South Corridor Opens Up New Energy Markets in SE Europe

Caspian Oil&Gas Azerbaijan Conference

Bilgah Beach Hotel - Baku

May 30-31, 2019

A Presentation by Mr. **Costis Stambolis**,
Executive Director
Institute of Energy for SE Europe (IENE), Athens

Introduction

- Opening up a new South route to bring gas from **new supply sources** (other than Russian) to meet (then) rising European gas demand became an EC energy strategy priority in the early 2000's.

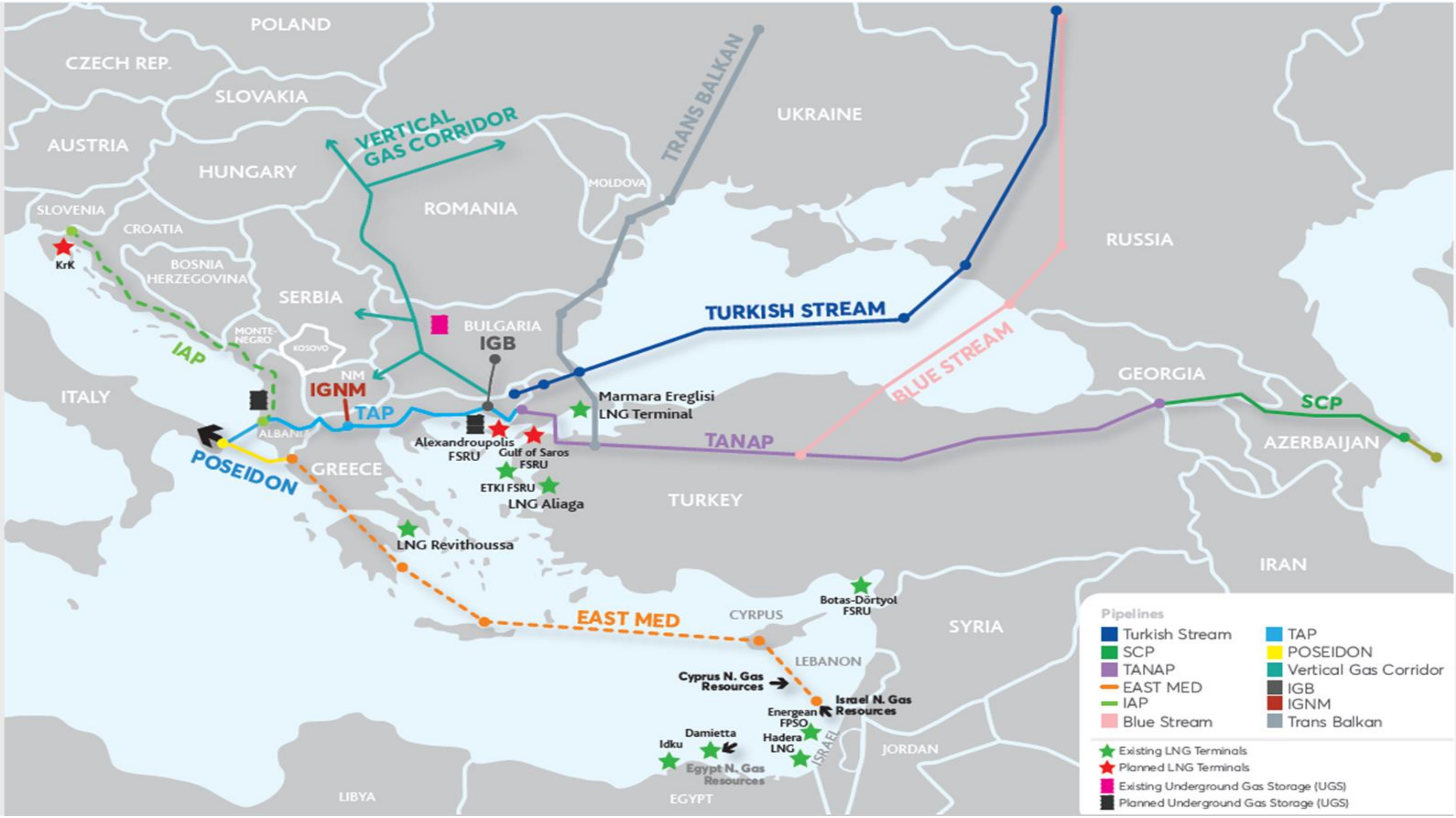
- The key objective, then as now, being the **diversification of gas supply sources and gas supply routes**.

