

“Energy Security in SE Europe: Special focus on Greece”

IEA in Depth Energy Policy Review of Greece

*Ministry of Energy and Environment, Athens,
April 6, 2017*

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

INSTITUTE OF ENERGY
FOR SOUTH EAST EUROPE



Presentation Outline

- IENE Background
- IENE's Role in SE Europe
- Energy Security in SE Europe
- Energy Security in Greece

IENE Background

- ❑ Established in 2003 as a **non-profit** and **non-governmental organization** by a small group of energy professionals active in the broad energy field
- ❑ Headquarters: Athens, Greece
- ❑ Active in all countries of SE Europe

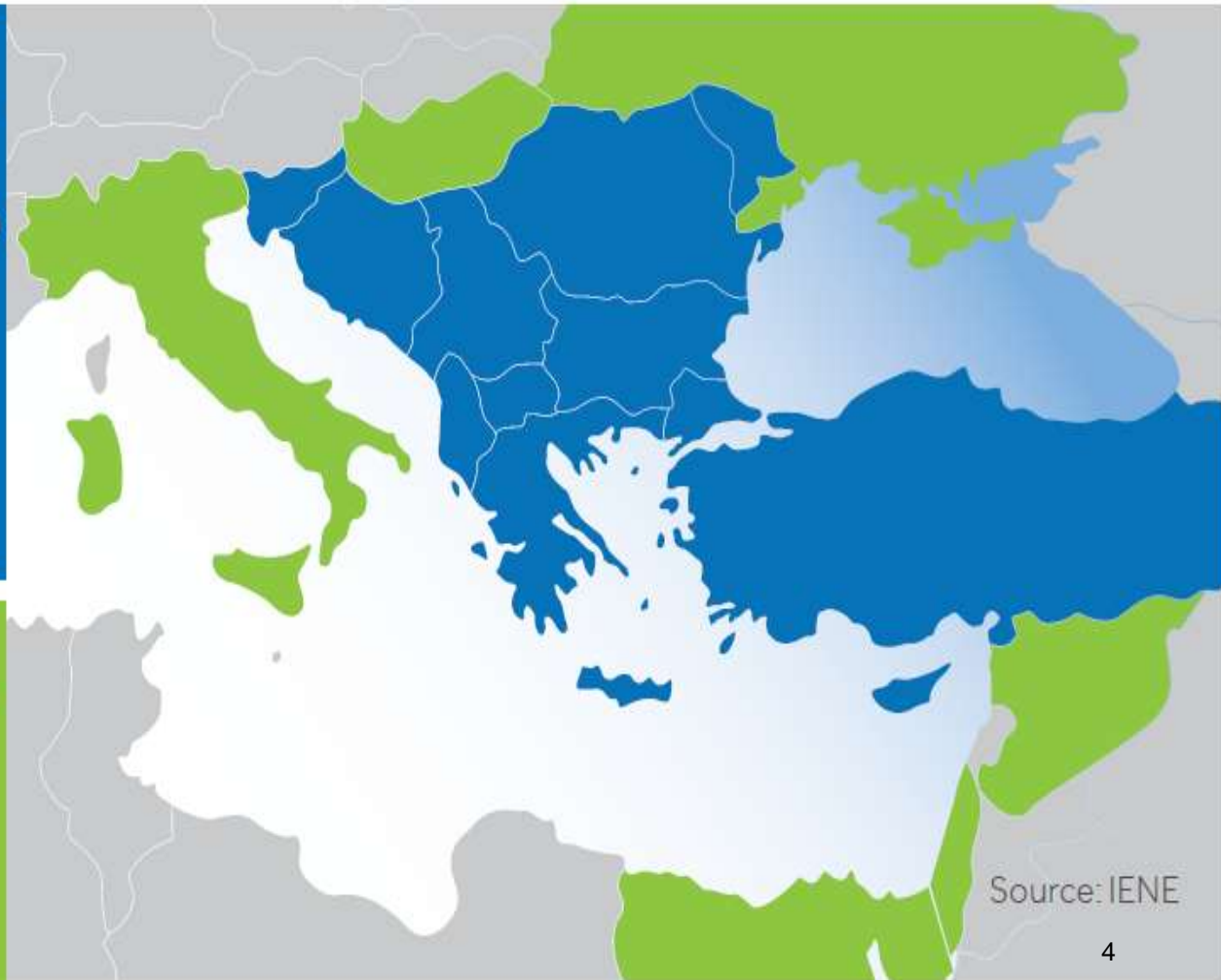
The SE European Region Defined

Core Countries

- Albania
- BiH
- Bulgaria
- Croatia
- Cyprus
- FYROM
- Greece
- Kosovo
- Montenegro
- Romania
- Serbia
- Slovenia
- Turkey

Peripheral Countries

- Egypt
- Hungary
- Israel
- Italy
- Lebanon
- Moldova
- Syria
- Ukraine



Objectives

- ❑ To **provide** a forum for the presentation and discussion of energy and environmental issues
- ❑ To **encourage** public debate on energy and related issues backed by fully documented studies and analysis
- ❑ To **participate** in public consultations at national and European level
- ❑ To **contribute** in the formulation of energy policies at national, regional and international level, especially in SE Europe
- ❑ To **provide** professionals and the public at large with factual and unbiased information on energy and the environment

IENE's Mission and Vision

- IENE's **mission** is:
 - To promote a broader understanding of the key energy and environmental issues in the region
 - To provide a permanent forum and a suitable platform for the exchange of views and information
 - To be open to professionals, companies and stakeholders who are actively involved in the energy sector

- IENE's **vision** is to establish itself as the leading energy think tank in the region and at the same time develop a highly credible and worthwhile range of services covering information provision, research, assessment studies, sectorial surveys, educational activities, event organisation and networking
 - These services are offered primarily to its members, but also to government and industry and energy professionals at large

Areas of Interest

- Energy Policy and Geopolitics
- Production, transmission and distribution of electricity
- Hydrocarbons (upstream, midstream and downstream)
- Electricity (solid fuels, hydroelectricity and nuclear energy)
- Renewable Energy Sources (RES)
- Energy Efficiency (transport, industry, buildings)
- Hydrogen
- Energy and transport
- Energy and the environment (“greenhouse” effect, climate change, CO₂ emissions)
- Bioclimatic applications and energy conservation in the building sector
- Solid waste and sewage management for heat and power generation
- Clean coal technologies for electricity generation

