Greek Natural Gas Market
&
International Gas Interconnections

4th South East Europe Energy Dialogue

Presentation by Mr. Antonis Natsikas,

Technical Director IGI Poseidon S.A.

Deputy Director of International Activities DEPA S.A.

Thessaloniki, June 03 2010

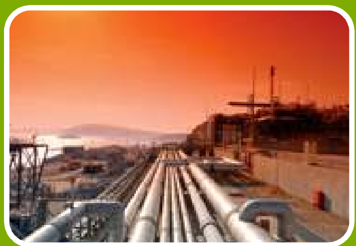
DEPA

PUBLIC GAS CORPORATION OF GREECE S.A.

AGENDA

European & Greek Gas Markets

- Evolution
- Supply and Demand



International Gas Interconnections

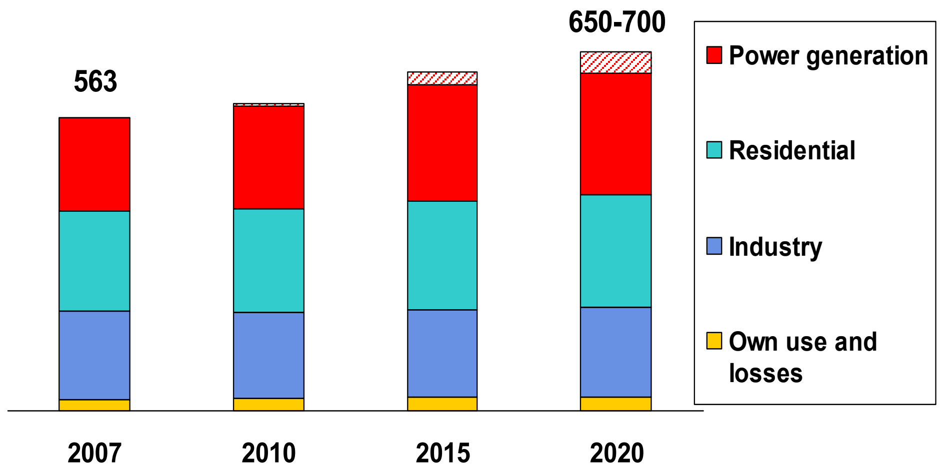
- Greece's & DEPA's role
- Project Significance

Poseidon Pipeline

- Project Characteristics
- Project Significance

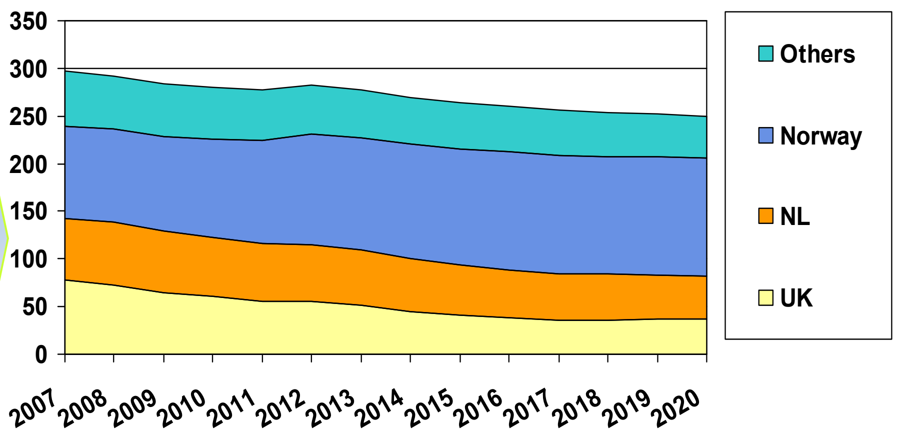
Evolution of Gas Market in Europe*

Gas demand



- Demand will increase from 563 Bcm in 2007 to 650-700 Bcm in 2020 (cagr '07-'20: 1.1%-1.7%)
- Different scenarios mainly depend on the evolution of power consumption:
  - ✓ renewables development
  - ✓ nuclear phase-out
  - ✓ economic upturn
- Growth mainly driven by power generation.

Gas production



- Domestic production will decrease from 296 Bcm in 2007 to 250 Bcm in 2020.
- Reduction mainly driven by UK decreasing production
- Main EU30 producer in 2020: Norway

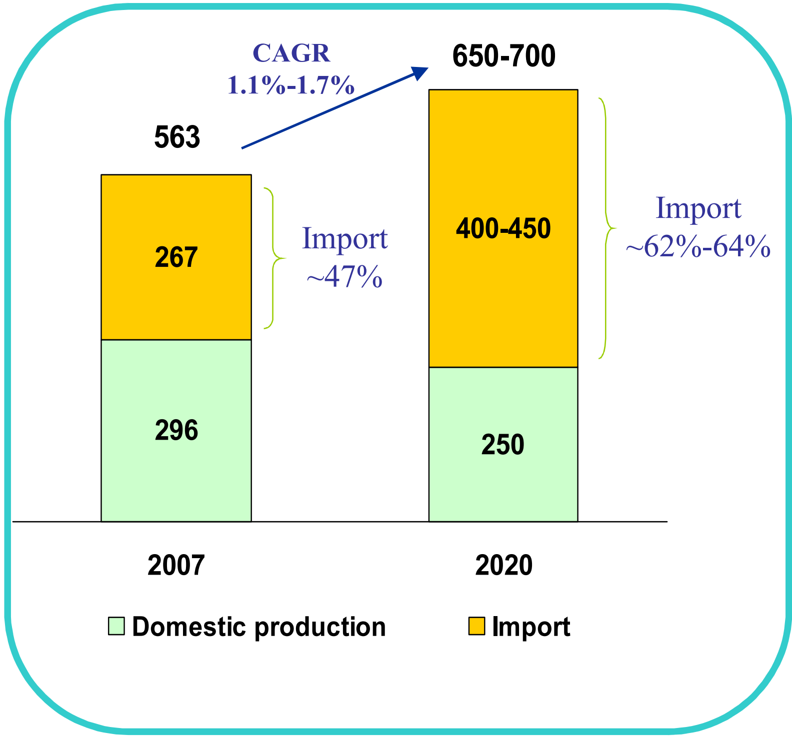
Increasing demand coupled with decreasing production leads to a growing dependence on imports

