Research Papers N° 33
European Post Graduate School of International & Development Studies

Energy Security in the EU Area: The Eastern Mediterranean Region

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2013
ENERGY SECURITY IN THE EUROPEAN UNION AREA
THE EASTERN MEDITERRANEAN REGION

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1. **Introduction**

The process of European Integration through the common market for steel, coal and nuclear energy as well as the process of a common European Energy approach makes the European Union one of the most interesting regions on the planet concerning the subject of energy security. Taking into consideration the expected price increases of fuels and electricity, as well as the problems related to climate protection that concern many industrialized nations the issue of energy security in the European Union becomes even more vital. A global shortage of oil could represent a systemic risk, because of it’s wide usage as a energy source and as a raw material for the industry. Nearly every social subsystem would be affected by rising costs.

The “World Energy Outlook”, which is updated every year by the International Energy Agency (IEA) poses several key trends towards worrying directions, e.g. the increase of global energy demand by one-third from 2010 to 2035 with China and India accounting for 50% of the growth\(^1\). European Unions oil imports will overtake those of the US around 2015, and the largest natural gas suppliers in 2035 will be Russia (mostly conventional), followed by United States (more unconventional production)\(^2\). International coal markets & prices will become increasingly sensitive to developments in Asia; the value of subsidies to fossil fuels will rise from $66 billion in 2010 (compared with $409 billion for fossil fuels), to $250 billion in 2035. An increasing share of Russian oil and gas exports will shift from the European Union to Asia\(^3\). On the environmental side and despite steps in the right direction, the 20-20-20 goals will be missed\(^4\).

As a critical resource, energy must be readily available to support all critical activities of our society. This thesis will try to define the term energy security and will try to analyze the facts and trends of the global energy system. It will explain the structure of energy security of the European Union. By doing so it will

\(^3\) See Calder Kent E., “Fueling the Rising Sun: Asia’s energy needs and global security”, [http://findarticles.com/p/articles/mi_hh137/is_3_19/ai_n28699030/pg_2/?tag=content:coll](http://findarticles.com/p/articles/mi_hh137/is_3_19/ai_n28699030/pg_2/?tag=content:coll)
concentrate on the importance of the Eastern Mediterranean Area for the European Union.

The thesis is structured in five parts:

The first part will deal with the definition of the term energy security and will explain the basics principles. The second part will cover the facts and trends of the global energy system as well as perspectives of the global energy cooperation. The third part will be dedicated to the energy policy of the European Union. A short historical overview will be followed by the presentation of current data and needs. Afterwards through the analysis of the institutional framework an evaluation of the major goals and priorities of the European Union in terms of energy security will be shown. The fourth part of the thesis will look at the European Gas Scene, its historical development and the current situation. The fifth part will focus on new potential energy sources of supply for Europe and in particular in the Eastern Mediterranean area.


Energy security is, first and foremost, a matter of public policy with an impact on economic development and is defined as the means used in order to ensure and maintain the necessary energy recourses for the smooth functioning of the industry but also other activities like electricity, heating, etc. The concept of energy security however is not static, but dynamic and very complex because it involves economic, legal, technical and public policy parameters. The concept of energy security is of course subject to some basic principles but, because of technological progress, due to scarcity of energy resources, due to new international treaties, due to the nuclear accident in Fukushima, Japan and the war in Libya in 2011, the embargo Iran's oil exports, the Syria crisis and the global economic crisis, it is always redefined.

Energy security could be defined as the availability of energy products in sufficient quantity and reasonable prices with respect to the environment that are distributed through a secure supply chain.

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5 Bert Kruyt, D.P.vanVuuren, H.J.M.deVries, H.Groenenberg, “Indicators for energy security”, Energy Policy, no 37, pp. 2166-2181 “There is no one ideal indicator, as the notion of energy security is highly context dependent
2.1. General Principles Of Energy Security

The concept of energy security becomes clearer through the analysis of the basic principles that govern it. It has to be pointed out, that the principles of energy security evolve dynamically and their content is always adjusted based on developments and conditions prevailing in the technological sector, at international markets and transnational relations\(^7\).

2.1.1. The Principle of Availability

It consists in providing sufficient amount of energy products to cover consumer needs. The availability requires the existence and well-functioning of energy markets and energy transport networks. Well-functioning energy markets require agreements based on mutual interests of service providers and energy consumers as well as legal and regulatory frameworks that are socio-political accepted. Flexible energy markets can absorb an energy demand shock allowing quick reaction on the production side\(^8\).

2.1.2. The Principle of Reliability

The principle of reliability measures the degree of protection from a potential energy breakdown and has clear geopolitical implications. Reliability is achieved through diversification of supply chain sources, diversification of the energy mix, creation of emergency stocks, need to upgrade and build new energy infrastructure, as well as the timely dissemination of information on energy markets, particularly in matters of pricing. Aging, neglect, disruptions to physical infrastructure, or mismanagement have adverse impacts on energy reliability. Anticipating future levels of reliability is difficult, especially when new infrastructure and technologies are expected to be brought on line\(^9\).

2.1.3. The Principle of Affordability

The principle of affordability defines the affordable amount of energy that can be used. The term is directly related to pricing and volatility of energy products prices. The lack of affordable energy can create the phenomenon of "energy


\(^{8}\) Daniel Yergin, “The Fundamentals of Energy Security”, CERA Special Report, April 2007, pp.10 “…markets themselves need to be recognized as a source of security (...)Today, large, flexible, and wellfunctioning energy markets provide security by absorbing shocks and allowing supply and demand to respond more quickly.”.

poverty”. The price of oil and its fluctuation play an important role in the principle of affordability. Oil is the main energy resource and the pricing of other energy products is often calculated on the basis of oil prices.

2.1.4. The Principle of Environmental Sustainability
The principle of environmental sustainability is a relatively modern principle of energy security and is related to the environmental consequences because of the exploitation, use and transfer of energy sources. Strengthening of energy security should be consistent with the promotion of environmental sustainability in order to promote, respectively, sources and forms with the least possible environmental costs and limiting the phenomenon of climate change\textsuperscript{10}.

2.1.5. Diversification of Supply
Multiplying one’s supply sources reduces the impact of a disruption in supply from one source by providing alternatives, serving the interests of both consumers and producers, for whom stable markets are a prime concern. Especially this thesis will deal with the diversification of supply by proposing a new supply route for Europe.

2.1.6. The Principle of Resilience
A so called “security margin” in the energy supply system that provides a buffer against shocks and facilitates recovery after disruptions. Resilience can come from many factors, including sufficient spare production capacity, strategic reserves, backup supplies of equipment, adequate storage capacity along the supply chain, and the stockpiling of critical parts for electric power production and distribution, as well as carefully conceived plans for responding to disruptions that may affect large regions.

The global energy system is structured on the basis of the interaction between marketable energy products and consumer trends. According to estimates by the IEA to the year 2035\textsuperscript{11}

- The global GDP will grow. The GDP growth is a fundamental factor that correlates with the increase of energy demand.


\textsuperscript{11} These estimates are based on the so-called New Policies Scenario of the IEA which analyses and provides energy trends for the period 2009-2035.
- The world population in non-OECD countries\textsuperscript{12} is expected to increase. More specifically there is expected to experience a population increase of Brazil, Russia, India and China. Of course this results to a similar increase of energy demand in these geographic areas.

- The will be an upward trend in the prices of energy products, mainly oil. With the help of the following charts\textsuperscript{13} the global energy trends can be illustrated.

Chart 1: Share of energy products in global energy demand

\begin{figure}
\centering
\includegraphics[width=\textwidth]{chart1}
\caption{Share of energy products in global energy demand}
\end{figure}

Source: World Energy Outlook 2012, IEA

Chart 2: Energy "mix" in selected countries and regions

\begin{figure}
\centering
\includegraphics[width=\textwidth]{chart2}
\caption{Energy "mix" in selected countries and regions}
\end{figure}

Source: World Energy Outlook 2012, IEA

\textsuperscript{12} Organisation for Economic Co-operation and Development

http://www.oecd.org/home/0,2987,en_2649_201185_1_1_1_1_1_1,00.html

\textsuperscript{13} World Energy Outlook 2012
The above graphs lead to the following conclusions:

- There is a reconfiguration of the global energy mix scale with a declining trend in oil consumption and a gradually increase in the consumption of natural gas. The increase in consumption of natural gas will contribute positively in reducing oil and coal consumption. It must be noted, however, that natural gas does not have, unlike the oil, a unified global market. Price fluctuations for the natural gas are dependent on geographical and local economic conditions.

