European Union Legislation and the Development of the Electricity Market in Slovenia

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Abstract: - The article is based on the analysis of the circumstances, occurred during the electricity market opening in the Republic of Slovenia, as a consequence of implementation of the EU legislation in the energy field. The market operation, the role of the national regulatory authority and the market conditions are described, all of which influences the supply and prices of electricity in 2004 to 2008. Additionally, a model of price formation for industrial and household consumers is presented and necessary measures for improving market conditions on the electricity market in Slovenia are outlined.

Key words: - Energy sector, Electricity market, The structure of the electricity price, Legislation

1 Introduction
The energy sector has a crucial role in the economic and social behaviour of the EU Member States and in the quality of living of the inhabitants and consumers. It is also a key element of the economy and energy stability. The important task of the electricity sector is to ensure enough production capacity of electrical power and primary distribution networks. Also, the production and demand for electricity need to be in balance.

Physically, electrical power is a form of energy, resulting from physical and chemical transformation of primary energy. It is universal and has to be transferred to consumers via distribution and transmission systems.

With the creation of the market, electricity became a market commodity with few special characteristics, due to which the electricity market differs from other markets.

Before the liberalisation of electrical power markets, the coordination of electrical power production was generally carried out by vertically integrated monopolistic corporations. Therefore, decisions regarding operation and investment were being taken by a monopolistic corporation, thereby considering the technical obstacles and obstacles to the transfer of electrical power.

Before changes to the electrical power market, supply is inseparably linked to distribution, as customers are not able to choose their distributors, which makes supply in terms of an independent function a non-issue. Following changes, however, transfer and distribution are limited only to the transport of electrical power, while the production side has to take care of sales itself.

Concrete milestones in opening up the electricity market in Slovenia are not the only indicators of how the market operates; the European Commission carries out surveys and reports on the progress in market opening. The Commission has noted shortcomings in market operation and differences between the EU Member States.

The EU has recognised the need to act on the EU level and to establish a common energy policy and strategic goals and envisage measures, necessary for the future development of the energy sector in the EU. Due to the measure taken at the EU level, Slovenia as a Member State benefits from the market opening as we note our market is less hindered than in other Member States.

2 The Development of Slovenian Electricity Market
The dynamic of opening up the electricity market in Slovenia began in 2000, when the Government assigned the public companies to be distribution system operators with their task to be the distribution of electricity to tariff consumers. Hence, the task of distribution and transmission system operators was separated.

The first step in opening up the national electricity market was taken in 2001, when Slovenia adopted the Energy Act [1] to transpose the Directive
96/92[2] into national legislation. In formal legal terms, the liberalisation of the electrical power market in Slovenia began on 15th April 2001, while consumers will undoubtedly note 15th October 2001, when the beginning of the market's operations was announced.

The Energy Act established the rules for electricity market operation. Distribution system operators began to issue licenses for access to networks to eligible consumers and producers. The data on network capacity became public.

The national borders opened on January 1 2003 for eligible customers. The electricity market, for electricity produced outside The Republic of Slovenia, was opened. Distribution companies, tariff consumers and other eligible consumers were able to import electricity.

In July 2004 the electricity market opened for 92,000 eligible consumers, except for households. The market openness increased to 77%, conversely to 77% in 2006.

In 2007, when the Directive 2003/54/EC [3] concerning common rules for the internal market in electricity was implemented through the Energy Act, the electricity market was completely open, meaning that all the consumers, including households, became eligible consumers and were able to choose their electricity supplier. The suppliers can sell electricity, produced in Slovenia or bought in other EU markets.

The dynamics of gradual opening-up of electricity market from 2001 to 2008 is presented on Figure 1.

![Fig. 1 The dynamics of opening up the electricity market in Slovenia [4]](image)

2.1 National Regulatory Authority

In Slovenia, the national regulatory authority is the Energy Agency, which was established in 2001. Its role is to help create conditions for opening up the electricity market in Slovenia, to ensure transparency of market operation and regulate the activities to assure the quality of services at affordable prices.

According to the second electricity directive, in all the EU member states energy regulatory authorities are established with the required powers and responsibilities. Although some room was left to the implementation in the member states, the energy policy functions, regulatory functions in relation to the infrastructure regulation, and market monitoring functions, are similar.

With the amendment of the Energy Act in 2008 [5] the role of the Agency was enhanced. Its new competences were in the field of renewable energy sources and cogeneration. The Agency now issues certificates on origin and market certificates RECS for electricity produced from renewable energy sources.