- The South Corridor, in its present status, **satisfies the "route" diversification requirement**, but not necessarily the **"supply" one**.

- There is a **new architecture** to be considered in how the South Corridor is shaping up with multiple pipelines and LNG terminals, several entry points and a number of suppliers (e.g. Azerbaijan, Turkey basket, Russia, LNG).

- In view of Europe's inability in securing sizeable gas quantities outside Russia and the changing architecture of the South Corridor, there is a need for a **wider debate** in order to redefine and reconsider priorities and expectations.

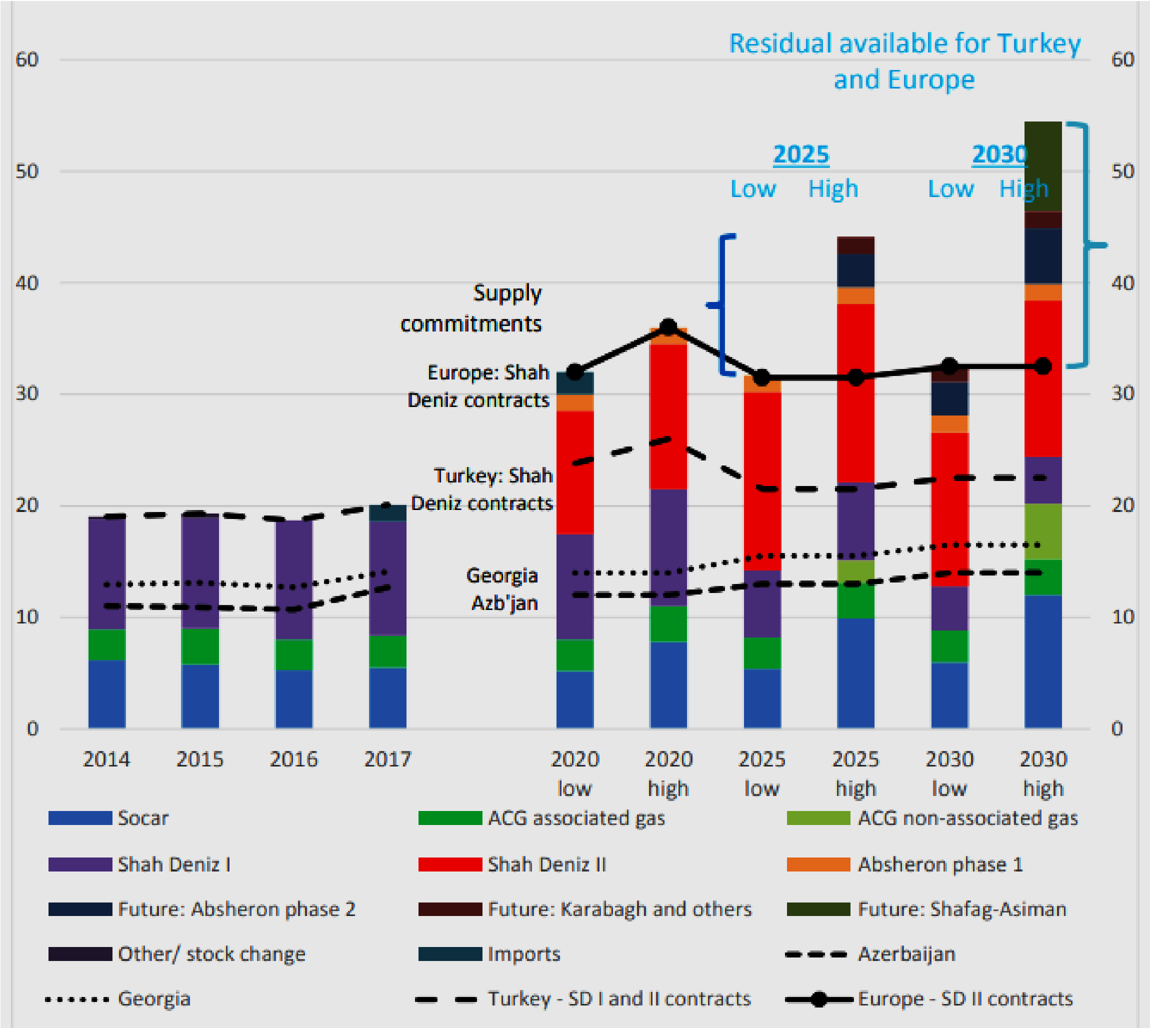
An Expanded Southern Gas Corridor



NB.: The TANAP has been completed, while TAP and Turkish Stream are under construction, with IGB at an advanced planning stage with FID already taken. The IAP, the IGI Poseidon in connection with East Med pipeline and the Vertical Corridor and the IGF are still in the study phase. Blue Stream and Trans Balkan are existing pipelines.

