Pipeline Options from the Eastern Mediterranean into Greece and the South Eastern Europe

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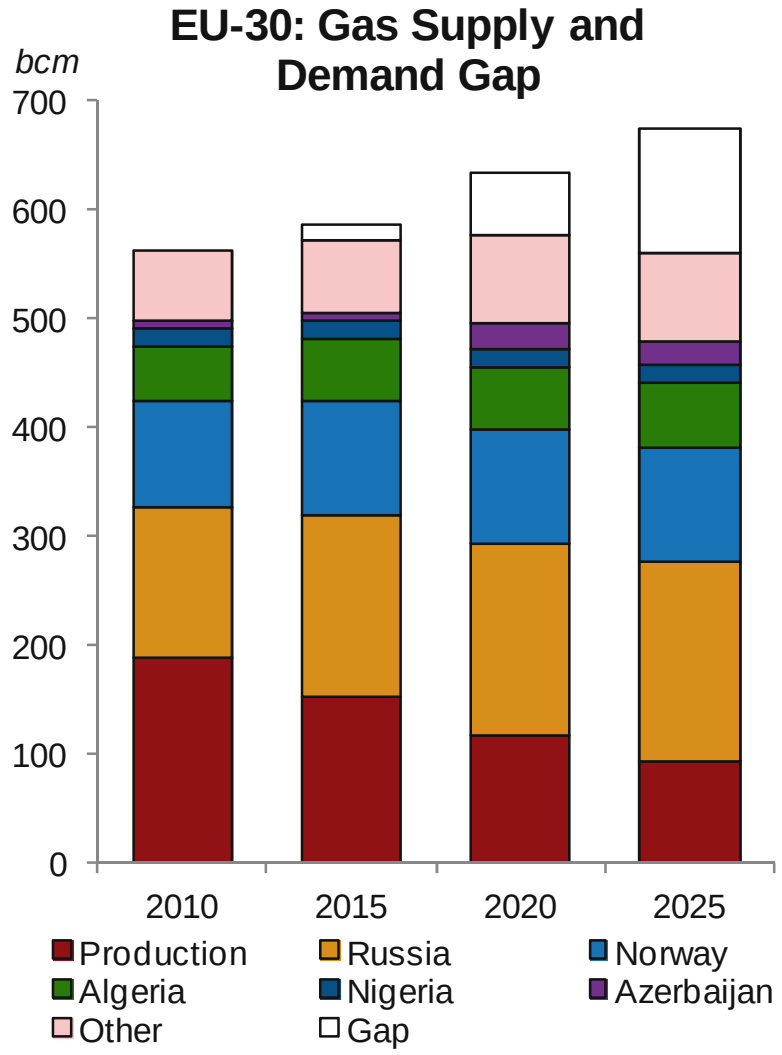
ΔΕΠΑ
PUBLIC GAS CORPORATION S.A

Europe Faces a Growing Supply Demand Imbalance

Europe needs to replace ~100 bcma from declining production by 2025.

Most of its existing suppliers will not increase exports.

Europe faces a supply-demand gap by 2020 and it grows larger by 2025.



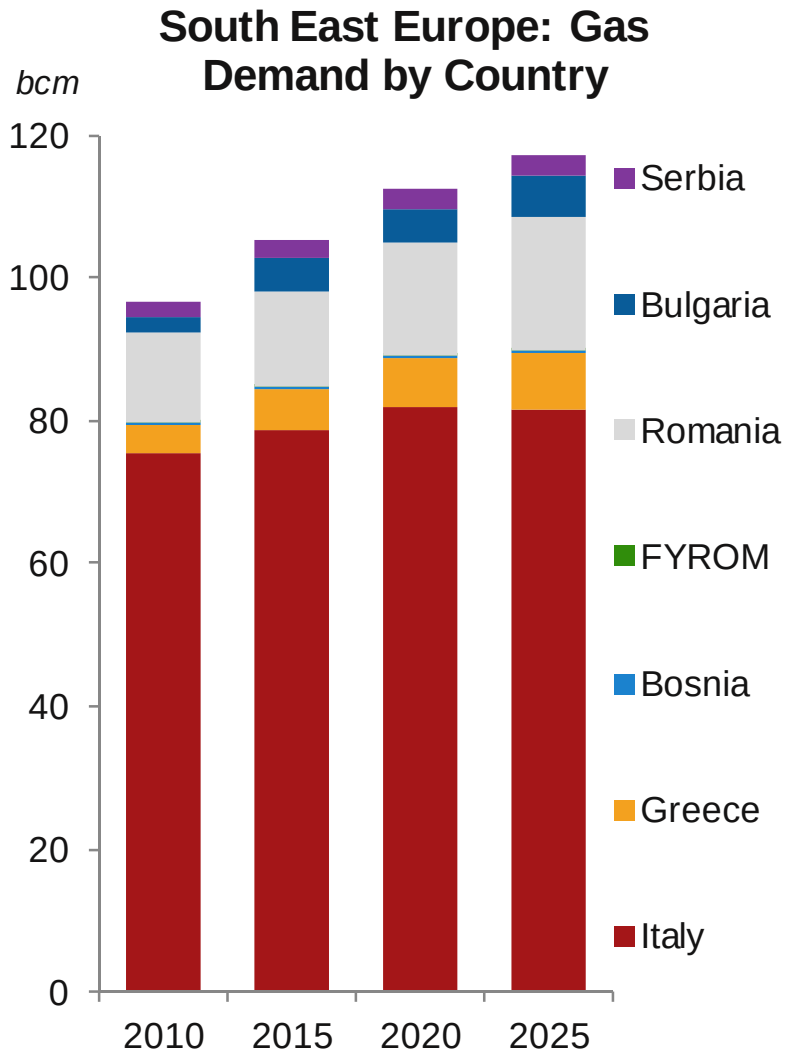
Source: PFC Energy

Growth and Security Drive in SE Europe's

Gas demand will grow by 1% p.a. through 2025 in SE Europe (by 19bcma from 96 bcma in 2010 to 117 bcma in 2025).

