The Liberalization of the Electricity and Gas Markets - Top Priority for the Romania's Energy Security

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Abstract. Currently, the diminution of the essential resources both nationally and internationally is a problem that world economies will have to find solutions. This will require thus rethinking their management to create a new economic and social dynamic. In order to achieve an internal European energy market competitive and functional, Commission and European Parliament issued the third legislative package for the construction of this legal framework. The main purpose is the separation of the competition areas from those areas that constitute natural monopolies and regulated prices but also the utilization of the advantages that first can bring through optimal use of resources. Under the new European regulations, it becomes a necessity and a priority for Romania to take adequate political, legislative and administrative measures to reduce the pressure on the final consumer of energy (whether it is domestic or non-domestic consumers) and to decrease the number of vulnerable consumers.

Key words: Vulnerable Consumers, Energy Poverty, Energy Efficiency, Public Services, Energy Security
JEL classification: I38, Q31, Q47

1 Introduction

European Union's Third Energy legislative Package consisting of two Directives (Directive 2009/72/EC and Directive 2009/73/EC and three Regulations (Regulation (EC) No 713/2009; Regulation (EC) No 714/2009; Regulation (EC) No 715/2009). Also, this legislative package establishes new European Union (EU) institutional entities (ACER - Agency for Cooperation of Energy Regulators, ENSO-E end ENTSO-G) which are necessary for a better coordination of regulators and respectively of the transport operators from the system. According to Leca (2014) "This legislative package developed by the European Commission and Parliament has several obvious advantages such as consumer power to choose, exploiting the competitive potential, strengthening of the independence of national regulators and network operators, development of specific stock exchanges, but also a series of risks and difficulties to be taken into account in the implementation process and can have serious economic and social importance" (SPOS 2013, Study no 1, 2014, p 11).

Given the changes that occur worldwide and European, Romania is obliged according to climate and energy targets for 2030 (2030 Energy Strategy), for a competitive, secure and low greenhouse gas emissions to establish clearly its main objectives and to define its priorities for action - Romania following to act in the context of a free market.

2 Brief history

In this international context, the Department of Energy from the Romanian Ministry of Energy, SME and business launched in public debate The National Energy Strategy for the period 2015-2035, the deadline for completion of the review of Romania's energy strategy being May 2015. Romania currently has a national energy strategy adopted in 2007 and valid until 2020. The document under discussion is an analysis of the national energy system and the commitments made by Romania, as member state of the European Union. New energy strategy objectives are to ensure energy security and economic development - social, in the context of future energy demand growth, economic competitiveness by
maintaining a bearable price to final consumers and protect the environment by limiting climate change.

To have a clear image of the Romanian energy sector, new energy strategy examines all major sectors in the light they generate, namely: hydrocarbons, crude oil, natural gas, coal, uranium (nuclear fuel cycle and waste management and disposal radioactive), renewable energy, electricity, thermal energy.

According to the National Energy Strategy for the period 2015-2035 in the gas sector, the project notes that Romania has the largest natural gas reserves in Central and Eastern Europe, with proved reserves of about 150 billion cubic meters with geological reserves of 615 bcm. Romania's annual consumption is about 14 billion cubic meters and domestic production is 11 billion cubic meters.

The average annual production of 11 billion cubic meters under a constant annual decline of 5% secure reserves of natural gas in conjunction with a reserve replacement rate of 80% natural gas, we can estimate that current reserves natural gas could run out within a period of about 14 years.

Also, according to the same sources, Romania has proved reserves of 60 million tons of crude oil and geological reserves of 2 billion tons. The vast majority of safe geological resources and reserves identified to date is located onshore and only 4% in the Black Sea continental shelf. The average annual production in recent years (4.2 million tons) and under a constant annual decline of 5% secure reserves and a replacement rate of 5% for crude oil and condensate reserves, it can estimate that current reserves of oil Romania could be resolved in a period of about 23 years.

Electricity production sector realizes a surplus capacity, amid the financial crisis and the contraction of the economy in recent years, the most affected being the coal units.