Source: IENE study "South East Europe Energy Outlook 2016/2017", Athens, 2017

Azerbaijan Gas Production and Supply Commitments: Illustrative Projections, bcm/year



Source: Pirani, S. (2018), "Let's not exaggerate: Southern Gas Corridor prospects to 2030"

Anticipated Gas Consumption (bcm) in Selected European Countries (2020, 2025 and 2030)

Country	2020	2025	2030
Austria	7,5	7,3	7,1
Bulgaria	4,0	4,2	4,3
Greece	5,0	5,2	5,41
Croatia	3,7	3,8	3,9
Hungary	11,0	10,5	10,0
Italy	71,3	79,2	83,8
North Macedonia	0,1	0,1	0,13
Romania	13,0	13,5	13,5
Slovenia	1,2	1,2	1,3
Slovakia	7,0	7,2	7,3
Serbia	2,2	2,25	2,3
Turkey	60,0	65,0	70,0
Ukraine	35,8	36,0	36,5
Total gas consumption	**221,8**	**235,45**	**245,54**

Source: European Commission

South Kavala Underground Gas Storage (Conceptual Stage)

Source: ENTSO-G

South Kavala UGS	
Storage Facility Type	Aquifer
Capacity	0.36 bcm/y
Anticipated Operational Date	2022

Interconnector Greece-Bulgaria (IGB) (Implementation Stage)

Source: ICGB AD

IGB	
Length	182 km
Diameter	32-inch (813 mm) pipes
Capacity	3-5 bcm/y
Anticipated Operational Date	2020

East Med and Interconnector Greece-Italy (IGI) Poseidon (Conceptual Stage)

Source: DEPA

East Med	
Length	1,300 km (offshore) 600 km (onshore)
Diameter	32-inch (813 mm) and 48-inch (1,200 mm) pipes
Capacity	up to 15 bcm/y
Anticipated Operational Date	2025

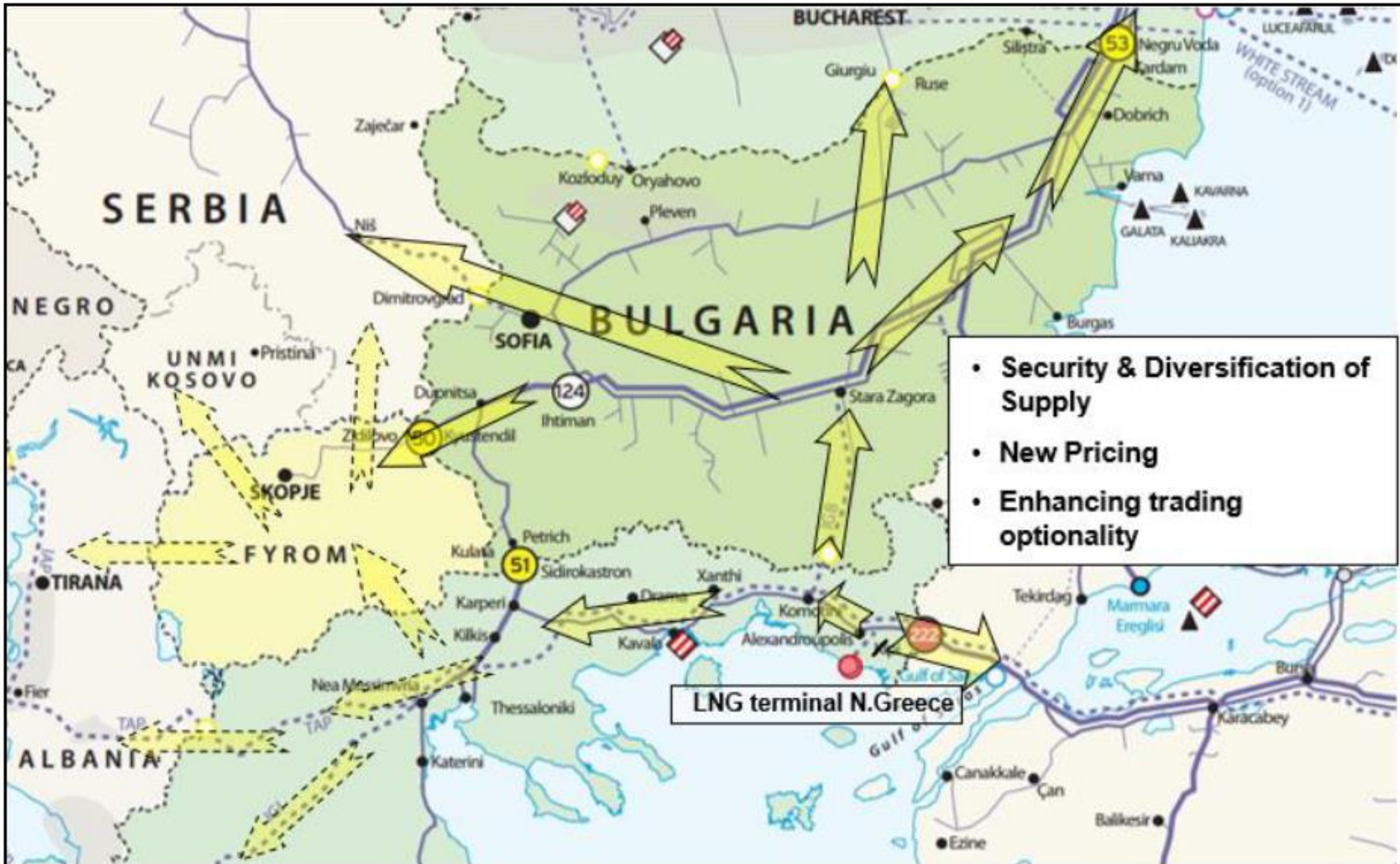
IGI	
Length	216 km
Diameter	32-inch (813 mm) pipes
Capacity	14-20 bcm/y
Anticipated Operational Date	2020

