

THE CONDITIONS OF ELECTRICITY FLOW IN THE DOMESTIC INDUSTRY FACING THE PROCESSES OF LIBERALIZATION OF THE ENERGY SECTOR

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Abstract: Energy, apart from raw materials, is one of the main factors of production in the activity of industrial companies, which simultaneously constitute the most important group of energy consumers. Interdependence of the industrial sector and the electricity market brings about that the changes in the structure and organization of electricity market in Poland, taking place nowadays, influence the way and the quality of energy flow among business entities. The aim of the paper is to identify the impact of the liberalization processes on energy flow in the industrial sector in Poland.

Keywords: energy flow, liberalization of the energy market, tariff groups in the industry.

1. Introduction

The main task of the liberalization processes, taking place both on the European and domestic energy market is to provide consumers with reasonable prices and, at the same time, to maintain and improve the quality of the energy supply. The changes taking place in the sector influence the transformation of the market structure, the way of perceiving energy in the category of goods and service and the necessity of making investments in the field of new technologies. The main result of liberalization is the emergence of new entities on the market and, simultaneously, the development of competition and simplification and acceleration of the process of changing the energy supplier.

2. The energy market in Poland and the selected countries of the EU

The first changes in the energy sector in Poland began in 1992-1993 and they mainly concerned the organizational and ownership transformations. The privatization processes that began were accelerated by the Polish membership of the European Union [12, 13]. At that stage, an important element of the liberalization process of the domestic market was combining the domestic electricity system with the system of the European countries. The beginnings of the liberalization processes in Poland and the selected neighboring EU countries and the resulting deregulation of energy prices for the main consumers are presented in Table I.

Full liberalization of the energy market the earliest took place in Germany and Great Britain, simultaneously bringing about the deregulation of prices for all groups of consumers. Both in Hungary and Slovakia that deregulation initially concerned exclusively the industrial sector and medium and small enterprises. In Poland, the introduced changes caused that business entities, which experienced the decrease of prices of electricity supply as the first ones, benefited first.

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Table 1.
The liberalization changes and energy prices in the selected countries of the EU [7, 10]

Country	The state of the opening the market in 2001 [%]	Full opening to the liberalization processes	Deregulation of energy prices			
			Industry	Large and medium companies	Small companies	Households
Poland	9	2007	x	x	x	
Czech Republic	10	2006	x	x	x	x
Slovakia	9	2007	x	x		
Hungary	9	2007	x	x		
Germany	100	1998	x	x	x	x
Great Britain	100	1999	x	x	x	x

The level of prices for industrial companies from the medium group, annually using up to 2000 MWh, is shown in Figure 1.

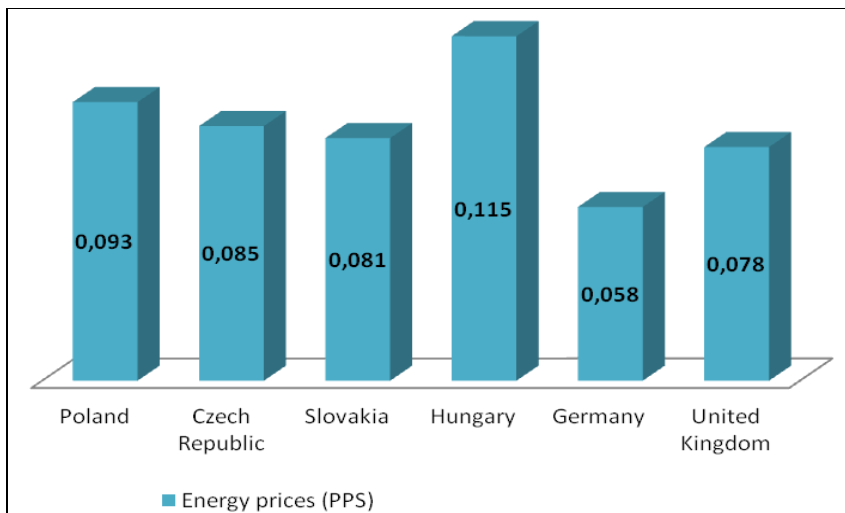


Figure 1. Electricity prices in 2013 for enterprises using annually up to 2000 MWh by Purchasing Power Standard (PPS) [3]

On the basis of the Figure, it is possible to observe that the lowest result with respect to the price quote, is obtained from the energy suppliers by German enterprises, where the prices of electricity with respect to purchasing power and also with regard to the income are the lowest and they amount to 0.093PPS. The exact prices of energy for Polish industrial companies by the scope of energy consumption are shown in Figure 2.

