EFFORTS OF E.U. MEMBER STATES TO ENSURE ENERGY SECURITY

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Abstract

Energy is a strategic area for each individual Member State and the European Union as a whole. The first energy measures have not been resolved for several reasons: global energy crises have created a dependence on imported energy; national energy structures are very different etc. The EU currently faces more and more dependence on Russian energy. Russia takes advantage of the economic situation in Europe and seeks to expand its influence in the former Soviet bloc countries. The European Commission does not impose rigid mechanisms in energy policy, on the contrary, it supports Member States to exploit national energy resources and adapt more easily to the development of the European Union. Member States shall endeavor to diversify energy resources in order to ensure energy security. Internationally, there is an increase in energy prices, due to the need to respect the Kyoto Protocol and supporting research for alternative energy. Romania is developing as an alternative energy source, renewable energy, but at great financial costs. Although the European legislation is clear and precise, Romania must strive to eliminate loopholes to become a net exporter of energy and to support the re-industrialization..

Keyword:s *energy, energy dependence, renewable energy support schemes, wind projects, solar projects*

JEL classification: *A10,*

1. Introduction

Energy is the engine of 21st century economies, given the acute stage global environmental problems, the exhaustion of energy resources and increasing energy prices. The E.U. recognizes that energy is essential for the

development of the European economy and warns Member States over energy production and consumption, which have an impact on the environment and promotes a sustainable energy policy.
The energy sector is still in the competence of developed Member States, in accordance with the principle of subsidiary, in view of economic growth and standards of living for all citizens.
The European Commission supports the need for a common energy policy based on energy security, sustainable development and competitiveness.
Given that Russia is the biggest holder of energy in the world and the European Union member states are increasingly dependent on gas imports from Russia, renewable energy is a national target for each country and community structures of energy production, due to the reduction dependence on imports and the imperative reduction of emissions of greenhouse gases.

2. Evolution of the energy sector in Europe

The first steps in the European energy community related to: the supply of cheap energy products, insurance and supply stabilization, replacing traditional sources with new energy sources; freedom of choice for consumers of energy products. These minimum energy measures have not been achieved even today for many reasons: frequent energy crises that occurred throughout the world; competition between different energy products such as coal, oil, natural gas, nuclear energy, etc; the dependence of distinguished member countries in terms of importing energy resources; large differences in terms of national energy structures and different levels of economic development. These reasons remain to this day not only for the six founding members, but for the 28 EU members. Although the European policy on energy is not common, Member States have shown that individually, they can not intervene on international energy markets.

The rich countries of the European Union do not aspire to have a common energy policy, but after 90 years have intensified supranational influence in this area.

The Commission allows Member States to choose those energy patterns that adapt best to national natural resources, agricultural and industrial profile and level of economic development of each country.

In recent decades, the complexity of energy problems worldwide has increased due to environmental issues, climate change and natural resource

depletion. In addition to these challenges, the European Union has an additional problem, i.e. dependence on imported energy resources "- Russian gas (table 1).

Table 1: Natural gas exports made to the former Soviet Union Countries outside by Gazprom Export (billion cubic meters)

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otal	.8	9.3	4.8	9.4	10.0	17.4	30.3	54.3	38.6	50.0	38.8	61,5

Source: http://www.gazpromexport.ru/en/statistics/

After 90 years, thanks to the economic recovery of the countries of Central and Eastern Europe, there is an increased need for security of the energy supply. The Community is seeking common solutions on a new energy policy that must adhere to the objectives of the single internal market, environmental policy and foreign policy.

In the E.U., the energy sector is complex for two reasons, firstly because of the high costs of investment in transport infrastructure and energy production of renewable energy, and secondly the need for ceding sovereignty over national monopolies for market opening to as happened in 1951 with the ECSC.

3. EU Member States dependence on imported Russian gas

Although there is a large supply of natural gas from Russia, their prices vary from country to country.