Considering the few options for meeting this supply gap, up to 12 bcm are left to be met by different sources (depending on how many terminals are built in Italy).

The region may be open to sales from new suppliers to enhance energy security due to its dependence on pipeline gas from Russia.



Source: PFC Energy

Export Window to Asia via LNG is Closing

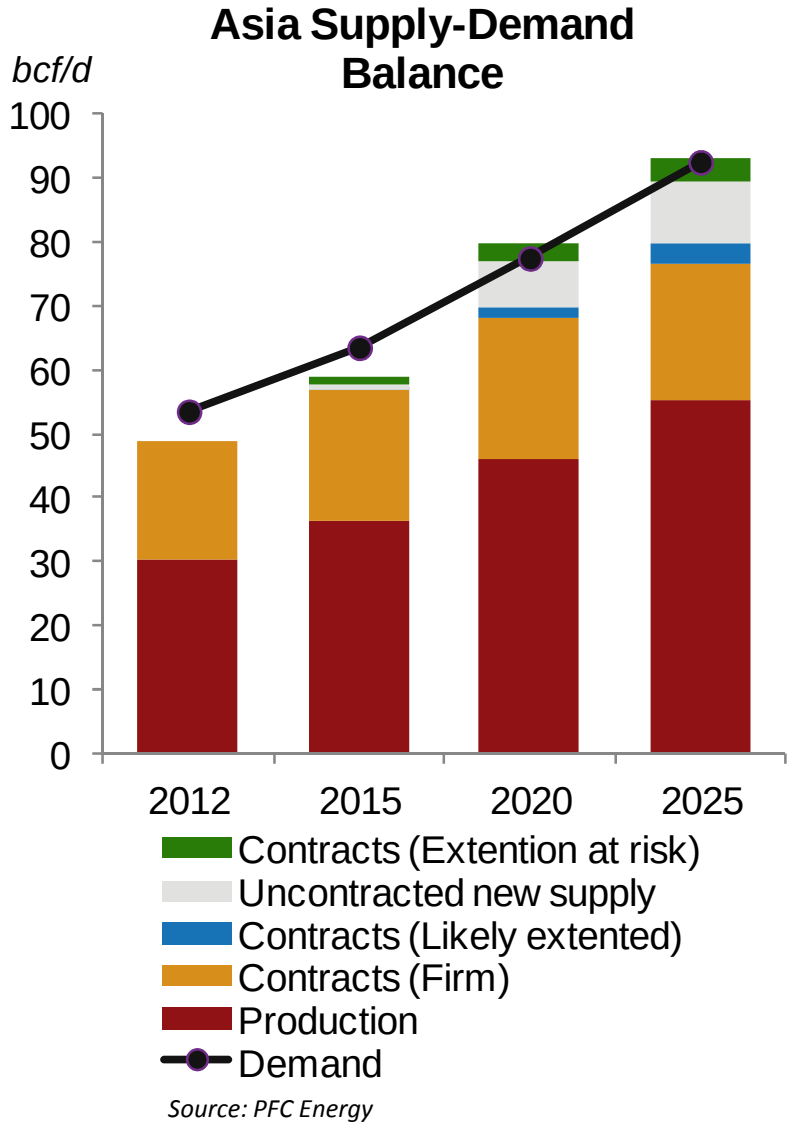
LNG Capacity Growth is focused to Asian Market. More than 75% of the growth in LNG between now and 2025 is geared to meeting demand in Asia.

There are only a few projects in the Atlantic Basin geared to European demand.

Depending on what happens to expiring contracts in SE Asia, Asia may be balanced or moderately over-supplied.

Although in 2015 Asia shows a supply gap (which can be met easily once the new projects hit the market) it will become oversupplied later on.

In 2025, even more new sources will come online (i.e. East Africa (Mozambique, Tanzania), Western Canada, etc.), becoming major competitors in the Asian LNG market, capitalising on their proximity to their target market.

