Greece the New Energy Hub of South – Eastern Europe: The evolving new Pipeline Projects in the region & their importance

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DESFA

Hellenic Gas Transmission System Operator S.A.

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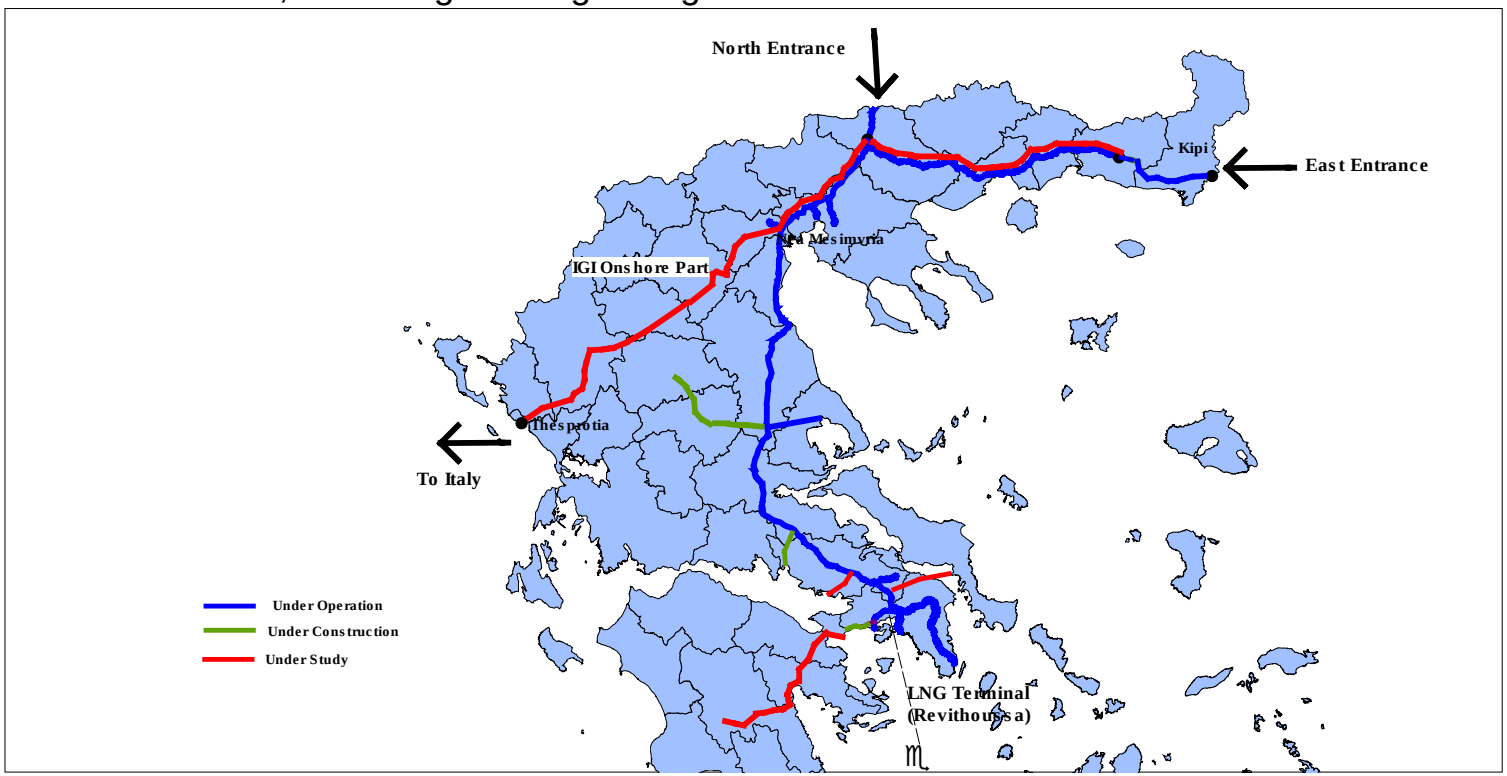
Introduction

