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Professional Paper

THE VITAL ECONOMIC COMPONENTS OF THE ELECTRICITY MARKET IN THE REPUBLIC OF NORTH MACEDONIA

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Abstract

Electricity is certainly the most noble energy form and the most important factor for the economic development of a country. The management of electricity has over a century long history and it is not an economic activity which is in the phase of maturity or decline, but on the contrary, this activity has a bright future. Therefore, the elaborated issue is very much up-to-date, considering the fact that it covers the vital economic components related to the electricity market including the imports dependency of the Republic of North Macedonia and the liberalization of the electricity market within the European Union and the Republic of North Macedonia.

As part of the above mentioned, the main attention in this paper will be focused on the detailed and practical processing of the domestic economy dependence on import of electricity and the country's financial means spent for this purpose. In addition, the electricity market liberalization process will be reviewed, which full implementation starting from January 2019 will directly impact the creation and improvement of the competitiveness between the electric power companies, including the establishment of real market price of electricity.

Keywords: electricity market, import, financial means, liberalization, market price.

1. Import and Cost for Import of Electricity in the Republic of North Macedonia

Despite numerous different challenges, the electricity sector in the Republic of North Macedonia also faces increasing electricity consumption in comparison to the production. In this context, the country is forced to import additional amount of electricity, and there is a particular concern of the increasing import dependency, which in the observed period (2013-017) reaches the highest share of 30.8% of the total consumption in 2015 compared to lowest share of 25.52% in 2017. The average for this period amounts to 28.2% (Table 1).

Table 1. Import and cost for import of energy and electricity in the Republic of North Macedonia in the period 2013-2017

Year	2013	2014	2015	2016	2017	Total
1.Import of electricity [GWh]	2296	2426	2513	2031	1914	11180
2.Electricity consumption [GWh]	8246	8065	8169	7660	7499	39629
3.Import/consumption [%]	27.84	30.08	30.80	26.51	25.52	28.2
4.Energy [million €]	808.3	789.7	633.5	551.1	666.9	3449.5
5.Electricity [million €]	128.7	140.7	119.8	83.9	111.2	584.3
6. Electricity/Energy [%]	15.92	17.82	18.91	15.22	16.67	16.94

Source: Energy balance for the respective years, www.economy.gov.mk, and NBRM-Skopje, as well own calculations based on extrapolated data.

This import dependency may only be reduced with the construction of new energy production facilities, mainly from RES. In this respect a final decision should be made for the continuation of operations in MPC Oslomej at the earliest, including appropriate modernization of TPP Oslomej with a new CFB boiler as the most acceptable option from a technical, economic and environmental aspect, as well as for the option of long term supply of the modernized thermal power plant with imported coal with high calorific value of 26MJ/kg, for which AF-Consult has prepared a Feasibility Study (AF-Consult Switzerland Ltd, 2015, p.2-4). All of the above has also been confirmed and is favored by the Working Group established by ESM JSC (ELEM, working group, 2018, p.23), in comparison to the other options for long term supply of fuel to TPP Oslomej (ELEM, 2014, p.9), and also according to the project for modernization and revitalization.

This is a due to the fact that the current operation is inefficient and economically not viable because the price of produced MWh of electricity increases year after year and is indeed high. Such a regime of operation is a classic example of an impractical and inappropriate operation method.

The cost for import of energy and import of electricity in the Republic of Macedonia during the period 2013-2017 amounts to 3.449,5 million Euros, i.e. 584.3 million Euros respectively. The lowest amount of resources used for import of electricity is 83.9 million Euro achieved in 2016, while the highest is 140.7 million Euros spent in 2014. The average value of spent resources for energy and electricity for the observed period amounts to 826.06 million Euros i.e. 145.16 million Euros, respectively. The total spent resources for import of electricity have a share of 16.94% of the total resources spent for import of energy.

2. Liberalization of the electricity market in the European Union and the Republic of North Macedonia

At the beginning of 1977, the Government of the USA was the first in the world to establish the Federal Energy Regulatory Commission (FERC), which regulates all aspects of electricity including trading between countries, and this commission imposed the liberalization process. Thus, a conclusion can be drawn that without the existence of FERC, there would not have been a liberalization process in the USA (Philipson L., Willis Lee H., 2010, p.18-20).

The electricity market liberalization in Europe was implemented in the 1990s, and in 1996 the European Union agreed to liberalize the electricity sector. Basically, the liberalization started because the governments realized the advantages of competitiveness among electricity suppliers with the purpose of providing different alternatives for the consumers.