Interconnector Greece-North Macedonia (IGNM) (Conceptual Stage)

IGNM	
Length	115 km
Capacity	1.5 bcm/y
Anticipated Operational Date	2020

Sources: ENTSO-G map and ECA recommendations

The Alexandroupolis FSRU Project



Source: IENE study, “Gas Supply in SE Europe and the Key Role of LNG”, (M46), Athens, December 2017

Anticipated New Gas Volumes Through Greece (2021-2030)

- Through TAP → 10.0 bcm per year from 2021 onwards (1.0 bcm to Greece, 1.0 bcm to Bulgaria and 8.0 bcm to Italy) with the prospect of → 20.0 bcm (2.5 bcm to Greece, 1.5 bcm to Bulgaria and 16.0 to Italy) until 2030
- Through IGB → 1.0 bcm (2021) with the prospect of 4.0 bcm (2030)
- Through IGNM → 1.0 bcm (2022) with the prospect of 2.0 bcm (2030)
- Through the Revithousa LNG Terminal → 1.5 – 2.0 bcm (2020) growing to 5.0 – 8.0 bcm (2025)
- Through FSRU Alexandroupolis → 1.0 bcm (2021) growing to 4.0 bcm (2025)
- Through East Med → 0.0 bcm (2020) with the prospect of 10.0 bcm (2030)

- Taking account of present data it is estimated that from 2021 onwards some 12.0 – 14.0 bcm/y of gas will be shipped through Greece (in addition to 5.0 bcm it imports today) which could well rise to 25.0 bcm/y by 2030 excluding the East Med.

Creating a Natural Gas Trading Hub in SE Europe

- The operation of a proposed South East European Gas Trading Hub is anticipated to have a positive effect on wholesale markets by **channeling needed gas volumes at competitive market rates**.

- The attraction of sizeable tradable gas volumes and the trading activity arising from such a hub will help to reassure markets in terms of **gas availability and security of supply**.