- DESFA was established in March 2007.
  - Legal Unbundling / Public Gas Corporation of Greece (DEPA S.A.)
  - European Directive 2003/55 and the Greek Law 3428/2005 / liberalization of the natural gas market
- DESFA is a 100% subsidiary of DEPA
- DEPA, remains the dominant player in Greece in the trading activities
- DESFA fully owns the Natural Gas Transmission System (NGTS)
  - provision of TPA services under non-discriminatory terms,
  - the operation, the maintenance and the development of the gas system.

Hellenic gas transmission system

comprised of:

- 512 km high pressure main pipeline
- 520 km high pressure branches
- three entry points (two border stations and one LNG terminal)
- line valves, metering and regulating stations



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Hellenic gas transmission system Expansions

- New branches towards central and southern Greece
- Italy-Greece Interconnector (IGI)
- Dynamic Expansion of the LNG terminal (Revithoussa)
- New transit projects for South East Europe and the Balkans

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DESFA and the Environment

- Primary Objectives:
  - The minimization of environmental consequences,
  - the protection of the natural resources

- Systems Adoptions:
  - Environmental Protection Management System based on standard ELOT EN ISO 14001

- Participations:
  - National Collective System of Alternative Management for Rejected Lubricant Oil & other Harmful Materials

Interconnection Turkey – Greece - Italy (ITGI)

The Interconnection Turkey-Greece (ITG) - by Desfa and Botas.

- aim to connect the two countries,

- creating a corridor for gas supplies to Greece and Europe.

The second important step -Interconnection Greece-Italy (IGI Project).

Interconnection Turkey – Greece (ITG)

The Interconnection Turkey-Greece (ITG), has a capacity of **3 bcma.**

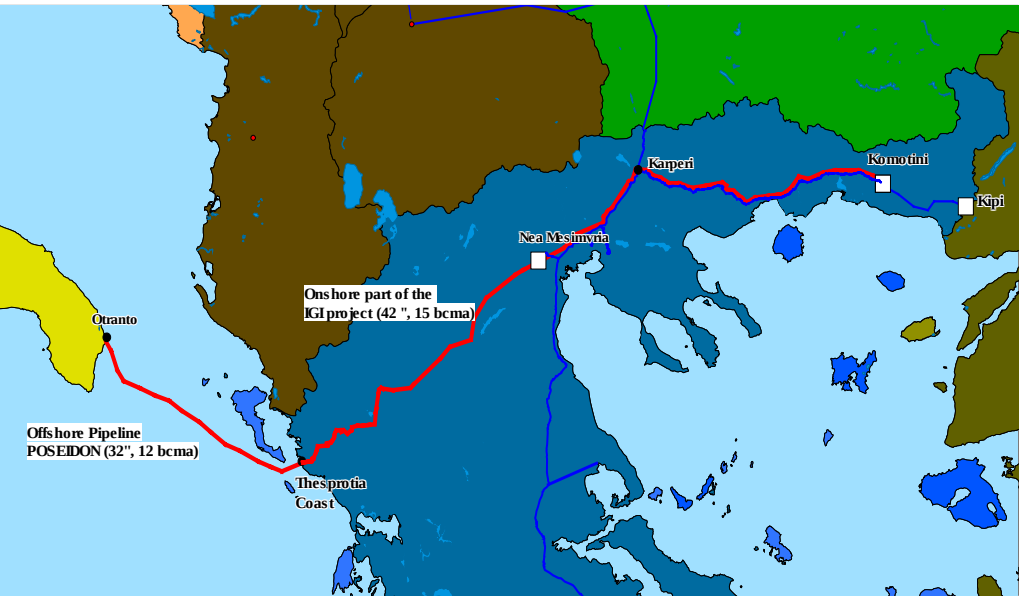
The length of the pipeline is 296 km (86,6 within the Greek Territory and the rest in the Turkish Territory)

The cost of the Greek part of this project is approx. 80 mil €, including the Border Metering Station

The construction of the Greek Part co financed by European Union with 29% grants

With the addition of three new compressor stations, the max. capacity will be approx. **11 bcma**.