Table 2. Year of full retail market liberalization for households per country

Austria	2001	Italy	2007
Belgium	2007	Luxemburg	2007
Denmark	2003	Holland	2004
Finland	1997	Portugal	2006
France	2007	Spain	2009
Germany	1998	Sweden	1999
Greece	2007	Great Britain	1999
Ireland	2005		

Source: Lucas M. Rathke, the Effects of Electricity Market Liberalisation in the European Union, Enschede, 2015

Table 2 shows the year of full retail electricity market liberalization for households in the countries of the EU. It can be observed that this process was implemented in the period 1997 - 2009 with different intensity in different countries, whereas it started in Finland (1997) and Germany (1998), and the last one to implement it was Spain (2009) (Lucas M. Rathke, 2015, p.22).

The Treaty establishing the Energy Community was signed in 2005 by the Republic of Macedonia i.e. all countries (signatories of The Athens Memorandum) from the region of Southeast Europe including: Albania, Bulgaria, Bosnia and Herzegovina, Croatia, Macedonia, Romania, Serbia and Montenegro, Turkey, by UNMIK (Kosovo) and the European Community (Law on Ratification of the Energy Community Treaty, 2006).

In order to fulfill the obligations deriving from the Treaty, in Macedonia in 2008, the large consumers (9 industrial facilities) changed the category from tariff consumer into qualified (direct) consumers which independently select their suppliers of electricity at market prices.

AD ELEM-Skopje supplied electricity to all other tariff consumers at regulated prices approved by the Energy regulatory Commission (ERC). This category of regulated tariff consumers include: households, commercial and service sector, as well industry up to 35 kV.

In the context of fulfilling the obligations deriving from the Treaty establishing the Energy Community in 2011 the Republic of Macedonia adopted a new Law on Energy, thus the second phase of liberalization (for all electricity consumers (Energy Regulatory Commission of the Republic of Macedonia, 2012, p.19; Energy Regulatory Commission of the Republic of Macedonia, 2014, p.16), except for households) should have commenced on 01.01.2013 in order for these consumers to acquire the right to become qualified consumers which could independently participate on the electricity market. However, this phase was postponed twice on 27.12.2012 and 27.06.2013, and eventually started on 01.04.2014 (Energy Regulatory Commission of the Republic of Macedonia, 2012; Energy Regulatory Commission of the Republic of Macedonia, 2013).

In this sense, the obligation for opening of the market to the households should have commenced on 01.01.2015, but the Government made a decision in October 2014 to prolong the full liberalization until 1 July 2020, when the consumers could freely select their electricity supplier and consume electricity at market prices, starting from 30 June 2016 and every consecutive year until 30 June 2020 depending on the electricity consumption from the previous year (Law amending the Law on Energy, 2014, p.12).

The Government made this decision based on the key argument that this would protect the living standard of the citizens, since otherwise they would face higher electricity prices.

This decision was heavily criticized by the European Community and it asked for an action hoping that at the same time the Macedonian authorities would expedite the procedure for liberalization of the market. This is also related to the fact that until recently Macedonia was the region leader in this field.

At the same time many countries in the European Union are already approaching the second decade of the electricity market liberalization (Table 1). Therefore, the electricity market liberalization is not only necessary for Macedonia to fulfill the obligations towards the Energy Community and the European Union, but it is expected to stimulate greater market competition and establishment of energy exchange. This will enable the possibility to select the supplier with the lowest price on the market and the best terms of payment, as well as improvement of the electricity supply quality, since each supplier would compete to offer better quality and cheaper products for the users and consumers.

Taking into consideration all of the above, in 2018 the new Government passed a new Law on Energy, according to which the largest producer of electricity in the country is obliged to offer to

the universal supplier at least 80 % of his annual needs in 2019 reducing this amount year after year until it reaches 30% in 2025. At the same time, the law stipulates that the producer of electricity shall provide electricity for households and small consumers until 31 December 2018, and starting from 01 January 2019 full liberalization of the electricity market should commence (Law on Energy, 2018, p. 23-24, p.174-175).

In order to meet the aforementioned, the Government of the Republic of Macedonia launched Public Call (Ministry of Economy, 2018) for the selection of a universal electricity supplier, and the Consortium consisting of EVN Macedonia and EVN Macedonia Elektrosnabduvanje was selected as the best bidder.

Following the selection of the universal supplier, the price of electricity for households in the country should remain the same, 5.54 MKD/ kW, i.e. 0.09 €/kW day tariff and 2.78 MKD/ kW, i.e. 0.045 €/kW night tariff.

In terms of electricity production from RES and in order to achieve the target of 23% (Decision of the Ministerial Council of the Energy Community, 2018), and at the same time to develop RES in the period until 2020, the Government of the Republic of North Macedonia in accordance with the Law on Energy allows for investments in RES, including public, private or public-private investments.