* Europe includes EU27 + Norway, Switzerland and Turkey

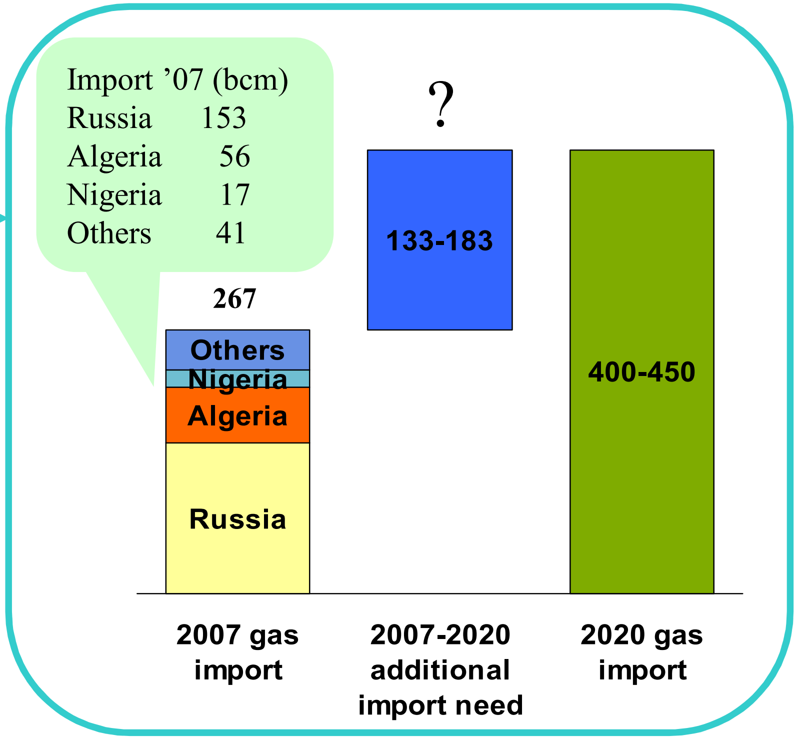
Sources: IEA World Energy Outlook; BP Statistical Review, ENI, IHS, CERA, OIES, Edison estimates 9300 kcal/cm

Increasing Dependence on Import

Gas demand covering (Bcm)