- The demand for energy in developing countries, in particular of Brazil, Russia, India and China, will grow.

- There is a slight but steady rise in consumption of renewable energy sources.

In all the above the current geopolitical challenges in the energy sector need to be added deriving from:

- The war of Libya and the activation of the mechanism strategic stocks of the IEA.

- The embargo against exports of Iran\(^\text{14}\).

• The nuclear accident at the Fukushima nuclear power and the future of nuclear energy. Germany, decided after the accident to shut down all operation all nuclear power plants in the country within a decade\textsuperscript{15}.

• Developments in extraction and transport infrastructure of natural gas, including developments in the so-called natural gas Southern Corridor\textsuperscript{16}.

• Developments in the unconventional gas\textsuperscript{17} resources. The International Energy Agency (IEA) has projected that under the right circumstances unconventional gas may meet more than 40% of the increased global demand for gas by the year 2035.

• The war in Syria\textsuperscript{18}.

• The Northern Africa conflicts.

3.1. Prospects for global energy cooperation

International cooperation in the energy markets has been reinforced in recent decades, but energy markets continue to be unstable, especially on pricing related issues. The international organizations that play a leading role in international energy relations are: the International Energy Agency –IEA–, the International Agency for renewable Energy and the Global Energy Forum –IRENA–, the International Energy Forum-IEF-\textsuperscript{19}. A brief presentation of those organisations will follow below as well as the cooperation efforts among them.

3.2. International Energy Agency (IEA)

The IEA was established after the first oil crisis response in 1973 as an answer to OPEC, on the initiative of the United States. The main objectives of the Agency

\textsuperscript{15} See Siemens AG One year after Fukushima – Germany’s path to a new energy policy, March 2012, \url{http://www.siemens.com/press/pool/de/feature/2012-03-energiewende/factsheet-e.pdf}

\textsuperscript{16} See Chapter below


\textsuperscript{18} See Asseburg Muriel and Wimmen Heiko, Civil War in Syria, SWP Comments, December 2012, \url{http://www.swp-berlin.org/fileadmin/contents/products/comments/2012C43_ass_wmm.pdf}
are monitoring the functioning of oil markets and the creation of strategic stocks of oil\textsuperscript{19}. These have been released three times so far:

- in 1991, with the Gulf War;
- in 2005 after Hurricane Katrina and
- in 2011 during the war in Libya.

On top of this it is a significant body of research about energy and although it started as a link between member states and oil consumers it has become the most important think tank on energy issues, thus maintaining an important tool to influence energy markets and related policies.

The major difficulties the IEA is facing is the participation of OSCE Member States, - just 28 members. Also, the change in the energy market share due to increased energy demand of developing countries \textsuperscript{20}, will in the future cancel the Agency’s existence i.e., ensuring oil supply in times of shortage and the stabilization of oil markets in periods crisis. Finally, the gradual reduction in oil consumption and increasing market share of renewable energy will be another challenge for the Agency.

3.3. International Renewable Energy Agency (IRENA)\textsuperscript{21}

IRENA was founded in 2009\textsuperscript{22} in order to promote renewable energy worldwide and already lists 89 members. The initiative for the establishment came from Germany, Denmark and Spain. It is the first international organization that the U.S. became a member in the last fifteen years and also one of the few international organizations that is located in the Middle East region, namely the United Arab Emirates\textsuperscript{23}. In January 2012 the IEA and IRENA signed a memorandum of understanding mainly in the fields of research and exchange of information. It has to be noted that initially the IEA reacted to the establishment of IRENA. An independent Agency for Renewable Energy can enhance the

\textsuperscript{19} See also Decision on Establishing the International Energy Agency, 15th November 1974, [http://www.iea.org/media/aboutus/history/decesionofthecouncil.pdf](http://www.iea.org/media/aboutus/history/decesonofthecouncil.pdf)

\textsuperscript{20} See interview of the Director of IEA Maria van der Hoeven, by Karen Beckman , We must find mechanisms to strengthen cooperation with emerging economies”, European Energy Review, 15 March 2012, : [http://www.europeanenergypreview.eu/site/pagina.php?id=3581&zoek=IEA](http://www.europeanenergypreview.eu/site/pagina.php?id=3581&zoek=IEA)


political will of its member states towards renewable energy sources vis-à-vis nuclear energy and hydrocarbons.


Within its framework members of the IEA and OPEC conduct continuous dialogue. In 2001, the ministerial meeting of the Organization signed a Charter of Cooperation in order to strengthen the dialogue between producing and consuming countries and finding mechanisms to reduce the price volatility. In 2003 the IEF Secretariat was founded for further institutionalization of the dialogue between producing and consuming countries. In conclusion, it has to be noted, that a successful international cooperation in energy markets should be based on:

- one standard form of communication between countries on their energy politics;
- an agreement about how to achieve a more sustainable energy future;
- the creation of mechanisms for managing energy crises.

4. **The energy policy of the European Union**

4.1. **Historical Overview**

Energy has been and continues to be an integral part of the process of European integration. Two of the three founding European Union treaties related to the management of energy resources. The European Coal and Steel Community (ECSC) had the aim of organising the free movement of coal and steel and the free access to production resources.

Also, a high authority was supervising the compliance with the rules of competition and price transparency.

4.2. **The European Atomic Community**

The European Atomic Energy Community (EAEC or Euratom) was initially established for the coordination of research national programs aiming at the

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peaceful use of nuclear energy and until today contributes to the sharing of knowledge, infrastructure and funding of nuclear energy. The third Treaty (EEC), concerning the economy, also contained provisions related to the energy sector. The vulnerability and dependency of the European economy from energy resources becomes even more evident in the 1960s. The European economies begin to depend on oil and this dependency became evident during the first oil crisis of 1973\(^{29}\). This crisis is a focal point for the European Communities as leading to "internationalization" of their energy relations, meaning the reliance from energy products of third countries and their vulnerability to shocks in the global energy market. The establishment of the European Energy Charter was the main act towards adapting to these new conditions.


It is the first major multilateral Treaty after the end of the Cold War\(^{31}\). The Treaty establishes a framework for international cooperation between European and other industrialised countries in order to develop the energy potential of countries of Central and Eastern Europe and strengthen the energy supply of the European Union\(^{32}\). Central idea of the Charter and the Treaty is the beginning of cooperation between Western European countries, which have advanced technology and know-how, and Eastern European countries, and in particular those of the USSR, which are rich in energy resources. The Charter is a Code of Conduct and involves the political will to strengthen democratic institutions in the region of Eastern Europe through economic and technological support provided by the West.

4.4. 1994 Energy policy in the framework of the Maastricht Treaty

In the 1990s, the Treaty of the European Union, or more commonly known as Treaty of Maastricht\(^{33}\) calls on the Member States to cooperate in all sectors including the energy sector. The second oil crisis of 1979 with the Iranian

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Revolution and the third oil crisis in 1990 with the Gulf war created imbalances in the supply and demand of oil, which contributed to high fuel price volatility. Starting in 2000, with the Green Paper of the European Commission on security of energy supply, European Institutions, Directorates-General for energy and transport of the European Commission, are becoming increasingly active in setting objectives and priorities for a coordinated energy policy throughout the Member States of the Union. It should be noted that the energy policy in the EU is part of the so-called sectoral policies. The sectoral policies relate to large sectors of the economies of Member States namely: industry, research, energy, transport, agriculture and fishing. While the Treaty explicitly dictates the development of common policies in the last three areas, this does not apply to other areas. The Member States will retain many powers in the formulation of these policies moving in with the logic of promoting national interests and not of the community. The absence of a strong legal basis, namely, a Treaty text is a powerful argument against the development of common policies of the European Union Member States in large sectors of the economy.\(^\text{34}\).

4.5. **Facts and Requirements**

A series of charts below will reflect the data and energy needs of EU Member States

Chart 4: Production, imports, consumption & energy

![Chart 4: Production, imports, consumption & energy](source: Market Observatory of Energy)

The analysis of the chart above concludes the following findings:

- Energy demand in the European Union will follow the global trend.
- High dependency on energy products in third countries, particularly in hydrocarbon sector, is growing. By today's standards, the EU imports over 60% of natural gas and 80% of the oil it consumes.
- High dependency on hydrocarbons observed for almost all Member States of the EU.

