

## RESEARCH ARTICLE

# (Un) Successful Liberalisation of Bosnia and Herzegovina Electricity Market

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## Abstract

Electricity is one of services of general economic interest, which has exceptional influence on living standard of consumer. It has been delivered by monopolised, vertically integrated companies for years. Monopoly price of electric power was high. Idea of demonopolisation and privatisation has been more represented. Process of liberalisation, which has started in 1990s, should bring to emergence of competitive conditions on power market, and it would result in price lowering of this key resource. Pursuant to changes on European and world electricity market, market in Bosnia and Herzegovina has also undergone the restructure in recent years. Development of competitive conditions has failed to come on electricity market in Bosnia and Herzegovina, which is legally entirely open from the beginning of 2015. New suppliers have not appeared and consumers are also completely uninformed about changes in legislation. Electricity price increase for 'at risk' consumers such as pensioners, makes them completely energy poor.

**Keywords:** *Public service of general economic interest, Electricity market liberalisation, Energy poverty.*

## Introduction

Economic services are services that fulfil the main needs of customers on the market, i.e. supply of energy (electricity, gas, heating) and water, telecommunication services, postal services and public transport [1].

These services are known as services of general (economic) interests in the EU-SG (E) Is. They are defined as services of vital importance that fulfil every day's human needs. Also, the quality of citizens' life is conditioned by realised level of services and they present the basis for sustainable economic development. Therefore, they have to be of the highest standard and available to all at affordable prices. Unlike other public services of general interest that are directly insured by public authorities, public services of general economic interest require existence of economic relationship between service provider and service recipient (consumer) and these services are profitable on free market.

Electricity, as one of the services of general economic interest and from the aspect of application, is the most universal form of energy and therefore its application is comprehensive.

Specificities that distinguish electricity from other products and services that are subject of transaction activities on the market are necessity of existence of constructed infrastructural networks, powers systems and distribution networks, impossibility of storage and significant oscillations in demand. Generated energy that is released in distribution system has to be used up. Security in supply requires balanced production and consumption. Imbalance in production and consumption can cause break up of electricity system, which on the other hand can have far-reaching consequences.

Therefore, electricity has to have a special place in development strategy of every national community (it is necessary to ensure continuity in supply).

Electricity price change directly affects manufacturing of industrial products, different services and thereby costs of living. Price increase of electricity is transferred by domino effect on other products, it influences level of living standard of consumers. Price changes of electricity are directly reflected in financial solvency of households, as one important consumers' group. The term energy poverty indicates existence of households where monthly expenses for electric power exceed 10 or 15 percent of available income [2].

This sector has been characterised by existence of vertical integrated natural monopolies, regulated with dominant state capital from 1990s. They possessed production, high voltage power-transmission lines, and distribution network. They have also planned to construct production and transmission capacities and completely monitor all aspects of electric power market. Monopoly price of electric power was high. Idea of demonopolisation and privatisation have been more represented.

Market liberalisation i.e. creation of legal conditions for equal access to market to new actors and thereby creation of competitive relationship should also result in lower price of electricity.

Electricity market has experienced drastic changes in last three decades, which were stimulated by neoliberal ideas and new solutions in economic theory (theory of contestable markets).

EU document, so-called White Paper from 1995, as one of set aims for electricity sector states increase in economic efficiency, which on the other hand can realise through promotion of market relationships in that sector [3].

Adoption of Directive 96/92/EC\* in February of 1997 created legal conditions to reform electricity sector. The above-mentioned Directive enables constitution of open competitive (free) market by introducing competition in some segments of electricity sector. It is possible to realise introduction of

competition by separation of processes of existing infrastructure use from service delivery process itself that is separation of competitive from non-competitive segments. Possible competitive segments are production and consumers' supply, while the characteristics of monopoly still remains in transmission.

Liberalisation followed by privatisation started in England in 1990. Norwegian market was also liberalised in 1991, which initiated reform of European power sector. Liberalised market for customers should bring:

- Possibility to choose supplier and
- Lower prices for KWh of electric power.