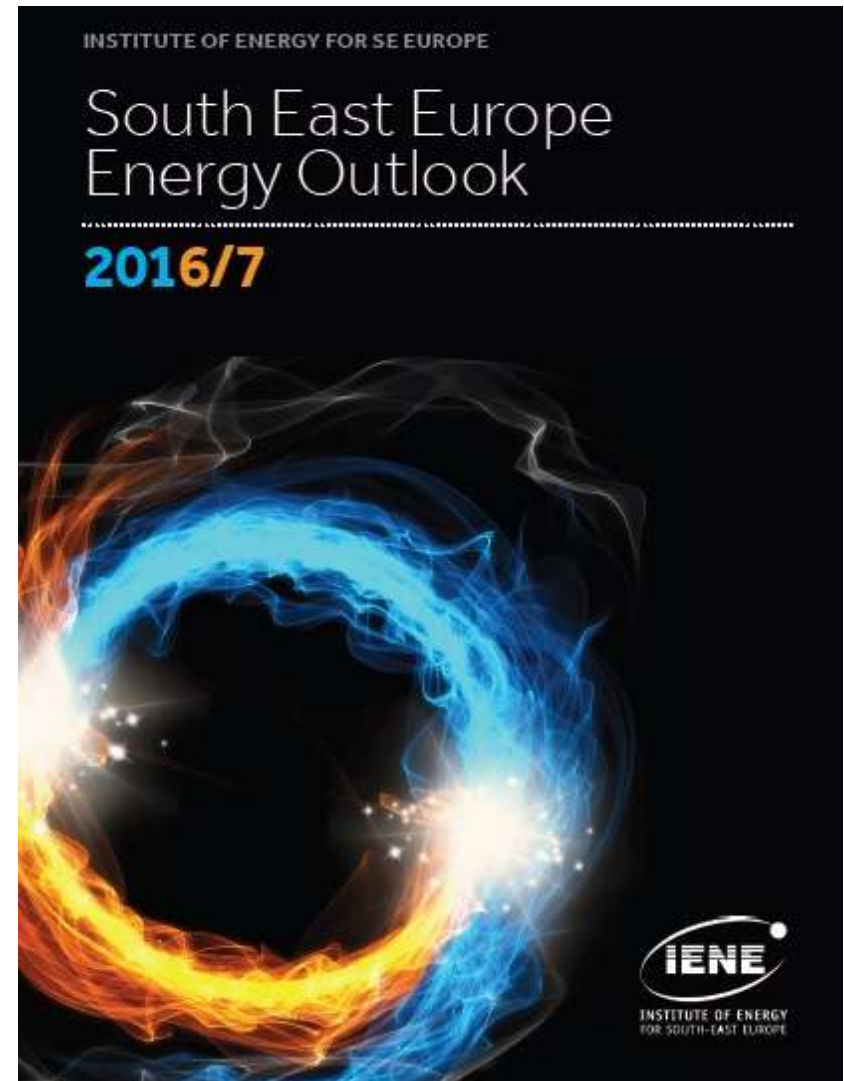
Activities

- Documentation
- Information provision and dissemination
- Education (seminars, lectures, specialized courses and mid-career training)
- Research and technological development
- Participation in EU, international and regional programmes
- Cooperation with national and international organizations and private entities
- Cooperation with other S.E. European institutes and organizations
- Event organisation (Conferences, Seminars, Workshops, Roundtables)

Information Provision and Dissemination

- Newsletters:
 - Energy Matters (monthly)
 - Energy Weekly Report (weekly)
 - SE Europe Energy Brief (monthly):
 - Market Watch
 - Market Insight
 - Market Analysis
 - Market Fundamentals & Prices
- Events Bulletin (quarterly)
- IENE Comment (monthly)
- News Flashes (occasionally)
- Other Publications:
 - Conference proceedings
 - Working Papers
 - Studies
 - Reports
 - Briefing Notes
 - Research Notes

SE Europe Energy Outlook Study



Newsletters

SOUTH-EAST EUROPE ENERGY BRIEF
Market Insight
Published by the Institute of Energy and Clean Technology

CONTENTS

Executive Report	1	Market Outlook (Energy Efficiency)	21
Market Focus	24	Technology	25
Company Profiles	26		

Market Focus

In anticipation of the close of 2014, global and regional news is featured within a comprehensive market overview and energy trends. On the one hand we have seen a steady and accelerating focus on the effect on energy efficiency of living longer, wealthier lives. In parallel, the development and adoption of smart energy things. A summary of these trends is shown in the accompanying table. Having the most dramatic impact has been the impact of these developments in a number of key areas. These developments in effect are particularly key, with an eye for achieving more advanced results, but with high energy efficiency.

Development aimed to fuel and to increase the between the PPA market and the to be shown in the next 12 to 18 months. In the short-term, the PPA market will continue to experience more modest growth and participants will not see a major opportunity to buy. However, the trend of PPA volume traded continues to rise, suggesting a more active market in the longer term.

What is to Watch for the Annual World Energy Forum 2014? President Recep Tayyip Erdoğan will inaugurate the opening ceremony and keynote address on September 1st in Istanbul, signifying the country's intention to gain international engagement and set the agenda. For many, this event represents also a major milestone.

Newsletters In the past we have covered our regular market and news briefs. We also publish the Market Report and the Energy and Clean Technology Briefing, including the IENE Power & Energy Market Report, Energy Efficiency and Environment, and Energy and

SOUTH-EAST EUROPE ENERGY BRIEF
Market Watch
Published by the Institute of Energy and Clean Technology

CONTENTS

Executive Report	1	Market Outlook (Energy Efficiency)	21
Market Focus	24	Technology	25
Company Profiles	26		

Regional News

Albania Energy Ministry, Ministry of Environment, Urbanization and Spatial Planning, Ministry of Economic Affairs, Ministry of Health, Ministry of Education, Science and Technological Innovation and Ministry of Agriculture and Rural Development are participating in the development of a study on the impact of climate change on the energy sector in Albania. The study will be completed by the end of 2014.

Bulgaria The Bulgarian government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country.

Croatia The Croatian government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country.

Poland The Polish government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country.

Romania The Romanian government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country.

Slovenia The Slovenian government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country.

Turkey The Turkish government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country. The government is planning to invest in the development of the energy sector in the country.

SOUTH-EAST EUROPE ENERGY BRIEF
Market Watch Special Report
Published by the Institute of Energy and Clean Technology

CONTENTS

Energy's Investment Needs

Energy is a critical part of our modern life and its demand is growing rapidly. To meet this demand, we need to invest in energy infrastructure. This includes power generation, transmission, and distribution. The investment needs for energy infrastructure are significant and will continue to grow over the next several decades.

Energy's Investment Needs

The energy sector is a key driver of economic growth and development. It provides the power needed for industry, commerce, and households. As a result, the energy sector is a major source of investment opportunities. However, the sector also faces significant challenges, including the need to invest in energy infrastructure and the need to address environmental concerns.

Energy's Investment Needs

The energy sector is a key driver of economic growth and development. It provides the power needed for industry, commerce, and households. As a result, the energy sector is a major source of investment opportunities. However, the sector also faces significant challenges, including the need to invest in energy infrastructure and the need to address environmental concerns.

SOUTH-EAST EUROPE ENERGY BRIEF
Market Watch Special Report
Published by the Institute of Energy and Clean Technology

CONTENTS

The Power Grid of Turkey in Development's New Stage to Enhance its Resilience

The power grid of Turkey is a key driver of economic growth and development. It provides the power needed for industry, commerce, and households. As a result, the power grid of Turkey is a major source of investment opportunities. However, the power grid of Turkey also faces significant challenges, including the need to invest in power grid infrastructure and the need to address environmental concerns.

The Power Grid of Turkey in Development's New Stage to Enhance its Resilience

The power grid of Turkey is a key driver of economic growth and development. It provides the power needed for industry, commerce, and households. As a result, the power grid of Turkey is a major source of investment opportunities. However, the power grid of Turkey also faces significant challenges, including the need to invest in power grid infrastructure and the need to address environmental concerns.

SOUTH-EAST EUROPE ENERGY BRIEF
Market Focus/News & Events
Published by the Institute of Energy and Clean Technology

CONTENTS

Executive Report	1	Market Outlook (Energy Efficiency)	21
Market Focus	24	Technology	25
Company Profiles	26		

Market Focus

In anticipation of the close of 2014, global and regional news is featured within a comprehensive market overview and energy trends. On the one hand we have seen a steady and accelerating focus on the effect on energy efficiency of living longer, wealthier lives. In parallel, the development and adoption of smart energy things. A summary of these trends is shown in the accompanying table. Having the most dramatic impact has been the impact of these developments in a number of key areas. These developments in effect are particularly key, with an eye for achieving more advanced results, but with high energy efficiency.