Source: Market Observatory for Energy\textsuperscript{35}

Source: Eurostat\textsuperscript{36}

\textsuperscript{35} http://ec.europa.eu/energy/observatory/index_en.htm
\textsuperscript{36} http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/
- There are significant differences in the energy mix of the various Member-States. These differences are the main obstacle in a common EU energy policy after the needs and the priorities are different.
- High dependency on hydrocarbons makes energy consumption of EU environmentally harmful.

5. Priorities and Prospects. The institutional framework

The steps towards a unified and coherent energy policy of the European Union have been accelerated over the last ten years through a series of legislative acts. Their main feature is adding a separate Chapter on energy in the Treaty of Lisbon and the European Summit on Energy held in February 2011 called "Europeanising Energy Policy: time to act". Through these instruments, the European Union is trying to move from a rhetoric level to action in the field of environmental effects and the creation of an internal energy market, while issues such as energy diplomacy and security of supply are also addressed.

In this context, the contribution and actions of the European Commission are very crucial. As it will be show from the analysis that follows, the European Commission, through the actions of the Directorate General for Energy, leads on issuing recommendations on legislation and relevant policies and actions based on the common European interest.


This Green Paper launched the debate on the need of strengthening the European Common Energy Policy. It emphasizes the European Union dependence from hydrocarbons and the environmental degradation of Europe. The document also stresses the need to harmonise the energy sector of the Member States in an effort to reform the European energy mix and the European energy infrastructure. It proposes the establishment of a long-term European Energy Policy with the following priorities: Balancing energy supply and demand,

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37 See [http://ec.europa.eu/energy/time_to_act_en.htm](http://ec.europa.eu/energy/time_to_act_en.htm)
creating strategic energy stocks and creating new energy corridors for the security of supply. The thesis will concentrate mainly on the last priority namely the creation of the Mediterranean energy corridor.


This document anticipates economic growth through savings in energy consumption in accordance with the objectives of Lisbon Treaty and the Kyoto Protocol\(^4\). The Green Paper proposes consultation between public and private energy bodies, NGOs and consumers in energy efficiency and cooperation with third countries through the establishment of standards on energy efficiency that are compatible with international standards. It is an oxymoron that, while Member States have acknowledged that more has to be done to ensure greater energy efficiency, they hesitate to commit to a mandatory annual energy consumption decrease of one per cent in the proposed Directive on energy end-use efficiency and energy services.

Despite the effect that energy efficiency will have in supporting the economy and improving competitiveness, only small efforts have happened. EU Member States should be forced to commit to targets for improving energy efficiency to ensure that the ambitious goals of the Commission are reached.

Promoting energy efficiency is the cleanest way of making alternative energy available.


Outlines the energy scene of the 21st century in which the European Union is expected to play a leading role since it is the second largest energy market in the world. The Paper sets out six priority areas:

1. develop a competitive internal energy market (natural gas & electricity);
2. strengthen the contribution of the internal market in energy supply security through the solidarity among Member States in matters of infrastructure;
3. create a European framework for national energy decisions because of the interaction of energy systems;

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\(^4\) See [http://unfccc.int/kyoto_protocol/items/2830.php/](http://unfccc.int/kyoto_protocol/items/2830.php/)

4. generate an integrated approach to the phenomenon of climate change;
5. encourage technological innovation in the energy sector;
6. articulate a coherent external energy policy, with actions that will be agreed at Community level, and in collaboration with specific countries such as Russia, the Caspian Sea countries, Turkey, and the countries of the Mediterranean.

The cooperation will include infrastructure projects, financed through European Investment Bank –EIB– and the European Bank for Reconstruction and Development –EBRD– funding actions for strengthening the energy sector of the EU's energy partners.

The paper mentions a threefold of objectives concerning the EU energy policy: sustainability – competitiveness – security of supply. These objectives will be repeated in various Commission texts making them the basic pillars of the future EU energy policy.


The Communication mentions the importance of energy in the EU integration process, and highlights the challenges of today that require joint action. Emphasis is given on the objective of sustainability and protection of the environment and the 20-20-20 targets. 20-20-20 for the 20% reduction in carbon emissions, the increase by 20% in the share of renewable energy in the energy mix of Member-States and the reduction of 20% of primary energy use, through improvements in energy efficiency by 2020. The European Council, in March of 2007 approved these objectives within the framework of an integrated approach to climate and energy policy. In January 2008 the European Commission proposed a binding legislation for the implementation of the objectives 20-20-20. Known as "bundle for the climate and energy ", which was agreed by the European Parliament and

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the Council in December 2008 became law June 2009\textsuperscript{48}. The Communication also refers to external energy relations between the European Union and its energy partners which should be based on transparency, the reciprocity of interests by means of common principles and rules. Finally, it urges the increase of the financial activities of the EIB in the field of energy and promoting the EU’s interests through the activities of the IEA.

5.5. \textbf{The "Energy" of the Treaty of Lisbon 2007\textsuperscript{49}}

The Treaty tried to streamline the structures within the Union in order to operate more effective. The Treaty of Lisbon desires to give to the European Union an enhanced intervention capability in priority areas for the Union and marks a special expansion of its internal policies\textsuperscript{50}. One of these areas is energy and it is the first time that a separate Chapter on energy is included in the Treaty. This is clearly a qualitative upgrade that highlights the importance of energy policy within the European Union. The relevant text of the Treaty makes reference to the spirit of solidarity that should prevail between Member States in case of an energy crisis that directly influences the economic situation of Member States. However, the right of each Member-State to determine the conditions for its energy resources usage, the choice between different energy sources and the general structure of its energy supply is not restricted. A harmonisation mechanism is also not included in order to align national energy interests within the entire European Union.


The Communication determines the energy priorities for the next decade. The text starts with the subtitle "the price of failure is too high" stressing this way the need for realizing the objectives of the EU energy policy. These priorities do not differ from the priorities already defined in the Green Paper of 2006 but essential actions are clearly defined.


\textsuperscript{49} See \url{http://europa.eu/lisbon_treaty/index_en.htm}


\textsuperscript{51} See \url{http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0639:FIN:En:PDF}
5.7. Commission communication Priorities for the energy infrastructure for the 2020 and beyond – draft consolidated European energy network „COM (2010) 677\textsuperscript{52}

The communication stresses the importance of energy infrastructure for realising the set EU energy policy objectives. Energy infrastructure is defined as “adequate, integrated and reliable energy networks are a crucial prerequisite not only for EU energy policy goals, but also for the EU’s economic strategy”. The need for diversification of supply sources is defined as this differentiation will be the key to enhance security of supply, but also promote a more intense competition between energy markets. In the text it is highlighted that "EU pays the price "of an inadequate infrastructure and remains vulnerable in times of an energy crisis. On the issue of funding, the text notes that the current economic downturn accentuates the infrastructure investment reduction.

Chart 7: Priority corridors for electricity, gas and oil

Source: EU-DG Energy

\textsuperscript{52} See http://www.energy.eu/directives/com-2010-0677_en.pdf
5.8. European Council Summit on energy, 2011:\(^{53}\) "Europeanising Energy Policy: time to act\)

It is the first Summit of the European Council devoted to the Union's energy policy aiming to end in a "new Chapter\(^{54}\)" with a view to taking direct action for the fulfilment of predefined objectives of EU energy policy. This statement sets for the first time a concrete period for the creation of an internal energy market. By 2014 electricity and natural gas should be traded within the EU as easy, as goods and services.

The solidarity among Member States for smooth operation of energy networks and the creation of an appropriate legal environment, attractive for investments in energy projects by the private sector is also crucial. The conclusions of the Meeting pay special attention to the external dimension of EU energy policy. More specifically, the High Representative of the Union for Foreign Affairs and Security Policy is called to take full account of the dimension of energy security, when dealing with the EU's Neighbourhood Policy\(^{55}\). Union and Member States need to coordinate better their activities with a view to ensure as much as possible greater coherence and consistency in EU energy relations with countries that are the main suppliers and transit countries of energy products.