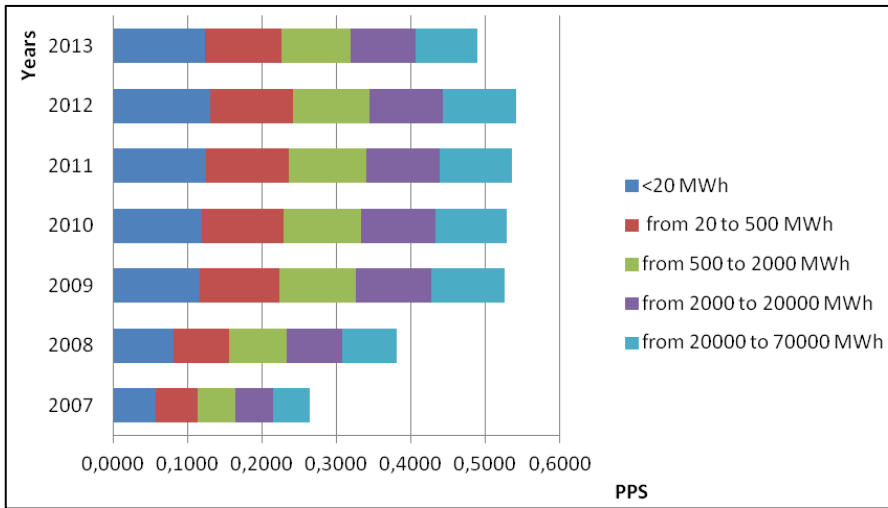


Figure 2. Electricity prices for the domestic industry by the scope of energy consumption in years 2007-2013 (PPS) [3]

On account of the division of industrial companies by energy consumption, it is observed that the largest costs are borne by the entities showing the lowest energy use. At the same time, the share of prices for individual ranges of use are at the similar level. On the other hand, the differences in the level of prices are observed in the periodic division where, along with the scope of changes on the market, the prices of electricity supplied to business entities rise equally. Their slight decrease is observed only in 2013.

With reference to the prices, in Figure 3. there is shown the level of electricity consumption for the entire industrial sector in 2007-2012.

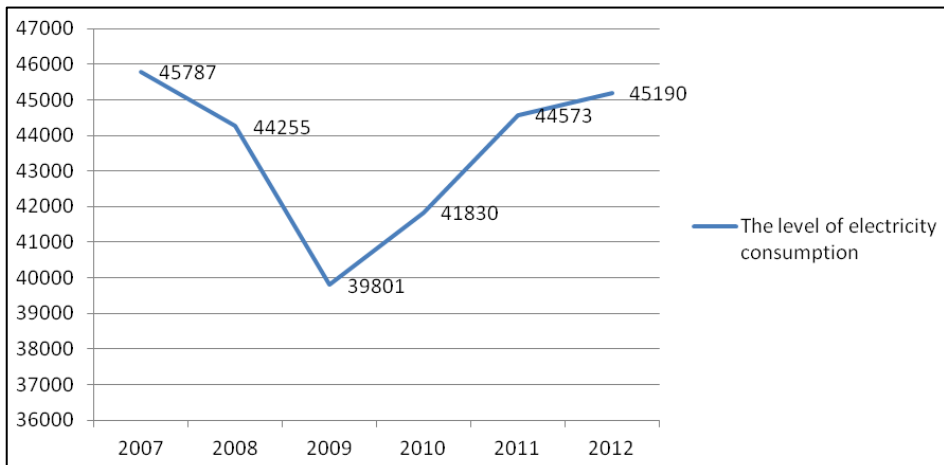


Figure 3. The level of electricity consumption by the industry in 2007-2012 (GWh) [3]

The level of energy consumption is more uneven than the prices of energy. The observed decrease in energy consumption in 2009 is the result of the economic crisis, when a significant number of enterprises abandoned a business activity. At the same time, after this period, an increase in energy consumption is accompanied by a significant increase in the level of prices.

