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30. May 2008

Online at <http://mpa.ub.uni-muenchen.de/17928/>  
MPRA Paper No. 17928, posted 18. October 2009 / 12:10

# EUROPEAN INTEGRATION BY MEANS OF ENERGETIC INTEGRATION

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**Abstract:** *The energy security is a growing concern both of the EU governments, and of Brussels. The European officials have been working on a strategy that should ensure the energy security of the Union. Some of the main courses of action are as follows: increasing the energy output from regenerative resources, cutting down on the dependence upon Russia by finding alternative suppliers, and interconnecting the shipment routes.*

*Romania must act as such in order to face the domestic economic challenges. An increase in the quota of energy derived from regenerative resources of the total energy output will be sustained by important investments in the hydro-energy and eolian field. Another top priority for Romania is to interconnect the shipment routes for hydrocarbons at the European and regional level.*

**Keywords:** *energy security, integration, European Union, regenerative resources*

## 1. INTRODUCTION

*The energy security is a concept differently understood from one country to another, depending on the risks they are faced with on the short term, as well as on the long term. To most experts, energy security means producing the necessary energy in their own countries, and their dependence, as little as possible, of imports. The energy security aims at three dimensions: ensuring alternative supply sources, identifying alternative energy supply routes, and securing the existing sources and supply routes. But the facts of this age have shown that great consumers should give up the utopia of energy independence, and accept the idea of energy interdependence<sup>1</sup>. The great players of „the energy stage” think differently of energy security.*

The uneven distribution of energy resources, their convergence into certain countries create vulnerabilities in the energy security area, and affect the relationship between states. The vast resources of the Russian Federation stand for a strong compelling factor, a genuine means of political blackmail, as economies' dependence on the energy resources is increasing.

A UN study stated that „The importance of energy for industry as a whole, and the fundamental role of oil as a source of energy as well as an indispensable military product seem to have contributed to turning the energy issues into a fundamental element of security.”<sup>2</sup>

Ensuring the energetic resources is a priority to the European governments. It is ever more obvious that we deal with a crisis against a growing demand of energy, particularly oil, natural gas and coal.

According to the Eurostat, in 2005 the average energy dependence rate of the 25 EU members was 56 %. The Eurostat study, published in September 2006, shows that, while in 2004

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<sup>1</sup> Yergin, Daniel, „Ensuring Energy Security”, „Foreign Affairs”, March/April 2006.

<sup>2</sup> Anastasiei, Traian, „Cosliderații privind corelația dintre securitate și economie”, international seminar „România – membru al Alianței Nord-Atlantice”, 3-4 iunie 2004, Editura UNAp, București, 2004, page. 102.

the EU energy dependence was of 54 %, it rose to 56 % in 2005, due to a decrease in the domestic production of 4.2 %, as the consumption remained the same<sup>3</sup>.

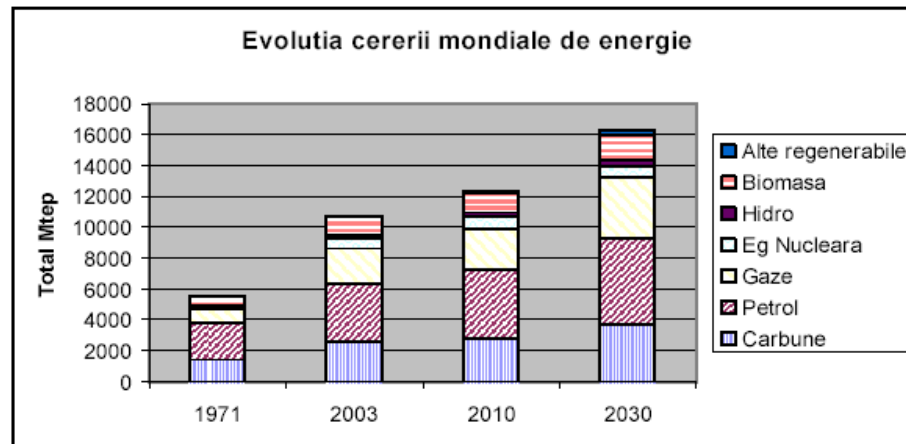
## 2. PRODUCTION, CONSUMPTION AND ENERGY IMPORT

Fossil fuels are energy sources created over millions of years. As per the statistics by the British Petroleum, considering the current consumption, their exhaustion rate is as follows:

Fuels	Exhaustion rate (years)
Oil	40
Natural gas	62
Coal	224

*Tab. 1 The global exhaustion rate of fossil fuels*

At the same time, we can notice the dynamics of the energy demand (ill. 2), which triples from 5,500 thousand tons oil equivalent in 1971, to over 16,000 thousand tons oil equivalent consumption foreseen for 2030.