5.9. Communication from the Commission progress towards achieving the objective of energy from renewable sources by 2020 \(^{31}\)\(^{56}\)

The Communication states that the energy from renewable energy sources is "a central component of the EU energy policy \(.\) The relevant directive 2009/28/EC of the European Parliament\(^{57}\) for the promotion of the use energy from renewable sources is a significant foundation for the further promotion of the relevant industry. Despite of the positive environmental effects it is also expected to create a significant number of new jobs. The adoption of a binding Directive in 2009, according to statistics cited in the communication, contribute as a catalyst to approach the objectives 20-20-20 in all sectors of energy consumption.

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\(^{53}\) See [http://ec.europa.eu/energy/time_to_act_en.htm](http://ec.europa.eu/energy/time_to_act_en.htm)


\(^{55}\) See Van Vooren Bart, Progress, potential and limitations of EU external energy policy three years post-Lisbon, Swedish Institute for European Policy Studies – 2012


(electricity, transport, cooling and heating, etc.) in the majority of EU Member States.

The high cost of the renewable energy industry, promoted globally particularly in the US and China, combined with the current economic crisis are major challenges for the industry. Essential is also that the Communication noted the coordination of financial institutions and investment options at national and community level is very important.

5.10. **Commission communication on security of energy supply and international cooperation The EU Energy Policy. Engaging with Partners across our Borders COM (2011) 539**

It is the first Communication that clearly invites Member States to align objectives and actions in the field of external energy relations. The Communication enhances the external dimension of EU energy policy and tries to lay the groundwork for a more coordinated strategy within energy partners. The past has shown that bilateral energy agreements between individual Member States of the Union and third-party suppliers can lead to internal market fragmentation rather than strengthen energy supply and the competitiveness within the EU. With this Communication, the EU seeks, for the first time, to take concrete measures in order to elicit, somehow, the control of external energy policy from the Member members. In the first phase, the EU seeks to monitor closely all intergovernmental energy agreements of Member States with third countries. In the long run, it will seek to negotiate the actual energy agreements in the name of its member states.

A truly innovative element is the clear provision for strengthening the information exchange mechanism between Member States concerning upcoming energy arrangements and the proposal for a legal framework that would oblige Member States to provide the Commission with all the essential information for any new and old energy agreements. Before any new agreement will enter into force, the Commission will have the possibility to control its compatibility with relevant European legislation.

In the field of infrastructure, key priorities for the EU, according to the Communication, is the implementation of the so-called Natural Gas Southern Corridor, which connects the Caspian basin and the Middle East with Europe.

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59 For further details see upcoming chapter
Environmental challenges and the objectives of the EU in the field of renewable energy become a priority and accelerate the investment in the so-called Mediterranean Solar Plan\textsuperscript{60} with electricity generating capacity of 20 GW, 5GW of which is destined for export to the EU countries. It appears that the importance the Mediterranean region is increasingly upgraded not only in the field of hydrocarbons supply but also in energy production from renewable energy sources.

The most innovative element of this Communication relates to the effort to revise the existing frameworks of cooperation related to EU external energy policy objectives. More specifically, the Communication proposes further expansion, deepening and extension of the Energy Community of South-East Europe\textsuperscript{61} until 2016. It refers to the need to strengthen its energy relations with other major energy consumers, mainly the US, China and Japan, and emerging economies, notably India, Brazil and South Africa. The Communication is putting the issue of empowering and modernizing the global governance system, and supporting the EU cooperation with the IEA, the World Forum for Energy (IEF)\textsuperscript{62}, the International Partnership for Energy Efficiency Cooperation (IPEEC)\textsuperscript{63}, the International Renewable Energy Agency (IRENA)\textsuperscript{64}, and promoting the strategic objectives of EU energy policy at the G-8 and G-20.

In conclusion, through this communication, the EU takes for the first time specific measures to lead the external energy policy of its member states\textsuperscript{65}. In the first phase the EU seeks to monitor all intergovernmental energy agreements between Member States with non-member countries. In the long run, the EU will seek to negotiate the energy agreements on behalf of its member states.

Through the Communication the EU is looking at strengthening its external energy policy and through the upgrading of existing cooperation frameworks such as the energy community which is based on the logic of promoting rules and of the internal energy market in the EU neighbouring countries.

\textsuperscript{60} See http://ec.europa.eu/europeaid/what/energy/policies/southern-neighbourhood/msp_en.htm
\textsuperscript{61} See http://www.energy-community.org/portal/page/portal/ENC_HOME
\textsuperscript{62} See 3.4
\textsuperscript{63} See http://www.ipeec.org/
\textsuperscript{64} See 3.3
In conclusion, the effort to achieve energy security in the EU is based on two main pillars:

1. Better energy efficiency with the aim of optimizing energy consumption and fight climate change. This objective requires Member States "energy mix" diversification with natural gas and renewable energy sources occupying a bigger share in the energy consumption. Third countries contribution in the field of renewable energy is also important with the Mediterranean Solar Plan used as lead example. The integration of the EU internal energy market is also required so that it can offer to the final energy consumers a wider, more stable and attractive choice in terms of price for their energy supply.

2. Ensure continuous and adequate energy supply. This goal requires close and reliable relations with EU energy partners, with the producing and transit countries. Energy security is an important aspect of EUs external policy and influences regional cooperation structures such as the Euro-Mediterranean Cooperation and the Eastern Partnership. It requires also a very close cooperation between EU Member States. Given the energy interdependence of EU Member States in financial, technical and political terms greater solidarity and consultation between Member States is required. Unilateral national decisions increase the risk of divergence from the energy strategy the EU that can lead to higher prices or changes in regional production or consumption of energy, to name two only one of the issues that may arise.

Source: Euractiv

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In this Communication, the EU shows the way how a functioning internal energy market can be achieved. The Commission invites the Member States to take greater efforts to implement and enforce the existing EU legislation on the internal energy market. The Commission will work with Member States to strengthen the position of consumers and reduce market-distorting government intervention.

European Energy Commissioner Günther Oettinger said: "When it comes to gas and electricity, citizens and business are interested into two things: a safe supply at all times and affordable prices. Europe can achieve this with a functioning European energy market."

Although progress has been made in terms of wider choice for consumers, the reduction of energy prices and ensuring a sufficient power supply at any time, more needs to be done to use the potential of a truly integrated European market. At the completion of the EU internal energy market in 2014, the Commission plans several measures. This will include:

- Implementation of the internal market directives and application of competition law. Even 24 months after the implementation date, some Member States have not yet fully implemented the third internal energy market package. The Commission will continue to audit the procedure and try to ensure that the relevant European regulations are properly implemented. The competition rules must be rigorously enforced to ensure a level playing field for all market participants.

- Strengthening the position of consumers. Studies show that only one in three consumers compare price offers. It is estimated that consumers would have annually saved up to EUR 13 billion in the EU if they would change to the cheapest electricity provider. The Commission will ensure that the consumer energy value can be followed by all market participants correctly. In addition, the Commission will promote the implementation of intelligent consumption systems,

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70 See Euroactiv, Brussels urges EU countries to stop energy market distortions, published 15 November 2012
71 See Molenbroek Edith, Blok Kornelis, Saving energy: bringing down Europe's energy prices for 2020 and beyond, Friends of the Earth Europe and Climate Action Network Europe, February 2013
which allows consumers to manage their consumption real time, and have better control of their energy bills. In addition, the report on transparency of retail energy markets in the EU sets for a clear overview on prices tariffs and offers.

- Flexible market organization. Some countries are planning to support the available energy capacity by generators, in order to ensure sufficient capacity, even if no electricity is available from alternative sources such as wind and solar energy. However, early introduction of capacity assurance mechanisms can lead to internal market fragmentation and hinder investments. Prior to the implementation of such mechanisms, Member States should analyze whether there is a lack of investment in capacity and, if so, why.

In addition, the Commission will propose guidelines for support schemes for renewable energy, to improve the efficiency of the internal market

6. The European Gas Scene
The European Union is the most important consumer of natural gas in the Eurasian region and particularly interested in security of supply issues. Today the European Union is already dependent on gas imports. The situation of the EU is expected to be more complicated in the future. Although on the supply side there is enough gas available, the European Union does not have enough natural gas to meet its needs because of an increased global demand, or because of the interregional competition to access the regional gas deposits\(^7\).

On the following pages, we will look at the European situation starting with a short historical overview of the European gas supply. Then the thesis will thoroughly explain the current natural gas supply situation in the EU and look at a solution that will increase energy security in Europe.