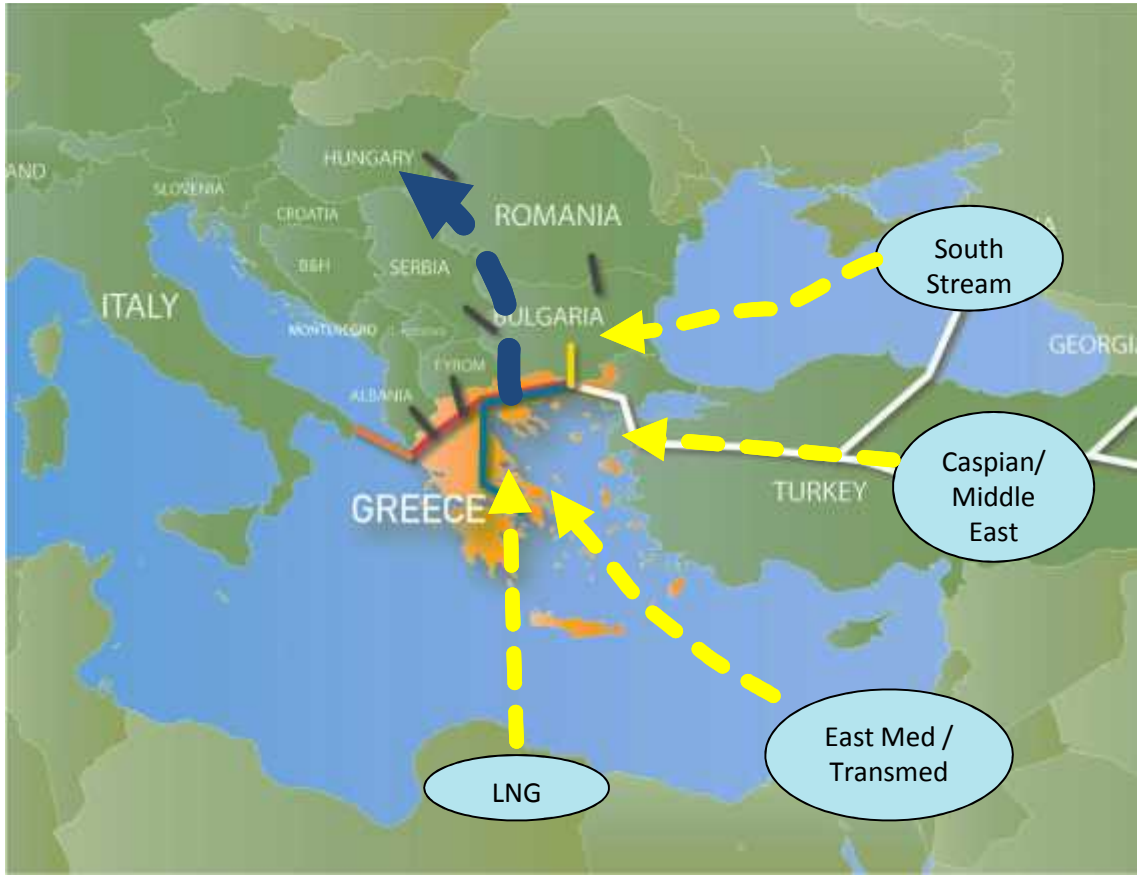


Source: PFC Energy

Summary
From Sources to SEE's market

SEE's market is:

- **the closest market to new sources, including LNG through Greece;**
- **a growing market with competitive prices;**
- **in urgent need to diversify its supply sources and increase its energy security.**



Levantine Basin can support both export options

Considering that:

- **The LNG market will be a very competitive market whereas a pipeline project to SEE would target a developing market at competitive tariffs.**
- **Proven reserves in the Levantine basin allow for the export of more than 20 bcma. Explorations under way are expected to prove that the available natural gas for export is significantly higher than this.**

A sound solution for the producers would be to invest in <u>both</u> the pipeline and LNG export options.
Thusly they will benefit from all of the advantages the two options offer and they will eliminate potential risks.

Political and Commercial decisions need to be taken by the producers towards establishing a New Energy Corridor to Europe thusly creating a solid framework within which this new export route can be realised.

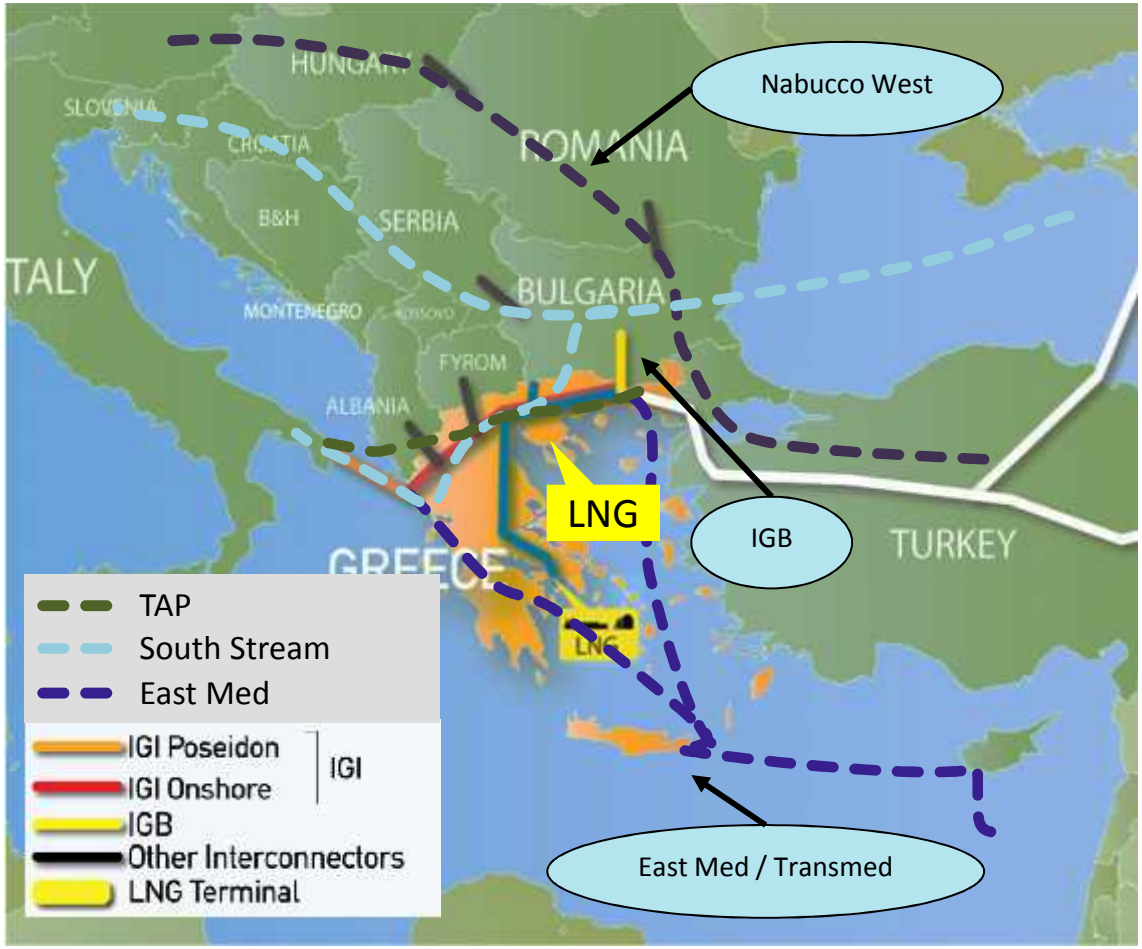
What are the options for transport?