Interconnection Greece – Italy (IGI)



- Two parts: Onshore and Offshore (Poseidon pipeline)
- The onshore part will be built as part of the Greek National Grid, under rTPA
- The offshore part will be built by the "Poseidon" company (Edison & DEPA)
- "Poseidon" will sign a long term transportation contract with DESFA
- "Poseidon" has asked for an exemption from rTPA for 8 bcma and 25 years
- Italian and Greek Authorities have granted the exemption - The EC has approved it imposing certain obligations on the developers

Interconnection Greece – Italy (IGI) – Onshore part Technical Features

- The length of the onshore part of the IGI project is approx. 590 km
- The diameter is 42''.
- In the first phase of the project, four (4) compressor station will be installed along the routing.
- The onshore part of the IGI project, can increase its capacity up to 15 bcma, upgrading the four (4) compressors and constructing two (2) new stations
- An international Tender is under way for the Basic Engineering Study of the project.
- The implementation of the construction of the onshore part of the IGI project is scheduled for the year 2012 - 2013.

New transit projects for South East Europe and the Balkans

- The construction of the Interconnection Turkey - Greece, gave a significant potential to Greece as a gas hub in the region.
- The importance: is very high / transport 11 bcma to Greece and Europe / opened the first corridor from the Caspian and Middle East sources to Europe.
- Main objective of DESFA's policy: expand its system - have potentially the ability to realize new transit projects
- The maximum capacity =15 bcma

  can serve the maximum capacity of POSEIDON project (12 bcma)

  also transfer significant quantities for the Balkan Countries.
- The recent upgrading of Revithoussa LNG terminal:

  a very significant investment

  can serve the needs for gas of the Balkans

Revythoussa LNG Terminal

- Unloading Capacity: 7.250 m^3 LNG / hour
- Storage Capacity: 2 underground tanks of 65.000 m^3 LNG useful volume.
- Send Capacity:
  - 1000 m^3LNG/hour (Sustained Maximum Send out Rate)
  - 1250 m^3 LNG/hour (with all spare vaporizers in use)
- Approach and berth of LNG carriers of capacity from 25.000 m^3 to 125,000/135,000 m3 (290 m length, 11.5 m draft).
- Small cogeneration plant for the power and thermal needs (hot water) of the Terminal

Revythoussa LNG Terminal

- The annual throughput of the Terminal for the year 2007, was 0,85 bcm
- The annual throughput of the Terminal could reach a maximum higher than 3 bcm, especially if combined with a third tank
- The construction of a 3rd tank is in DEFSA's Development plant:
  - exploitation of the characteristics of the Terminal
  - security of gas supply
- The cost of the new tank will be included in the Regulated Asset Base (RAB) of the NGTS