*Ill. 1 Evolution of global energy demand*

(source: IEA taken over by [http://www.minind.ro/foaie/PEN\\_19\\_10\\_2006.pdf](http://www.minind.ro/foaie/PEN_19_10_2006.pdf))

In 2005, the energy production of all kinds decreased in the 25 EU nations by 9 %, in contrast to 2004, according to an Eurostat study. The natural gas production decreased by 5.8 %, that of coal by 5.7 %, and nuclear power by 1.3 %.

The UK is the biggest European producer of oil (70%) and natural gas (44%). As far as oil is concerned, the United Kingdom is followed by Denmark with 32 %, and, as for natural gas by the Netherlands, by 32 %. Nevertheless, in 2005 the production of petroleum decreased in Great Britain by 11.4 per cent and in Denmark by 3.8 per cent towards the previous year. The natural gas decreased in 2005 by 7.7 per cent in Great Britain and 5.9 per cent in Holland.

Poland is the greatest producer of coal in Europe, with a share of 57 per cent from UE. In 2005 its production decreased by 2.1 per cent towards 2004. Poland is followed by Germany (19%) and Great Britain (13%), which decreased their production in 2005 by 3.9 per cent, respectively 17.9 per cent towards the previous year.

France, 46 per cent, produces the most nuclear energy in UE. The production of nuclear energy is the only one that increased in 2005 towards 2004, but only in France, by 0.9 per cent.

<sup>3</sup> European consume is up to 1.637 millions tones of equivalent oil - Source: Ministry of Economy and Finance, Public Relations Department

Germany, which is the second producer of nuclear energy (16%), decreased the production by 3 per cent.

Europe imports a great deal of petroleum and natural gas, with a share of 60 per cent, respectively 25 per cent from the neat energy imports of the Union. The most dependent members of the Union concerning imports were Cyprus (total dependence), Portugal (99.4% dependent), Luxembourg (99%), Latvia (94%) and Ireland (90%). Denmark is the only European country that produces more energy than needed. Even The Great Britain has imported energy about 13 per cent.

The biggest consumers of energy are four members of the Union: Germany – 324.2 tons petroleum equivalent, France – 257.3 tons, The Great Britain – 224.1 tons and Italy – 181.9 tons. Spain follows with 139.5 tons. Although Poland has the same number of votes like Spain in the European Union Council, therefore a population and a similar territory consumed in 2005 by 53 tons less energy.

In January 2007, The European Commission presented some measures in the long term concerning the energy, which contain a Strategic Energy Review, the long term vision of UE regarding energy, a new Ground to cover for the regenerative energy resources, a Report on the liberalization level of the internal market, a Conveyance on the energy routes and a Conveyance on the „green” coal.

The measures taken in the energy field on the common level have been intensified after the year 2000 when the European Commission emitted The Green Card on the providing of secure energy, revealing the UE status at this chapter. The Green Card showed that the energetic dependence of the UE could increase from 50 per cent in 2000 up to 70 per cent in 2030, without any measures taken by all the Union members. In 2000 the imports status of the Union members looked like that: 45 per cent from the petroleum imports came from The Middle East and up to 2030, 90 per cent from the European petroleum consumption could have come from imports. Russia exports in the Union 40 per cent from the consumed gas, (30% Alger, 25% Norway) and up to 2030 more than 60 per cent from the UE gas import was to come from Russia, the dependence level reaching 80 per cent. As for the coal, the European Commission suggested that, up to 2030, 66 per cent should come from import.

