

# Challenge of the European Union's Energy Security Approach

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## Abstract

The diversification of energy supplies is a fundamental principle in the planning process of the energy security, and it implies ensuring access to diverse sources of supply, so it is evident that the activities related to energy security in Europe and the world in future will gain momentum and will be a challenge plus for western community. The main political and economic efforts of the European Union are canalized towards the creation of functional sustainability which in future could be provided only through the energy stability and timely delivery and cost-efficient supply of energy and resources to its economy. That is why the European Union is intensively improving its own energy security, the production, the transport and the development of alternative energy sources at the expense of fossil fuels.

The main determinants of the European energy policy actually relate to reducing energy dependence, better utilization and regular supply of natural gas and other fuels and find alternative solutions.

**Keywords:** energy security; European Union; energy; natural gas

## The EU Policy to Energy Security Approach

Europe is heavily dependent on energy imports. Today oil, natural gas and coal account for 80 % of the total energy consumed in the EU and up to 50 % of energy sources come from imports. These figures are expected to rise to a level of 65 % by 2030.<sup>1</sup> The interpretation of what energy security means in European context and how the European Union institutions are trying to cope with it follows below.

The approach of the European Union to the broad and complex issue of energy security involves three separate but interrelated policies: internal mechanisms to ensure sustainability of energy supply, external mechanisms by which energy is integrated into the European Common Foreign and Security Policy, internal and foreign policies to achieve protection of the critical infrastructure.<sup>2</sup>

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<sup>1</sup> Luft, Gal., Korin Anne: "Energy Security Challenges for the 21st Century: A Reference Handbook (Contemporary Military, Strategic, and Security Issues)", Praeger Security International, 2009, p.160

<sup>2</sup> Ibid p.161

All these policies together address the problems that the 27 EU member countries are facing in the global environment.

### **Internal Mechanisms of the EU to the Energy Policy**

The EU Heads of states and governments broadly endorsed the proposal of the European Commission presented at the EU summit in 2006, which is the European strategy for a secure energy future, which includes all three previously mentioned priorities. This Summit set the following milestones for improvement of the internal measures to be taken to improve the energy security of the European Union member states:

- Diversification of the energy sources and review of the use of nuclear energy,
- A common approach to solving crises “in the spirit of solidarity”, Development of regional energy markets for gas and electricity in the EU
- Plans for raising the share of renewable energy up to 15 % and increasing the share of bio-fuels to 8 % by 2015.<sup>3</sup>

The European Commission is at a loss regarding the issue of European energy diversity. Namely, it would be too much to regulate the right of states to decide by themselves on the type of energy that will be used in their countries. The primary reason for this are the differences in the energy infrastructure that the states have built over the years, as well as the use of nuclear energy, but also the various energy sources that can be found on the territory of the states. Europe is committed to saving the energy mix and diversity, but also to the guarantee for the existence of clean energy sources that will successfully cope with the European energy needs in the future.

The question is how nuclear energy could affect the European energy mix. Nearly 60% of Europe's energy is obtained by the use of coal, as well as nuclear reactors. In 2005, the nuclear power plants produced 31% of the total electricity produced in the EU and 30% was produced by using coal. According to the International Atomic Energy Agency, nuclear energy will remain dominant in Europe in the next decade despite the indecisiveness as to the direction it should take in future. Europe has a total of 166 active nuclear reactors and 6 are under construction. However, the distribution of electricity production from the nuclear power plants varies between Member States. In France, over 80% of electricity comes from nuclear power plants, followed by Germany (31%) and the UK (around 15%). Some countries, such as Germany, Belgium and Spain are committed to phasing out their reactors despite the fact that their nuclear power plants play a key role in electricity production. Other countries, such as Great Britain, Finland and Lithuania are working on introducing a new generation of