With regards to a segment of activity in which competition arises, organisational structure of electricity sector can have one of four known models: [4].

- Model of market domination of one vertically integrated company (model A) that indicates unchangeable status and further existence of monopoly.
- Model B, known as single buyer model, that enables occurrence of competition only in production segment. Lack of this model is the thing that enables only occurrence of competition in production but not in sale of electricity to end users.
- Model C (wholesale market model) is organised to enable direct connection of electricity producers and distribution companies that continue to have exclusive right to deliver the service at the certain territory, directly choose their producer, while in transmission, under equal conditions, use common high voltage system.
- Model of retail market (model D), which is characterised by open access to transmission and distribution that enables customer to choose his own supplier in completely competitive retail.

\* From 1 July 2004 Directive 96/92/EC was abolished and Directive 2003/concerning common rules for the internal market in electricity entered into force.

## Electricity Market in Bosnia and Herzegovina

Pursuant to changes on European and world electricity market, market in Bosnia and Herzegovina has also undergone the restructure in recent years. The conditions for reform of electricity sector have been created by adoption of comprehensive legislation-Law on Electricity, Law on Transmission of Electric Power, Regulator and System Operator, Law Establishing the Company for the Transmission of Electric Power, Law Establishing an Independent System Operator for the Transmission System.

Transmission activity was separated in an individual company Prijenos BiH, while production, distribution and supply are organised as individual business units within public companies Elektroprivreda Bosne i Hercegovine (EP BiH with seat in Sarajevo) and Elektroprivreda HZHB (EP HZHB with seat in Mostar). Elektroprivreda RS (EP RS with seat in Trebinje) as composite holding for production and distribution is organised in five separated firms.

Independent regulators with appropriate responsibilities have been established, actors in private ownership have been allowed access in terms of construction of private production capacities.

Elektroprivreda BiH and Elektroprivreda HZHB, as public companies, are in majority state owned companies (90 percent) while 10 percent of equity capital is managed by small shareholders. Elektroprivreda RS is also a holding with composite ownership structure (65 percent is state owned and the rest is private capital).

So, vertical separation, third part access, opening of the market have changed “the appearance” of BiH market, and instead of vertically integrated monopolies and consumers classified according to their activities, the market of electricity is consisted of:

- Three companies, that are engaged in production and distribution of electricity -

Elektroprivreda BiH with seat in Sarajevo, Elektroprivreda HZHB with seat in Mostar, and Elektroprivreda Republike Srpske with seat in Trebinje;

- Small producers of electricity that produce it for personal uses or sell it in the system;
- NOS – National System Operator that manages transmission system with the purpose to ensure reliability;
- Elektroprijenos BiH, a company for transmission of electricity from producer to electric distribution areas or big industrial consumers that enables network access to all users according to equal, non-discriminating conditions;
- Retailers – firms registered to trade electricity on domestic and/or international market;
- Regulators: DERK – State Electricity Regulatory Commission in charge for regulation of Independent system operator, transmission company and international trade with electricity, and two entity regulators: FERK (Regulatory Commission for Energy in Federation of Bosnia and Herzegovina) and RERS (Regulatory Commission for Energy in Republika Srpska) that regulate production, distribution and supply of electricity;
- Consumers (customers) of electricity.

According to legislation the electricity market in Bosnia and Herzegovina has been completely liberalised from 1 January 2015.

### Current Situation

The category household has a right to choose electricity supplier i.e. possibility to choose the most favourable offer, supplier with the best price from 1 January 2015. Consumers who do not want to change their supplier have a right to be provided with universal service (available to all at affordable prices) with their current supplier.

It was expected that the new suppliers would appear with the opening of the market as it was the case in Croatia.

Elektroprivreda Bosna i Hercegovina and Elektroprivreda Hrvatska were the parts of electricity system of Social Federative Republic of Yugoslavia up to 1991 and therefore the consumers in Bosnia and Herzegovina are very interested in following what is happening in neighbouring power system.