Development aimed to fuel and to increase the between the PPA market and the to be shown in the next 12 to 18 months. In the short-term, the PPA market will continue to experience more modest growth and participants will not see a major opportunity to buy. However, the trend of PPA volume traded continues to rise, suggesting a more active market in the longer term.

What is to Watch for the Annual World Energy Forum 2014? President Recep Tayyip Erdoğan will inaugurate the opening ceremony and keynote address on September 1st in Istanbul, signifying the country's intention to gain international engagement and set the agenda. For many, this event represents also a major milestone.

Newsletters In the past we have covered our regular market and news briefs. We also publish the Market Report and the Energy and Clean Technology Briefing, including the IENE Power & Energy Market Report, Energy Efficiency and Environment, and Energy and

SOUTH-EAST EUROPE ENERGY BRIEF
Market Focus/News & Events
Published by the Institute of Energy and Clean Technology

CONTENTS

Executive Report	1	Market Outlook (Energy Efficiency)	21
Market Focus	24	Technology	25
Company Profiles	26		

Market Focus

In anticipation of the close of 2014, global and regional news is featured within a comprehensive market overview and energy trends. On the one hand we have seen a steady and accelerating focus on the effect on energy efficiency of living longer, wealthier lives. In parallel, the development and adoption of smart energy things. A summary of these trends is shown in the accompanying table. Having the most dramatic impact has been the impact of these developments in a number of key areas. These developments in effect are particularly key, with an eye for achieving more advanced results, but with high energy efficiency.

Development aimed to fuel and to increase the between the PPA market and the to be shown in the next 12 to 18 months. In the short-term, the PPA market will continue to experience more modest growth and participants will not see a major opportunity to buy. However, the trend of PPA volume traded continues to rise, suggesting a more active market in the longer term.

What is to Watch for the Annual World Energy Forum 2014? President Recep Tayyip Erdoğan will inaugurate the opening ceremony and keynote address on September 1st in Istanbul, signifying the country's intention to gain international engagement and set the agenda. For many, this event represents also a major milestone.

Newsletters In the past we have covered our regular market and news briefs. We also publish the Market Report and the Energy and Clean Technology Briefing, including the IENE Power & Energy Market Report, Energy Efficiency and Environment, and Energy and

SOUTH-EAST EUROPE ENERGY BRIEF
Market Focus/News & Events
Published by the Institute of Energy and Clean Technology

CONTENTS

Executive Report	1	Market Outlook (Energy Efficiency)	21
Market Focus	24	Technology	25
Company Profiles	26		

Market Focus

In anticipation of the close of 2014, global and regional news is featured within a comprehensive market overview and energy trends. On the one hand we have seen a steady and accelerating focus on the effect on energy efficiency of living longer, wealthier lives. In parallel, the development and adoption of smart energy things. A summary of these trends is shown in the accompanying table. Having the most dramatic impact has been the impact of these developments in a number of key areas. These developments in effect are particularly key, with an eye for achieving more advanced results, but with high energy efficiency.

Development aimed to fuel and to increase the between the PPA market and the to be shown in the next 12 to 18 months. In the short-term, the PPA market will continue to experience more modest growth and participants will not see a major opportunity to buy. However, the trend of PPA volume traded continues to rise, suggesting a more active market in the longer term.

What is to Watch for the Annual World Energy Forum 2014? President Recep Tayyip Erdoğan will inaugurate the opening ceremony and keynote address on September 1st in Istanbul, signifying the country's intention to gain international engagement and set the agenda. For many, this event represents also a major milestone.

Newsletters In the past we have covered our regular market and news briefs. We also publish the Market Report and the Energy and Clean Technology Briefing, including the IENE Power & Energy Market Report, Energy Efficiency and Environment, and Energy and

SOUTH-EAST EUROPE ENERGY BRIEF
Market Focus/News & Events
Published by the Institute of Energy and Clean Technology

CONTENTS

Executive Report	1	Market Outlook (Energy Efficiency)	21
Market Focus	24	Technology	25
Company Profiles	26		

Market Focus

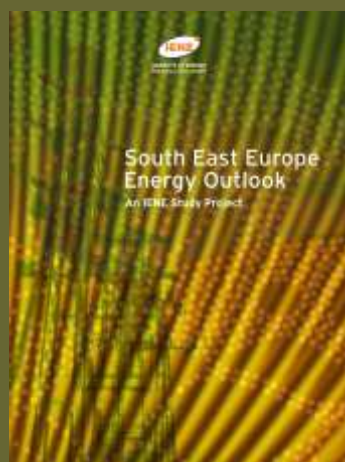
In anticipation of the close of 2014, global and regional news is featured within a comprehensive market overview and energy trends. On the one hand we have seen a steady and accelerating focus on the effect on energy efficiency of living longer, wealthier lives. In parallel, the development and adoption of smart energy things. A summary of these trends is shown in the accompanying table. Having the most dramatic impact has been the impact of these developments in a number of key areas. These developments in effect are particularly key, with an eye for achieving more advanced results, but with high energy efficiency.

Development aimed to fuel and to increase the between the PPA market and the to be shown in the next 12 to 18 months. In the short-term, the PPA market will continue to experience more modest growth and participants will not see a major opportunity to buy. However, the trend of PPA volume traded continues to rise, suggesting a more active market in the longer term.

What is to Watch for the Annual World Energy Forum 2014? President Recep Tayyip Erdoğan will inaugurate the opening ceremony and keynote address on September 1st in Istanbul, signifying the country's intention to gain international engagement and set the agenda. For many, this event represents also a major milestone.

Newsletters In the past we have covered our regular market and news briefs. We also publish the Market Report and the Energy and Clean Technology Briefing, including the IENE Power & Energy Market Report, Energy Efficiency and Environment, and Energy and

Major Studies and Working Papers



Studies, Research Notes and Briefing Notes




IENE
INSTITUTE OF ENERGY

A Study on the Role of the South-Central Gas Pipeline Project

An Overview of the South-Central Gas Pipeline Project


July 2012



IENE
INSTITUTE OF ENERGY

Global and Regional Natural Gas Development

November 2012



IENE
INSTITUTE OF ENERGY

EUROPE'S NATURAL GAS SUPPLY PROSPECTS, THE SOUTH CORRIDOR AND THE ROLE OF GAZEFLOW

An IENE Study Project (N° 12)

January 2012

Warsaw, Ukraine



IENE
INSTITUTE OF ENERGY

A REVIEW OF HYDROALLOY PRODUCTION

By Sławomir Białkowski

IEE Research Institute and Energy, Director of Natural Resources of Energy Research Center
Member of the Board of Directors and Joint Ventures, Academician
Member of the Board, Director of the Institute
Member of the Board, Director of the Institute

Warsaw, October 2012



IENE
INSTITUTE OF ENERGY

"PROJECT HELIOS": CAN SOLAR ENERGY BE EXPORTED?