In this context, a major and significant challenge for MPC Oslomej is the construction of a photovoltaic power plant with installed capacity of 10 MW, located on the reinstated land covering a surface area of 15 ha in the mine of MPC Oslomej. This is a 7 million Euros project (Macedonian Power Plants JSC, 2018, p.32) stimulated, promoted and supported by EBRD with a loan of 6 million Euros. At this moment, the project has reached the phase of evaluating offers for the selection of the best bidder for construction, following the published international public call by ESM JSC in cooperation with EBRD on 26 March 2019, which was opened until 10 May 2019 (ELEM, 2019). Construction of a second photovoltaic power plant with installed capacity of 20 MW is planned for the future.

For the purpose of achieving the renewable energy targets in 2020, on 5 February 2019 the Government of North Macedonia made a Decision for the total installed capacity of photovoltaic power plants, for which premium should be awarded on produced and sold electricity, to be 200 MW (Government of the Republic of North Macedonia, 2019, p.49).

These premiums for the producers of electricity from photovoltaic power plants would be paid by the state, reducing it for the price charged to the supplier. Therefore, the market price depends on the electricity exchange while the amount of the premium would be determined by a negative auction.

Furthermore, in order to implement the governmental Decision, on 7 February 2019 the Minister of Economy made a decision to initiate a tender procedure with an auction, for the purpose of determining the total installed capacity of photovoltaic power plants for which based on this tender procedure a premium of 35 MW is awarded for plants that should be constructed in the municipalities of: Sveti Nikole with a planned surface area of approx. 49 ha for installed capacity of 25 MW and Makedonski Brod with a planned surface area of approx. 21,3 ha for installed capacity of 10 MW.

Therefore, on 10 June 2019 the Ministry of Economy announced a public call with a deadline for submission of offers until 21.08.2019 (Ministry of Economy, 2019, p.1-6).

On 31.07.2019, the Ministry of Economy also announced a public announcement with a deadline for submission of offers until 02.10.2019 for awarding premiums for electricity produced from photovoltaic power plants built on private land with total installed capacity of 27 MW, distributed

as follows:

- Part 1: 0-200 kW, where the total installed capacity for all power plants in this part for which offers were submitted cannot be higher than 2 MW;
- Part 2: 201-500 kW, where the total installed capacity for all power plants in this part for which offers were submitted cannot be higher than 5 MW;
- Part 3: 501-1000 kW, where the total installed capacity for all power plants in this part for which offers were submitted cannot be higher than 10 MW;
- Part 4: 1001-3000 kW, where the total installed capacity for all power plants in this part for which offers were submitted cannot be higher than 10 MW; (Ministry of Economy, 2019, p.3-9).

The criteria for selection of the best offer in both cases for construction of photovoltaic power plants for construction on public and private land will be the lowest offered fixed premium. Short description of the position of RNM in regards to the regional processes on the common electricity market (Regional market coupling).

The project for coupling the markets of the Republic of Macedonia and the Republic of Bulgaria is ongoing and it is part of the technical assistance provided by the Secretariat of the Energy Community. AD MEPSO (TSO) and ERC, together with Bulgaria's Independent Electricity Exchange, Bulgaria's TSO and Bulgaria's Energy and Water Regulatory Commission signed a Memorandum of Understanding on the coupling of electricity markets between the two countries under the WB6 initiative, with the assistance of the Secretariat of the Energy Community. The signatories of the Memorandum organized a kick-off meeting on 3 May 2018 and defined the main phases of the project, the implementation plan and the structure and composition of the project working groups. The coupling of the markets is planned to be completed by the end of the second quarter of 2019.

Following the establishment of the exchange, preparation and training of the employees will commence in order to implement the coupling of the real-time markets. As a result of this, some of the deadlines for the Project will be extended and its start will be by the end of 2019. The Steering Committee has approved the timeframe for the stages of the Project.

The next activity of the Steering Committee will be to adopt the financial plan of the project. This plan should previously be reviewed and approved the Finance Affairs Working Group and Legal Affairs Working Group of the Project.

Further activities will be followed by harmonization of Macedonian and Bulgarian by-laws concerning electricity (market rules, supply rules, balancing rules). This will be reviewed by the Legal Affairs Working Group. Once agreed, these should be approved by the Project Steering Committee.

The next phase will be a test period during which the transmission system operators of Macedonia and Bulgaria will start working on market coupling, capacity allocation and congestions. After both sides provide training the real coupling of the electricity markets will follow.

Within the frames of PSC DAMI under WB6 Day-ahead Market Integration Program Road Map two potential projects have been identified: Establishment of DAM (PX) in Macedonia (WB6.A1.N03) and Macedonia-Bulgaria Market Coupling Project (WB6.A1.C05). The project for organizing the day-ahead market and real time market, as a project in PSC DAMI is part of the technical assistance of the Energy Community to AD MEPSO as the electricity market operator, which purpose is to support the institutional arrangement of the day-ahead market.