The E.U. countries most dependent on natural gas imports from Russia are those in Eastern and Central Europe who pay the most, as shown in the table below:

Table 2: Dependence on natural gas import

No.	Country	Dependence	Price ($/1000 cm)
1.	Germany	39%	379,3
2.	Italy	21%	440
3.	England	10%	313,4
4.	Poland	61%	525,5

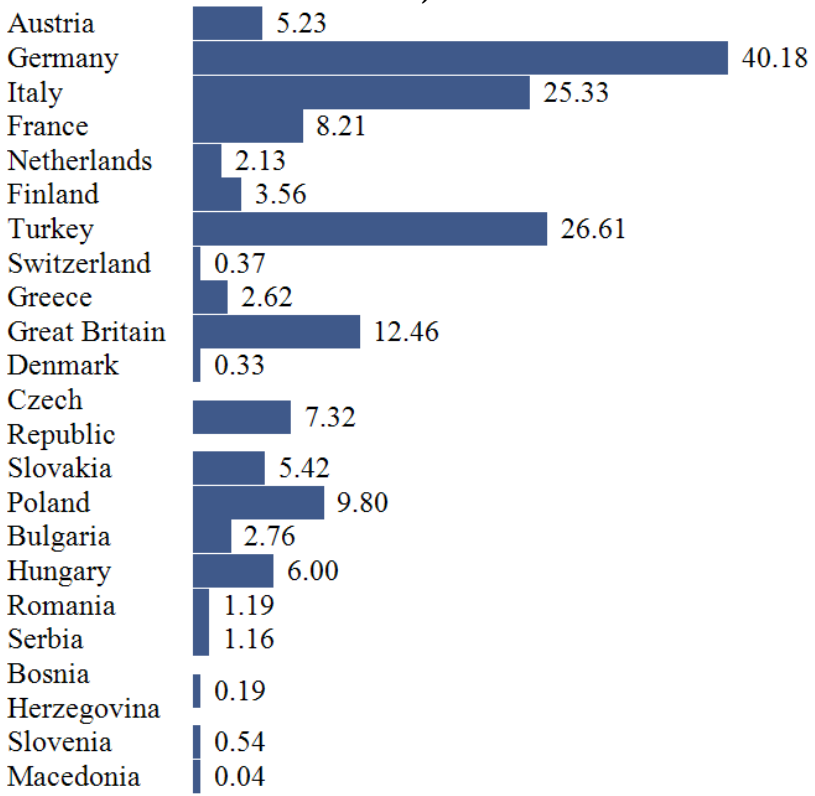
5.	France	18%	393,7
6.	Czech Republic	91%	503,1
7.	Hungary	53%	390
8.	Slovakia	82%	429
9.	Austria	59%	397
10.	Finland	100%	384
11.	Bulgaria	94%	501
12.	Greece	57%	476
13.	Holland	6%	371
14.	Slovenia	63%	485
15.	Denmark	9%	495
16.	Turkey	59%	406
17.	Serbia	100%	457
18.	Bosnia	100%	515
19.	Macedonia	100%	564
	European Average		**413**

As of 2012, Source: WBJ, Novinite

The European Commission prepares to accuse Gazprom of abuse and of dominance on the European market because prices were extremely high and discriminatory. The main goal of Russian foreign policy is to create a sphere of influence covering most of the former Soviet bloc. The objective is difficult to achieve given that the price of gas is affected by the financial crisis in the euro area, the success of American shale gas and increase gas supplies from the Middle East and liquefied natural gas supplies from Norway. Even in these circumstances, Gazprom intends to increase its European market share from 26% today to 33% in 2030.

Germany is the largest European country that imports energy through Nord Stream's gas supplies directly from Russia at a better price. Currently, the relationship between Russia and Germany is of interdependence, Russia supplies gas directly to Germany via a pipeline from the North Sea. At the same time Russia wants to modernize the energy sector with German technology, as here the extractive industry exceeded 60%.