2.2 Patterns of trade

The model of the electricity market consists of a bilateral and organised market. By bilateral trade, the suppliers and consumers can award the bilateral contract for supply and sale of electricity directly among each other. That kind of trade is usually carried out at over the counter (OTC) market. On the other hand, electrical power exchange for trading with electricity is carried out mostly for standardised products.

The price is established on the market as a combination of trade commodities. Loading diagram with standardised suppliers of electricity trading are shown in Figure 2.

![Fig. 2 Daily load diagram](image)

2.3 The Prices of Electricity

The production of electricity in different environments and different electricity systems and
due to different sources from which it is produced, is subject to different costs.

The price of electricity is composed of the price of energy and the price for the use of networks. The price of energy is made on the market; the price for the use of networks is fixed. The price for the use of networks is composed of network charge for transmission and distribution networks (the cost of operation and maintenance) and the additional costs for the network charge (preferential dispatching, the operation of the regulator, identification of contracts etc.). A typical structure of price formation for the end-user is shown in Figure 3.

![Image: The structure of price of electricity](image)

**Fig. 3** The structure of price of electricity

### 2.3.1 The prices for industrial consumers

The price of electricity for industrial consumers depends on envisaged consumption and dynamics of the consumer and the conditions on the wholesale market.

Price movement of electricity for typical industrial consumers in Slovenia in 2004 to 2008 shows a continued growth by all consumers, as a consequence of increased prices on the wholesale market in Slovenia and in the EU. Price movement for standard consumers groups is shown in Figure 4, where:

- Ia – annual consumption 30 MWh, power 30 kW
- Ib – annual consumption 50 MWh, power 50 kW
- Ic – annual consumption 160 MWh, power 100 kW
- Id – annual consumption 1250 MWh, power 500 kW
- Ie – annual consumption 2000 MWh, power 500 kW
- If – annual consumption 10000 MWh, power 2500 kW
- Ig – annual consumption 24000 MWh, power 4000 kW
- Ih – annual consumption 50000 MWh, power 10000 kW

**Fig. 4** Price movement for typical industrial consumers in Slovenia in 2004 - 2008 [6]

### 2.3.2 The prices for households

Since July 1 2007 households are also eligible consumers and can choose their supplier of electricity.

Total price of electricity for household consumers has increased gradually from 2003 to 2008 for 3.1% annually (average increase). The network charge was relatively stable at that time.

Until July 1 2007, when the price for electricity was being determined by the government, the prices increased by 6% annually. In 2008, in comparison to 2007, the price increased by 18%. The price movement in 2004 to 2008 is shown in Figure 5.

**Fig. 5** Price movement for typical household consumers in Slovenia in 2004 - 2008 [6]

### 2.4 The production of electricity

The production of electricity is a market activity and is subject to commercial law legislation. The production of electricity needs to be adjusted to
For improving the situation we suggest the following measures to be taken and goals to be aimed at:

- ensuring sustainable, competitive and secure energy;
- complementing the National Energy Programme;
- saving energy;
- constructing a long-term plan of nuclear power plant operation;
- expanding transmission capabilities;
- constructing bigger hydroelectric power plants and more photovoltaic power plants;
- subsidising the use of renewable energy sources;
- reorganising and privatising electricity companies.

Until 1st July 2007 the prices of electricity were determined by the Slovenian government. In 2008, the prices for household consumers increased by 4%, which is not proportionate with the price increase of energy products.

Price irregularities lead to an irrational use of natural resources, because the subsidised electricity for households is becoming the cheapest source of heating. As a consequence, the consumption of electricity is increasing in Slovenia, and the import dependency rises. Furthermore, the functioning of the electricity systems is less and less reliable.

Fig. 6 Balance of production and consumption of electricity in 2008 (HE- hydroelectric power plants, TE – thermal power plant, NE – nuclear power plant) [7].

To support the production of electricity which is not competitive on the market, the state offers state aids, especially to producers of electricity from renewable sources and cogeneration. The Slovenian support system is so-called »feed-in« system, where the competent authority buys the electricity for fixed prices from producers, eligible for support, and the producers sell electricity for market prices on the market.

3 Conclusion

Slovenia is not a country that is energy rich. More than half of its energy is imported (approximately 57%) and is therefore energy dependent. In our opinion, more attention should be paid to the use of alternative sources of energy and to development of new production technologies.

References: