a success story of regional cooperation

- > In 15 November 2020 TAP announced start of commercial operations
- Completion of construction works and start of operations of TAP is a success story of the multidimensional regional cooperation;
  - Governments of Greece, Albania and Italy signed the IGA (International Governmental Agreement), Gov of Greece and Albania signed the Host Government Agreements (HGA)
  - Energy Regulators of Greece (RAE), Albania (ERE) and Italy (ARERA) jointly prepared and approved the conditional Third Party Exemption (Final Joint Opinion), the TAP Tariff Methodology and the later amendments
  - Wide support by stakeholders, Several local companies involved
- > Construction of TAP has paved the way for new projects;
  - **Ionian Adriatic Pipeline, IGB, Greece-North Macedonia, etc.**

Cooperation and construction of gas interconnectors contribute a more peaceful and prosperous region

## Gas sector developments in Albania

- As a Contracting Party of the Energy Community Albania has;
  - Transposed the EU third package into its gas law (2015)
  - Regulatory framework under development
- > Technical regulations (DVGW)
- > Gas Master Plan (2016)
- "Albgaz sh.p.k" combined TSO-DSO (2017)
- > Several project feasibilities
- However, so far <u>NO PROGRESS</u> has been made for the development of domestic infrastructure of the gas sector.

Albania Gas					
Gas Implementation					
Gas Indicators	Transposition Assessment	Implementation Status			
Unbundling		82%			
Access to the system	Ø	60%			
Wholesale market	<b>Ø</b>	15%			
Retail market	<b>Ø</b>	31%			
Interconnectivity	Ø	40%			

Source: Annual Implementation Report, Energy Community Secretariat, 1 November 2021.

#### Current and future regional gas infrastructure projects in South-East Europe



Source: Gina Cohen, Lecturer & Consultant on Natural Gas "NATURAL GAS IMPORT AND EXPORT ROUTES IN SOUTH-EAST EUROPE AND TURKEY", IENE Working Paper 26, 22 January 2020

### Southern – IAP

#### Why S-IAP?

- Existence of TAP
- Shorter offshore length
- Shallower sea
- Gasification of north western Greece (Thesprotia region) and southern Albania
- Besides Italy allows access to additional gas markets along western Balkans and further north to central Europe.

#### East Med to bring the Israeli gas to European markets



Source:

MATTEO RESTELLI DEVELOPMENT DIRECTOR, IGI POSEIDON S.A. "ENSURING SECURITY OF SUPPLY AND MARKETS THE EAST MED PIPELINE CONTRIBUTION" http://www.energianews. com/energyconvention/2 018/pdf/Matteo-Restelli.pdf





#### High level assessment of the economic viability of S-IAP

> Transmission capacity;

• 10 BCM/year

• 20 BCM/year



#### Based on publicly available data



#### East Med to bring the Israeli gas to European markets



### IGI Poseidon layout



https://www.researchgate.net/figure/Left-Location-map-of-the-Interconnection-Greece-Italy-pipeline-route-in-the-Ionian-Sea\_fig1\_281345858

# IGI Poseidon

Source: "Transportation of Eastern Gaz to Italy" at Energy Charter Paper Trade & TransitGroup by Nikos Katsis MSc, DEPA Strategic Planning Manager, Brussels, 18 October 2005



# Assumptions;

- Identical conditions at the starting and ending points for both alternatives
- Availability of capacities of the second phase of TAP from Seman, Fier to Melendugno
- > 25 years of economic life
- > Gas composition same gas as TAP
- Public data sources

### Methodology

- Pipeline corridors;
  - <u>S-IAP+TAP;</u>
    - <u>Onshore</u>; for S-IAP corridor two alternatives have been assessed; i) along Drino valley and ii) along Delvina plain
    - <u>Offshore:</u> TAP offshore section (Seman-Melendugno)
  - IGI Poseidon;
    - Offshore as provided in the public information
    - <u>Onshore</u>; connection up to the common starting point (Stavrochori, GR) and ending point (CTMS Melendugno IT)
- > Hydraulic calculations;
  - 10 BCM/year and 20 BCM/year
  - Compressor stations capacity for 10 BCM and 20 BCM

#### > Economic evaluation

CAPEX OPEX & Levelised Cost Of Transported Gas:

 $LCOTG = P_{MWh} = \frac{\sum (Capital_t + (O\&M_t) \times (1+r)^{-t})}{\sum MWh \times (1+r)^{-t}}$ 





# Comparison of the elevation profiles of two potential S-IAP corridors





# IGI Poseidon offshore and connection with EastMed and Snam Rete Gas



#### Hydraulic Calculations S-IAP & IGI Poseidon

#### **10 BCM SIAP+TAP**



#### 20 BCM SIAP+ new offshore section







## Class 5 cost estimation

- Sources of benchmark analysis
- Onshore:
  - ACER: "REPORT ON UNIT INVESTMENT COST INDICATORS AND CORRESPONDING REFERENCE VALUES FOR ELECTRICITY AND GAZ INFRASTRUCTURE GAZ INFRASTRUCTURE" 2015
  - <u>CEER</u>: "Pan-European cost-efficiency benchmark for gaz transmission system operators" 2019

#### • **Offshore:** various sources

## **Comparison of Alternatives**

	CAPEX	OPEX	LCOTG
Relative diference (IGI more expensive vs S-IAP) <b>10 BCM</b>	64%	11.3%	13%
Relative diference (IGI more expensive vs S-IAP) <b>20 BCM</b>	75.9%	17.1%	52.6%

### **Conclusions:**

- The high level comparative analysis shows that for a transmission capacity of 10 BCM/year IGI Poseidon CAPEX is 64% higher than S-IAP vs and so are OPEX and LCOTG but with lower differences (11% and 13% respectively)
- > The S-IAP advantage increases when capacity is expanded to 20 BCM however more in depth analysis is necessary to assess other alternative technological solutions

Furthermore S-IAP;

- > Enables the gasification of north western Greece and southern Albania
- > Contributes in the acceleration of construction of IAP
- Through S-IAP and IAP the gas coming from EastMed, besides Italy can also reach all western Balkan gas markets and further north the central European hubs
- S-IAP enhances the opportunities of blue H<sub>2</sub> production. The nearly depleted oil and gas fields in Albania offer underground storage capacities for the CO<sub>2</sub> resulting from blue H<sub>2</sub> production
- Future new wind and PV farms soon to be build in Albania have the potential to produce green H<sub>2</sub> that can be transported via S-IAP



# Thank you !

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