Interconnector Greece Bulgaria (IGB) will supply up 3-5bcma by early 2015.

Nabucco West, the new scaled down proposal from Nabucco which will utilise the TANAP (Socar/Botas pipeline crossing Turkey). Nabucco's West route from Bulgaria to Austria remains the same.

An offshore pipeline from the fields of Eastern Mediterranean may connect these newly found sources to Europe as early as 2018 opening a New Energy Corridor.

A planned Floating Storage and Regasification Unit (FSRU) in Northern Greece will allow LNG to flow from 2015.

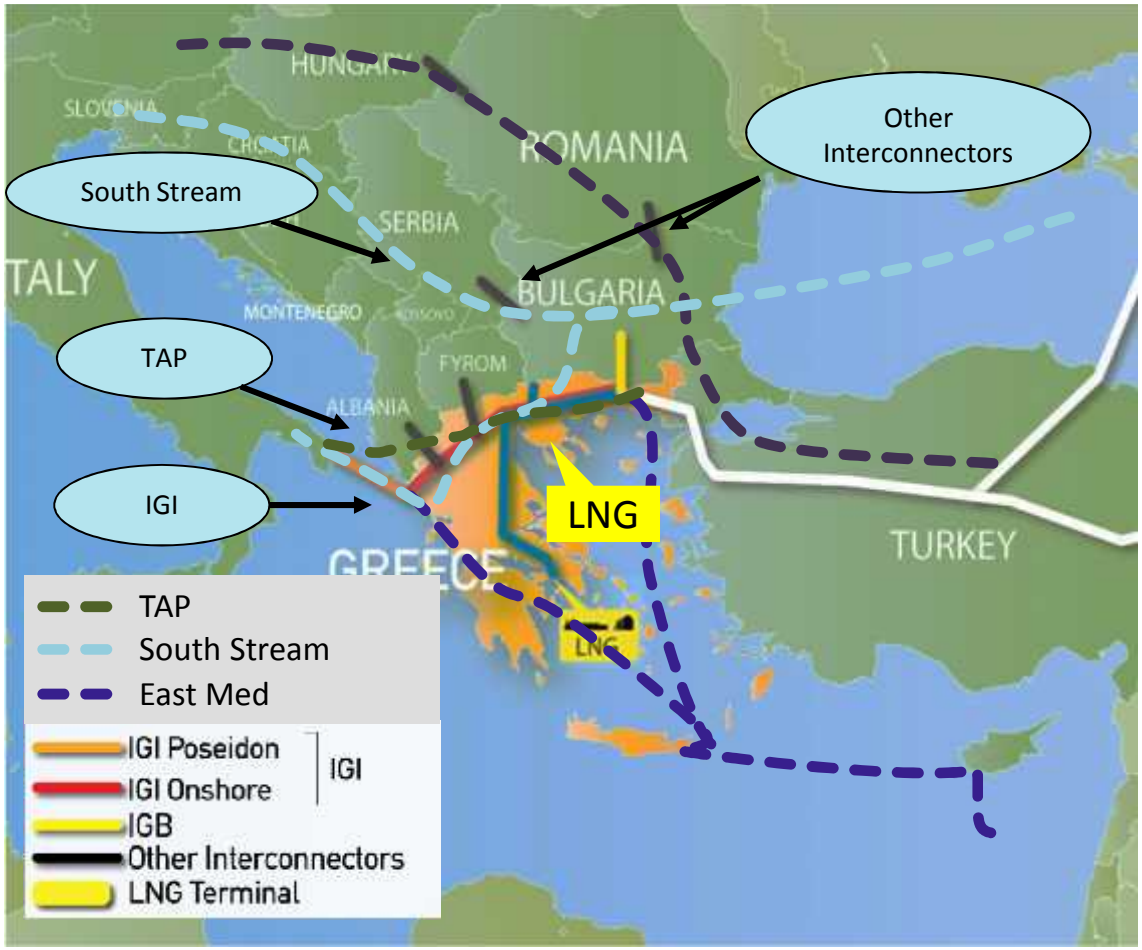


What are the options for transport?

The very important link between Greece and Italy may be completed by either IGI or TAP. Currently TAP has been chosen by SD II consortium as the preferred southern option to carry its gas, while the final choice will be made in Q2 2013.

South Stream will be filled mainly with Russian redirected gas, it will however allow for some additional quantities to reach SEE.

Small interconnectors, such as the Bulgaria-Romania which is under construction and the Bulgaria-Serbia which is planned, are infrastructure projects that will create the necessary physical links amongst the SEE countries.



