

Energy Market and Environment in the Aspect of European Legislation

T. KROPE¹, J. KROPE², D. GORICANEC²

¹LL.M. student at University College London, Faculty of Laws
Bentham House, Endsleigh Gardens
London WC1H 0EG
UNITED KINGDOM

²Faculty of Chemistry and Chemical Engineering
University of Maribor
Smetanova 17, 2000 Maribor
SLOVENIA

Abstract: This article represents typical processes of energetic reform, including the EU legislation, with emphasis on the liberalization of energy market. The analyses of the oil-, gas- and renewable energy sources - markets were made. Furthermore, an evaluation of growth of consumption of energy products and the evaluation of prices were made.

Key words: energy market, legislation, environment, natural gas, oil, renewable energy sources

1 Introduction

The technical progress of the 21st century requires more specific energy consumption and, as a consequence, induces an increase in harmful gas emissions. These consequences are due to the economic growth facing us today and they show the exponential energy consumption of conventional – non-renewable resources, as well as renewable energy sources. There is a growing awareness significant of the increase in energy prices and the fact that conventional energy resources, such as coal, oil, natural gas, nuclear fuels etc., are limited. Add to this an awareness of the growing emissions of SO₂, NO_x and CO₂, in the energy sector, and a lot has been done in the fields of research, technology and the production of devices for the consumption of renewable energy resources (solar power, wind, water, biomass, geothermal energy, hydrogen). These are organically clean and have an important role to play in reducing harmful emissions. Increasing the share of renewable energy within a balanced plan energy enhances sustainability and helps to improve the security of energy supply by reducing the EU's growing dependence on imported energy sources.

Member States of the EU are acutely aware of the importance of renewable energy resources and are obliged to follow these aims and objectives set out in the Directives adopted by the Commission and the Council. These give a legislative format, but allow each Member State to enact the details of the

legislation by its national laws. The EU Commission is leading a Campaign for the Take-Off for Renewables, which forms an integral part of the Community Strategy and Action Plan for Renewable Energy Sources, aimed at 2010. It is designed to kick-start the implementation of the Strategy and is expected to have reached its goals by 2004. Focusing on certain key sectors, the Campaign for Take-Off sets out a framework for action to highlight investment opportunities and attract the necessary private funding, expected to make-up the lion's share of the capital required. The aims of the Campaign are set in the Directive, which instructs that:

- by 2010, 22.1% of all electric power has to be produced from renewable energy sources,
- by 2010, the percentage of cogeneration in the production of electric power has to be 18%,
- by 2020, 20% of the fuels in free circulation have to be replaced by alternative fuels (including bio-fuels).

This Campaign involving key sectors is a high profile vehicle, for the drive towards a significant increase in renewables' use and penetration.

The important features of the energy markets liberalization process in the EU Member States can be seen in the reconstructed of large energy companies, and in the privatization and liberalization of closed energy markets, especially the electricity market- 'Directive 03/54/EC' [1], and natural gas market – 'Directive 03/55/EC' [2].

2 Opening-up of the energy market

The opening-up of the energy market and, hence, the competitiveness of the market has a positive effect, but, on the other hand, a process of this kind brings with it certain problems, with which any have to be dealt constructively, in order to avoid any failure in the proper market operations.

The process of opening-up the energy market is a result of global economic changes, and represents a certain phenomenon, which is due to:

- the possibility of open market operations,
- achieving lower energy prices,
- private investments in the energy sector,
- efficient development,
- promotion of new activities.

The processes of opening-up the market together with its liberalization have their advantages and disadvantages, which will become apparent in the near future. The advantages cannot as yet be appreciated because of the following facts:

- there is no universal concept for the liberalization procedure as each country has its own agenda,
- the designed strategy has to be harmonized by the praxis,
- the accomplished strategy has to be executed thoroughly; at this point it also needs to be stressed that reconstruction needs to take place before privatization.

If we restrict ourselves to the gas markets in the EU Member States, it can be clearly seen, that there are differences in accessibility to the markets in different countries as shown in Table 1.

3 Legal regulation of the energy market

In order to complete the internal energy market, and thus make the energy sector more competitive, the European Union is responsible for introducing the requirements necessary for gradually opening-up the market. Furthermore, the internal market is crucial for establishing common goals between the Member States of the EU, especially within the sector of energy supply.

The Community has adopted a series of measures in the form of directives, which are helping to establish the internal market in natural gas and electricity. The Member States of the European Union are responsible for the incorporation of these directives into their national legislation. In order to harmonize their Energy Acts and regulations based thereon, as 'acquis communautaire', the Member

States of the EU have had to deal with radical changes in the energy sector.

Table 1: Parameters that show the openness of the gas markets in EU Member States [3]

Country	Percentage of accessibility to the market (%)	Status of authorized buyer ($m^3 \times 10^6$)
Austria	100	-
Belgium	83	5
Czech Republic	-	-
Denmark	100	-
Estonia	80	Industry
France	37	8
Ireland	85	0.5
Italy	100	-
Latvia	-	-
Luxembourg	72	15
Hungary	-	-
Netherlands	60	1
Germany	100	-
Poland	34	25
Slovakia	33	25
Slovenia	50	25
Spain	100	-
Sweden	51	15
United Kingdom	100	-

EU Member States signed-up to the Kyoto Protocol within the United Nations Framework Convention on Climate Change (UNFCCC), in the year 1992. Two important communications setting out the strategy for energy efficiency were adopted in 2000: the 'Action Plan for Energy Efficiency' [4], and the 'European Climate Change Programme'. The EU performs its responsibilities and obligations for the reduction of greenhouse gas emissions by improving efficiency in all energy sectors.