Figure 1: Natural gas supplied by OOO Gazprom Export in 2013 (billion cubic meters)



Source: http://www.gazpromexport.ru/en/statistics/

At the same time Russia's largest oil producer in the world looking for new holdings beyond the Arctic Circle, where research shows that 30% of the resources are undiscovered in terms of gas and 15% of the oil, but the operation requires high technology.

4. Efforts to gain energy independence

One of the alternatives to Russian gas is the gas supplies from other countries in Central Asia, and this requires alternative pipelines.

One of these was the Nabucco project, which in theory allowed Europe to import gas from Azerbaijan through a pipeline of 1300 km from the

Turkish-Bulgarian border to Austria, with an annual capacity of 10-23 billion m3 of transport. The Nabucco could get enough gas from Azerbaijan to Romania and Hungary. But after 10 years of negotiations, the consortium controlling the Azerbaijan gas field chose another project Trans - Adriatic - Pipeline (TAP), a pipeline targeting a range twice shorter than that of Nabucco.

According to some, the abandoning of Nabucco was due to high costs and duration of the infrastructure. We believe that the two arguments are not enough and must add the lack of interest of European countries for the project, which would have been helpful for most member states of the European Union. Germany intends to reform as quickly as possible and to develop renewable energy, so by 2030 renewable energy is expected to reach 30% of total energy consumed. (European Council on Foreign Relations). The Energy Reform of Germany, which ranks second in energy prices, after the Netherlands, provided the transition from nuclear to renewable energy and financial effort to be sustained by consumers.

As an alternative to Nabucco, AGRI launched, in 2010, AGRI project involving the following countries: Azerbaijan, Georgia, Romania and Hungary. The outcome of this project is uncertain because of the costs, again too high, estimated at 4.5 billion Euros for a capacity of 8 billion m 3 per year.

Internationally rising energy prices and efforts to reduce emissions of greenhouse gases have resulted in more financial support for the research and development of alternative energy sources solar, wind, hydro, etc. Meanwhile, the European Union is facing recession in the euro area, which requires reducing subsidies in the energy sector, but still maintains security of supply priority of Member States.

In this context, Hungary, Czech Republic, Poland and Slovakia are calling on the European Union to support their efforts to secure production capacity for nuclear power, arguing that nuclear energy is a vital source for the energy security of the region.

In the European Union, nuclear energy is a discriminated sector is not regulated, not state aid granting infrastructure. In Europe, Germany wants to phase out nuclear energy but international expansion plans are involving countries that are increasing their production capacity, namely China: 30 projects, 10 projects in Russia, India and USA with 6 projects. (World Nuclear Association)

Another EU Member State, Poland, aligned itself with EU requirements to secure energy independence and proposes a most ambitious program to develop shale gas industry in Europe, being influenced by the success of American shale gas, operating with American companies' success in the art.

Energy security for the EU Member States is comprised within a strategic direction in energy policy for the entire European Union. Bulgaria is the closest ally of Russia in Central and Eastern Europe, which provides almost all its natural gas consumption thanks to Russian imports, other members of the Union completes their own resources with imports from Norway, Algeria, Qatar, as shown in Table below:

Table 3: Natural Gas Supplies in the EU-28, 2012.