6.1. Historical development of the Gas Supply in the EU
Due to the changing composition of its members it is hard to examine historically the evolution of the EU's natural gas supply. Today, the EU has 27 members, who have gone through a different development in the field of gas supply caused by their history. Roughly one can distinguish between two or three groups: a group of Western States, the Soviet Union and its satellite States. The Western States are the former members of the "EU-15", prior to the 2004 enlargement. The three Baltic States of Estonia, Latvia and Lithuania are the only EU members

who formerly belonged to the Soviet Union. The third group is composed by EU members that before were members of the Council for Mutual Economic Assistance CMEA also known as COMECON73.

Already in the 1960s large Western European countries, such as France, (West) Germany, Italy, the Netherlands and the United Kingdom, began exploiting and consuming natural gas. At the end of the 1950s and 1960s larger gas findings mainly in the Netherlands, but also in the UK and in Northern Germany, led to the creation of a first European natural gas market with cross-border trade. Center of this first international natural gas market on European soil was the Dutch Groningen gas field, which supplied natural gas for up to seven States from 1959. In order to diversify natural gas imports, the United Kingdom and France began 1964 with the import of liquefied natural gas from Algeria. In the following years, other countries such as Italy and Spain followed this example (although in very small quantities), partly also with Libyan LNG. The oil shocks of the 1970s meant that some States started to rely on the use of natural gas. The idea was to shift as far as possible the electricity and heat production mainly through alternative energy sources such as natural gas.

Chart 9: Gross inland gas consumption in EU-27, 2011

Source: Eurostat

73 See http://www.britannica.com/EBchecked/topic/399860/Comecon
Already in the 1970s the increased demand for natural gas had to be covered with imported natural gas, although new findings in the British, Dutch, Danish, and mainly Norwegian North Sea allowed regional natural gas supply. The import demand in many other Western European countries has grown continuously. So, for example, the gap between gas production and demand for natural gas during the 1970s in Germany, Italy and Austria increased significantly. Measured at the annual total increase Germany's gas imports increased from 1971 until 1980 from 30.3% to 67.8%, Italy's from 12.2% to 55.1% and Austria's from 42.3% to 59.8%\(^{74}\). On the other hand Norway established itself through the construction of two natural gas pipelines as a European exporting nation and is supplying continental Europe since then.

About the same time Soviet natural gas also started to reach the Western European Nations. Already in 1967/68 the USSR supplied their western neighbours with gas through a pipeline (russ. Called "Bratsvo", also known as "brotherhood" or sometimes "fraternity"). Soviet gas reached Western Europe for the first time in 1970s through Czechoslovakia. In order to meet the increasing demand and despite the Cold War unfolding the Western countries increased their gas imports from the Soviet Union's continuously in the 1980s\(^{75}\).

The cooperation of European NATO allies with the Soviet Union was very critically viewed especially by the United States. Already the first gas contracts between Western European companies and the USSR at the end of the 60s and 70s in the years worried many regarding a possible political extortion of Western Europe and faced huge resistance from the other side of the Atlantic.

The United States rejected further natural gas imports from the Soviet Union because of the increasing dependence on imports and thus related political pressure towards its European NATO allies. The main reason for the opposition of Washington may have been that Moscow gained access to much-needed

\(^{74}\) See BP p.l.c.: Statistical Review of World Energy Workbook 2009

\(^{75}\) See Bothe, David / Seeliger, Andreas: Forecasting European Gas Supply. Selected results from EUGAS model and historical verification, EWI Working Paper, Nr. 05.01, Köln 2005.
technology and even more urgently needed hard currency. The Europeans however continued to import gas from the UdSSR.

The gas imports from the Soviet Union were complemented by gas imported from Algeria. This natural gas reached Europe through a pipeline to Italy (Transmed pipeline, first deliveries in 1983), as well as in form of LNG to Belgium, Spain and France. While today Russia, Algeria and Norway established themselves as the main natural gas suppliers of Western Europe, the Netherlands play only the role of a swing supplier.

Chart 10: EU-27 imports of natural gas – percentage of extra EU imports by country of origin

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79 See Bothe, David / Seeliger, Andreas: Forecasting European Gas Supply. Selected results from EUGAS model and historical verification.
After the break up of the Soviet Union, Russia took over the dominant position of the Soviet Union concerning the supply of the former satellite States. The former COMECON countries had been favoured by special gas relations with the USSR and as far as possible protected from price fluctuations in the world energy market, something that has changed after the end of the Cold War. The integration of former Soviet satellite States into Western organizations has put an end to the supply of Russian energy to lower prices. The almost exclusive infrastructural connection to Russia through pipelines remained. In contrast to earlier times, the pipelines had to cross independent States, above all the Ukraine in order to reach the Western European markets. Today, many of the new EU members see the dependence from Russian natural gas, which reaches in some Member States 100%, as a major problem.

6.2. **The current supply situation in the European Union**

In 2007 natural gas represented 24% of energy consumption across the EU and in recent decades could increase its share (in 1965 the share of natural gas was 4%, 1975 already 14%, 1985 and 1995 accordingly 17% and 20%).

Among EU members, the share of natural gas in the energy supply varies however partially significantly. Natural gas has the highest share as primary energy in Hungary (39.6%), the Netherlands (39.5%) and Italy (37.9%), Greece (10%), Finland (9.9%) and Sweden (1.8%) have the lowest.

Chart 11: Gross national Consumption

*Figure 3: Gross inland consumption, 2011, in million toe (GCV)*

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80 See Eurostat: Energy Yearly Statistics
In 2011, the EU-27 demanded significantly more natural gas than produced within the Union. About 489 BCM of natural gas were consumed by Member States, but only 186 BCM or 38.7% of the total demand, produced. So the rest had to be imported in order to meet the demand. As already shown the current reserves and resources of the European Union do not satisfy the long-term demand.

Chart 12: Gas Demand by OECD country, 2010 and 2011 (bcm)

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Source: IEA, Natural Gas Medium-Term Market Report, 2012

It is significant that in 2012 gas demand in Europe did not recover as it remained, according to preliminary estimations, below 2011 levels. Gas consumption was hit by low economic growth translating into slow power demand increases and sluggish development in the industrial sector, high gas prices, and the strong growth of renewable energy.

Chart 13: Natural gas consumption in OECD Europe by end – use sector, 2008 – 2035 (tcf)

However, gas demand in Europe due to the anticipated economic recovery is forecasted to increase over the next two years despite the ongoing economic crisis in the Eurozone. According to IEA estimates natural gas consumption in EU member states is expected to increase from 510 bcm (est.) in 2012 to 547 bcm in 2015, 561 bcm in 2017 and around 585 bcm in 2020.81,82

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<td>3 564</td>
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Source: IEA

81 See IEA, “Gas Medium-Term Market Report 2012,”
In the production front, European production in 2011 decreased and lost almost 28 bcm in one year. The United Kingdom is responsible for almost half of this drop as it reported a loss of 12.6 bcm production. UK gas producers have been complaining about the instability of the fiscal regime, which in their view led to lower exploration and sluggish business confidence. But other countries contributed as well to the drop in production. The Netherlands lost almost 8 bcm of gas production, which given the collapse of European gas demand, was not unusual since the country often acts as a swing producer. Denmark lost 1.6 bcm and Germany 0.7 bcm. This is largely due to the state of mature production areas whose decline cannot easily be reversed. More surprisingly, Norwegian gas production, which had been the constant driver of European gas production growth over the past ten years, slowed and lost around 5 bcm, largely due to production declining in 2011.

The Caspian region, which is having only a peripheral role in the European gas scene, gained some 15 bcm in new production but saw widely divergent trends: Turkmenistan’s gas production increased by a third, driven by exports to China. Kazakh production also rose by 11% but most of the new gas was also exported East. In contrast, Azerbaijan saw a slight production decline that is also reflected in lower exports to Turkey, while Uzbek gas output also dropped by an estimated 4%. Production in other FSU and non-OECD European countries dropped slightly, the only exception to that trend being Bulgaria.

7. The Role of the Eastern Mediterranean related to Energy Security in Europe

As seen in the previous chapters Energy security is a necessity for the sufficient and uninterrupted energy supply of a state or a region. It relates with many variables that contribute to the achievement of that goal. Some of them are: the existence of the necessary suppliers and reserves, their credibility, the existence of a supply route, transport security, etc.