Customer's behaviour is under different kind of influence and factors (life style, segmentation of market, process of diffusion and advertisement). That is why different organizations and legislation tries to protect costumers and their interests by making programs and law.

The EU tries to improve energy efficiency with its legislation and legislative outlines, focusing on environmental protection and the use of renewable energy sources, which is emphasized in the Green and White Paper [5].

Member States are, when realizing their strategies in the field of energetics, harmonizing its legislation with 'acquis communautaire' and are following the aims as presented in Table 2.

Table 2: Legislative frameworks for energy policy and the economy in the EU [6]

Internal European electricity and gas market	The internal market comprises an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured. In order to complete the internal energy market, which will make the energy sector more competitive, the European Union is responsible for introducing requirements needed to gradually open up the market. Furthermore, the internal market is crucial for establishing solidarity between the Member States of the EU, especially in the sector of energy supply.
Competition law	By conducting a policy of a freely competitive market, the EU legislation prohibits restrictive agreements between companies, abuse of a dominant position, and restrictions on competition.
Overview of subventions	There is a general prohibition of subventions inside the EU. State subventions can only be permitted by the European Commission, which is responsible for maintaining the balance in competition once the subventions are given. The Commission also adopts guidelines and instructions for the use of rules for subvention.
Environmental aims	Energy policies and national economies have to consider environmental protection. In 2003, a programme called 'Intelligent Energy - Europe' (EIE) was adopted to support energy efficiency and renewable energy sources. The programme supports EU's policies in the field of energy as laid down in the 'Green Paper', the 'White Paper' and other related European legislation.

4 Renewable energy sources and the environment

Energy production and consumption are the main causes for large emissions of harmful gases into the environment, which are endangering the conservation of our ecosystems. Due to the increasing concentration of greenhouse gases in the atmosphere, there is a need to decrease the emission of gases, mostly Carbon Dioxide emissions as this gas is known to be the main cause of global warming. As a result, a number of protocols and agreements have been signed which bind the States to a long-term programme of reducing these

emissions. In the EU, the energy policy has three aims (Table 3):

- security of energy supply,
- environmental protection,
- effectiveness.

Table 3: Strategies within the framework of energy policy [7]

Security of energy supply	Environmental protection	Effectiveness
Enforcement of exploitation of the domestic sources, reducing the risk of importation-long term insurance of imported energy, rational use of energy	The displacement of energy sources that are not environmental friendly with renewable energy sources; rational and economical use of energy, including new technologies.	Low cost and efficient production of energy for industry and other consumers. Liberalization of the market.

Table 4 gives the percentage of electricity produced from renewable energy sources in the years 1997 to 2010 (excluding and including the share of electricity produced in the large hydroelectric power stations) in the EU Member States.

Table 4: The share of production of electric power [8]

Country	1997	2000	2010	Excluding hydroelectric power stations	
				1997	2010
Austria	70		78.1	16.7	21.1
Belgium	1.1		6	2.1	5.7
Czech Republic		3.8	8		
Denmark	8.7		29	8.7	29
Estonia		0.2	5.1		
France	15		21	2.2	8.9
Ireland	3.6		13.2	1.1	11.7
Italy	16		25	4.5	14.9
Latvia		42.5	61		
Lithuania		3.3	7		
Luxembourg	2.1		5.7	2.1	5.7
Hungary		0.7	3.6		
Netherlands	3.5		9	3.5	12
Germany	4.5		12.5	2.4	10.3
Poland		1.6	7.5		
Slovakia		17.9	31		
Slovenia		29.9	33.6		
Spain	19.9		29.4	3.6	17.5
Sweden	49.1		60	5.1	15.7
Great Britain	1.7		10	0.9	9.3

The renewable resources are replenishable in our lifetime and have less harmful impacts to the environment than traditional energy. Those are the reasons why they are becoming more and more important in, not only the energy sectors of the countries, but also in the multinational companies. A lot more assets have been used in the past decades for research and development, even though the use of renewable energy sources isn't always economically justified, but is more acceptable due to the reduced pollution of the environment.

5 Conclusion

Using recent Gas Directives, adopted by the European Parliament and the Council, the enlarged European Union is taking steps towards the completion of an internal market for electricity and gas, making it the most integrated energy market in the world. Consequently, liberalization of the market will cause price increases, a reduction in the economic power of distributors, and slower introduction of gas supply networks in households [9]. A distorted market operation might occur because the EU Member States can only regulate the internal market and a paradoxical situation, where competition will start to operate in times of goods deficit. Thus, enforcing strong regulations in the market process.

Opening-up of the European electricity and natural gas markets is a process that positively affects both, and local development in the field of energetic State. Nevertheless, much remains to be done to ensure that Europe has an effective and competitive energy market. The role of independent regulators remains a crucial component in the introduction of competition and their decisions relating to network tariffs and other important market rules will continue to shape market development.

Deregulation of the electricity market in Europe has brought several positive changes over the first few years. Fair competition, and a decrease in electricity prices have contributed to a better economic situation in Europe. Now, however, it can be determined that after a slight decrease in electricity prices the prices are increasing and will continue to increase according to current predictions.

The sustained soaring price of fossil fuel has turned the attention of people to renewable energy sources, which are now playing an increasingly important role in ensuring energy supply and sustainable economic development. Those times of cheap and irrational energy use are behind us. Energy crises will still occur but, regardless of the

causes and consequences, the use of energy and its price is increasing. The only acceptable solution is the use of renewable energy sources and implementation of modern technology by which a satisfactory efficiency could be achieved.

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