An Assessment of Options

AN IENE Study (2012/001)

By John Chalkiadakis and David Henshale

Warsaw, February 2012



IENE
INSTITUTE OF ENERGY

THE ROLE OF LNG AS A SUPPLY ROUTE TO EUROPE IN VIEW OF RELATED GAS DEVELOPMENT IN THE EAST MEDITERRANEAN

An IENE Study (2012/002)

By Sławomir Białkowski

Warsaw, December 2012



IENE
INSTITUTE OF ENERGY


THE CASPIAN BASIN

The Role of LNG as a Supply Route to Europe in View of Related Gas Development in the East Mediterranean

An IENE Study (2012/003)

By Sławomir Białkowski

Warsaw, February 2012



IENE
INSTITUTE OF ENERGY

STRATEGIC ENERGY RESEARCH

By Sławomir Białkowski

Warsaw, February 2012

IENE's Role in SE Europe

- Promotion of an Energy Dialogue in South East Europe (**already 9 SEE Energy Dialogues have been organised**)
- Networking and Co-operation
- Active contribution to policy formulation
- Elaboration of specific actions and formulation of policy proposals
- Development of co-operative projects and programmes at SE European Level
- Provide a bridge for energy communication between professionals and organizations, active in the countries of South East Europe.

IENE's Organisation

- ❑ Small number of **permanent staff** which includes administrative, scientific and secretarial posts (8 people)

- ❑ 26-member Partners General Assembly and BoD

- ❑ 7 Member Executive Committee

- ❑ A limited number of **external associates** who work as consultants

- ❑ Several members and associates who contribute services mostly on a voluntary basis (participation and chairing of committees, report preparation, projects assessment etc.)

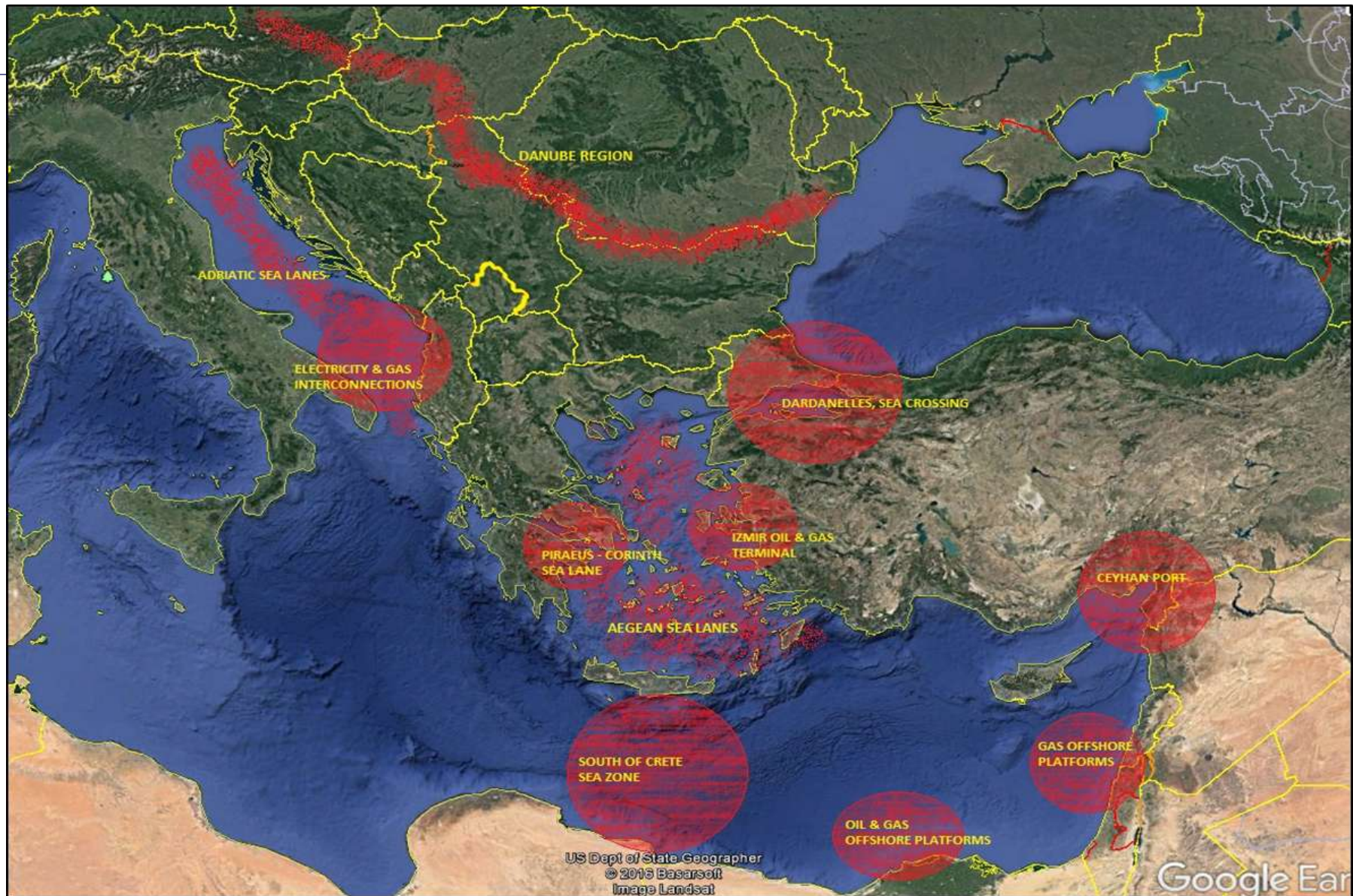
Energy Security in SE Europe (I)

- Security of **supply/demand** and **differentiation of supply sources**
 - In the case of gas, it is becoming more important and pressing compared to other fuel sources, such as electricity, oil, coal and possibly uranium.
 - Gas is a primary area of concern largely because of its rather inflexible transmission method, mainly by means of pipelines.
- Security of **transportation** for the shipment of oil or gas
 - Interrupted deliveries twice (i.e. 2006 and 2009) with the shipment of Russian gas, through Ukraine, to Europe but also from Turkey and Greece (i.e. 2011).
- **Smooth supply of electricity** and urgent need to connect various island groups to the mainland grid
 - Mitigation of possible power supply failures and shortfalls and minimization of environmental impact through the retirement of fuel oil or diesel powered electricity generators on several islands.
- **Effective protection of energy infrastructure**
 - Mitigation of terrorist threats and advanced level of safety against of physical hazards (e.g. hurricanes, floods, earthquakes) and cyber threats (IENE organised an Ad hoc meeting for energy security on March 15, 2017).

Energy Security in SE Europe (II)

- **Energy security is a complex issue** and as such cannot be considered in isolation.
 - SE Europe because of its geography, its proximity to high risk conflict zones (i.e. Syria, Iraq, Ukraine), a growing and uncontrolled refugee flow from the Middle East and North Africa and the location of some of its countries (i.e. Turkey, Greece, Romania) at vital energy supply entry points, faces higher energy security threats than the rest of Europe.
- A number of measures are proposed in order to strengthen the available mechanisms
 - The **strengthening of Emergency and Solidarity Mechanisms** and the **maintenance of adequate oil, coal and gas stocks**, constitute a short- to medium-term relief solution.
 - The achievement of a **balanced energy mix** provides the best long-term option in enhancing energy security both at country and regional level.
- The various vulnerable key energy infrastructure locations in SE Europe constitute **potential energy security hot spots** and as such should be properly identified (*see following Map*), while also crisis management plans must be prepared in order to meet any emergencies (e.g. physical hazards, large scale industrial accidents or terrorist actions).