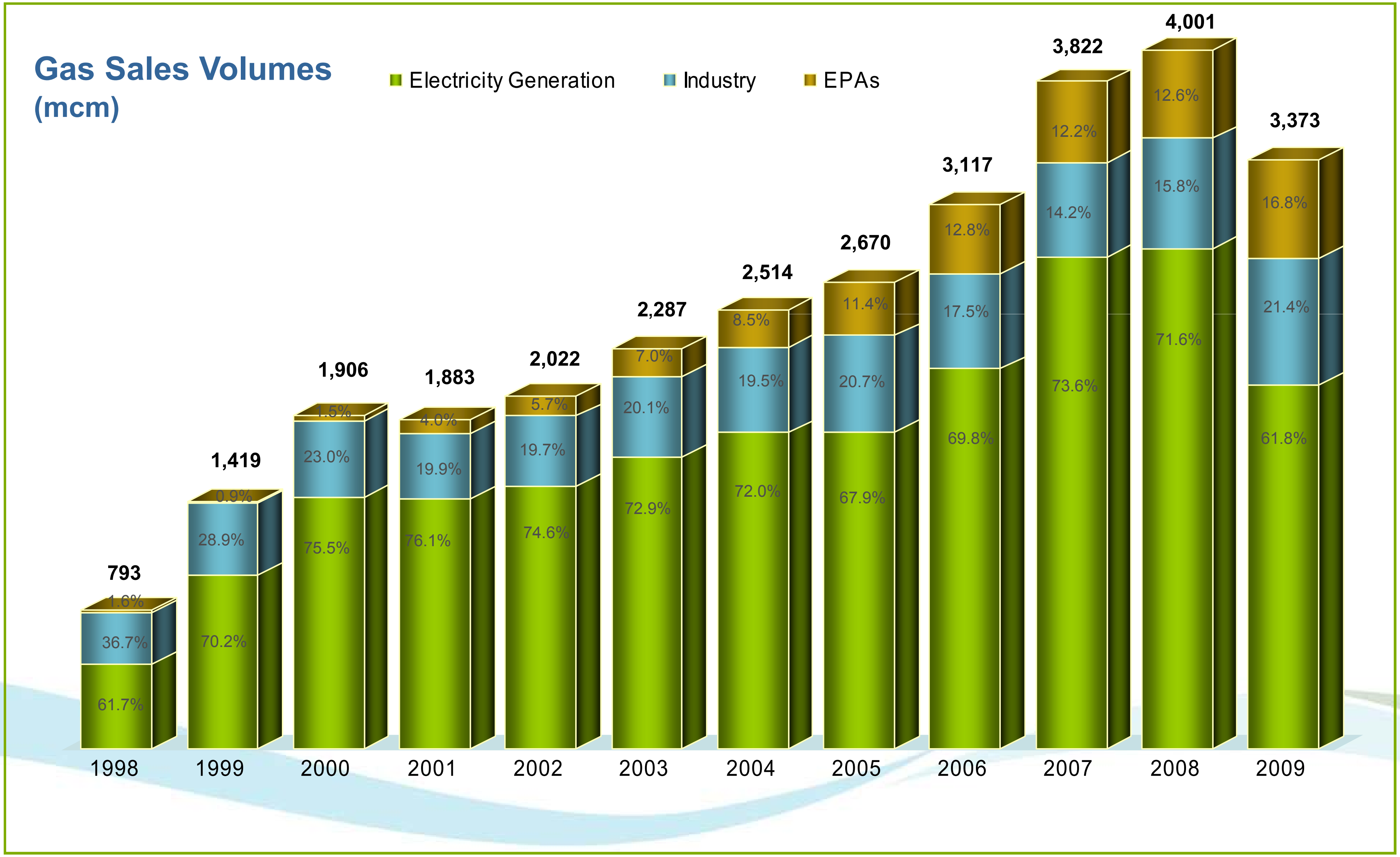


Gas import need (Bcm)



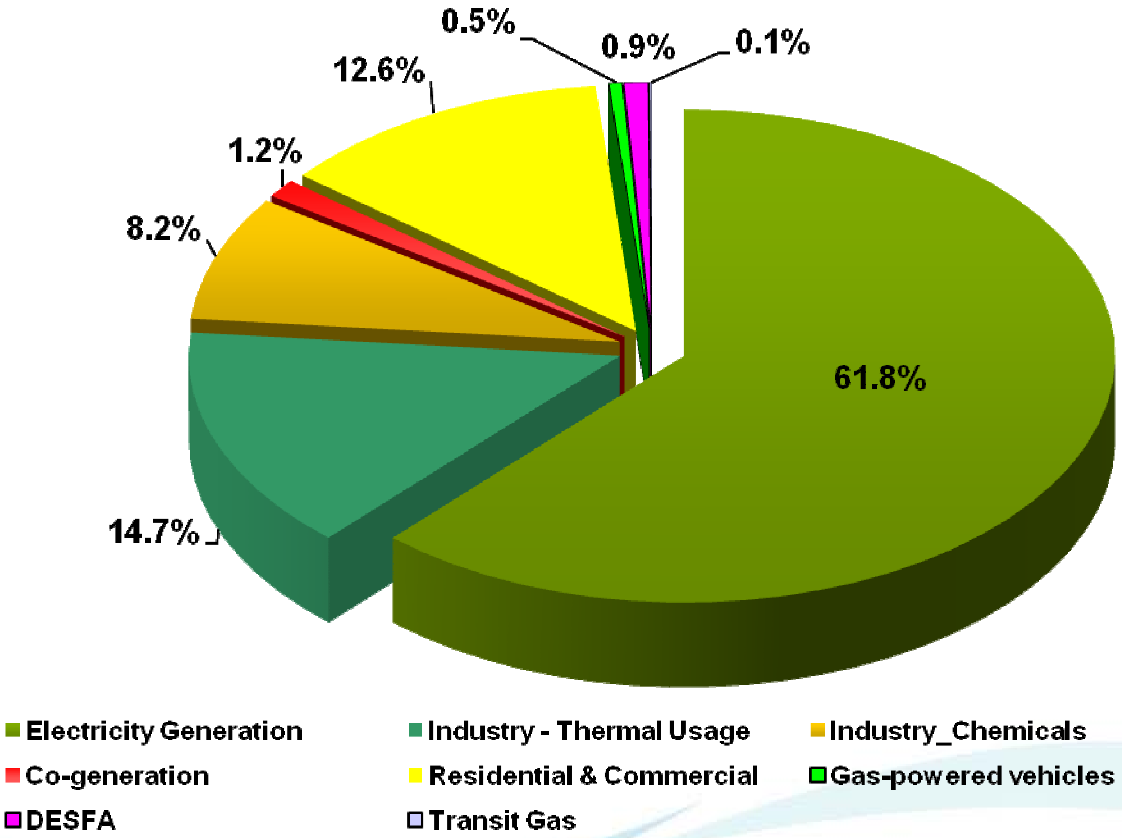
Traditional EU supplier will not be able to cover the full demand requirements**. Opening the Southern Gas Corridor for at least 70 bcm/y by 2020 is Mandatory.**