In Romania, the whole amount of energy that came from the regenerative sources of energy decreased from 17.520 GWh in 1997 to 16.518 GWh in 2004, almost this energy being generated by the hydro plants. It is desirable that in 2010 the amount of energy got from regenerative sources should reach 33 per cent of the global energy. The hydro- energy industrially produced registered 15.855 GWh in 2004. In 2005 and 2006 it has been registered a slight increasing of the hydro-energy production due to the amount of rainfall mainly (see tab. 2). The contribution of the small hydro plants is moderate, by 658 GWh in 2004. The medium level of hydro energy increasing is small (on average 5 per cent by year between 1997 and 2004), despite its great potential.

Types of Energy Plants	Years						
	2000	2001	2002	2003	2004	2005	2006
	Millions kilowatt-hours						
Termoelectrica	31701	33497	33376	38480	34421	33651	38709
Hidroelectrica	14778	14923	16046	13259	16513	20207	18355
Nuclear electrica	5456	5446	5513	4906	5548	5555	5632
<b>Total</b>	<b>51935</b>	<b>53866</b>	<b>54935</b>	<b>56645</b>	<b>56482</b>	<b>59413</b>	<b>62696</b>

*Tab. 2 Electric energy production by type of energy plant (source: The National Institute of Statistics)*

Balance of electric energy by component elements	Years						
	2000	2001	2002	2003	2004	2005	2006
	Thousands tones equivalent oil						
Primary production (recovered products included)	28190	29021	27668	28192	28026	27090	27065
Imports	10925	12771	13949	14639	16672	17072	17605
Exports	2947	3334	4999	4112	4820	6534	5983
Gross inland consumption	36374	37971	36480	39032	39018	37932	39571

Tab. 3 Balance of electric energy by component elements  
(source: The National Institute of Statistics)

The Romanian program comprises a resolution for the installation of an eolian plant with a total power of 120 MW until 2010. In 2004, Romanian farms which used eolian energy generated 2 GWh.

In 1996, in the 1<sup>st</sup> of July the first nuclear reactor has been connected to the national energy-supply to the plant from Cernavoda, and in the 7<sup>th</sup> of August 2007 the second reactor. At the present day, the first and the second unit are producing together about 18 per cent of the electric energy consumption of the country. The initial project, as from the beginning of the 80s, foresaw the construction of five units. The nuclear reactors from Cernavoda use Canadian technology known as CANDU. The necessary of hard water, used as a go-between, is produced at Drobeta Turnu Severin. The power plant is shut down in dry periods, when the Danube level is low, because the cooling device of the reactors cannot function. This happened, for example, in August – September 2003, when the plant has been shut down for three weeks.

### 3. THE ENERGY STRATEGY

The geopolitical aspects of the energy policy are still a national competence of the EU member states. Still the integration of EU nations' energy markets and the EU cross-national competence in the trade policy with third countries bring the energy issue up on the common political agenda. Prime Minister Călin Popescu-Tăriceanu stated: "*Romania will back up the idea of drafting a strategy and a EU common policy for energy, in the EU relationship with Russia*". The Romanian PM also tackled this topic in Berlin, in the discussions with German Chancellor Angela Merkel, emphasizing that "*it is very important to have a EU – Russia partnership, so that we can speak in a powerful common voice, but by no means in a conflict-wise language*". Prime Minister Tăriceanu fosters the idea of achieving a strategic EU – Russia partnership to provide higher energy security for the EU nations.<sup>4</sup>

Romania faces the same energy market weaknesses as the European Union: dependence of Russia, and the high rates of imported energy. Such problems may be settled by:

- reaching real competitiveness in the energy market;
- raising the energy production based on regenerative resources.

#### 3.1. ENERGY COMPETITIVENESS

As far as the first item is concerned, competitiveness is a key word, as it ensures low costs, consumer's wellness, and effectiveness at every tier of the energy industry: production, shipment, distribution, delivery and consumption.

For the period of time between 2005 and 2008, the Romanian Government identified three strategic objectives<sup>5</sup>:

<sup>4</sup> <http://www.gov.ro/presa/integrare/afis-doc.php?idpresa=199> (18.04.2008)

<sup>5</sup> <http://www.gov.ro/obiective/afis-docdiverse-pg.php?iddoc=257>, „Programul de Guvernare 2005-2008”, Cap. 13 - „Politica industrială” (18.04.2008)

- a) to acquire real competitiveness in the energy sector;
- b) to improve the institutional framework;
- c) to rule out the irregularities affecting the market competition.