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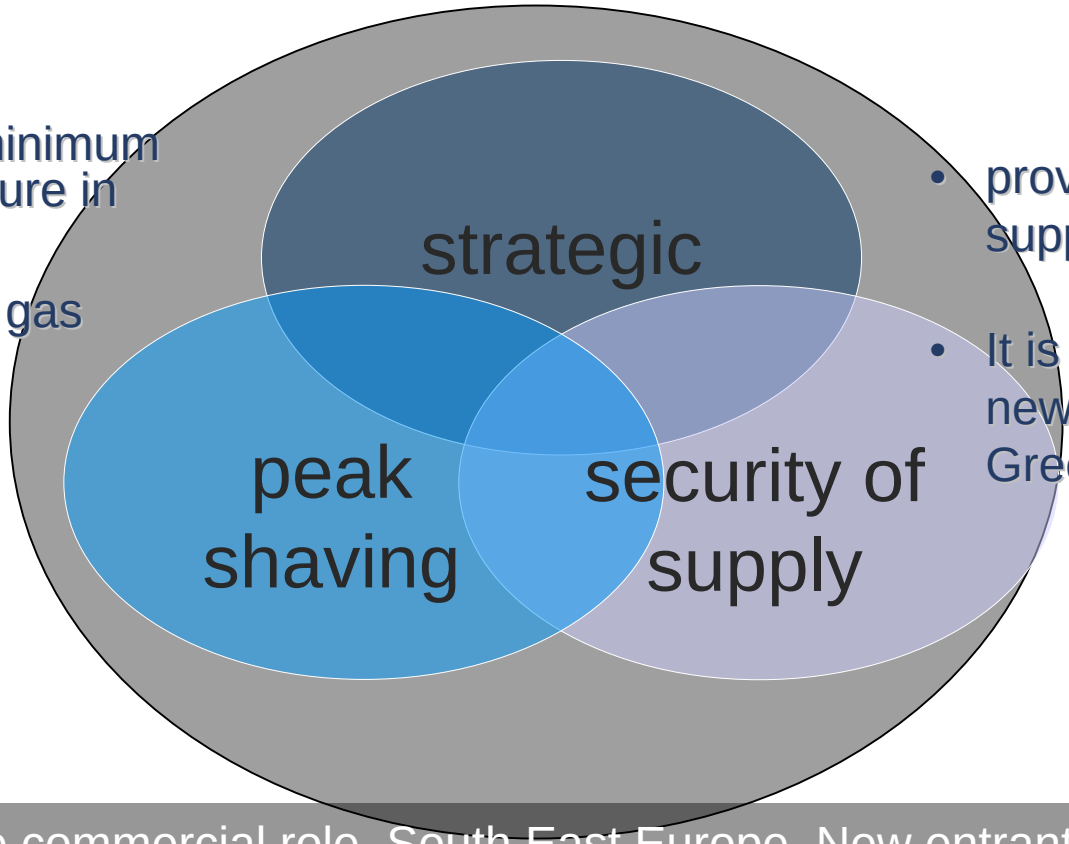
The current role of LNG in the Greek gas market

- maintains the minimum operating pressure in the System
- can cover peak gas demand



- provides an alternative supply source
- It is an entry point for new entrants to the Greek gas market