Energy Security Hot Spots in SE Europe



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

Toward a Redefinition of the South Corridor (I)

- As European energy demand is set to grow over the next few years, there will be a need for increased imports as indigenous oil and gas production has reached its limits and is already declining. **Today, EU-28 is more than 53% energy import** dependent, with this figure set to increase as in addition to oil and gas there is going to be a further decrease in locally produced coal and lignite in view of stringent environmental considerations.
- **The South Corridor** will play a pivotal role as an alternative entry gate for gas which will help Europe diversify both its **energy supplies** and its **energy routes**. It should be stressed that the South Corridor could strengthen the **security of energy routes**.
- **TANAP-TAP gas pipeline system**, which is now under construction, is the foundation of the South Corridor. However, the TANAP-TAP pipeline system is only capable of transporting limited gas volumes to Europe (i.e. 10 bcm per year by 2020/21, plus 6 bcm which will be routed to Turkey) and 20 bcm in phase two.

Toward a Redefinition of the South Corridor (II)

- Meanwhile, several gas exploration projects are in the development stage in the **East Mediterranean** region with important new gas discoveries, such as the Leviathan and Tamar fields in Israel, Zohr in Egypt and Aphrodite (which borders with Zohr) in Cyprus' EEZ.
- A number of alternative plans are under discussion for channeling this gas to Turkey, for local consumption, but also to Europe proper for transit to the continent's main gas markets. These plans include gas pipelines, liquefaction plants for LNG export and FSRU terminals to be tied up into the TANAP-TAP system.
- Another option apart of TAP-TANAP system is the **East Med Pipeline** which again, due to the significant technical challenges, could also accommodate limited quantities of gas in the regions of 8 to 12 bcm per year. At the same time, EC is actively exploring the possibility of massively increasing the member countries' LNG capabilities as part of Energy Union priorities.

An Expanded Southern Gas Corridor



NB.: The TANAP and TAP gas pipelines as well as 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 are still in the study phase.

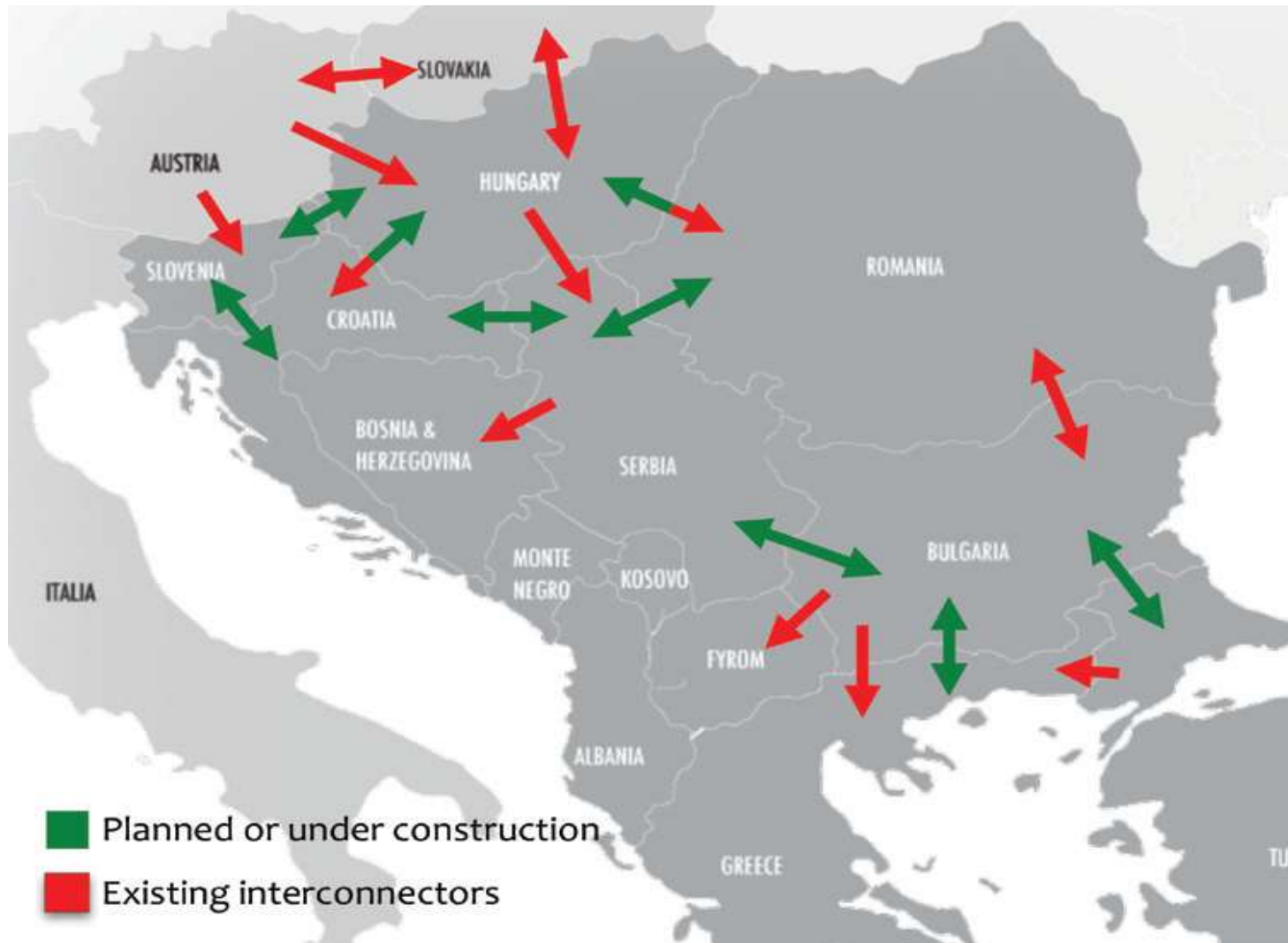
Toward a Redefinition of the South Corridor (III)

- The now defunct **South Stream**, and its under construction successor, the **Turkish Stream**, should also be considered as a potentially vital gas supply route.
- Furthermore, the Turkish Stream pipeline raise the prospect for the **stalled ITGI** natural gas pipeline being developed. ITGI (Turkey-Greece-Italy Gas Interconnector) has also been included in the European Commission's latest PCI list although it is not linked as yet to any particular gas supplier. Russia's latest proposal for natural gas supply to Europe via the Greek-Turkish border could incorporate ITGI into its plan.
- Alongside of the East-West route, the **Vertical Corridor** is a gas system that will facilitate the connection between existing national gas grids and other gas infrastructure in East Balkans in order to secure easy gas transiting, thus contributing to energy security and market liquidity. Such a gas system (which will bring together national grids, underground gas storage facilities, interconnectors, LNG terminals) will form an important new corridor from South to North whose operation will be fully aligned with EU Directives and European energy policy.