New suppliers -Slovenian GEN and German RWE have appeared on Croatian market with its entire liberalisation. It could be said, successfully. In the first year of market opening 6 percent of consumers changed their suppliers and only the Netherlands had higher percentage of transfers-7

percent. When percentage of customers' returns on universal service is observed, 50 percent of customers did it in the Netherlands and only 13.3 percent in Croatia [5].

Croatian success has not mirrored on the market in Bosnia and Herzegovina.

With the opening of the market, 75 companies obtained the licence to produce electricity from FERK and 17 companies from RERS. It is a question of numerous minor producers that cannot influence market conditions with their volume of production (Table 1).

**Table 1: Production and consumption of electricity in Bosnia and Herzegovina in 2015 (GWh)**

	<b>EP BiH</b>	<b>EP HZHB</b>	<b>EP RS</b>	<b>others</b>
Production	7,010.36 <b>(48.65%)</b>	1,839.17 <b>(12.75%)</b>	5,558.33 <b>(38.58%)</b>	265.38 <b>(1.84%)</b>
Consumption	4,992.37 <b>(39.60%)</b>	3,153.75 <b>(25.02%)</b>	3,834.79 <b>(30.42%)</b>	

Source: Created by author

89.16 percent of produced electricity is still generated in thermo-electric and hydro-electric power plants of three dominant companies EP BiH, EP HZHB and EP RS, which further have authority on certain territory.

EP BiH is the biggest producer in the system that controls little less than 50 percent of whole production, which represents respectable market share. Production surpluses (difference between production and consumption) are marketed on regional market as well as EP RS. 26 companies that have a licence from DERK to trade with electricity are buying and selling surpluses of electricity on national and regional markets. Their market activities are mostly directed towards electricity export that has become one of the leading export products.

Non-appearance of new suppliers in the first year of entire liberalisation resulted in change of EP BiH and EP HZHB tariffs. This price increase was justified by abolition of cross-subsidisation within consumers' groups (households and economy).

50 percent of whole electricity consumption on BiH market relates to consumption in

households. The households received higher bills instead of lower offers of new suppliers.

That price increase has a special influence on the most threatened group of consumers-pensioners.

In accordance with Eurostat methodology of electricity consumption statement of account for households, which was applied until 2007, 3,500 kWh was considered as average annual consumption, out of which 1,300kWh at lower tariff values (ratio higher-lower tariff is around 3:1). Currently applicable methodology places the above-mentioned volume of consumption in Band DC medium category, with annual consumption from 2,500 to 5,000 kWh.

A survey on electricity consumption on the households in BiH (2015) [6] shows that average annual electricity consumption per household is 4,500 kWh, which responds to monthly consumption of 375 kWh, out of which 125 kWh is at lower tariff.

The following table shows monthly amounts for that volume of consumption by three existing household suppliers.

Every company has different tariff values for households that use two-tariff meters

(differentiation between higher and lower daily values), one-tariff meters respectively (uniform price). Within their tariff values EP HZHB and EP RS differentiate higher tariff values to calculate consumption in winter period and lower tariff values to calculate consumption in summer period. As EPBiH

has uniform tariff values for the whole year, “average” monthly consumption was used to calculate consumption with EP HZHB and EP RS, which was obtained as consumption arithmetic mean with both groups of households.

**Table 2: Monthly expenses for consumption of 375 kWh (in BAM)**

	EP BiH	EP HZHB		EP RS	
		Low	High	Low	High
Active energy	52.56	60.28	46.63	44.06	34.51
Place of measurement	4.80	1.90	1.90	-	-
Calculation strength	-	6.64	6.4	2.04	1.57
Renewable sources	0.38	0.38	0.38	0.38	0.38
Total	57.74	69.2	55.55	46.48	36.46
+ VAT	9.82	11.76	9.44	7.90	6.20
Bill with VAT (17 percent)	67.55	80.96	64.99	54.38	42.66

Source: Created by author

Consumers at the territory of Republika Srpska pay the lowest price of electricity and households that are supplied by EP HZHB have significantly higher monthly expenses.

Table 3 shows electricity cost share in total monthly expenses per one household in Bosnia and Herzegovina.