Domestic Commercial Activity – Sales

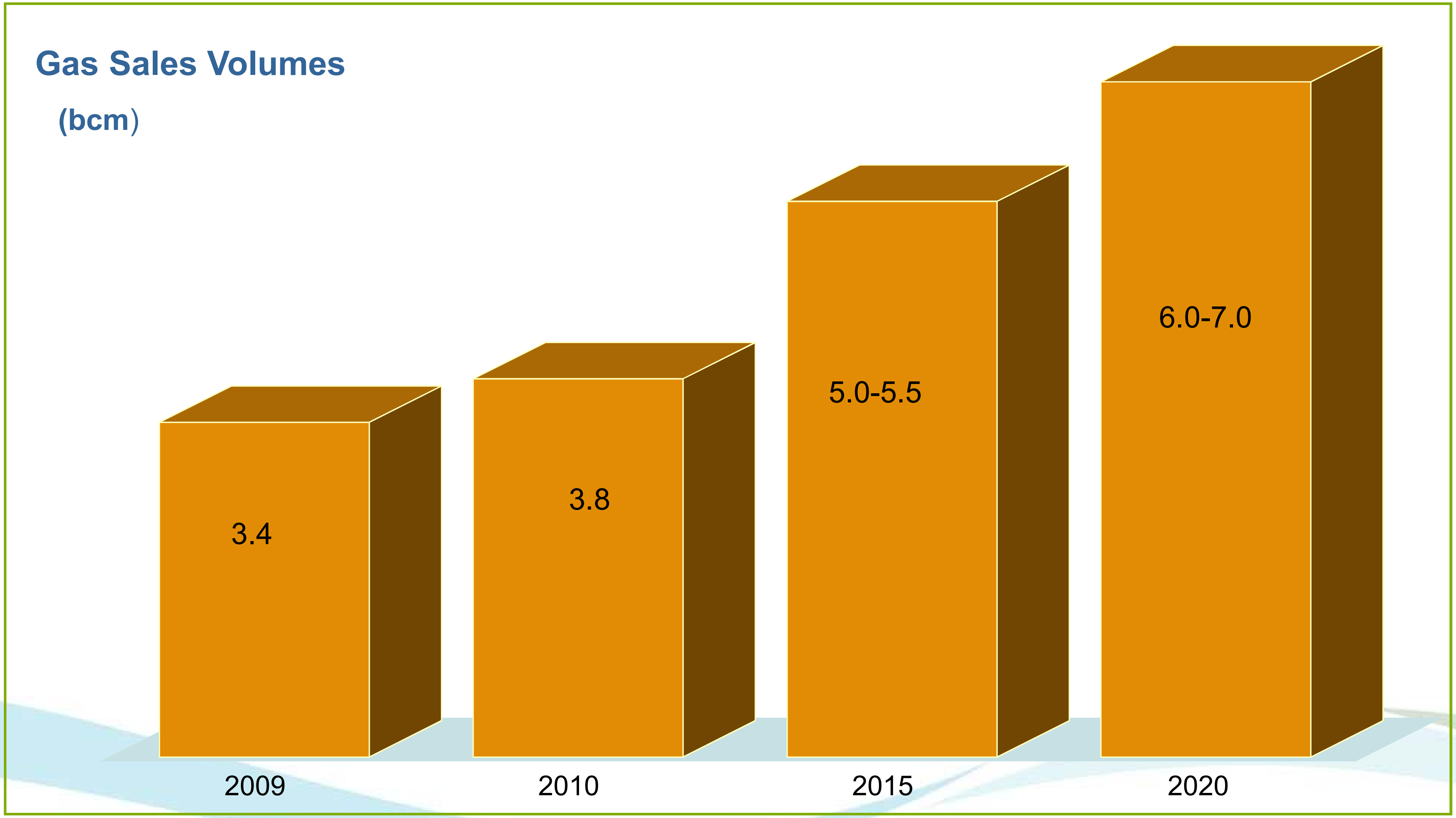


Domestic Market Segmentation – 2009

Nat. Gas Sales 2009: 3,373 mcm



Gas Demand Forecast – Greek Market



SUPPLY: Timing of Caspian & ME Gas Reserves

Azerbaijan is the only Country in the area that is ready as of **today** to finalize a supply agreement with the EU for approx. 7 bcm/y, starting in 2015/16.
All other Countries, although rich in terms of reserves, are not ready (due to political, infrastructural and investment constraints) to take any short term binding commitment with EU.

Gas export availability for EU: 2015/16 >2015 2020 >2020

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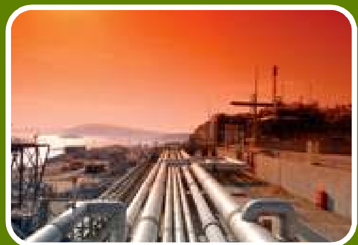