<sup>3</sup> European Commission, Green Paper: Toward a European Strategy for the Security of Energy Supply, [http://ec.europa.eu/energy/green-paper-energy-supply/doc/green\\_paper\\_energy\\_supply\\_en.pdf](http://ec.europa.eu/energy/green-paper-energy-supply/doc/green_paper_energy_supply_en.pdf) (visited on 15.09.2014)

reactors. The revival of nuclear power in these countries is the result of the political will in these countries for its use. They say that nuclear energy covers all three aspects of the EC's strategy: security of supply, competitiveness and impact on climate changes. The protagonists of the use of nuclear energy in Europe emphasize that the cost for producing electricity from nuclear plants and coal is almost the same, since as they say, in addition to the rising price of uranium, the price of coal is also on the rise on world markets. Another argument in favour of the use of nuclear energy is the Kyoto Treaty of 1997, under which the EU is obligated to reduce greenhouse gas emissions by 8% by 2012. Europe's dependence on fossil fuels is again in favour of nuclear energy because we have seen a steady increase in their price and numerous problems associated with their import. However, these views are not shared by all EU member states. In 2000, Germany became the first major economic power that committed itself to putting a stop to the use of nuclear energy by 2012. This decision was taken despite the fact that 31% of the country's energy is generated by nuclear plants (thus without emission of carbon dioxide). Austria shares similar views on this issue. In 1978, Austria blocked the development of nuclear power plants despite the massive dependence on imported energy sources from the former Russian Federation. The European Union also opposes the production of electricity from coal, as it is called "Dirty energy" and it is contrary to the commitment of Europe to respect the conditions set out in the Kyoto Protocol to limit the green house emissions. However, the EU decision is rather subtle, since today, although costly, there is a pure combustion technology for coal and the placing of filters allows for prevention of 80-90 % of carbon emission during the combustion of coal. Although currently several states that rely on coal in electricity generation, such as Spain 22%, Germany 52 %, UK 35 % and the Czech Republic 62 %, announced that they would introduce these new technologies, none has yet realized these announcements. Renewable energy causes less controversy. The EU sees itself as the world's leading promoter of the use of renewable energy sources. But the utilization of bio-fuels, solar energy and hydrogen is still too low or barely covers 7 % of the total energy use in Europe.

In March 2007, the European heads of states and governments accepted a responsibility, which is actually a legal agreement that obliges the states to increase the level of utilization of renewable energy sources up to 20 % by 2020. The EU countries also agreed to reduce the emission of GHG emissions by 20 percent by 2020 compared with the 1990 levels and moreover, to reduce the overall energy demand by 20 %. Without the use of nuclear energy, it seems that these goals are difficult to achieve, especially without harming the economy and the consumers themselves.

Briefly, the program 20-20-20 by 2020 is much more a program to protect the environment, rather than an EU strategy for energy security. The situation in Europe is not at all naive. The exploitation of oil from the North Sea peaked in 1999 and to date

has declined steadily. European coal production has fallen significantly over the last 25 years (mainly because of political decision) and the high demand and reduced offer of this energy source has made the major European countries to import coal from Colombia, Indonesia and Australia.

From 1990 to 2004, the greenhouse gas emissions in the EU decreased in almost all sectors, except the transport sector where the emissions increased by almost 35% compared to the 1990 levels.

### **Domestic Energy Market of the European Union and the Future Challenges**

The essence of the EU energy policy lies in the successful implementation of the common domestic energy market of all 27 EU member states. The reasons for the need of the common market are clear: there are enormous difficulties faced by the new members when they first appear on the EU energy market. Furthermore, the market is highly concentrated, vertically integrated and uncompetitive. The lack of interconnections between national systems for power transmission is just one example of the problems, especially for new EU member states coming from Central and Eastern Europe. The construction of the European energy network will significantly facilitate the supply of electricity to all EU countries. The Baltic States are like islands in the world of energy, as their energy dependence on Russia is huge and they themselves have very little capacity to respond to the needs. The strengthening of the internal energy market of the EU is a key step towards reducing energy vulnerability of all 27 member states. The interconnection of energy networks of countries is also essential. Initially, these networks were built exclusively for the needs of the state and were unable to connect with the neighbouring countries, however, today this is a necessary activity, due to the diversification of sources of energy supply, especially if there is a collapse of the power grid in a certain member state.