The Greece – Bulgaria Interconnector (IGB)

IGB acts as a gateway to SEE through Greece, which is situated at the crossroads of all the new sources

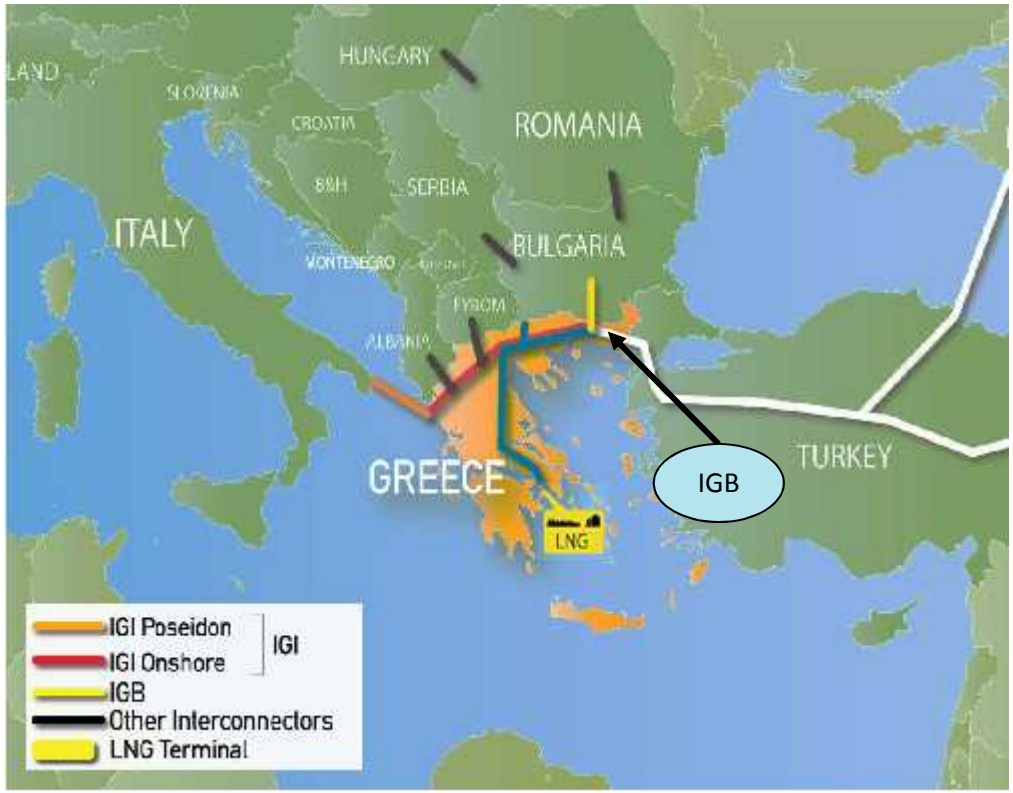
IGB will be carrying 3bcma, scalable up to 5 bcma.

IGB's national importance has been announced by both the Greek and Bulgarian governments.

IGB's regional significance has been reaffirmed by the EU, receiving a €45million grant through the EEPR framework.

IGB:

- Has received the PEIA permit in Greece and submitted the EIA while in Bulgaria the EIA public consultation has been recently concluded.
- IGB in cooperation with the 2 NRAs will launch its Market Test within the next month while updating its business plan and financial structure, taking into consideration the mandate signed with EBRD.
- FID is scheduled to be taken within 2013 and first gas in 2015.



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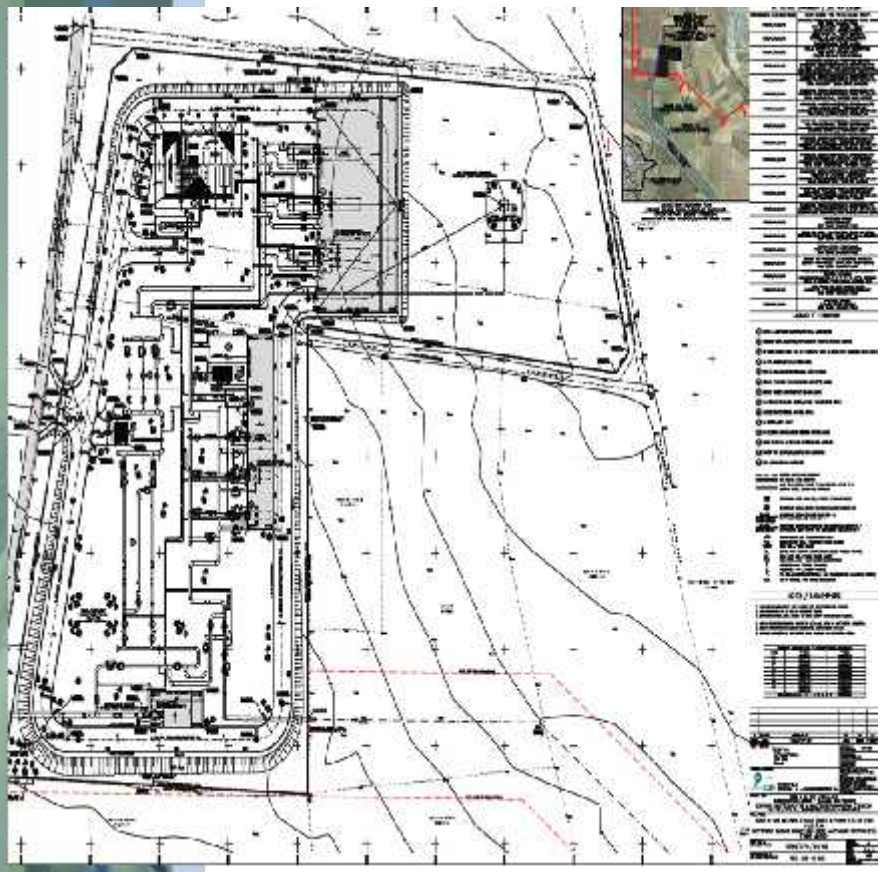