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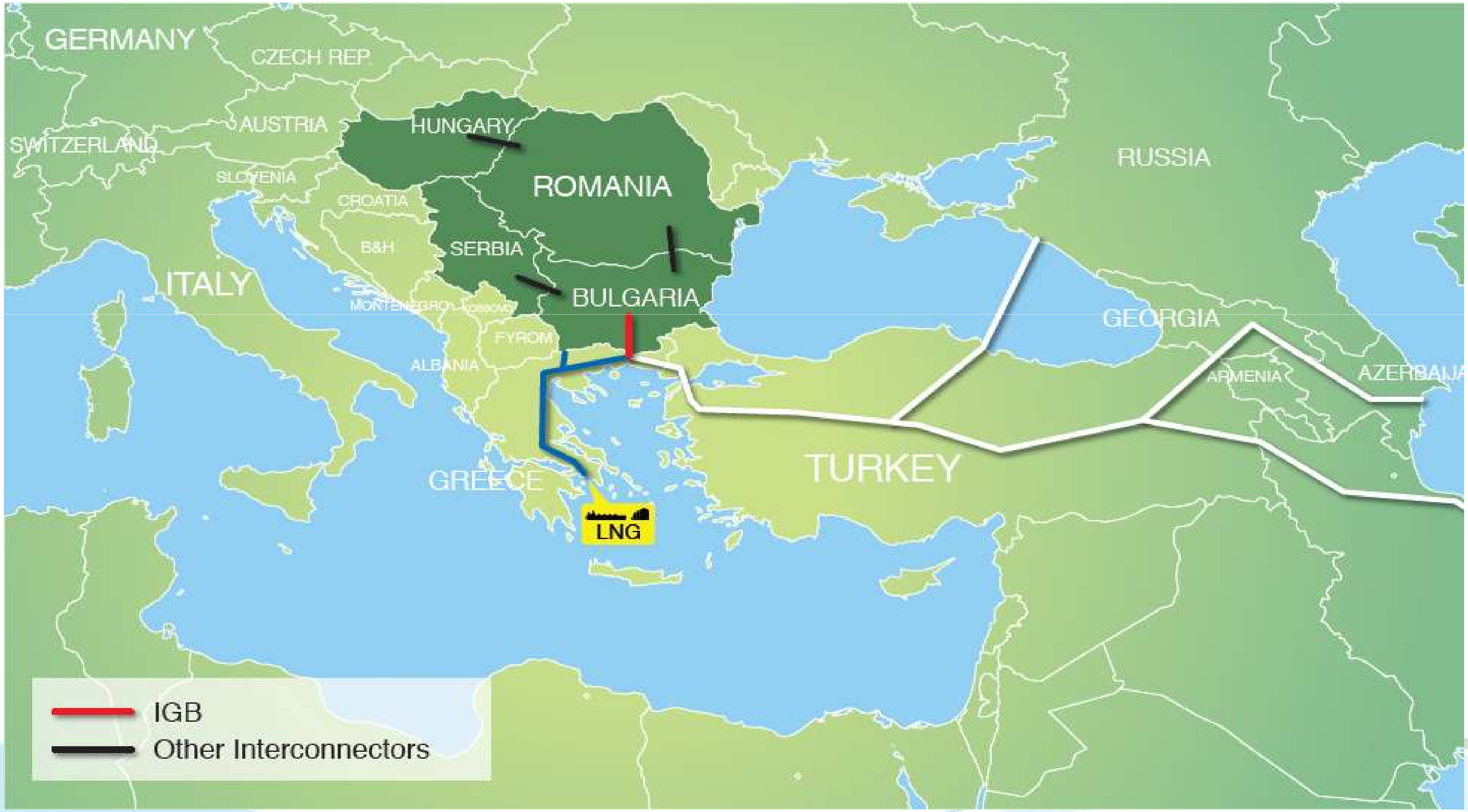
Poseidon Pipeline

- Project Characteristics & Significance
- IGB Pipeline

Interconnector Turkey – Greece (ITG)

The Interconnector Greece – Bulgaria (IGB)



The Interconnector Greece – Italay "IGI – Poseidon" (IGI)

Future Potential Interconnections

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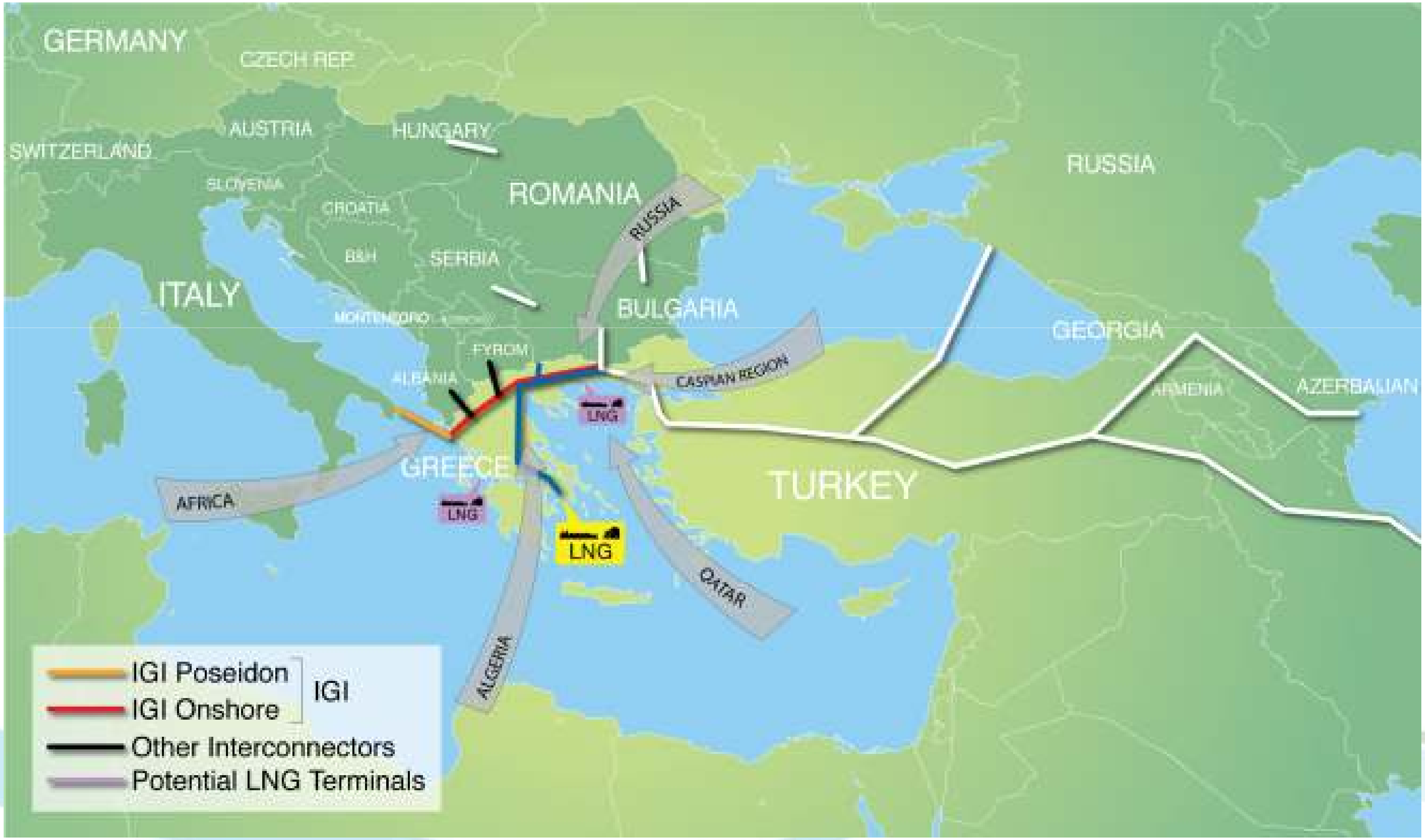
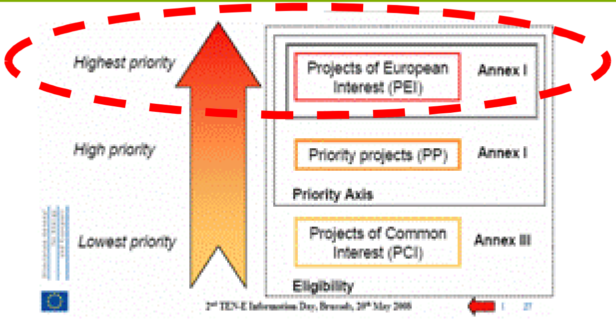
Greece as an Energy Hub