### **External Mechanisms of the EU to the Energy Policy**

Europe is becoming more dependent on imported hydrocarbons. It imports over 80 % of its oil, nearly 55 % of natural gas, and the percentage of imported coal<sup>4</sup> is steadily growing. By 2030, only 93 % of oil and 84 % of natural gas will be imported.<sup>5</sup> These figures do not apply equally to all 27 EU member states, because the dependence on Russian energy sources in the new member states is far greater. Thirty percent of the imported natural gas in the EU comes from Russia, followed by Algeria and Norway. However, certain EU Member States (Finland and Estonia) are completely dependent on the Russian natural gas (see Table). In 2030, 85 % of gas imports in the EU will come from Russia.

<sup>4</sup> Ibid p.165

<sup>5</sup> <http://register.consilium.europa.eu/pdf/en/07/st07/st07224-re01.en07.pdf> (visited on 15.09.2014)

Country	Gas import dependency	Russian gas dependency
Austria	88%	74%
The Czech Republic	98%	70%
Estonia	100%	100%
France	98%	26%
Finland	100%	100%
Germany	81%	39%
Italy	85%	30%
Poland	70%	50%

*Table 1. Gas import dependency in 2006*

There are several major issues relating to security of energy supply. In terms of oil supply in Europe, the Middle East once again assumes the central position, and with all the shocks that occur in the region, the problem is more than obvious. In terms of gas imports, Europe is inevitably dependent on Russia, and in the next 25 years, the Russian gas imports are expected to grow more than twice which will increase its impact on European energy security.

However, Europe simultaneously directs its interest to other regions rich in oil and gas. This primarily applies to all African countries i.e. Angola and Nigeria, and talks about creating a Euro-African energy partnership have already been in place.

### **Protection of Critical Energy Infrastructure**

The European security policy for the protection of critical infrastructure and security of the pipelines is led by the Directorate General for Justice, Freedom and Security of the European Union. The Energy issues on European soil remain the responsibility of the Directorate General for Transport and Energy (DGTREN)<sup>6</sup>. Together, these two bodies move the energy and security policy towards the creation of a European program for critical infrastructure protection (EPCIP). The beginnings of this program lie in the so-called Green Paper<sup>7</sup>, dated November 2005. The Green Paper itself was an answer to the terrorist attacks in Madrid on 11 March 2004. The initiative for its creation was initiated by the Council of the European Union in June 2004 and it builds on previous documents and policies adopted after the terrorist attacks on the U.S. of 11 September 2001. With the adoption of the so-called Green Paper, the European

<sup>6</sup> Mobility and Transport in the European Union [http://ec.europa.eu/transport/index\\_en.htm](http://ec.europa.eu/transport/index_en.htm) (visited on 17.09.2014)

<sup>7</sup> Green Paper on Energy Security of the European Union [http://ec.europa.eu/energy/green-paper-energy-supply/doc/green\\_paper\\_energy\\_supply\\_en.pdf](http://ec.europa.eu/energy/green-paper-energy-supply/doc/green_paper_energy_supply_en.pdf) (visited on 20.09.2014)

Union adopted a package of measures for the protection of critical infrastructure in Europe. The package includes:

- Proposal for a Directive on the identification and designation of the European Critical Infrastructure and the assessment of the need to improve its protection, which in fact it is the basis of the main objectives of the Directorate General for Transport and Energy (EPCIP);
- (Non-binding) release of the European Programme for Critical Infrastructure Protection, which contains non-binding measures to facilitate the implementation of EPCIP, including Action Plan.<sup>8</sup>