- Environmental approvals almost in place – finalization Q1 2013.
- FEED/Technical Design are in the final stage.
- Linepipe & LLI procurement procedure is in progress.
- Construction to start in 2013

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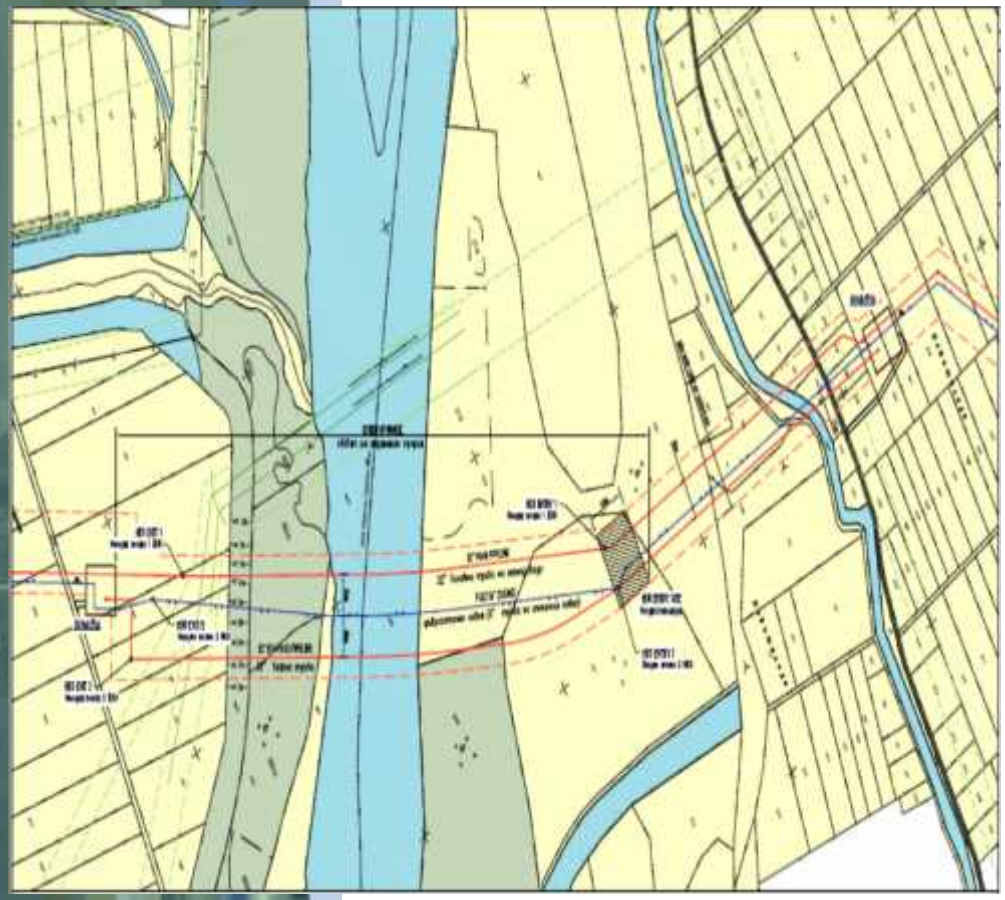


First gas is expected to flow in Q1 2015.

The Aegean LNG terminal

The planned FSRU in Northern Greece will allow SEE region to have easier access to more LNG capacities (in addition to the LNG terminal in Revythousa).

The Aegean LNG will be able to send out 5 bcma into Greece and from there, in conjunction with IGB and ITG, to SEE and Turkey

The Aegean LNG:

- Comprises the floating facility
- It is located at Kavala where DEPA possesses property rights
- Will have a storage capacity of 150,000m^3

Aegean LNG – Technical Feasibility Established

- Technical development progressing beyond completed feasibility.
- EIA study is expected by mid 2013.
- Natural gas may flow from the Aegean LNG terminal as soon as 2015.

East Med a New Energy Corridor

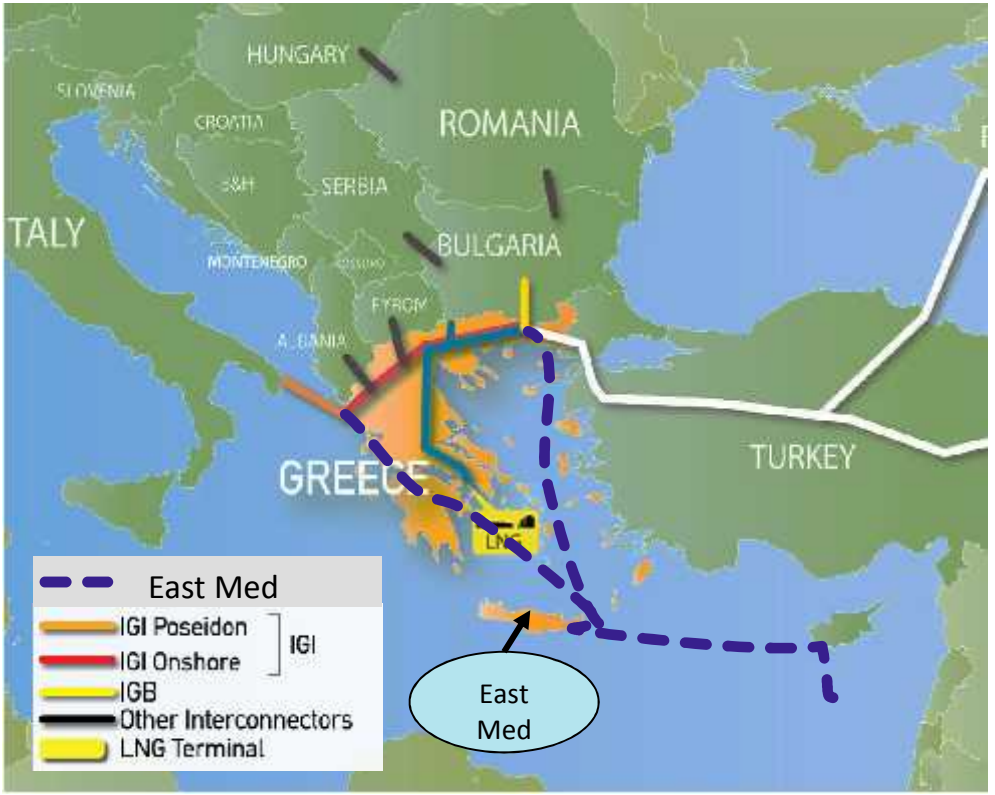
East Med will be able to carry natural gas from new sources, through a new route with solely EU transit countries.