3. The effects of liberalization with reference to the energy flow in the industry

On the energy market, the industry is understood mainly as the source of high energy consumption [1], therefore one of the main goals of energy management of Poland is to reduce the costs resulting from the high level of energy consumption influencing the formation of prices of energy in the country.

The entities are divided on account of the level of electricity consumption, the kind of the conducted business activity and the share of the cost of energy in production value. There is a separate law of power consumption [8]. Consequently, there have been created three tariff groups of the industrial consumers A, B and C, which are not regulated by Energy Regulatory Office (ERO). Their general characteristics are presented in Table II.

Table II.

The general characteristics of the groups of industrial consumers [9]

Tariff code	A	B	C
Type of sales offer	individual	specific choice	specific choice
Type of consumers	Steelworks, mines, shipyards, big factories	Important business clients e.g. shopping centers, leisure centers, hotels etc.	Medium and small enterprises e.g. shops, sales and service centers, agricultural farms etc.
Number of consumers	About 100 entities	-	The largest percentage

To make it possible for the individual groups of industrial consumers to reduce costs, these entities are obliged, on their own, to obtain and submit a declaration under Article 9a paragraphs 1 and 8 of the Act – Energy Law of the amount of electricity purchased for the own use, the cost of electricity and production value in a calendar year.

The amended provisions of the act concerning industrial consumers entered into force on 11 September 2013. The condition of exercising the right is the confirmed electricity consumption amounting to not less than 100 GWh, the cost of which was not less than 3% of production value in a calendar year preceding the year of the obligation.

While analyzing the forecast of the demand of the industrial sector in comparison with other sectors of economy (Table III.), it is possible to observe further distinctively high demand for energy by industrial companies. It is predicted that the demand will be slightly higher than in case of transport and significantly higher than in the sector of services and agriculture and this means that power companies will have to concentrate their further

attention on aiming at effective cooperation [4, 14], in the first place, with the industry, as the largest consumer of energy (apart from households).

Table III.
The forecast of the demand for electricity by the sectorial breakdown (MToe) [11]

Sector of economy	2015	2020	2025	2030
Industry	19	20.9	23	24
Transport	16.5	18.7	21.2	23.3
Agriculture	4.9	5	4.5	4.2
Services	7.7	8.8	10.7	12.8

The year of 2008 was the beginning of the deregulation of prices for the domestic consumers from the tariff groups of A, B and C [6]. As the result of the occurring liberalization processes, industrial entities, while searching for savings, have the right to change the energy supplier.

For households, the changes in energy prices do not significantly affect the demand for this group, they also less benefit from the change of energy supplier. In case of enterprises, the reaction to the changes in electricity prices is very strong. Therefore, searching for and changing the cheapest suppliers is frequent among this group of consumers. Every third enterprise has exercised this right since 1 July 2004 and, more specifically, 51 208 of the entities from the tariff groups A, B and C have changed the supplier since the end of July 2012. On account of almost 4 million number of the sector, high potential of further changes in this field is predicted [2, 5].

4. Summary

The process of liberalization of the Polish electricity market caused its demonopolisation, changed the economic structure for electricity generators, transmission and distribution and energy trading, brought about an increase in competition, privatization of enterprises and emergence of market forms of electricity trading. The occurring changes also concerned one of the main consumers of energy which the industrial sector is.

While analyzing the statistical data since the beginning of the introduction of the liberalization process in the industry, there has been observed an increase in electricity prices in relation to purchasing power standard of the country irrespective of the scope of its use. At the same time, the level of the demand for energy in the analyzed sector has been rising. On the other hand, the market liberalization and deregulation of electricity prices resulted in the simplification of the power transmission for industrial enterprises. These entities are not regulated by Energy Regulatory Office, they were obliged to independently control the energy flow on their own only under partial control of ERO. In their case, obtaining the right to change the supplier brought about the selection of the cheapest energy

supplier and the reduction of the previous costs of energy use and, simultaneously, the achievement of cheaper production.

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