In order to face new challenges, Romania, according to the draft energy strategy will be to pursue a diversified energy mix, balanced, effective use of all domestic primary energy resources and modern technologies that allow long-term use fossil fuels with low greenhouse gas emissions, renewable energy and nuclear energy.

3 Romania's energy security

Romania's energy security should be viewed in the context of the following statistical data provided by European Statistical Office (Eurostat).

The states of the European Union the least dependent on energy imports in 2013 were Estonia (11.9%), Denmark (12.3%) and Romania (18.6%), and the countries with the highest level of dependence were Malta (104%), Luxembourg (96.9%) and Cyprus (96.4%).

Romania is one of the least energy dependent countries. Import dependence was 22% in 2010 against an EU average of 54%, and compared to 29% in 2006. The energy mix is one of the most diversified in the EU and it has shown improvements between 2006 and 2010 (European Commission, 2013).

But what means energy dependence? According to Eurostat Energy dependency is a concept related to the gross inland consumption which represents the quantity of energy necessary to satisfy the energy needs of a country or a region. The ratio between net imports and gross inland consumption indicates the ability of a country or region to meet all its energy needs. In other words, it shows the extent to which a country or a region is dependent on energy imports.

Based on Eurostat, in 2013, the gross energy consumption in the EU stood at 1.666 billion tons of oil equivalent, down by 9.1% compared to the record level of 1.832 billion tons of oil equivalent recorded in 2006.

Romania's total primary energy production in 2013 (26.1 million tons of oil equivalent) was lower than that of the Czech Republic (29.9 million tons of oil equivalent), but higher than Bulgaria's (10.5 million tons of oil equivalent) and Hungary's (10.1 million tons of oil equivalent).

Out of Romania's total primary energy production, in 2013, 17.8% were solid fuels, 16.3% oil, 32.9% natural gas, 11.5% nuclear energy.
energy and 21.3% renewable energy sources (Table 1 and Table 2).

Table 1. Gross inland energy consumption in the EU

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<tbody>
<tr>
<td>Oil</td>
<td>39.5</td>
<td>41.1</td>
<td>41.4</td>
<td>41.7</td>
<td>42.0</td>
<td>42.2</td>
<td>42.3</td>
</tr>
<tr>
<td>Gas</td>
<td>45.8</td>
<td>47.2</td>
<td>47.3</td>
<td>47.4</td>
<td>47.5</td>
<td>47.6</td>
<td>47.7</td>
</tr>
<tr>
<td>Coal</td>
<td>14.7</td>
<td>13.7</td>
<td>13.6</td>
<td>13.5</td>
<td>13.4</td>
<td>13.3</td>
<td>13.2</td>
</tr>
<tr>
<td>Nuclear energy</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
<td>Waste (non- renewable)</td>
<td>5.7</td>
<td>5.8</td>
<td>5.9</td>
<td>6.0</td>
<td>6.1</td>
<td>6.2</td>
<td>6.3</td>
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Table 2. Primary production by energy type, 2013

<table>
<thead>
<tr>
<th>Energy source</th>
<th>Total primary production (billion)</th>
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<tbody>
<tr>
<td>Coal</td>
<td>112.9</td>
</tr>
<tr>
<td>Oil</td>
<td>72.6</td>
</tr>
<tr>
<td>Gas</td>
<td>34.1</td>
</tr>
<tr>
<td>Nuclear energy</td>
<td>0.1</td>
</tr>
<tr>
<td>Waste (non- renewable)</td>
<td>6.6</td>
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</tbody>
</table>

4 The liberalization of the electricity and gas markets. Causes and effects

Prices for electricity and natural gas supplied to households have entered into a process of liberalization on 1 July 2007, in Romania and in other 12 EU countries.

In Romania, the deregulation of electricity prices will be carried out in six stages for industry and households in ten steps, the deadline being June 2017. Natural gas prices will be deregulated for industry and households until December 2018. Thus, in the context of commitments made by the Romanian Government to the International Monetary Fund (IMF), European Commission and World Bank, through preventive settlement agreements since 2011 and the memorandum approved by the Government on 6 June 2012, the liberalization domestic natural gas market for non-household customers is also part of this calendar which ended on 31 December 2014. According to the timetable agreed with the Government on 6 June 2012 and following the step by step removal of regulated prices for domestic production the domestic gas price will be equal to the price of imported natural gas. Thus, from the point of view of pricing, there will not be regulated prices.