East Med will initially carry 8bcma to Europe thusly opening a New Energy Corridor.

East Med is excepted to be granted the label of Project of Common Interest by the EU, allowing for direct Union financing as well as much better terms while negotiating with other financial institutions.

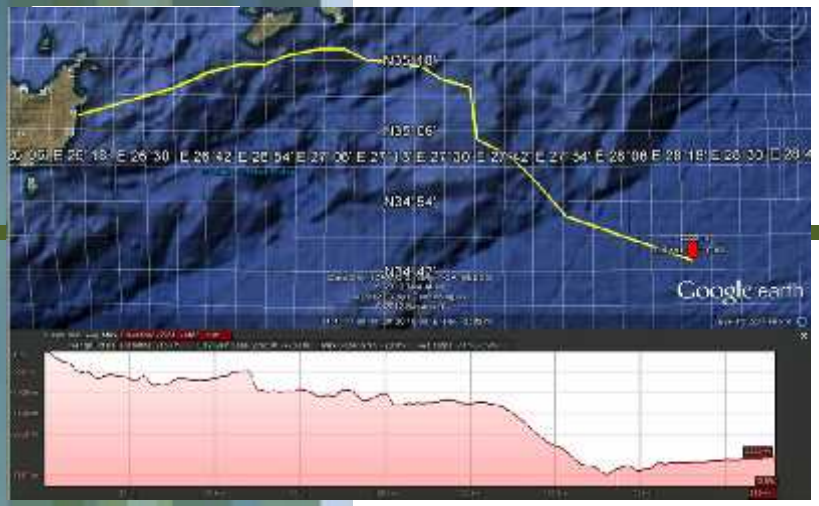
East Med:

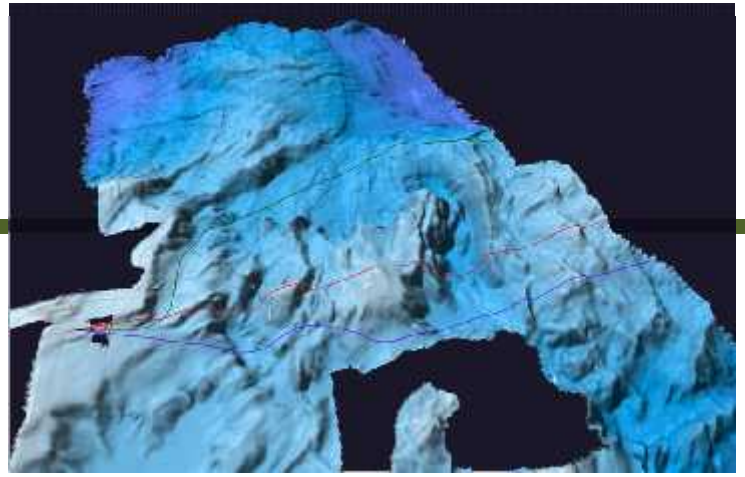
- Prefeasibility studies have shown conclusively that East Med is technically feasible.
- Feasibility studies and Reconnaissance Surveys need to be carried out in order to decide on the optimum route/landfalls etc.
- East Med, provided that prompt decisions are undertaken by the producers, may carry gas to Europe as early as 2019.



Studies performed so far assessing the target market and the technical aspect of the pipeline option

2010	**Market assessment study of selected South Eastern European countries with primary purpose to identify gas trading and supply opportunities in the SE Europe markets.**
2011	**Initial Route assessment of the pipeline option.**
2011	**Pre feasibility study on the pipeline option.**
2012	**Crete landfall assessment.**
2012	**Monetization options for the Eastern Mediterranean Gas.**
2012	**Definition of the Scope of Work for a Reconnaissance Marine Survey near Crete and a feasibility study.**
2012	**Studies on the onshore route connecting Eastern Mediterranean gas to grids in Southern Europe and Italy via Greece.**