Calculation was made in relation to average salary and pension in BiH in October 2016.

The analysis was made for the groups of pensioners (371,642 pensioners-group 1,

pension obtained in accordance with the Law on Pension and Disability Insurance), Federal Pension and Disability Insurance Institute [7]. and Pension and Disability Insurance Fund of Republika Srpska [8]. For this group the average pension in October 2016 was BAM 364.77, the lowest BAM 326.17 respectively (pensions in Republika Srpska are around 5 percent lower than in Federation, and for the further analysis data on average and minimal pension in Federation will be used).

**Table 3: Share of electricity expenses in total monthly expenses**

	EP BiH	EP HZHB		EP RS	
Average salary (BAM 839)	8.05	9.65	7.75	6.48	5.08
Lowest pension	20.7	24.82	19.93	16.67	13.08
Guaranteed pension	15.53	18.62	14.94	12.50	9.81
Average pension	18.51	22.19	17.82	14.91	11.70

Source: Created by author

It is obvious that analysed groups of pensioners are not capable to pay monthly electricity expenses. Their expenses exceed 10 percent of available income. Households with average salary in BiH can have problems with paying electricity bills in winter period if they are supplied by EP HZHB.

It is also questionable if the consumption of 375 kWh per month is enough to fulfil general needs of one household for electricity that is used for lighting, cooking, home appliances operating, and heating. Electricity has adequate substitutes for some uses and it is in most cases gas, which is available only in certain areas.

Gas household supply is available only in the capital Sarajevo and in Zenica. Low price of electricity has also stimulated its use for heating of housing units for years. Significant loss of warmth occurs due to poor thermal insulation of houses, which increases consumption of electricity per square meter.

Taking the above-mentioned facts into consideration the position of pensioners in Bosnia and Herzegovina on the electricity market is poor. The following table, which compares share in monthly expenses in 2011 and 2016 of a group of pensioners with average pension, also supports these claims.

**Table 4: Comparative analysis of monthly expenses 2011/2016**

	EP BiH	EP HZHB		EP RS	
Average pension 2011*	17.62 13.99	20.37	17.01	15.98	15.69
Average pension 2016	18.51	22.19	17.82	14.91	11.70

Source: Created by author

Energy poverty has become an everyday occurrence and therefore it is necessary to protect at risk groups of consumers.

Pensioners, who are consumers of EP BiH, have subventions for electricity consumption in Federation of Bosnia and Herzegovina if they do not spend more than 268 kWh and their bill is maximally decreased for BAM 5.5. If they are in supply system of EP HZHB their monthly bill is maximally decreased for BAM 7 for consumption lower than 348 kWh.

EP RS subsidises consumption to all socially threatened groups for consumption of 120 kWh, in the amount of BAM 12.66, respectively BAM 16.45 (for winter period).

## Conclusion

BiH market of electricity has been operating as a free market for two years. It has been developing according to the model of one customer who is characterised by creation of competition only in segment of production.

New suppliers have not appeared and consumers are also completely uninformed about changes in legislation. Change in tariff values has brought price increase in EP BiH and EP HZHB.

Bosnia and Herzegovina has surpluses in electricity production. Low price has made electricity the main export resource in

Bosnia and Herzegovina. All production surpluses are exported, meaning that there is no surplus in demand over supply, which would result in price lowering. New production capacities make small share in total production (1.84 percent) and with it they cannot compete with domicile producers. Low price of electricity in comparison with prices in surrounding has not brought to appearance of new suppliers. Liberalisation is only a dead letter on the paper for consumption group of households.

With regards to all above-mentioned specificities of electricity and characteristics of each national power system it cannot be discussed about unique pattern of all European markets' opening.

Example of Bosnia and Herzegovina is unsuccessful liberalisation. Why?

Electricity market cannot achieve the level of liquidity and efficiency, which is characteristic on markets that trade with other products and services, due to specificities of electricity and characteristics of each national power system.

Two general preconditions of successfulness of competition introduction in area of production are existence of production capacities surpluses and existence of sufficient number of competitors that prevent oligopoly agreements.

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