Toward a Redefinition of the South Corridor (IV)

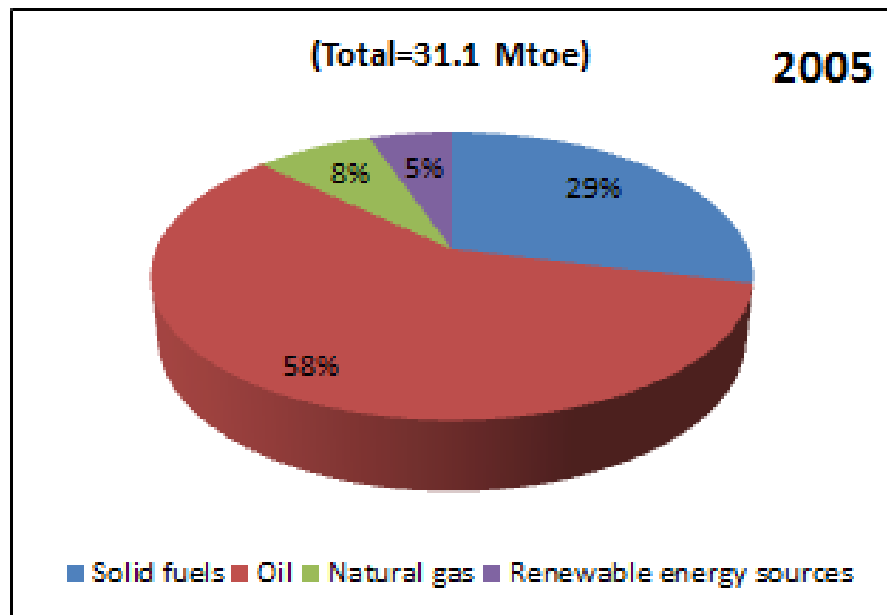
- Initially, the Vertical Corridor will manage the transportation of some 3-5 bcm per year commencing from the Greek national grid in Komotini. Greece will by then satisfy its domestic gas demand from four (4) different entry points (TAP, Revithoussa LNG, Kipoi, Alexandroupolis FSRU) while there will be some excess gas quantities that can be exported.
- In view of several new projects under development in the region, it is time to redefine the South Corridor by including these new potential gas supply sources and routes. Therefore, an **expanded South Corridor** should be considered and defined as such, to include all major gas trunk pipelines and terminals which will feed gas into the system which will then be directed towards the main European markets.
- Finally, an expanded South Corridor with its multiple gas entry points and linked underground gas storage and LNG facilities will provide the necessary background for the operation of **regional gas trading hubs** as IENE has already proposed in its relevant study “The Outlook for a Natural Gas Trading Hub in SE Europe” (IENE Study Project No. M19, September 2014).

Gas Interconnections in SE Europe

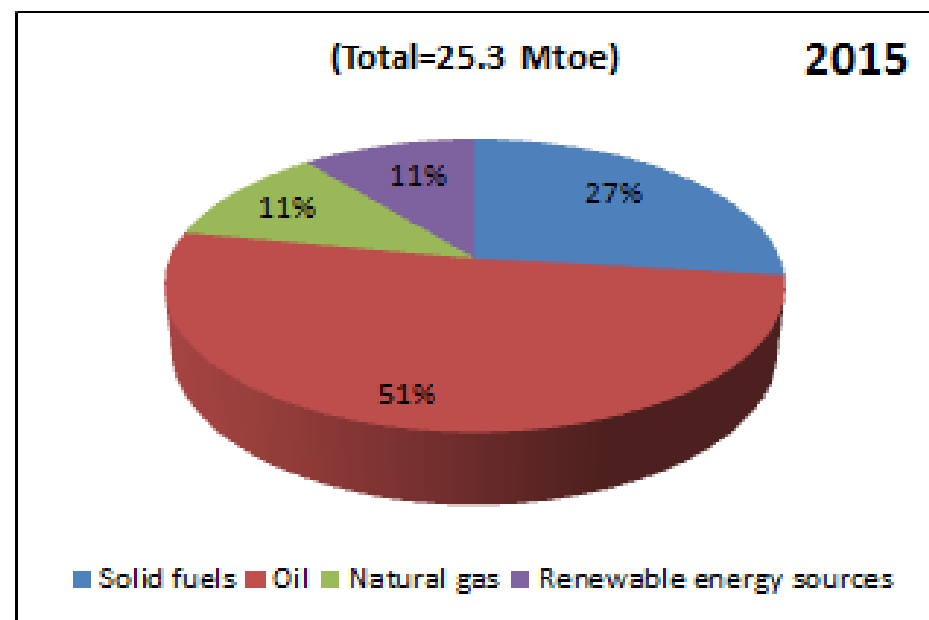


Source: IENE study "South East Europe Energy Outlook 2016-2017", Athens, 2017

Gross Inland Consumption in Greece (2005 and 2015)



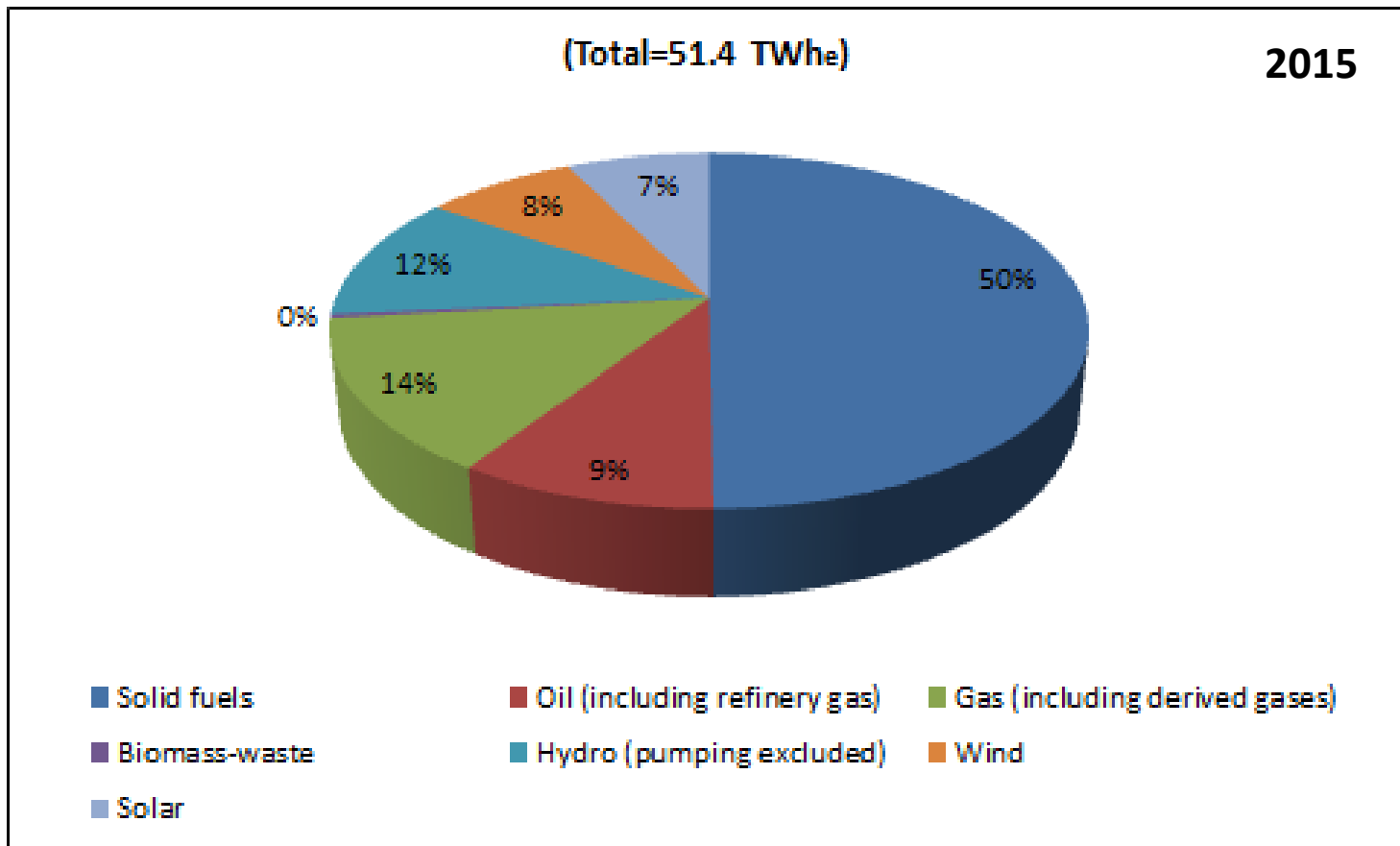
Note: Excluding electricity trade.