Specifically, in the area of the eastern Mediterranean, energy security has two aspects. First, that the states of the region ensure the necessary resources in terms of energy and secondly, that the Eastern Mediterranean has to be regarded as a crucial corridor for energy supply in Europe. In case of a gas discovery in the region, energy security for the countries of the eastern

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Mediterranean would strengthen the prospect of discovery, exploitation and export of natural gas. The discoveries of gas fields will be an opportunity to reduce energy dependency of the states of the region, in one degree or even pursuing energy independence and / or self-sufficiency in some cases. They will boost growth; enhance security, development and stability of the whole region. For Europe, the risk of supply of natural gas from the eastern Mediterranean will be reduced, as well as related costs. The Mediterranean is generally one of the main transit routes for gas consumed annually in the EU, and the main transit route in general, including oil. Approximately 50% of the annual European consumed oil passes through the Mediterranean and 35% of annual European consumed gas. In addition, as shown in the below chart, 35% of the natural gas imported from Europe from countries such as Algeria, Qatar, Egypt, Libya, Nigeria and others comes via the Mediterranean. While 50% of the oil from the Middle East and elsewhere passes also through the Mediterranean.

Concerning energy security in Europe, practically it mainly takes the form of finding alternative energy suppliers and diversification of supply routes and

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84 See Bank of America Merril Lynch, “East Mediterranean: Europe’s Final Energy Frontier?”, The Oil Gusher #100, Industry Overview, 1/10/2012
secondarily those of spreading the use of Renewable Energy Sources (RES), reducing energy consumption, liberising energy markets within the European countries, coordination of legislation at EU level and the development of new technologies that will contribute to the above.

At present, however, the need for diversification of imports relates mainly to the heavy dependence on Russian energy. The dominant position of Russia in the European energy imports and its pursuit to monopolise the energy transit to the European market creates security dilemmas in the Union. The degree of dependence, touching in some cases 100% and in total according to Eurostat reaches 64.2% for gas and 83.5% for Oil makes the European countries vulnerable to Russian interests. Finding additional energy suppliers, which so far has not been very effective, will help reducing energy dependence from Russia and limit any side effects for European affairs. Similarly in the case of diversifying gas transit the Russian control over gas-transport wherever it comes from, is equally problematic from a European perspective. As mentioned above, Russia seeks to control the path of the gas and when interfaced with Europe via the Caspian pipeline South Stream.

Chart 17: Dependence on imports of energy products, EU-27

![EU-27 Energy import dependency chart](image)

*Source: Eurostat May 2011 - *Coal and other solid fuels
However, the realization of both projects to link the Caspian is questionable, but even if it comes to fruition there will be enough demand in order to absorb
Eastern Mediterranean gas. Therefore Europe’s interests are identical to those of the Eastern Mediterranean member states -shortly exporting gas-. The coincidence of interests between the EU and the countries of the Eastern Mediterranean could create interdependence with the apparent result of creating political stability in the medium and long term. Based on the above the ground for the political and economical development and of a long and mutually beneficial cooperation can be achieved.

This way the opportunity is offered to the eastern Mediterranean states to play an additional role, key to European energy security, for mutual benefit and with low risk, namely, the role of alternative gas supplier-European states. The indications related to the size of the gas reserves in the region are clear, that the gas discoveries can not cover themselves the yearly European gas consumption. The countries of the eastern Mediterranean, based on existing data on the size of the discovered fields, can cover only a small part of Europe’s energy demand. Russia will continue to be the main energy supplier for Europe, but not exclusively. So the Russian exports will not be affected, but only Russian influence in European affairs.

The amount of energy that the EU will be able to import in the future from the Eastern Mediterranean area, could be an emergency reserve in case of a supply interruption from Russia. Should for example a new crises in Russian - Ukrainian relations arise, which could lead again to close the energy supply, thus depriving European countries gas for weeks and jeopardizing the smooth functioning, the new route could provide a solution.

A complementary supply corridor such as the eastern Mediterranean could also boost the energy cooperation between the EU and Russia. The creation of competitive conditions could increase the bargaining power of the EU, affecting positive a more detailed framework for cooperation on energy issues. For example, the control over prices, the increasing globalization of energy markets, reforms in the energy sector, reduction of pollution, and the use of more environmentally friendly forms of energy production. The Europe - Russia

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Energy Dialogue has so far delivered an early warning mechanism related to an energy supply disruption. But the Europe - Russia Energy Dialogue has also contributed to the opening of the energy market and helped understand each others point of view, leading to a foreign direct investment increase.

With regard to Russia, the new energy discoveries in the eastern Mediterranean are an opportunity to extend its influence, but also a challenge to control this alternative energy corridor to European energy markets. Russian interests, try to position themselves in the region. Thus, linking the eastern Mediterranean to Europe is not necessarily detrimental to Russian interests. For Moscow to control the area by acquiring rights to use or transit of gas to the European market is an important objective in the context of the control policy over the energy sector in Europe. In order to maintain its dominant position in the European energy market and control over the supply routes, Russia will most likely attempt to corrode the European effort to diversify transit.

In any case long term the Russian interests will be affected by the energy connection of the eastern Mediterranean with the EU, to the extent that the supply exclusivity in transit to the European energy market is lost. This will be the case especially if Russia chooses to focus solely on exports to the EU and not to Asia, as it reduces the degree of Russian influence over European affairs.

In Europe, however, the emergence of the eastern Mediterranean in considerable energy supplier is a great opportunity to address the energy security dilemma and much more. Indeed, cooperation with countries in the region, but also the opportunity for these counties to grow through revenues deriving from energy exports will probably pave the way towards political and economical development and other areas, of particular importance to European interests, such as migration.

The viability of the European project, coupled with the increase of European power and securing a competitive position in a changing international system in the future, requires safeguarding the vital interests, increase leverage and the creation and control of the sphere of influence in region. It is therefore of strategic and economic interest of the EU to ensure not only cooperation in the eastern Mediterranean, but the development of this, investing and spreading its influence and expertise.

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89 European Commission, “Early Warning Mechanism”
http://ec.europa.eu/energy/international/russia/dialogue/warning_en.htm
The options for Europe are two, either to import LNG by constructing the necessary facilities something that relates to high cost, or to seek greater connectivity with the eastern Mediterranean via the construction of pipelines. Particularly important parameter in question by addressing the problem of energy security is the joint European action. European states can not individually deal with energy insecurity. Thus, the sharing of risk and financial burdens is mandatory. Better coordination, greater cooperation and focus on building a network of cross-border energy interconnections between all European countries, would contribute to better deal with shortfalls and energy crises.

7.1. Geopolitical, economic and environmental issues

The purpose of this chapter is to examine the recent discoveries of significant deposits of natural gas in the eastern Mediterranean in the light of geopolitical, economic, and environmental constraints and will also examine the nature of potential issues that may arise from the gas discoveries, but also the transit of natural resources from countries in the region to prospective buyers.

Essential for the development efforts of any exploration and exploitation of newly discovered gas fields in the eastern Mediterranean is considered the strategic orientation, the possible choices of countries, and the balance to be formulated in an already fragile and volatile region, such as the Eastern Mediterranean.

At present, the situation seems to be as follows: the countries of Eastern Mediterranean can be divided into a) instability factors, b) neutral actors and c) a State already eager to develop partnerships, regarding the exploitation of hydrocarbons with other states of the eastern Mediterranean.

It is obvious that state cooperations are very volatile in an area as the eastern Mediterranean. Nevertheless, the assessment of the prospects of exploitation of newly discovered gas fields is highly dependent on the degree of stability that can be ensured in the region by the involved actors. In other words, attracting investors, buyers and the production of energy deposits of the eastern Mediterranean will depend in a large extent on a risk assessment process, which becomes negative in regions with severe or continuous interstate conflicts and policy instability which could be a cause of disturbance in the smooth flow of hydrocarbons to prospective buyers. Possibly, a large share of responsibility for

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90 See also BP, “BP Energy Outlook 2030,” London, January 2012. EIA Analysis & Projections
the maintenance and guarantee of stability in the region will be taken by the same states, which will probably have to make mutual concessions\(^{92}\). Besides, one of the main factors that could bring stability to the region is the reconciliation of each state goal in a common one for all, or at least for most countries of the region to come out of the vicious circle of underdevelopment and frictions.