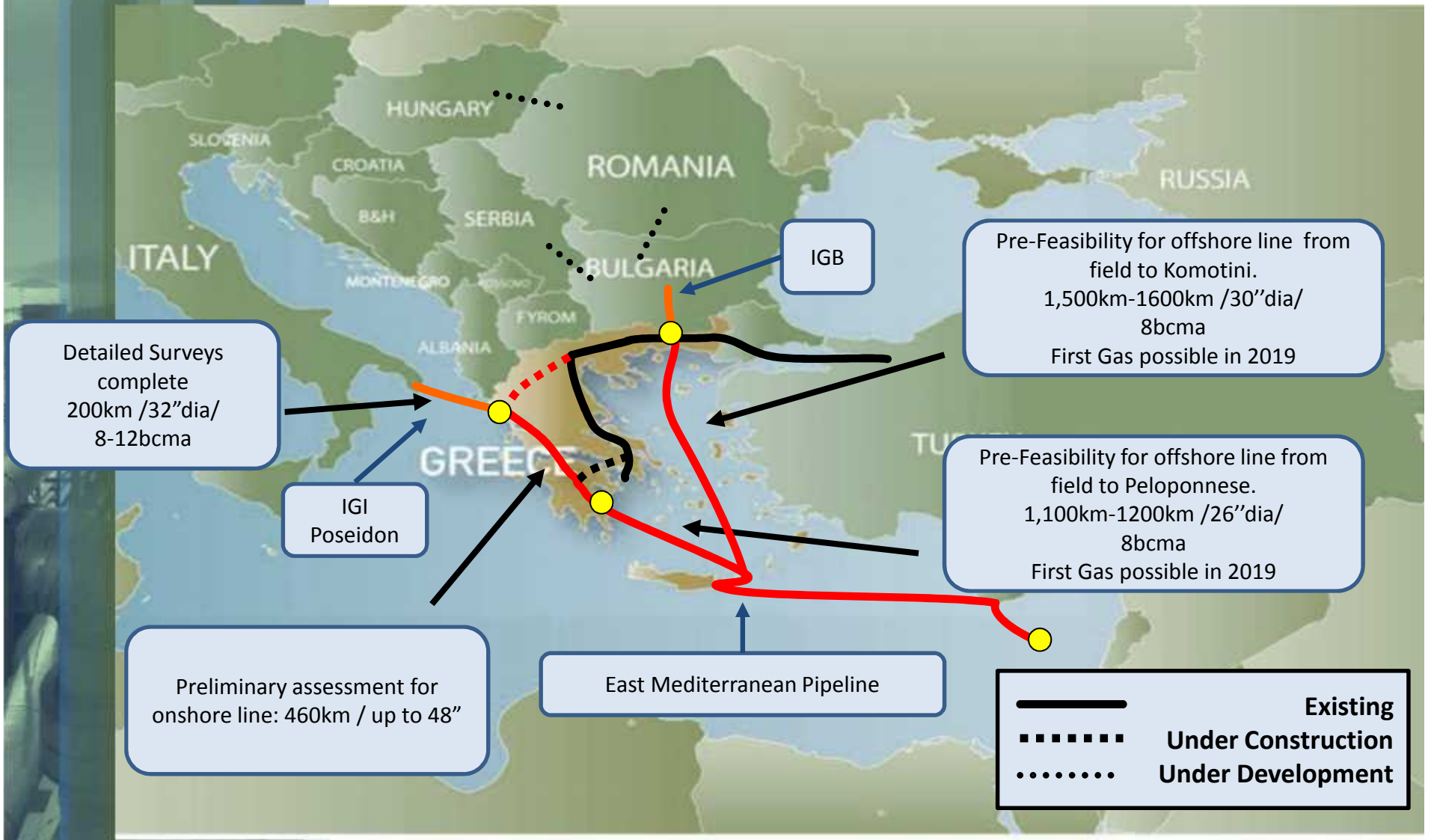
The challenging approach to Crete (with water depths down to 2900m) has been looked into in more detail in a way that will minimize the technical challenges. A marine survey scope has been defined.

None of the constructability challenges are insurmountable based on experience from similar projects (Galsi, Medgaz).

The pipeline is <u>technically feasible</u>.

An assessment of potential landfalls and sites for onshore installations has been completed and coordinated with the offshore survey.

EAST MED to ITALY & SE EUROPE



Economic Comparison Between Pipeline and LNG

The most important variable in project economics is the cost of the LNG facility.

A scenario with much higher liquefaction costs would make LNG less attractive than a pipeline – even assuming a pipeline cost that is 25% higher relative to the base scenario.

An LNG project, however, would offer greater opportunities for expansion, allowing the project partners to achieve brownfield economics.

It is important to note that LNG projects are very susceptible to "Capex Overrun" risks and in such case the High Cost scenario is more likely to occur.

Source: PFC Energy

Advantages of the Pipeline project

The pipeline offers more competitive tariffs at the target markets.

The Asian market, LNG's target market, is a very competitive market with little room for new players.

Italian and SEE markets are growing. SEE market especially is in urgent need to diversify its sources of natural gas.

The envisaged pipeline will be labeled as a Project of Common Interest (PCI), enabling it to receive Union financial assistance as well as favorable financing terms from European Investment Bank (EIB).

Supply via pipeline is traditionally the most secure way of marketing Natural Gas since it allows long term contracts for 20-25 years which also secures the viability of the investment.

The participation of buyers in the shareholding structure of the sponsor that will develop and operate the pipeline provide additional guarantee for the immediate marketing of the gas.

CONLCUSIONS

Southeastern Europe is a key market for the new sources of gas in the Eastern Mediterranean because of:

- **its proximity to the source and**
- **its potential for growth.**

The Pipeline Options:

- **Is the most Politically and Commercially attractive solution;**
- **Works complementary with the LNG option, allowing for a win-win scenario;**
- **Is the option that may be operational before 2020 and enabling the Mediterranean gas to reach first an attractive developing market.**

Next Steps:

- **A decision by the producers regarding the quantity of natural gas to be diverted to the European Markets;**
- **Political decision by the EU to enable the establishment of this new energy corridor to Europe;**
- **In depth feasibility study to reinforce the technical and commercial viability of the project.**