Note: Excluding electricity trade.

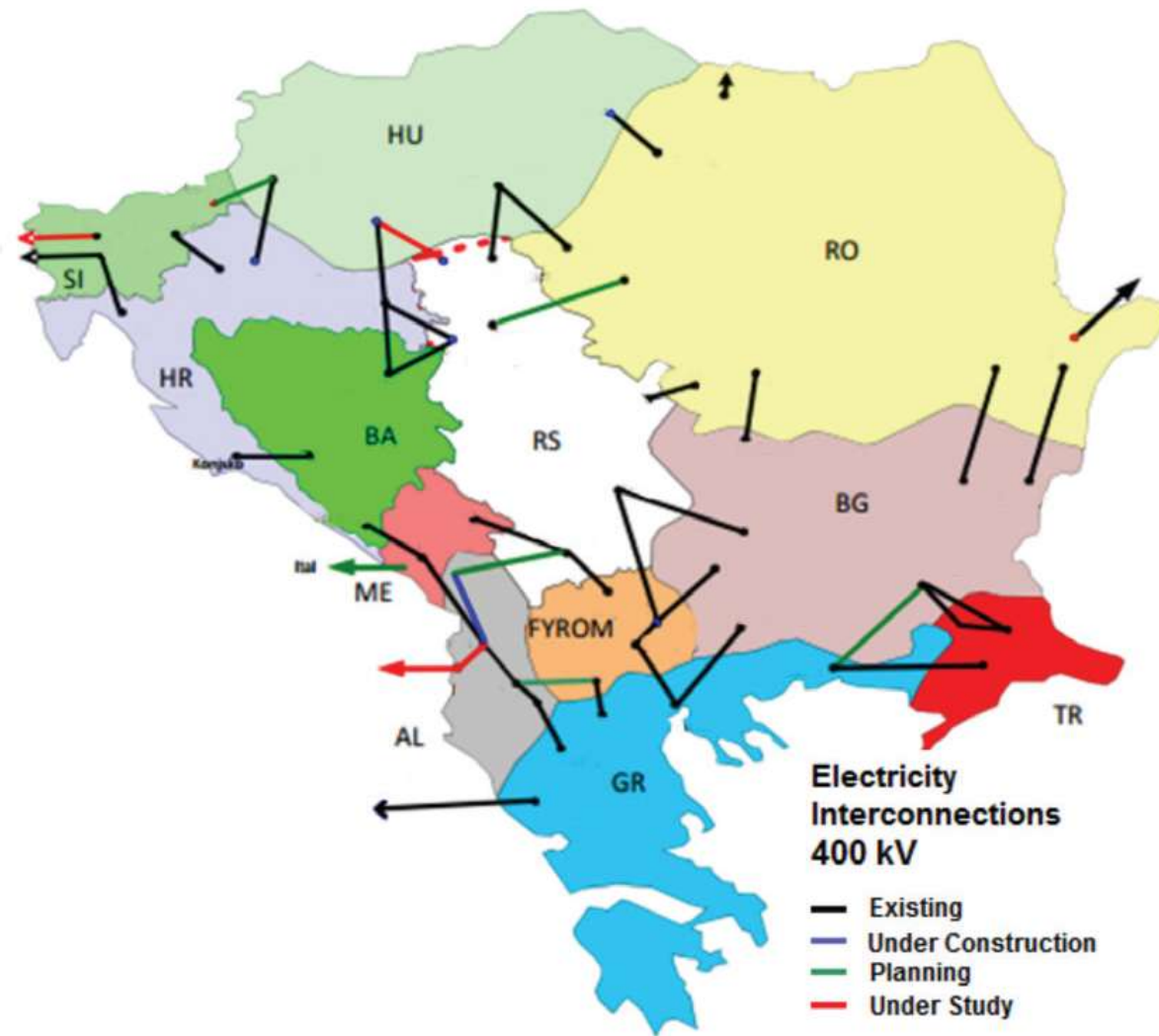
Source: IENE study "South East Europe Energy Outlook 2016-2017", Athens, 2017

Gross Electricity Generation by Energy Source in Greece (2015)