ITGI: Relevance for Europe

TEN-E GUIDELINES (DEC. 1364/2006)



i. AXIS NG.3 (from the Caspian and Middle-East, through Turkey), is established as one of the key priority developments

ii. **Only 2 projects are recognised of the highest priority ("project of European interest") on an equal basis: Nabucco and ITGI**

-2007: ITGI's TPA EXEMPTION
- 2008: EC's SEER II:
The "Southern Corridor" as a key priority

EUR. ENERGY PLAN F. RECOVERY (REG. 663/2009)

1. *Gas interconnectors*

Project	Location of projects supported	Envisaged Community contribution (EUR million)
Southern Gas Corridor		
NABUCCO	Austria, Hungary, Bulgaria, Germany, Romania	200
ITGI – Poseidon	Italy, Greece	100

i. The Southern Gas Corridor encompasses the two projects of European interest with 100 M€ allocated for ITGI Poseidon (final Award Decision being finalised);

ii. Further **45 M€** are projected for the IGB interconnection.

ITGI and NABUCCO are the only recognised and priority projects within the Southern Corridor

Shah Deniz Phase 2 and ITGI Project

- **The ITGI Project is the most advanced opportunity to link Azerbaijan to Europe**, as:
  - Most of the infrastructure is already in place;
  - the only project ready to take the final investment decision, having already finalized TPA exemption, authorization and technical activities
- The ITGI Project time schedule secures the possibility of starting the commercial operation of Shah Deniz 2 the soonest.
- The ITGI Project is the only Southern Corridor priority project that **can be sanctioned based only on the available volumes from SD2 beyond Turkey (7bcm/y)** and without requiring further financial assistance or complementary gas sources.
- Due to its limited investments and coherent size, **the ITGI project is likely to offer the best netback values to Shah Deniz Consortium.**

The ITGI Project represents the first step in the realization of the Southern Gas Corridor, as it will enhance further development of Caspian gas resources facilitating the realization of other transit project through Turkey.

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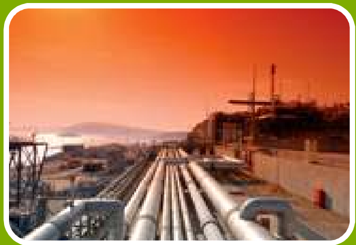

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Overview of the Project

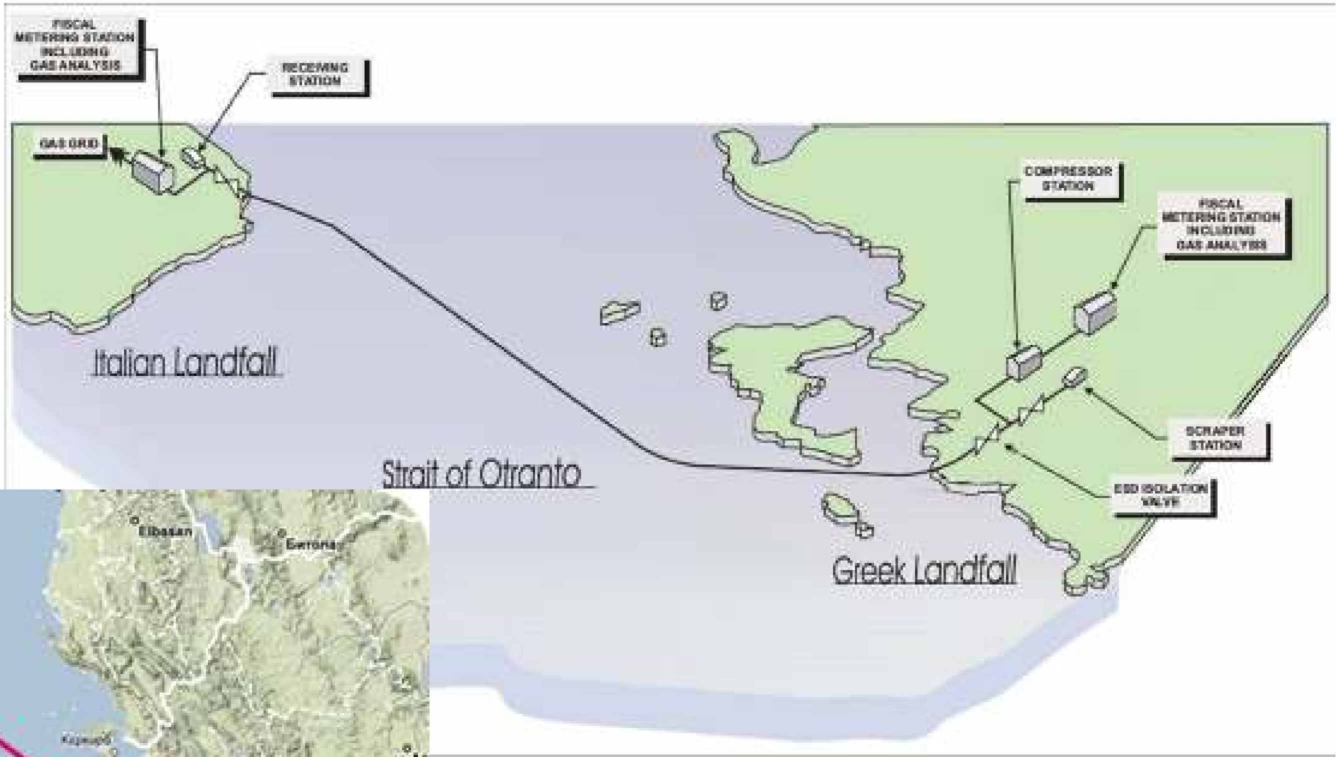
The Poseidon Pipeline is the offshore missing link of the ITGI Pipeline connecting Turkey, Greece and Italy.