Three areas have been looked into:

a) As far as the mining sector is concerned, mining products are in view to be sold on a free market terms, by harmonizing the price for energy mineral coal and brown coal with that corresponding to the quality of imported coal, privatizing the units that may attract investments, changing the current subsidy granting system, downsizing mine operation losses, and conducting mining activities in environmental protection conditions only.

b) To maximize the natural gas production and shipment sector, the main gas producer (Romgaz) is planned to be privatized, geological activities to be enhanced, those at a great depth in particular, in order to get a “new-found reserves/production” ratio at a minimum of 0.5-1.0, so that the production decline should be reduced, and the energy balance be poised (at present, the natural reserves designed for industry are 70% exhausted), gas storage facilities are intended to be increased, the legal status of the natural gas piping system to be cleared up, policies to be promoted that ensure the supply continuity and security (variation of import sources, widening of the range of imports from the Russian Federation, by means of new interconnections to the national shipment system (Ungheni) concurrently with the transit facilities’ development, interconnection of the national shipment system in the West of the country - Arad, Oradea - with the view of providing the second import source - the North Sea, we also plan to participate in accomplishing the natural gas transit project from the Caspian and the Near East to Western Europe, and to participate in creating the Nabucco pipeline.

c) The electric and thermal power production, shipment and distribution sector: privatizing the production and distribution companies, organizing the energy stock market, establishing the regional energy market in Southeastern Europe, furthering private investments into new production capabilities based on cogeneration and non-polluting natural resources (hydro, solar, eolian), keeping up the efforts to establish the energy interconnection with EU nations, through the Transelectrica Company, and preserving the public ownership of it, extending offers for concession arrangements or privatization of the 25 unfinished hydroelectric power plants, and privatizing the micro hydroelectric power stations, increasing the capacity to interconnect with the European Union – Romania has a power reserve which may be used for export.

### ***3.2. POWER FROM REGENERATIVE RESOURCES***

The regenerative power production helps counter climatic changes, also increasing the energy supply security.

In 2004, most power derived from regenerative sources was produced by the large-scale contribution of hydroelectric plant power (hydroelectric power). To a great extent, the high potential of low scale hydroelectric power remained untouched. Between 1997 and 2004, both the production level, and the rise in most regenerative power sources were stable. Public supply is properly regulated, but the projects on regenerative power production have not been funded yet.

To promote the energy from regenerative sources, Romania enforced the following steps:

- A quotation system with Transactionable Green Certificates (TGC) for the power resulted from new regenerative sources was implemented since 2004. The mandatory quotations grow from 0.7% in 2005 to 8.3% in 2010. The TGCs are used in producing electrical power from wind-, sun-, biomass- or hydro-energy, being generated in facilities with less than 10 MW of their capacity.

- Compulsory shipment and priority marketing of the electrical power from regenerative sources, starting in 2004.

#### 4. CONCLUSION

The energy sector has a paramount influence upon the evolution of the whole society. At present, we cannot think of a developed economy, with a social sector fit to the 21<sup>st</sup> century Europe, without an effective energy sector. The energy policy should be able to sustain a long-lasting economic rise, based on harmonizing the economic proficiency requirements, social grounds, and environmental objectives.

The increased international energy and primary energy resources demand calls for ruling out the scenarios based on a long-term low-cost energy price. Improving the energy effectiveness, raising the share of regenerative sources, and broadening the range of primary energy supply sources and routes are top priorities for our nation.

EU member states' dependence upon imported energy is growing. There are undoubtedly enough sources around Europe able to cover the foreseen rise in demand on the continent over the centuries ahead. Nevertheless, the shipment capabilities towards European markets are scarce for the time being. Consequently, one of the main trends of the community energy policies is aimed at diversifying and multiplying the supply sources, as well as the supply routes, especially now, that the European reserves dwindle.

The national energy sector must meet the most important domestic and European challenges: energy supply security, growth of economic competitiveness, and reduced environmental impact. Such challenges are fundamental, given the fact that Romania must make up for the economic performance lag between her the developed EU countries.

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