TWh	Indigenous production	Russia	Norway	Algeria	Qatar	Other sources	Changes in Stocks	Others balances	Total net Suppliers
Austria	20,2	57,6	14,5	0,0	0,0	10,6	-7,1	0,0	95,9
Belgium	0,0	0,6	65,9	0,0	9,9	84,5	-1,7	-0,5	178,8
Bulgaria	3,5	26,3	0,0	0,0	0,0	0,0	1,2	-1,5	29,6
Croatia	21,1	0,0	0,0	0,0	0,0	11,6	-1.5	0.0	31.2
Cyprus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	1.7	49.6	9.6	0.0	0.0	18.2	7.5	-0.2	86.3
Denmark	67.2	0.0	0.0	0.0	0.0	-24.4	2.3	-7.6	37.5
Estonia	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	6.8
Finland	0.0	38.8	0.0	0.0	0.0	0.0	0.0	0.0	38.8
France	5,8	78,8	210,1	45,9	0,8	125,5	9,9	-4,4	492,4
Germany	120.1	339.5	265.5	0.0	0.0	180.4	3.6	0.0	909.1
Greece	0.0	26.2	2.4	8.4	0.0	10.5	-0.2	-0.2	47.1
Hungary	23.4	85.8	0.0	0.0	0.0	-8.8	6.9	0.0	107.4
Ireland	2.4	0.0	0.0	0.0	0.0	49.6	0.6	0.0	52.6
Italy	91.0	228.7	38.2	230.3	4.2	153.7	-13.5	0.0	792.6
Latvia	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0	1 5.2
Lithuania	0.0	56.9	0.0	0.0	0.0	-22.7	0.0	0.0	34.2
Luxembourg	0.0	3.3	7.1	0.0	0.0	3.3	0.0	0.0	13.7

Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherland	742.7	22.1	216.7	0.5	0.0	-556.8	1.1	-0.1	426.2
Poland	49.5	103.6	0.0	0.0	0.0	26.2	-3.5	1.1	176.9
Portugal	0.0	0.0	0.0	27.1	1.8	21.1	-0.1	0.1	50.1
Romania	109.5	35.2	0.0	0.0	0.0	0.0	-3.4	3.5	144.7
Slovakia	0.9	46.2	0.0	0.0	0.0	.12.2	-4.1	0.0	55.3
Slovenia	0.0	5.0	0.0	1.9	0.0	1.4	0.0	0.0	8.3
Spain	1.1	0.0	19.6	160.3	6.2	137.6	-1.7	-0.4	362.6
Sweden	0.0	0.0	0.0	0.0	0.0	13	-0.1	0.0	12.9
United Kingdom	452.1	0.0	296.3	1.3	44.3	-38.6	-0.3	-0.1	855

Units: terawatt hour (Gross calorific value) Natural gas supplies (or inland consumption calculated) are defined as: indigenous production + imports- exports + stock changes

Source:http://www.eurogas.org/uploads/media/Eurogas_Statistical_Report_2013.pdf

Thus, Russia and Bulgaria have negotiated the agreement on South Stream pipeline construction. This pipeline will be the largest investment project in Europe and will deliver natural gas from 2018 in Central and Eastern Europe, reaching all the way to Italy.

Russian natural gas supplies to Bulgaria through this pipeline will help them become independent of geopolitical conflicts in the area.

5. Romania and the European Union promotes renewable energy

Like the other member states of the European Union, Romania pays attention to the energy sector, and is in line with European requirements on energy independence. Yield of coal, oil and gas to Europe in 2012 presented by the National Agency for Mineral Resources (NAMR) shows that Romania ranks 5 in the production of natural gas and oil, and No. 6 coal, as Romania has sufficient natural resources order to gain energy independence in the future.

The oil refining capacity in Romania during 2007 – 2012 was drastically reduced from 10 to 3 refineries because no longer consumers, but the oil there.

The European Union's renewable energy sector has grown faster because government support has taken the form of green certificates, mandatory quotas or tariffs networking. To achieve targets for the share of

renewable energy in total consumption, assumed as binding targets EU, Romania has redesigned support scheme, it becomes very generous.