future commercial role, South East Europe, New entrant gate

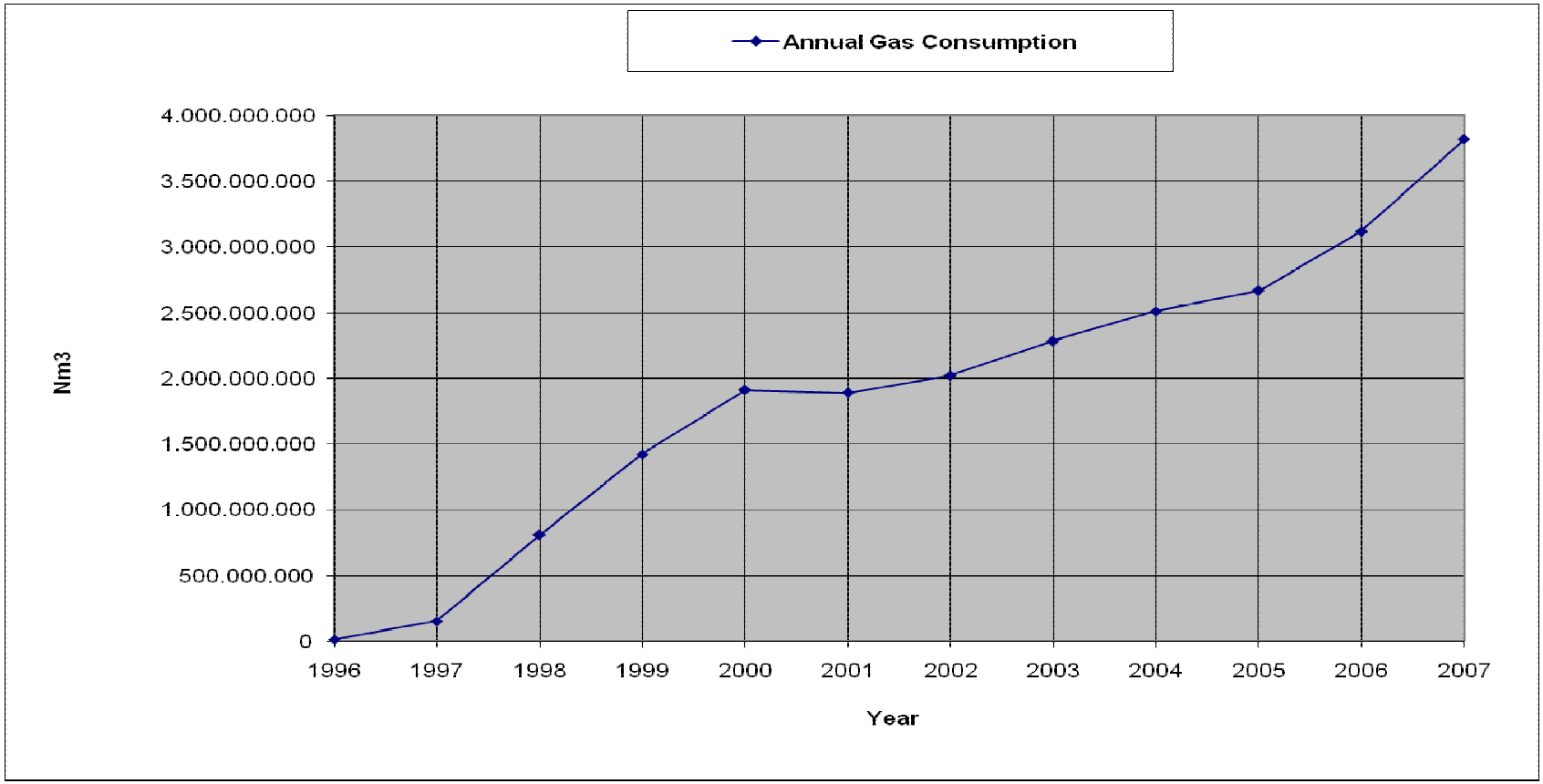
The potential role of Revythoussa in the markets of South East Europe

- **The design capacity of the existing Transmission System is estimated between 8 and 9 bcma.**
- **It is evident that:**
  - There is sufficient spare capacity for the current market levels
  - The capacity of the LNG terminal is large compared to the overall capacity of the system and the size of the Greek market
  - This spare capacity could be exploited to supply gas to SEE or even EU through backhaul flows (South/North) and swaps with the transit pipelines in the wider region→Gas moving to many directions

Evolution of the Greek Market (Mil. Nm3/yr)

YEAR	RUSSIA	ALGERIA	EASTERN GAS	TOTAL
1996	12			12
1997	148			148
1998	806			806
1999	1421			1421
2000	1461	444		1905
2001	1419	467		1886
2002	1535	484		2019
2003	1766	518		2284
2004	2052	450		2502
2005	2259	403		2662
2006	2552	559		3111
2007	2929	860	30	3819

Evolution of the Greek Market



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Conclusions

DESFA's role as an energy hub

Two steps to be realized towards this goal :

1. **Realization of planned and new transit pipelines (IGI, South Stream)**
2. **Completion of the whole legal framework for TPA access**

DESFA aims to :

- **exploit our enormous capabilities in the area gas market**
- **play a very important geopolitical role as an energy hub**
- **serve as a corridor for Caspian and Middle-East gas to the EU gas network**
- **provide the transportation of gas through our system and the security of undisturbed flow from the east to the west**

Conclusions

Thank you for your attention

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