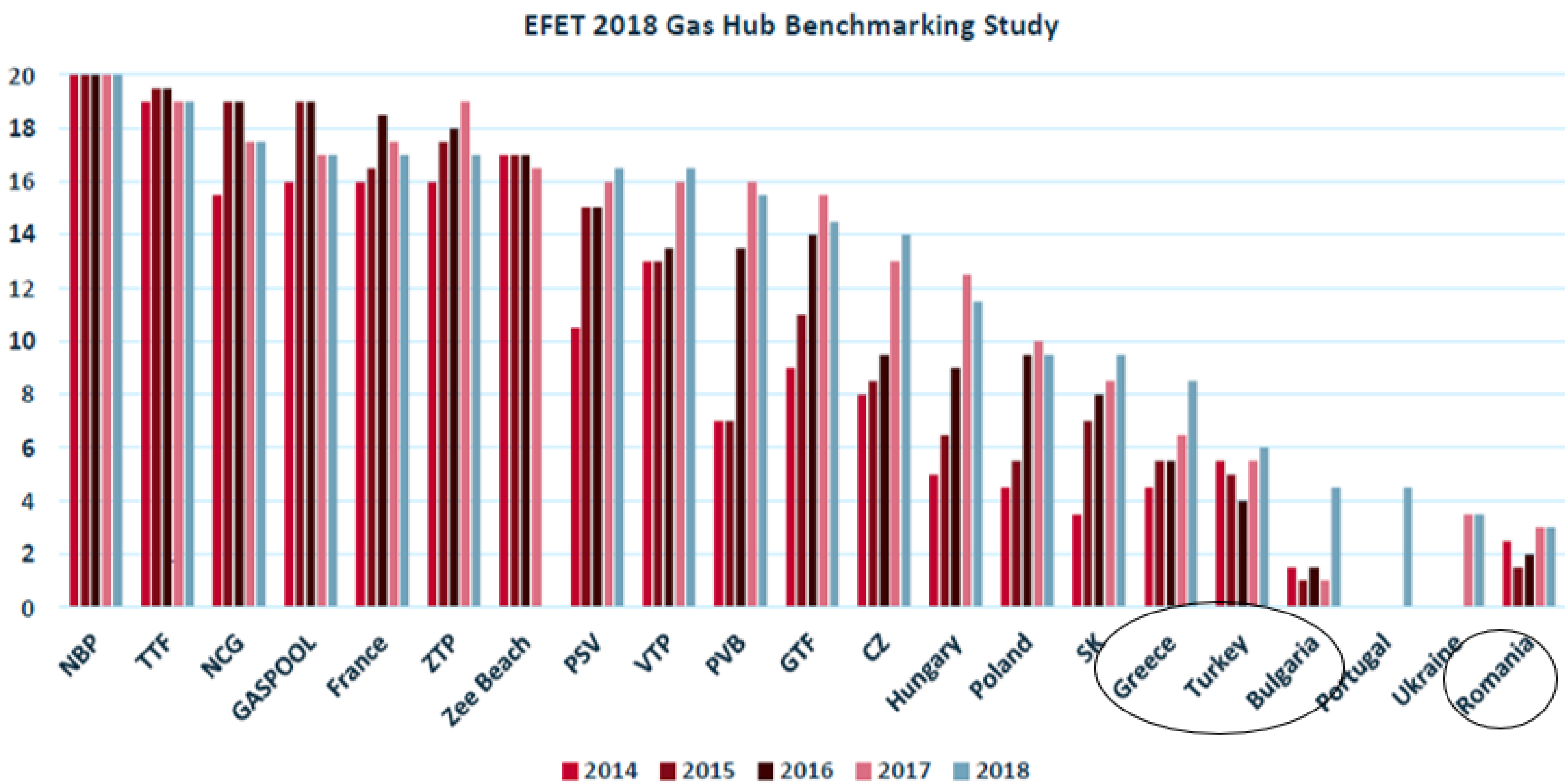
- A SWOT analysis has revealed far **more strengths and opportunities** than weaknesses and threats.

- IENE has carried out a detailed study (2014) for the establishment of a gas trading hub in SE Europe and is now updating this study on the strength of latest data. The findings so far indicate that there is scope for the operation of such hubs in Greece and Turkey to be linked with existing and planned Energy Exchanges in the region.

- Initial traded gas volumes could vary between 1.5 to 15 bcm per year until 2025.

- The answer to the question as to where to locate such a hub or hubs will depend on where eventually balancing points will be established.

Annual Scorecard 2018 Update



Source: EFET

Some Further Thoughts Concerning the Expanded South Corridor Concept

- How feasible and desirable is to discuss an integrated approach at this stage? Can we anticipate some form of cooperation between the main gas suppliers and pipeline operators?
- It seems that we do not have as yet a clear picture of Azerbaijan's long term supply capability. Hence, the gas supply situation of the TANAP-TAP system needs to be further clarified.
- On the other hand, we now have a good prognosis of Russian gas supplies to be channeled through Turkish Stream.
- LNG can play a balancing role in securing the flow of steady gas volumes through the Expanded South Corridor.
- Can Greece (in cooperation with Turkey?) play a logistics support role in coordinating gas flows through an enlarged South Corridor?
- An Expanded South Corridor will provide the necessary gas quantities for the operation of a Regional Gas Trading Hub(s) and Greece seems to be a nascent regional leader.

INSTITUTE OF ENERGY
FOR SOUTH-EAST EUROPE

Thank you for your attention

www.iene.eu

cstambolis@iene.gr