In Romania, the gradual opening of the electricity market officially began in 2000. Under current legislation, the electricity market was fully liberalized since 1 July 2007 (according to Government decision no. 638/2007) when all consumers became eligible to change electricity supplier. The supply of electricity to final customers under regulated regime continued after the official liberalization of the market in 2013, 43% of final electricity consumption being regulated. Annual evolution of the openness of the retail market is represented in the chart below.

In order to accelerate the liberalization of the electricity market it was established a timetable for liberalization of the electricity purchase prices for both households and industrial users. According to the timetable for liberalization the...
regulated market in Romania will be changed by 2018. Calendar of phasing out regulated prices for end customers is presented in Law no. 123/2012 electricity and natural gas. Law is, in fact, transposition into national law of European Directives 72/2009 and 73/2009 single market for electricity and gas market and, respectively, adjacent regulations.

It is a fact that, currently in Romania there are found some of the lowest prices for electricity and gas in the EU. According to official data, electricity is cheaper by 30\% than the EU average and by 150\% gas, manufacturing companies in Romania enjoying a far cheaper energy than the rest of the EU as you can see in Figure 1 and Figure 2.

**Figure 1. Prices of natural gas to residential consumers (including taxes) IX. 2013**  
(Source: SPOS 2013, Study no 1, Bucharest 2014, p. 27)

**Figure 2. Prices of electricity to residential consumers (including taxes) IX.2013**  
(Source: SPOS 2013, Study no 1, Bucharest 2014, p. 26)
This gives them a competitive advantage that can be interpreted in some cases as State aid, and in others as dumping. As a result, the big difference in price between Romania and the EU must be reduced by the liberalization process that is slower for population (2012-2018) and faster for industry sector (2012-2014). In particular, in the case of natural gas, domestic gas prices would have to reach the average prices in the region, which means an increase of about 160%.

In order to achieve an internal European energy market competitive and functional, Commission and European Parliament issued the third legislative package for the construction of this legal framework. The main purpose of the competition is the separation from those areas that constitute natural monopolies and regulated prices and taking advantage of that first can bring through optimal use of resources.

Thus, Romania as a EU Member State must comply legislative measures adopted at European level by bringing existing dysfunctions and promoting his own interests in the field.

According to official data provided by ANRE, in 2013, domestic production of natural gas accounted for about 85% of domestic consumption, the difference of 15% being covered by imports. Thus, Romania has a unique position in the region, limited dependence on foreign sources of natural gas, which is the largest natural gas producer in Central and Eastern Europe (The National Energy Strategy for the period 2015-2035, p. 19).

In terms of electricity production in 2013, Romania took first place in South-East Europe as the total capacity of installed electricity production, raw power installed capacity of electricity generation in Romania exceeding 23 GW in while net production capacity was approximately 18 GW (Annual Report Transelectrica 2013, Transelectrica database cited in The National Energy Strategy for the period 2015-2035, 2015, p. 48).

Economic sectors most affected by the price increase will be energy intensive namely: iron and steel industry; aluminum industry; fertilizer industry; construction; automotive industry; cement industry. The vast majority of energy intensive industries but produce intermediate goods (not finished), cannot be regarded as final consumers.

The downward trend of domestic electricity consumption in the short and medium term caused the electricity supply to be characterized by overcapacity of production in 2014, significantly higher export alleviating only partially overcapacity crisis.

5 The energy poverty

The liberalization of the electricity and gas markets will put pressure on the final consumer of energy (whether it is domestic or non-domestic consumers) and will increase the number of vulnerable consumers and raises the issue of population affordability, another category, alongside industrial consumers, which will be directly affected. According to Leca (2014)“ the electricity and gas market liberalization must take into account the low purchasing power that characterizes the Romanian population, which leads to an alarmingly high degree of vulnerability” (SPOS 2013, Study no 1, 2014, p 123).