7.2. **Turkey as a possible transit**

The cheapest interconnection pipeline option with Europe would be for the countries of the eastern Mediterranean via Turkey. The pipeline would be connected to the Turkish pipeline already supplying the European market, northbound Cyprus by sea and connected with Turkey. Turkey is a big market, and can potentially absorb some of the energy resources. Certainly, the outdated infrastructure network available and the unwillingness to accept a third party in its own network will constitute important limitations to this option. However, the poor political relations with Cyprus, and severing relations with Israel are the most important constraints.

The gradual loss of trust between Israel and Turkey, and the refusal of existing leaders to take the necessary steps to normalize their relations, describing the current situation between the two parties\(^{93}\).

Overall, the political instability in relations Ankara - Ankara Limassol - Tel Aviv would be a risk factor. While any deterioration in relations between them, would probably have a negative impact on future customers supply\(^{94}\). However the above mentioned development could be seen as a trigger to smoothen the fronts and use the new discoveries for the common interest and enhance prosperity and political and economical development.

7.3. **Route via Greece**

Regarding the development of cooperation in the region, Greece could play an important role, acting as an agent of stability, peace and promoting energy cooperation in the eastern Mediterranean for two main reasons. **First**, because traditionally it has friendly relations with most countries of the Eastern


\(^{93}\) For the latest development see: A useful first step, Economist 30/03/2013

Mediterranean, so it could act as trusted intermediary between countries, whose relations are strained or cold, and **secondly**, because the country has substantial international support such as participation in the EU's energy market that could be (if promoted and pursued consistently and correctly), the main destination of the gas of the region\(^95\).

In short, we could say that the geopolitical situation and specific, and wider interests in the Eastern Mediterranean along with the uncertain domestic political situation, that exists in several of the countries in the region, are variables that probably do not allow reliable conclusions regarding the future development of collaborations or the conclusion of appropriate agreements on exploitation and the transit of newly discovered natural resources of the region. In this regard, States that are currently in unison interests, but also demonstrate a clear intention to develop cooperation in the future will shift their stance, focused on developing new partnerships.

7.4. **Environmental Aspects**

Last but not least an important factor of our analysis with respect to the limitations and issues expected to arise from the exploitation of newly discovered resources in the eastern Mediterranean, is undoubtedly the environmental impact of any increased future use and transit of hydrocarbons in the region.

It should be mentioned that the Mediterranean Sea is the largest and most semi-enclosed sea in the world. It represents 0.7% of total global water surface and is a unique and largely autonomous ecosystem with its own exceptional but fragile biodiversity. The Mediterranean also counts for 17% of the global pollution by oil and not accidentally, considering that within a year almost 200,000 merchant ships sail through the area. 20% of global oil shipments are shipped through the Mediterranean, or over 370 million tons of oil, implying the rejection 100,000-150,000 tons to the sea only from the usual maintenance and refuelling of ships\(^96\). These numbers are not at all exaggerated, considering that the wider

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\(^{95}\) See Sachinis Harry, “Assessment of Pipeline Options into Greece from the Eastern Mediterranean,” presentation at the “Investment Energy Summit: Greece, Cyprus, Israel - The Economist Conferences,” Athens, March 2012


Mediterranean region includes three of the most strategic passages of international shipping, the Straits of Gibraltar at the Western Mediterranean and the Suez Canal and the Straits of Bosporus at the Eastern Mediterranean. Of course, several important parts of the environmental burden of the Mediterranean are a result of the exploitation and processing of hydrocarbons. From the 60 refineries operating in the Mediterranean region, it is estimated that about 20,000 tons of oil annually are being rejected to the sea.\textsuperscript{97}

Because of its semi-closed form, the problems of marine pollution in the Mediterranean region should not be treated the same way as for other seas or oceans. The refresh rate of the water and hence the physical elimination of contaminants from the water needs a very long time. It is estimated that a full renewal cycle of the Mediterranean water lasts from 80 to 150 years, which may shed some light on the interval that needs an ecosystem in the Mediterranean region, in order to "recover" from any incidents of widespread environmental contamination, such as a serious oil accident.

From a legal point of view we could say that environmental protection in the study area of the eastern Mediterranean is currently based on five main areas: 1) the national legislation, 2) the Convention of the Law of the Sea, 1982, 3) other provisions related to the prevention of marine pollution and environmental protection, 4) the specialized regional legal framework of environmental protection of the Mediterranean and finally, 5) the law of the European Union.

Concerning domestic laws for individual states in the Eastern Mediterranean, the majority of them do not seem to contain rules creating a systematic and structured framework for environmental protection of maritime areas. Only two countries in the region, namely Greece and Cyprus include in their domestic legislation rules and laws of environmental protection, mainly because of their obligation to act accordingly because the scope of the Environmental Policy of the EU from which bound as members. Regarding the provisions of UNCLOS III,\textsuperscript{98} which could ensure a minimum environmental protection in the region of the eastern Mediterranean we distinguish Articles 192-237 of Part XII of the


Convention, which is based on the obligation to ensure the protection of the marine environment from exploitation of natural resources (especially hydrocarbons) in various marine zones. It also establishes the principles of prevention, awareness, information, accountability, and compensation in case of an environmental problem in the exploitation of hydrocarbons. Indeed, if there are transnational dispute due to the creation of any of the above problems can peacefully use mechanisms such as those provided for in Articles 279-299 of UNCLOS. From the foregoing provisions of UNCLOS III binds all states in the region beyond Turkey, Israel and Syria, which have not signed the convention. Beyond the framework of international environmental protection, we must note that under the Barcelona Convention of 1976 (as revised in 1995 and entered into force in 2004), a specialized environmental protection framework for the entire marine area and Mediterranean coast has been established. Under the Convention on the Protection of the Marine Environment and the Coastal Region of the Mediterranean Sea and specialized protocols have been adopted: 1) the prevention of pollution from shipping accidents, as the Protocol on Cooperation for the Prevention of Pollution Ships from and in cases of emergency, combating pollution of the Mediterranean Sea, adopted on 25/01/2002 Valletta in Malta and came into force on 17/03/2004 and 2) the prevention of marine pollution from exploitation, processing and storage of hydrocarbons, such as oil and natural gas. In the latter category indicatively the Protocol on the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil (Offshore Protocol), adopted on 14/10/1994 in Madrid and entered into force in 2011, and the revised Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (Land Based Protocol), which was adopted in 1996 and is in force since Mai 2008. The revised Barcelona Convention of 1995, ratified by all states in the region except Lebanon. Finally, 1996 the Protocol has been accepted by all the states of the region.

100 See [http://195.97.36.231/dbases/webdocs/BCP/bc95_Eng_p.pdf](http://195.97.36.231/dbases/webdocs/BCP/bc95_Eng_p.pdf)
101 See Raftopoulos Evangelos & McConnell L. Moira (edit.) “Contributions to International Environmental Negotiation in the Mediterranean Context
Last but not least important legal pillars of environmental protection in the Eastern Mediterranean region is the EU and EU environmental law. First, we should mention, that already in the founding Treaties of the Union detect declaratory character commitments relating to environmental protection, both within the EU and internationally. Thus, in Article 3 § 3 of the Lisbon Treaty we see the Union's desire to promote environmental protection and sustainable development. Overall, the European commitment has specialized decisions, directives and regulations, particularly with regard to marine pollution from exploitation and transportation of hydrocarbons from the late 1970's. Accidents of Amoco Cadiz (1978), Aegean Sea and Brear (1993), and the assumption Brent Spar (1995), led the EU to take the first steps in the prevention of accidents, but also in adoption of safer construction standards of ships, transport of oil and crews. A set of minimum standards for ships, but also for better transportation and disposal of used oil and gas offshore entered into force. Also, in 1999 the oil tanker ERIKA accident led into two sets of proposals: the ERIKA I and ERIKA II\textsuperscript{103}, which led in turn to the creation of the European Agency for Maritime Safety (European Marine Safety Agency - EMSA\textsuperscript{104}). Although the establishment of EMSA\textsuperscript{105} greatly helped in preventing pollution from marine accidents and decontamination procedures favoured the affected areas, as it functions as operational, technical and operational arm of EU maritime safety, the non-establishment of the Compensation for Oil Pollution Damage –COPE- Fund finally leaves the initiative without the necessary financial resources for the proper functioning\textsuperscript{106}.

