The Eastern Mediterranean and European Energy Landscape:
Trends and Opportunities

by

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Energy and Climate Change
“Safety in oil lies in variety and variety alone”
Greece has strategic geo-economic location

- Crossroad between energy producers & consumers
- EU & NATO member
- Heart of Mediterranean
- Safe harbour in the area
Euro-Asia Interconnector
Submarine cable to link the Israeli, Cypriot and Greek power grids
GRECOVERY

- Largest fiscal adjustment ever at the shortest period of time, **one year ahead of target**.

- From a primary deficit of -10.4% of national GDP in 2009 to a primary **surplus** of +0.8% in 2013 and +1.5% in 2014.

- **Positive** annual GDP growth rate in 2014.

- Greece **returned to capital markets** by raising €3Bn through 5-yr bonds (Apr ’14) and €1.5Bn through 3-yr bonds (Jul ’14).

- The 4 systemic banks, recapitalised during 2012-13, raised €8.5Bn from the private sector and **passed latest ECB stress tests**.
Greek programme has stabilised the economy and is laying the foundations for sustainable growth and jobs

- Economic stability and fiscal sustainability are being restored.

- Financial sector stabilised and consolidated, undergoing second recapitalisation.

- Strong focus on growth-enhancing structural reforms to improve competitiveness and create jobs.
Greek energy security strategy

4 major challenges:

1. **Diversify** sources and routes
2. **Develop** an integrated and interconnected internal market
3. **Progress** to a lower carbon economy, focusing on saving energy
4. **Increase** domestic production
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Caspian Sea region oil and natural gas infrastructure
Southern Corridor - TAP’s key features

- Designed to expand from 10 to 20 bcm (plus) per year
- 10 bcm/a initially available from Shah Deniz II will correspond to the amount of energy necessary to supply 7 million households in South Eastern and Western Europe
- 875km pipeline
- 48” onshore, 36” offshore
- Built-in physical reverse flow
- Interconnection with various existing and proposed pipelines providing energy security in South Eastern Europe
- Providing Bulgaria with a new source of gas through IGB or Kula-Sidirokastro Interconnector
- Delivering gas and interconnecting to multiple markets in Western and Central Europe
Central Gas Corridor - Greece a gateway to SE Europe
The East Med pipeline project
Revithoussa LNG terminal
The only LNG terminal in Balkan area of E.U.
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Who is most at risk?

The countries with *isolated* energy systems

The key to overcome is:

- Build the necessary interconnections
- Implement rules guaranteeing non-discriminatory access to independently operated and
- Enable the market to deliver reliable price signal for efficient production and investment decisions and promote hub pricing
PCIs (Projects of Common Interest) with a Special Interest for Greece

Legend:
- Natural Gas
  - Trans-Adriatic Pipeline (TAP)
  - Interconnection Turkey - Greece - Italy (OTG)
  - Pipeline from offshore Cyprus to Greece via Crete
  - Interconnection Greece - Bulgaria (IGB)
  - Gas compression station at Kipoi (EL)
  - South Kavala gas storage
- FSRU (Floating Storage and Regasification Unit)
  - Independent Natural Gas System (LNG Greece)
  - Aegean LNG (import terminal)
  - Permanent reverse flow at Greek - Bulgarian border
- Existing natural gas network
  - Creus LNG terminal
- Electricity
  - Euro-Asia Interconnection (Israel - Cyprus - Greece)
  - Interconnection between Maritsa East 1 (Bulgaria) - Nea Santa (EL)
  - Hydro-pumped storage in Amphilochia (EL)
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. It is a PCI and receives a €45million EEPR grant
IGB potentially creates synergies with interconnectors in Central and SE Europe, providing access to the Southern Corridor

IGB:
Permitting licensing is in place

Timeline is:
- Final Investment Decision by end of 2014
- Start of Construction 2015
- First gas to flow in 2017

Therefore the IGB can provide alternative supplies to the region before the opening of the Southern Gas Corridor.
Floating Storage and Regasification Units (FSRU)

1. 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 Revythoussa)

- 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
  - Will have a storage capacity of 150,000m³
  - Facilitates SE Europe’s access to LNG and contributes to energy security and the market’s development and integration
Floating Storage and Regasification Units (FSRU)

2. Alexandroupolis LNG INGS

The project is composed from 3 distinct components:

1. The floating LNG Storage and Regasification unit:
   - An LNG vessel with mounted regasification functionality (SRV)
2. The permanent offshore structures, including:
   - The Mooring system
   - The Flex Risers and the Pipeline End Manifold (PLEM), transmitting gas from the floating unit to the subsea pipelines
3. The two sections of the natural gas pipeline transmission system, i.e.:
   - The subsea section of total length 24 km
   - The onshore section of total length 4 km and the M/R station connecting the offshore terminal to the Greek National Gas System (NNGS)
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At the end of October 2014, the European Council adopted a new set of climate and energy targets for 2030:
- a binding target of an at least 40% domestic reduction in GHG emissions, compared to 1990, to be met collectively by a 43% reduction in the ETS sectors and a 30% reduction in the non-ETS sectors, compared to 2005, respectively;

- a target, binding at EU level, of at least 27% for the share of renewable energy consumption; and

- an indicative target at EU level of at least 27% for improving energy efficiency compared to projections of future energy consumption, based on the current criteria.
Specific energy and climate targets for 2030

Greece's position regarding the specific energy and climate objectives, which must be established at EU level for 2030, has the following axes:

I. 40% reduction in greenhouse gas emissions compared with the 1990 levels,

II. 27% penetration of renewable energy sources to the electricity consumption examining the capability for 30% penetration,

III. 30% reduction in primary energy use compared with projected levels due to the implementation of energy efficiency interventions,

IV. 100% installation of smart meters to electricity consumers,

V. 100% of electricity consumers must be interconnected with the continental electric grid, i.e. completion of the electrical interconnection of the Greek islands with the continental electric system.
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The gap in oil & gas exploration and production 1996-2011

Source: IHS Report
Greece Offshore Licensing Round 2014
Why invest in Greece?

1. Strong Hydrocarbon Potential
   - Known hydrocarbon systems – Hydrocarbon discoveries in the region
   - New extensive data base resulting from recent multiclient seismic survey
   - Significant regional hydrocarbon analogues in Albania & Italy

2. Transparent & Competitive new legal framework

3. Incentives through tax reductions
   - Government is a sincere business partner ready to listen
Thank you for your attention