The ITGI Project includes:

- the **Turkish Grid**
- the **ITG Project,** Interconnector Turkey-Greece, in operation since November 2007
- the **IGI Project** which consists of:
  - ***The Greek Onshore section***, under development by DESFA and
  - ***The Poseidon Pipeline,*** under development by IGI Poseidon S.A.

Poseidon Pipeline

Poseidon Pipeline
Length: 207 Km
Max. Depth: 1370 m
Diameter: 32”
Investment: 500 M€



Initial Capacity: 8 -9 bcm/y

IGI Poseidon S.A.

- IGI Poseidon S.A. is the project company that will develop, build and operate the offshore section of the IGI Project, namely the Poseidon Pipeline.
- The Poseidon Pipeline starts from the Metering & Compression facilities in the Greek Ionian Coast and ends in the measuring station in Otranto.
- **IGI Poseidon S.A. was incorporated in June 2008 in Athens under Greek Laws.**
- www.igi-poseidon.com

POSEIDON PIPELINE CAPACITY

TPA Exempted Capacity:	8 Bcm/y
Initial Open Season Capacity:	1 Bcm/y
Potential Capacity Upgrade:	up to 3 Bcm/y

ITGI Development Status

Out of Southern Gas Corridor projects, the ITGI Project is the one having reached the most advanced stage of development, having already:

IGI Poseidon

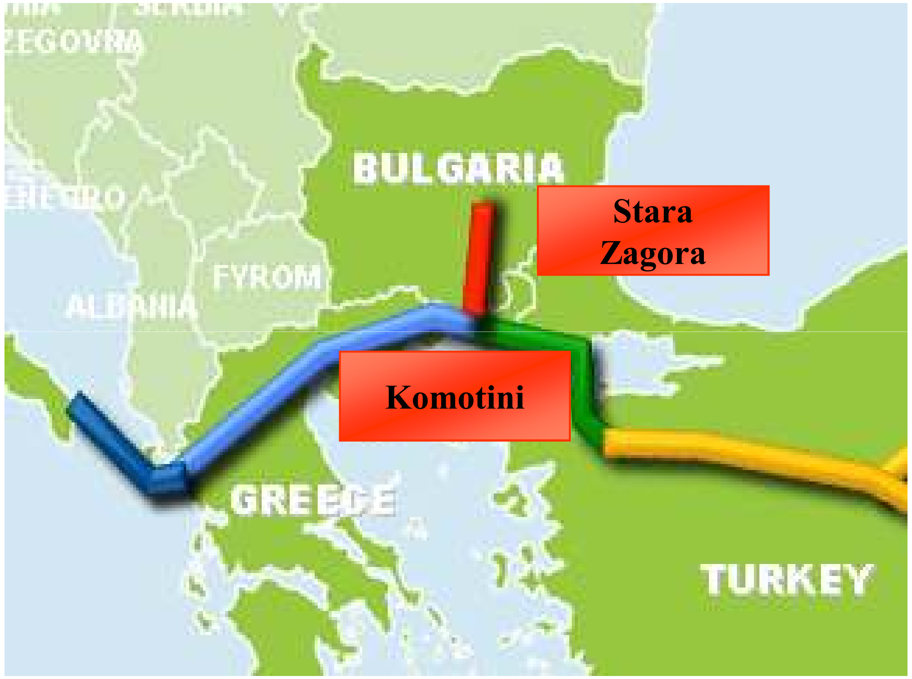
- **Obtained a TPA Exemption (6/07) & Started Open Season Procedure (6/08)**
- **Filed the construction authorisation requests to Italy and Greece (11/06 and 6/07) expected to be granted during the 2H 2010**
- **Completed the Basic Engineering and Reconnaissance Marine Survey activities (1/08)**
- **Started Detail Engineering phase (6/08)**
- **Filed application for EERP funding (7/09)**
- **The FEED activity has been awarded and started (04/10)**
- **The DMS will be awarded in the near future and works are scheduled to begin in September 2010**
- **The Line Pipe Supply Tender has been issued (04/10)**

Greece and Turkey

- **Secured transit capacity in Greece (first come first served allocation principles)**
- **Secured transit capacity on the ITG & agreed a sustainable transit regime in Turkey (Turkey-Greece-Italy IGA, 7/07)**

The Final Investment Decision for the realization of the ITGI Project could be taken in 2010, provided that sufficient gas supply and transit agreements are timely finalized.