In 2000 the EU adopted Directive - Box No. 60 concerning the protection and water quality. Then in 2002, after the accident of the oil tanker Prestige off the Galician coast and maritime environmental disaster that affected the coasts of Spain, Portugal and France forced the EU to adopt a new regulation that reduced by 5 years the maximum period for phasing out of single-hull ships over 23 years

\textsuperscript{103} See Malta Maritime Authority, “Report of the Investigation into the loss of the motor tanker Erika on Sunday 12th December 1999” Merchant Shipping Directorate.

\textsuperscript{104} See latest report under http://www.europarl.europa.eu/document/activities/content/201207/20120724ATT49285/20120724ATT49285EN.pdf


of life and replace them with double bottoms ships\textsuperscript{107}. In 2009 the EU adopted six major guidelines, revising fully all matters relating to maritime pollution issues and produced perhaps the most important Directive by which any discharge of polluting substances from ships, even in minor quantities becomes a criminal offence\textsuperscript{108}. The EU environmental legislation is tightened and has significant binding, but only to Member States. So, in terms of area of the eastern Mediterranean, only Greece and Cyprus are obliged to implement the European environmental legislation. However it should be noted, that a possible active involvement of the EU in the energy game Eastern Mediterranean, could put a condition on trade with the producing countries of the region, keeping some specific environmental standards, which ensure the protection the sensitive marine environment of the region, both in the areas of mining and processing, and the transit of natural gas to the European market.

Another aspect that deserves special mention is the protection of the cultural heritage of the country from future operating procedures and transit hydrocarbons in the eastern Mediterranean.

Finally, another issue that indirectly linked to above is tourism. Traditionally, the "heavy" industry of most countries of the region is tourism that enjoys the natural beauty and cultural heritage of the eastern Mediterranean\textsuperscript{109}. The question that must be answered by the countries of the region is "to what extent non-environmental degradation of both the water and the landscape of the eastern Mediterranean will ensure the maximum economic benefit from the exploitation of their hydrocarbon". As well as if ultimately the involved countries believe that in order to extract process and transit natural gas they will have to sacrifice part of their tourist industry, but also their cultural and environmental wealth. The rise of maritime traffic, if finally the LNG option will be selected, increases the chances of accident. In so doing two issues arise: whether the choice of the underwater pipeline immersion is safer and friendlier to the

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\textsuperscript{107} See Joanna Koukouli, “Prestige aftermath in the IOPIC Fund”, International Tug & Salvage, March/April 2003

\textsuperscript{108} See Directorate-General of Energy and Transport, \url{http://ec.europa.eu/energy}

\textsuperscript{109} For Energy legislation: \url{http://europa.eu/legislation_summaries/energy/index_el.htm}

\textsuperscript{109} For Environment legislation: \url{http://europa.eu/legislation_summaries/environment/index_el.htm}
ecosystem and whether the involved parties are able to create a plan to prevent potentially catastrophic consequences for the environment, cultural heritage and tourism in case of an accident.

8. Epilogue - Conclusions

Recent discoveries of sufficient quantities of natural gas in the Eastern Mediterranean increased the geostrategic interest in the region. The discoveries increased even more the importance of these countries, this time on the global energy chessboard. The exploration so far indicates that in the Eastern Mediterranean region gas volumes can reach about 350 tcf and are shared among all the states in the region. Taking also into consideration recent announcements regarding the existence of significant quantities of natural gas in the broader maritime area of Lebanon these quantities can increase.

The fact that several existing or estimated reserves, are located in areas of overlapping maritime zones of at least two states, coupled with the absence of border agreements between the majority of countries in the region (whose relations are characterized from neutral to cold) and political instability generate two basic obstacles. **First**, apparently causing an uncertainty, regarding the sustainability of energy development projects by international companies in the region and **secondly** creating a need on building transnational collaborations (to the extent possible) regarding the use and transit of energy resources in the eastern Mediterranean.

Subsequently it is necessary to establish and develop appropriate partnerships between the countries involved, both in terms of exploitation as well as the transit of natural gas. The example of the partnership between Cyprus and Israel on the joint exploitation of the Gas Field nr 12, as well as a possible participation in this cooperation of Greece and Turkey as gas transit counties towards the European market are consistent steps in the right direction. Consistent with:

a) the idea of building a common interest, among several possible states of the eastern Mediterranean of exploitation, transportation of natural resources, which would promote cooperation, overcoming existing obstacles and hostility in the relations between them and help them to the development and prosperity in the region;

b) governance strategies and most profitable economic choices of countries of the Eastern Mediterranean for two reasons. **First**, the choice of the European market as a future buyer of the natural resources of the countries of the eastern
Mediterranean becomes due and international geopolitical, and energy realities, the most reliable and profitable choice. Secondly, the choice of Greece and Turkey as a key transit centres with underwater pipeline potentially guarantees the security, viability and longevity of the entire project, which will be based on a component of mutual benefit together\textsuperscript{110};

c) existing and future European energy needs related to achieving energy security and diversifying suppliers and transit;
d) the European policy of diversification of transit and gas suppliers of the EU market.

Indeed, both those under development relationships and any future synergies resulting in the need to seek the greatest possible participation of regional states to them. In other words, it should be aiming to function as components of a general interest and transnational cooperation in the energy sector, ensuring, both the duration, and the stability of the agreement. However, possible new agreements (or boundaries, or pooling joint deposits) do not exhaust the possibilities for institutional strengthening of relations between neighbouring states. It could be done at the bilateral and multilateral relations to enforce / ensure / enhance institutional cooperation, with Greece, Turkey Israel and Cyprus needed to take relevant initiatives.

Catalytic factor in building such relationships could and should be the participation and involvement in the regional energy game of as many key international actors such as the EU and the U.S., which would ensure and guarantee both the stability of the region and the longevity of any regional partnership. In this regard, we refer specifically to the West because it has and maintains a dominant position in the region. EU and U.S. interests continue to exist and develop. There may be a shift in economic power from West to East and increased political influence and economic power, but for the foreseeable future, especially for the Eastern Mediterranean, the West maintains its comparative advantage.

In this equation and in particular the prospect of a project that can create prosperity, especially the people of the region should not exclude anyone.

Consequently, regarding the export orientation of the gas, it has to be emphasized, that the countries of the eastern Mediterranean should as soon as possible clarify their intentions with respect to the total quantity, mode of transit and the markets to which they intend to export their gas to attract the attention of relevant international energy companies, and state actors. Already, in the Eastern Mediterranean energy game U.S., Italian and French interest companies are participating, in gas fields, located between Cyprus and Israel. While, as shown by the results of recent competitions, a number of European, Asian, and Russian energy companies are interested in participating in future tenders. A strong engagement from larger companies with the necessary expertise and the necessary resources, and the degree needed to create a climate of stability and security. Beyond that, the speed of the decision making in the case where the orientation chosen to be European, is critical, given the pending influx of Azerbaijani gas to Europe in 2018.

At the same time, in our analysis the highly fluid and unstable nature of interstate relations in the region should be considered. The Arab Spring has not yet been resolved, so any firm conclusion regarding the development of any collaboration in the field of exploitation, transit, but even the very potential gas production in the future is not certain. Prolonged instability in Syria, which has been extended to neighbouring countries and threatens the relationship between several states, combined with the phase of the Egyptian introversion adds to his uncertainty. The climate in the relations between Turkey and Israel has a broader impact; the nuclear program in Iran and the consequent insecurity of Israel create uncertainties regarding future movements of foreign policy of these countries, both in the international and regional chessboard and their relationships with the rest of the region.

The newly discovered gas fields in the Mediterranean region should be seen as a common denominator that could help the states of the region overcome their differences. It should be seen as a trigger towards political and economic development, stability and peace. One way could be by investing in common projects. The Head of States of the involved countries should develop a common investment pool as an incentive to reduce the cost and cooperate with each other. This pool should be available to the States for joint projects - under the prerequisite, that they equally contribute and the projects lead to savings.
Abbreviations
Greek
GNP Gross National Product
RES Renewable Energy
See. See
IEA International Energy Agency
EU European Union
EEC European Economic Community
ECSC European coal and Steel Community
EURATOM European Atomic Energy Community
Eib European Investment Bank
EBRD European Bank for reconstruction and development
NGOS Non-Governmental Organizations
OECD Organisation for economic co-operation and development
F Gas
English
BRICS Brasil Russia India China
ORGANIZATION of PETROLEUM EXPORTING COUNTRIES Organisation of Petroleum Exportation Countries
IEA International Energy Agency
IRENA International Renewable Energy Agency
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