Short description of the legal basis for the market liberalization and the extent of meeting the requirements deriving from the package of European Directives and ENTSO - E network codes.

The Republic of Macedonia is a signatory country to the Treaty establishing the Energy Community in South East Europe, which was ratified by the Assembly of the Republic of Macedonia and entered into force on 1 July 2006. By signing the Treaty establishing the Energy Community, the Republic of Macedonia has committed itself to implement the part of the European Union legislation regarding the internal electricity and natural gas market, renewable energy sources, competitiveness and environment.

The Republic of Macedonia has transposed the directives and regulations in the field of security of electricity and natural gas supply, the internal electricity and natural gas market, access to the cross-border electricity and natural gas exchange networks, renewable energy sources, in the new Law on Energy, including:

- Directive 2009/72/EC concerning common rules for the internal market in electricity and Regulation 714/2009 on conditions for access to the network for cross-border exchanges in electricity;
- Directive 2009/73/EC concerning common rules for the internal market in natural gas; and Regulation 715/2009 on the conditions for access to the natural gas transmission networks;
- Directive 2005/89/EC concerning measures to safeguard security of electricity supply and infrastructure investment;
- Directive 2004/67/EC concerning measures to safeguard security of natural gas supply;
- Directive 2009/28/EC on the promotion of the use of energy from renewable sources; and
- Regulation 543/2013 on submission and publication of data in electricity markets.

The main reforms deriving from the new Law on Energy are: separation and certification of the transmission system operator and the operator of the natural gas transmission system, introduction of the concept of universal service for electricity and public service for natural gas, full liberalization of the electricity market from the beginning of 2019, as well as increasing ERC's competences and independence.

By the end of 2018, most of the bylaws were adopted after the adoption of the new Law on Energy. The 2018 Implementation Report, published by the Secretariat of the Energy Community, notes that the Republic of Macedonia is in third place compared to other contracting parties in transposing EU's Third Energy Package and the obligations under the Treaty establishing the Energy Community.

The new Law on Energy determines the rules for the organization and structure of electricity and natural gas markets, as well as the rights and obligations of all market participants. The same Law also defines the obligations for the ownership separation of the transmission system operator as well as certification in accordance with the Third Energy Package.

The ERC is actively working on the remaining by-laws that should be adopted concerning natural gas.

The 2018 Implementation Report published by the Secretariat of Energy Community notes that ERC holds the first position compared to other contracting parties in transposing the EU's Third Energy Package and the obligations under the Treaty establishing the Energy Community.

3. Conclusions

The analysis of the importance and impact of the import and liberalization of the electricity market on the power system, competitiveness and economic development of the country, especially at a time when the Republic of North Macedonia is in the process of integrating into the European family, summarizes and points out the following:

The power system is an important element for the development of a country's economy. Hence, the power system of the Republic of Macedonia should be continuously developed, upgraded and modernized, thus attracting large investments. The Republic of Macedonia should also strive for the establishment of mutual cooperation and participation in interstate projects, especially with neighboring countries, such as the construction of joint power generation facilities and transmission lines for interconnection with the neighboring countries' power systems.

Reducing the country's import dependence on electricity can be done by undertaking activities to increase the country's electricity production and investing in the construction of power generation facilities (thermal power plants, hydropower plants, windmills, high-efficiency cogeneration plants etc.).

In this context, it is also necessary to make an explicit final decision on the modernization of TPP Oslomej, which in its further operation besides the economic, energy and social aspects will meet and fulfill the strictest European environmental standards for protection and preservation of the environment.

The Republic of North Macedonia should continuously make a major contribution to meeting the objectives of the EU Internal Market, i.e. the 20-20-20 Plan, which should be implemented by 2020 through new investments in RES electricity generation.

Reducing the country's import dependency, and thus the trade deficit, by attracting foreign and domestic investors in the electricity production sector, will directly contribute to the development of the domestic economy and overall macroeconomic stability of the country.

The Republic of North Macedonia should continue meeting the obligations which arise from the Treaty establishing the Energy Community and in accordance with the new Law on Energy, has complied with the anticipated date for liberalization of the electricity market, which began with the opening the market to all consumers (households and small consumers). This will allow for greater market competition and the establishment of electricity exchange.

The market price of electricity, in addition to covering costs, will also enable investments in state-owned sectors, as well as increasing the interest of various investors to invest in the electricity sector in general, in the construction of new generation facilities (especially renewable energy sources). This will directly contribute to the creation of new jobs thus improve the overall economic situation, providing a relative increase in the standard of living and overall macroeconomic stability of the country.

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