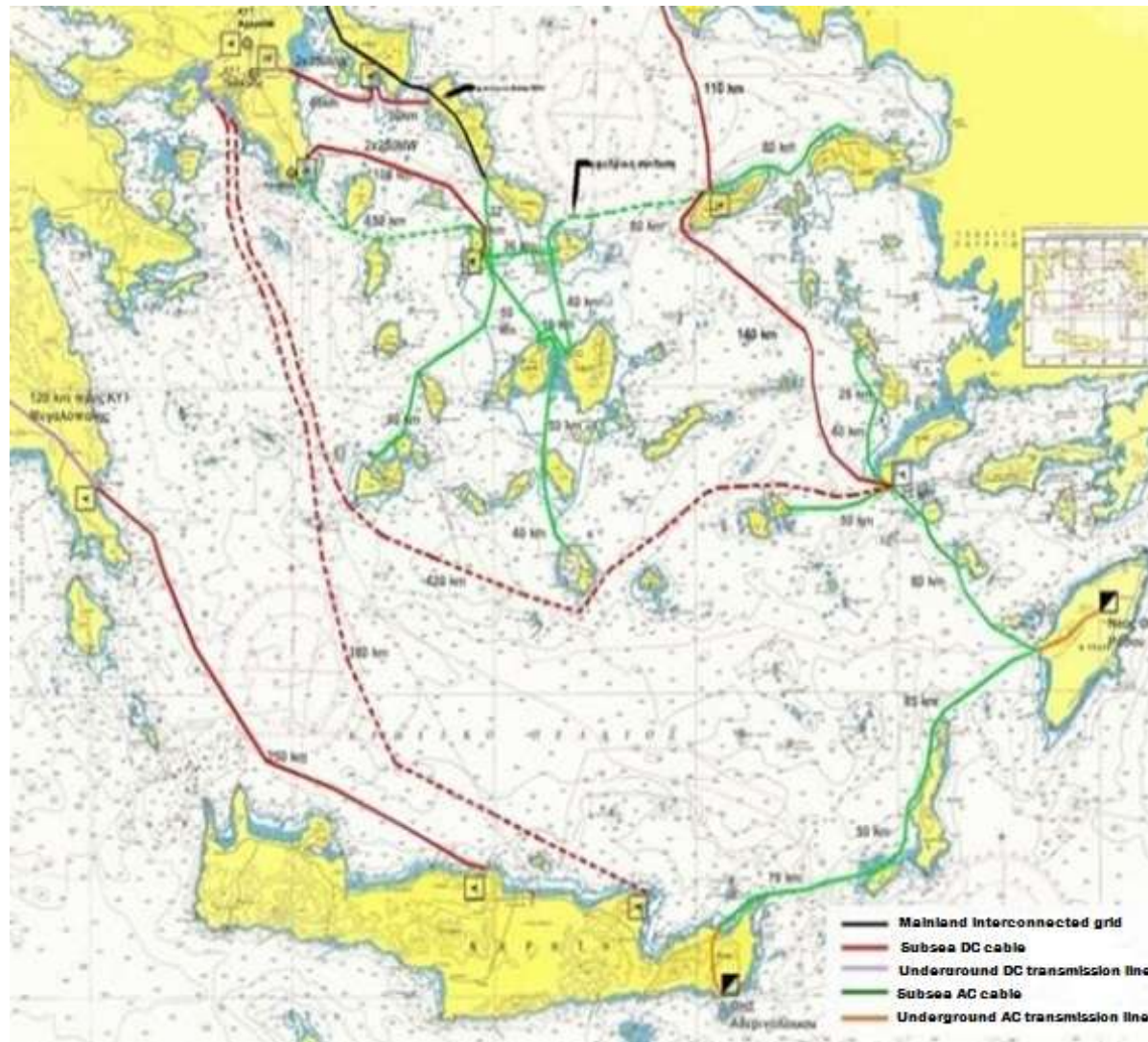


Source: IENE study "South East Europe Energy Outlook 2016-2017", Athens, 2017

Electricity Interconnections in SE Europe

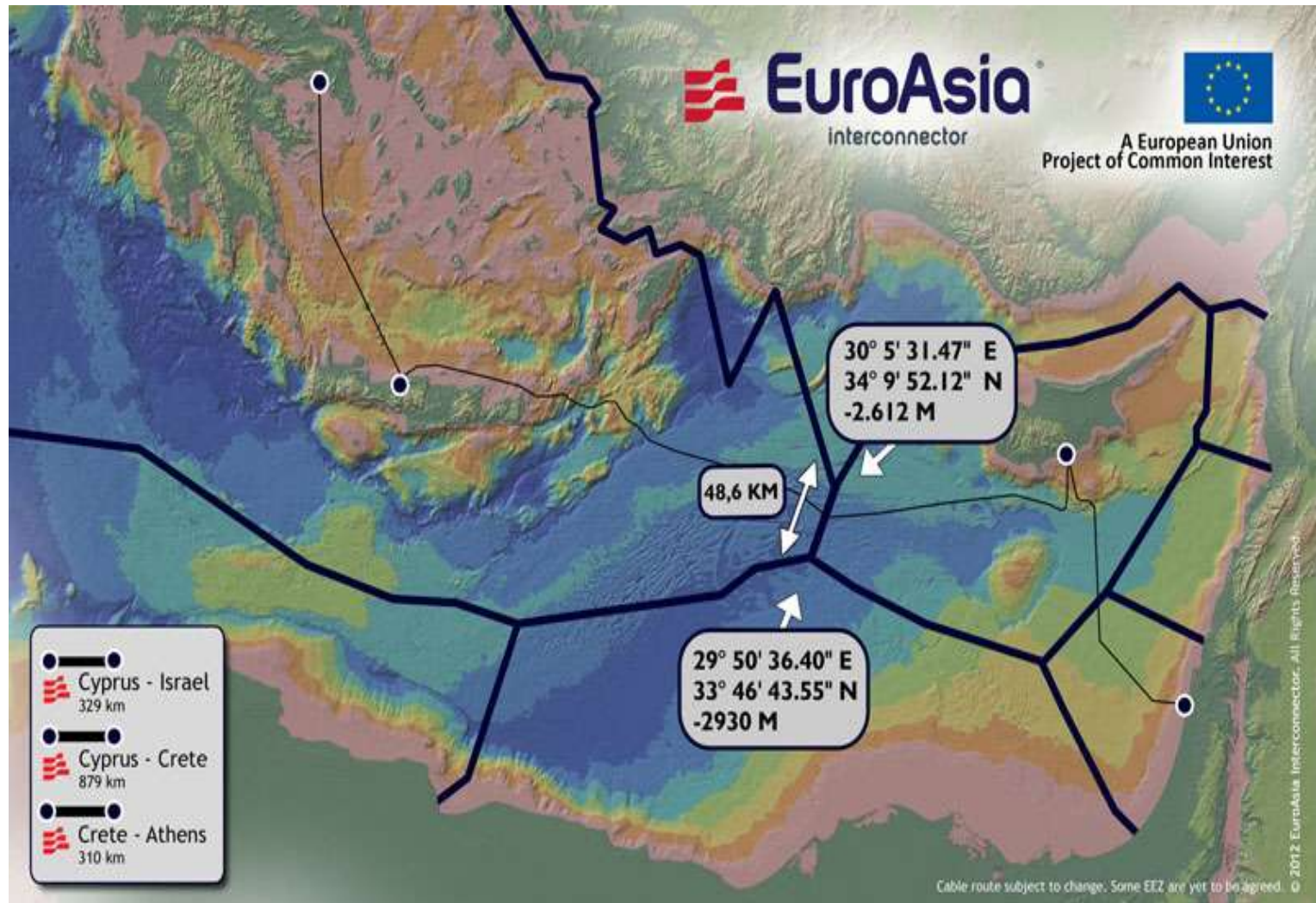


Electricity Interconnections of Crete and the Aegean Islands to Greece's Mainland Power Grid



Source: Greece's Ministry of Energy and Environment

EuroAsia Interconnector



Source: EuroAsia Interconnector

Oil Stocks in Greece

- Greece meets its stockholding obligation to the IEA and the European Union by placing a stockholding obligation on industry.
 - Importers of crude oil or petroleum products destined for the domestic market, as well as large end-users are required to hold oil stocks with a volume equivalent to **90 days of their net imports made during the previous year.**
- Compulsory stocks are maintained **within the Greek national territory** but the new legal framework provides the possibility of keeping up to 30% of stocks in other EU member states.
- Greece has **no bilateral stockholding agreements with other IEA member countries**, although emergency oil stocks are held in the Greek territory on behalf of Cyprus.
- Compulsory stocks held by industry **must be maintained in storage facilities** that have been certified as emergency stocks storage tanks.
 - In practice, compulsory stocks are commingled with operational and commercial stocks
- In the event of a supply disruption, the use of oil stocks would be central to Greece's emergency response policy. The **Minister for Environment, Energy and Climate Change is authorised to decide on the release of compulsory industry stocks**, based on the proposal of the Severe Oil Disruptions Management Committee.

Discussion

- In view of growing supply uncertainties combined with external (and quite predictable) price volatility, a **country may achieve a relatively secure energy flow by ensuring that its energy balance and particularly its power generation is not dominated by a single one fuel.**
 - For instance, Romania, which enjoys a strong indigenous energy supply (i.e. oil and gas) and uses a variety of fuels for its electricity production (i.e. solid fuels, hydro, RES and nuclear), has a much healthier and safer energy mix compared to Albania, for example, which although rich in terms of local energy resources (i.e. oil and hydro) lacks a balanced electricity supply mix.
- **A well-balanced energy mix can offer adequate protection against potential oil and gas flow disruptions.**
 - For instance, in the summer of 2015 serious energy security threats became apparent in Greece as the country's major oil, gas and electricity companies faced considerable problems in meeting their obligations to supplies in paying for energy imports. Greece's energy mix, much improved to what was back in the mid 1990's, was able to withstand the looming supply gap and hence consumers did not suffer a single hour of disruption of basic energy provisions (i.e. oil, gas, electricity).



INSTITUTE OF ENERGY
FOR SOUTH-EAST EUROPE

**Thank you for
your attention**

www.iene.eu

cstambolis@iene.gr