These steps resulted in the Council Directive of the EU (2008/114/EC) adopted in December 2008 aimed at identifying and labelling of the European Critical Infrastructure and the assessment of the need to improve its protection.<sup>9</sup> This Directive is significant due to a number of reasons: it is the first step in identifying and pointing out the European critical infrastructure and it assess the need to improve its protection. The main emphasis is on the transport and energy sectors, however the need for emphasis on other sectors is stressed as well, especially the sector for Information and Communication Technology. The section containing the directives is particularly important. The adoption of the Directive in Brussels means that states need to translate this directive into their national legislation, which will harmonize the policies of all countries on this issue. Article 2 goes on further defining the European critical infrastructure and identifying those areas that could have an impact on at least two Member States. The European critical infrastructure basically covers the sectors of electricity, oil and gas, as well as almost all sectors of transport (road, rail, air and sea transport). The assessment of whether the critical national infrastructure meets the criteria specified in the definition of the European critical infrastructure depends on many other factors, i.e.: risk assessment, the level of criticism and others. Ignoring or failure of implementation of the articles of these directives by member states will result in significant implications for the European energy security. It is sufficient for only a few countries not to take the necessary actions in order to influence the European energy security as a whole. The Directive covers all types of risks, i.e. it takes into account human factors (accidents), technological factors, natural disasters, and asymmetric threats or terrorist attacks on critical energy infrastructure. When it comes to the security of critical infrastructure and pipelines, we should distinguish between national and European critical infrastructure. The message of the European program for critical infrastructure protection from 2004 states that the responsibility to protect the national critical infrastructure is in the hands of the member states. The

<sup>8</sup> Luft, Gal., Korin Anne: "Energy Security Challenges for the 21st Century: A Reference Handbook (Contemporary Military, Strategic, and Security Issues)", Praeger Security International, 2009, p. 168

<sup>9</sup> Directive of the EU Council

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:345:0075:0082:EN:PDF> (visited on 10.10.2014)

European Commission is committed to support the member states in their efforts, but without specifying where and how that would be accomplished. It should be noted that the risk assessment and vulnerability analysis of the pipelines lies in the hands of the member states, under the auspices of the National Programme for Critical Infrastructure Protection. Although the Commission adopts the framework for the organization of these programs, its final functionality depends on the commitment of states. In contrast lays the fact that pipelines in Europe often are transnational in nature. The European countries are much smaller than states or provinces in the U.S. and Canada, and oil and gas pipelines often cross national borders on very short distances and are subject to various laws and ownership, at different levels of security and with various regulatory policies which is the foundation of the distinction between the national and European critical infrastructure.<sup>10</sup>

## Pipelines

Pipelines are the basis for protection of critical infrastructure. They are big, long, and in general heavy for security (unless they go underground). Addressing risks to critical energy infrastructure must be above the legal obstacles deriving from the principle of subsidiarity, which was established in 1992 by the Maastricht Treaty and the Amsterdam Treaty of 1997. Basically, subsidiarity means regulating the relationship between the EU and member states. Subsidiarity is a fundamental principle of European law, which emphasizes that the EU can adopt laws only when member states agree that the action of individual countries will not be efficient enough.

A key component in the protection of European oil and gas pipelines is the development of a Critical Infrastructure Warning Information Network (CIWIN). Industrial confederations, especially the European Confederation of Fuel Distributors, have been talking for years about the need to develop such an early warning network. CIWIN will set the framework for the protection of critical infrastructure and will lead to increased capabilities and identification of weaknesses in the European critical infrastructure. CIWIN was also followed up by the Network of Energy Security Correspondents (NESCO), which was formed in May 2007 and is composed of representatives of the European Commission, the member states, as well as the Council Secretariat. Tasks in NESCO include monitoring and exchange of information. Its purpose is to serve as a new tool that will strengthen the capacities of the Union to collect information and provide early warning of potential threats to security of energy supply. In 2006 the Joint Research Centre of the EU, located in Ispra, Italy, began a monitoring program (globally) of possible attacks directed at critical infrastructure. A number of human, technical and intellectual resources have been put into operation, which will achieve protection to European oil and gas pipelines, but the final step will be the implementation of an