In a report by the European Wind Energy Association (EWEA) on the capacity installed in 2013 shows that in Germany, which ranks I have installed 3238 MW of which 240 MW new capacities accounted for offshore projects. 1883 MW of which 733 MW were installed in the U.K., and all are offshore projects, followed by Poland with 894 MW, 724 MW Sweden, Romania to 695 MW, 657 MW Denmark, France and Italy with 444 MW 631 MW. The same source states that in 2013 capacity commissioned in the 28 member states was 7% lower than in 2012. Romania is the 5th member country of the 28 states based on fleet size fitted European EWEA 2013, and in this context it's interesting to notice that in Romania and Poland, during the 2000s, did not produce any MW of wind power, but the desire to win energy independence in 2013 the two countries accounted for 16% of the total European market. Romania currently ranks 11 in Europe on the total capacity of wind projects. Although the energy production capacity increased in recent years, European statistics show that the price of energy has increased steadily by about 35% during 2009-2013. This increase was largely due to the increasing number of completed renewable energy projects. Although Europe was recently in a deep financial crisis, renewable energy was one of the few sectors of the economy that did not fail to attract significant investment and financing through support schemes offered by the governments of Member States. Most of the money belongs to foreign investors who have built plant equipment developed within factories in Romania for wind turbines, solar etc.

The National Action Plan for renewable energy capacity is expected to be commissioned in 2014 thus will complete wind and solar projects worth 2.5 billion euros that will increase renewable energy capacity in 6005 MW. In this context, Romania will fulfill its obligations to the European Commission on renewable energy and will ensure energy security in Europe.

Table 4: 2014 Forecast on renewable energy

Tehnologia	**2013**	**2014**
Hidro < 10 MW	531	552
Vânt (MW)	2593	3653
Biomasă (MW)	66	104
Solar (MW)	1159	1696
Total	4349	6005

Source: the author of the National Action Plan on Renewable Energy

Hydropower is considered the cheapest source of renewable energy. 2013 saw the completion of an investment of 160 billion euros for the operation of a 31.5 MW hydroelectric plant in Racoviţa town, in Sibiu County. Thus, Hidroelectrica has a capacity of 6500 MW. Please note that to achieve hydroelectric production, all used equipments were of Romanian production.

There are currently large gaps between the large supply of renewable energy projects and the reduced demand for energy in Romania.

Please note that the Romanian energy system can retrieve only 3,000 MW of renewable energy, because of the variable output, which disrupts the transmission network.

Several European countries including Romania are taking into account freezing or reducing subsidies for renewable energy, to limit the increase of population and industry of the price paid for electricity consumed.

Energy-intensive industry has to become competitive in seeking lower energy prices. They argue that the problem is not pure energy prices, but higher prices due to taxes included to promote renewable energy and cogeneration projects support.

Competitiveness of large customers, supporting Romania's exports and jobs are affected by renewable energy taxes and duty CHP, which are the highest in Europe.

In this context, at the end of March 2013, ANRE published a report showing that renewable energy producers are overcompensated and proposed to reduce the support scheme. On July 1, through GD nr.994 / 2013 Government takes first step to temporarily postpone the granting of a number of certified projects in operation, and it is stated that they will be recovered during 2017-2020.

GEO no. 57/2013 amends the system to promote renewable energy supplementing Law 220/2008 on the system for promoting energy from renewable sources. This ordinance has been notified by the European Commission.

The recovery of green certificates will be postponed from 03.31.2017 to hydroelectric and solar projects and wind projects from 01.01.2018.

The reduced schedule for new wind projects will be commissioned in 1.5 1MW green certificates for solar parks in three 1MW green certificates and hydropower in 2.3 1MW green certificates as of 1.1.2014.

Some consider the reduction in the support scheme as abusive; threatening them with charges submitted to the Institutional Regulatory Centre of Investment Disputes, while others consider subsidies for renewable energy unbearable for end consumers. Large industrial consumers require up to 80% exemption from taxes for renewable energy, otherwise they will be forced to reduce work or relocate the location, which means job cuts. We believe that in this area a coherent legislation respecting national interest is required.

We propose the development of local industries that produce ancillary equipment to produce solar parks, wind etc., so some of the money the state subsidized remain in the country and not return completely to foreign investors. (Regulatory Authority for Energy (ANRE)).