The IGB Pipeline



The IGB pipeline has the following technical characteristics:

- Pipeline Length: 170 km
- Pipe Diameter: 28'' – 32''
- Annual transport capacity : 3 – 5 bcm

Current Status:

- The project is being realized through a JV between Bulgarian Energy Holding (BEH) and IGI Poseidon (DEPA and Edison).
- Engineering studies and permit activities are in progress and EU Commission decision for a €45 mil. contribution has been finalized.

THANK YOU

Συνδέουμε την ενέργεια
Συνδέουμε την ανάπτυξη

Back Up

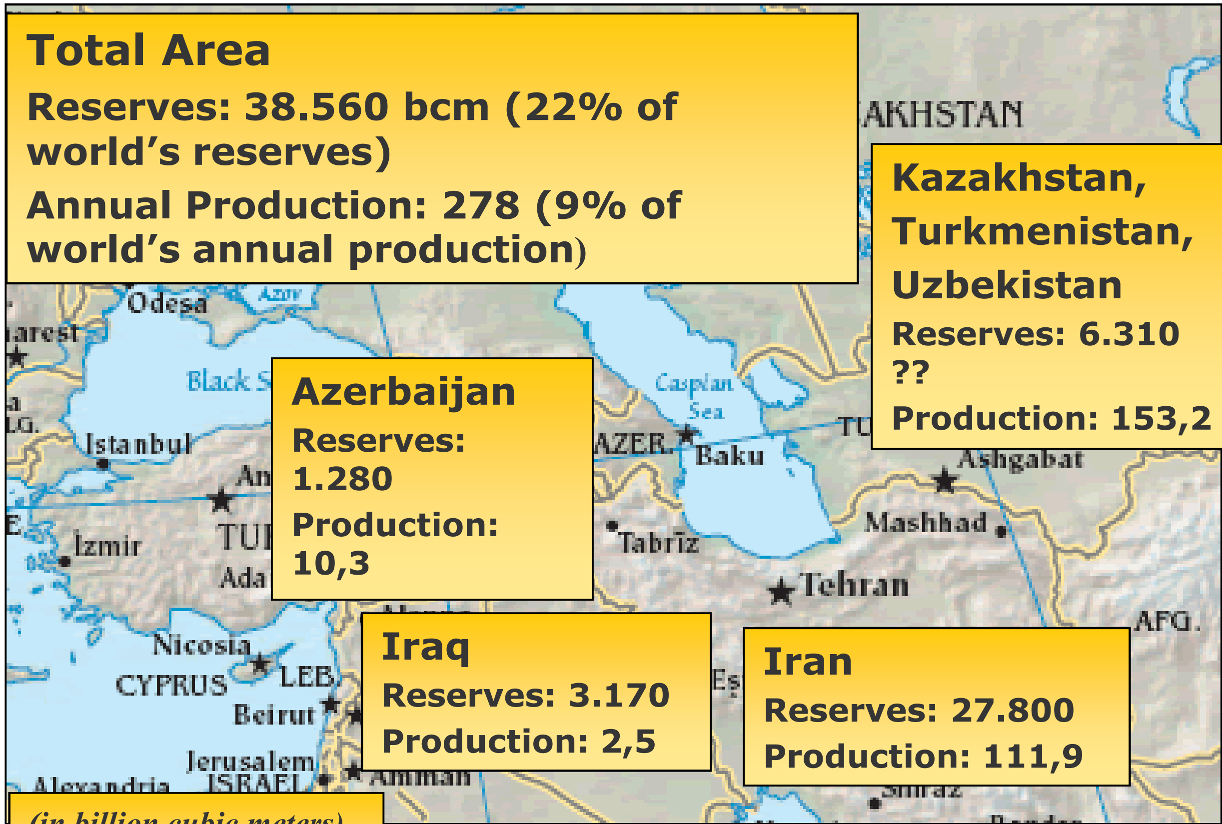
Caspian Natural Gas Export Potential

Azerbaijan is the only Caspian Country ready to start commercial negotiations for the export of **approx. 12 bcm/y** of natural gas volumes (from 2nd phase of Shah Deniz field).

The size of the ITGI Project would allow for the **Final Investment Decision to be taken exclusively on the basis of the Azeri gas production**, provided that Turkey accepts to purchase initially a lower amount of Azeri gas.

The Azeri Government and the Shah Deniz 2 Consortium should accelerate the marketing of expected SD2 production to EU on a 100% market approach.

Caspian Area Gas Reserves



Total Area

Reserves: 38.560 bcm (22% of world's reserves)

Annual Production: 278 (9% of world's annual production)

Kazakhstan, Turkmenistan, Uzbekistan

Reserves: 6.310 ??

Production: 153,2

Azerbaijan

Reserves: 1.280

Production: 10,3

Iraq

Reserves: 3.170

Production: 2,5

Iran

Reserves: 27.800

Production: 111,9

(in billion cubic meters)

The Caspian area has huge gas production potential that could be dedicated for export to Europe.

BUT…

1. ***Huge concentration in Iran*** *(72% of gas sources of the Area)*
2. ***Several export options exists****, in particular for Kazakhstan, Uzbekistan and Turkmenistan*

Source: BP Statistical Review of World Energy 2008.

In order to secure the availability of Caspian Natural Gas to EU by 2015-2016, binding Sale & Purchase Agreements shall be signed before end 2010-2011 to guarantee the realization of both upstream and midstream investments required.