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<sup>10</sup> European program for the protection of the critical infrastructure [http://europa.eu/legislation\\_summaries/justice\\_freedom\\_security/fight\\_against\\_terrorism/l33260\\_en.htm](http://europa.eu/legislation_summaries/justice_freedom_security/fight_against_terrorism/l33260_en.htm) (visited on 19.10.2014)



agreement from the program for the protection of European critical infrastructure. The development of NESCO is a reflection of the foreign policy of EU for energy security and as such goes hand in hand with the so-called EU Neighbour Policy, which includes the states through which the energy passes on its way to Europe, such as Ukraine and Turkey.

There is another complementary step for strengthening European energy security, and that is the creation of a European Energy Community, which will connect EU member states with the countries from South-eastern Europe that are not members of the Union. This energy community aims to create compatibility of the EU energy legislation with that of countries that are not members, joint development of markets, which will facilitate access to foreign investments, but also the construction of cross-border interconnections for transmission of electricity easier cross-border trade with energies.

Here, Turkey plays a key role and it has an observer status within the European security community. A major challenge to protect the pipeline network of Europe is the adopted regulation thus far and problems of its integration within the broader concept of creating a Common Security and Defence Policy.

### **Common Foreign Policy and Energy Security of the EU**

Discussion on the development of a common European foreign energy policy is overshadowed by the effort of the Commission to create a common and competitive internally driven energy market. At the same time, the focus of the European public is set to the external dimensions of EU's energy security, particularly in the energy dialogue between Russia-EU. The delusion that the completion of the internal market must be completed before the consolidation of the common foreign policy enabled favourable conditions for investment for the foreign companies and approach to the strategic European energy market. Actually, the consolidation of EU's foreign policy could help regulate the access to the internal European energy sector and thus enhance overall energy security of the EU. The issue of reciprocity of asset ownership provides access to them by foreign (non-European) companies.<sup>11</sup> Another step towards the consolidation of the foreign energy security policy will be placing emphasis on certain energy funds, and indication of their strategic importance. If certain energy elements really perform as strategic, control of them could be completely banned or at least restricted, by imposing certain legal restrictions, mainly in the form of licenses to foreign companies. In this case foreign owners would be subject to EU regulations on ownership, operation and having available energy resources within the EU.

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<sup>11</sup> Dieter Helm, "The Russia Dimension and Europe's External Energy Policy," Oxford University



## Energy Security Challenges for the European Union

European approach to energy security is under constant pressure in the realization of the set objectives (security of supply, competitiveness and climate change) and faces the problem of simultaneously targeting them. European efforts to provide alternative sources of imported oil and gas from Central Asia are constantly resisted by Russia and its energy policy and it is at the expense of diversification of the energy supply for EU member states. There is insufficient competition, which occurs mainly due to the lack of comprehensive mechanisms linking European energy networks and markets through a robust system of interconnections, and in circumstances where the construction of a single European electricity grid is not even in sight. Climate Change and European commitment to providing leadership in reducing the effects of greenhouse gases on the environment is certainly commendable, but deadlines for achieving these goals are slowly going away and need new policies for environmental protection. Thus, we are witnesses to an ever-increasing European import of liquid hydrocarbons, without any indication of its decline in the future. At the same time, energy becomes a tool of foreign policy, especially in countries outside the EU, or Russia, Venezuela and the countries of the Middle East, and the EU remains without a comprehensive response to these policies. If the EU wants to face and successfully fight their own internal challenges related to energy issues, but also to distinguish the external dimensions of energy from traditional national and international aspects of security, a comprehensive and continuous evaluation and adjustment of EU energy policy is needed.

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