A key aspect regarding the sensitivity analysis of consumers to the forecasted developments...
electricity and natural gas price is the ability to pay thermal energy bills by final consumers. Although energy consumption per dwelling has decreased over the past few years, in 2010 Romanian households were still among the five most energy-intensive of the EU. The weight of energy items in the consumer's basket is among the highest in the EU - 17% in 2010 (European Commission, Occasional papers 145, April 2013).

Consumption per dwelling for space heating has decreased at a higher rate than the EU average (-2.9% from 2000 to 2008 versus -1.2% for EU average). Finally, consumption per dwelling is below the EU average and has decreased more rapidly than in the EU27 (-1.9% between 2000 and 2008 against -0.7% in the EU27). Thus, according to Leca (2014), if the European Union "energy poverty" (respectively, the percentage of family income to ensure energy comfort decent condition) is 18-20%, in Romania the value is over 40% (monthly income over 2,000 lei for 16% of the population between 1000 and 2000 lei for 34% and 50% below 1000 lei).

Tabel 3. Thermal energy prices in Europe and considering PPP (Purchasing Power Parity)

<table>
<thead>
<tr>
<th>Country</th>
<th>Heat price</th>
<th>Heat price considering PPP compared with the situation from Finland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Euro/MWh</td>
<td>%</td>
</tr>
<tr>
<td>Finland</td>
<td>57</td>
<td>100</td>
</tr>
<tr>
<td>Ukraine</td>
<td>46</td>
<td>170</td>
</tr>
<tr>
<td>Estonia</td>
<td>53</td>
<td>156</td>
</tr>
<tr>
<td>Latvia</td>
<td>61</td>
<td>180</td>
</tr>
<tr>
<td>Romania</td>
<td>63</td>
<td>235</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>68</td>
<td>200</td>
</tr>
<tr>
<td>Lithuania</td>
<td>69</td>
<td>230</td>
</tr>
<tr>
<td>Great Britain</td>
<td>73</td>
<td>160</td>
</tr>
<tr>
<td>Sweden</td>
<td>74</td>
<td>140</td>
</tr>
<tr>
<td>Slovakia</td>
<td>81</td>
<td>235</td>
</tr>
<tr>
<td>Poland</td>
<td>84</td>
<td>175</td>
</tr>
<tr>
<td>Netherlands</td>
<td>112</td>
<td>226</td>
</tr>
<tr>
<td>Denmark</td>
<td>113</td>
<td>175</td>
</tr>
</tbody>
</table>


The concept of "fuel poverty" (poverty to fuel demand), "energy poverty" (energy poverty) in Anglo-Saxon space, respectively, "précarité énergétique" in French space must be seen also in correlation with the status of public service. Thus going from public service obligations it follows that all final customers should be able to be supplied with energy by various forms. But this requires two conditions: physical possibility (link to a power supply with electricity, gas, heat or discriminatory access to a market of coal, firewood, oil, etc.) and financial possibility to cover the cost of this service. Also, the poverty status of a person / family / group / community manifested by lack of resources strictly necessary for buying goods and services considered to ensure a minimum level of living in a certain period of time, based on the socio-economic conditions of society.

6 Conclusions

My study investigates the liberalization process of the Romanian electricity and gas markets in the European context and the possible effects on the final consumer of energy (whether it is domestic or non-domestic consumers). The main challenge that Romanian authorities will need to handle it is the potential increase of the number of vulnerable consumers. Also, liberalization process will raise the issue of population affordability, another category, alongside industrial consumers, which will be directly affected.

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http://www.ademe.fr/expertises/batiment/quoi-parle-precarite-energetique

**Author description**

Anamaria - Cristina Andrei is a PhD candidate at the Bucharest University of Economic Studies. She is currently developing a research thesis in the field of public services, having a focus on the increasing the overall performance of public services and the satisfaction of their beneficiaries. This article will be included in the analysis regarding the identification of the mechanisms for the streamline of the public service management, the privatization of the public service, respectively the delegation through concession of the public service management representing the real economic solutions for the actual situation of the public services at the national level.

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