According to the European legislation in force, the projects with a capacity greater than 125 MW must be notified individually to the Commission, which will decide in each case. Commission officials say the ongoing industrialization and supporting of the steel industry, which is the purpose of the recommendation by the Romanian state, will offer support to companies that have a higher export share of 10% and a share of the energy consumption of more than 5%.

6. Conclusions

We appreciate that investment in renewable energy should be supported primarily by supply and demand for energy on the open market and not only supported by state schemes as major gas producers Petrom and Romgaz are the most profitable in Romania are advocates of market liberalization.

Although currently state support for renewable energy is limited, by reducing the number of green certificates for wind, solar or hydro, Romania has great potential to attract investors, particularly in the areas of energy services, energy efficiency, high frequency projects etc.

According to Eurostat data for 2011, Romania has the lowest energy efficiency in Europe, although it has pledged by 2020 to install wind turbines, solar parks, small hydro, and biomass plants worth 8 billion Euros.

In order to achieve this goal, part of the large amounts invested should be reflected in local factories and not equipment components imported from foreign investors.

The energy sector is strategic and Romania intends to become a net exporter of energy.

Besides the efforts of the EU member countries to reduce their energy dependence on Russian gas, there are alternatives that can be developed in such places as Central Asia, where from gas can be provided to the European Union given the huge resources available (see table); but there is a lack of direct transport infrastructure.

Table 5: Key Central Asian Natural Gas, 2012; Units = trillion cubic feet (tcf)

	Reserves	**Production**	**Exports to EU**
Azerbaijan	31.5	0.6	0.0
Kazakhstan	45.7	0.7	0.0
Turkmenistan	618.1	2.3	0.0
Uzbekistan	39.7	2.0	0.0
Total	735.0	5.6	0.0

Source: BP Statistical Review of World Energy 2013

Another alternative is the gas from North Africa, which could be a solution to the Russian gas. It is produced by countries such as Algeria, Egypt and Libya, who are experiencing economic, political, plus instability and terrorism, which does not guarantee a supply rhythmic gas. (See table).

Table 6: Key North African Natural Gas, 2012; Units = trillion cubic feet (tcf)

	Reserves	**Production**	**Exports to EU**
Algeria	159,1	2.9	1.7
Egypt	72	2.2	0.1
Libya	54.6	0.4	0.2
Total	285.7	5.5	2

Source: BP Statistical Review of World Energy 2013

Table 7: EU LNG Import Capacity

	Number of Facilities	**Capacity (bcf)**
Belgium	1	9
France	3	23,8
Greece	1	5,3
Italy	2	11
Netherlands	1	12
Portugal	1	7,9
Spain	6	60,1
Sweden	1	0,5
United Kingdom	4	51,1
Total	20	180,7

Source: Gas Infrastructure Europe, www.gie.eu.com/index.php/maps-data/ing-map.

Other alternatives include liquefied gases, whose share of total European imports amounted to 15% in 2010, and will reach 25% in the future. The main problem is linked to interconnect small vehicles running on gas between Spain and France, on the other hand, liquefied gas linking processing terminal in both exporting countries (Algeria, Egypt, Quatar) and importing countries, as shown in the table below:

7. References:

- Lucian, Paul (2004), *The European Union*, University "Lucian Blaga" Sibiu
- Prisecaru, Peter (2004), Common policies of the European Union, *Economic Publishing House*, Bucharest
- Hundred, Nicholas (1992), *Course of International Trade and trade policy*, Ceres Publishing House, Bucharest
- Schneider, Madlen Almut (2010), EU competences in European energy policy, Publisher Nomos, Baden-Baden
- http://www.world-nuclear.org/Information-Library/
- http://www.gazpromexport.ru/en/statistics/tabel/
- http://en.wikipedia.org/wiki/Russia_in_the_European_energy_sectortabel_2ww.wbj.pl/article-64224-poland-overpaid-for-russian-gas-nik-report.htmlpret