CROATIAN ELECTRICITY SECTOR AND IMPACTS OF SOUTHEAST EUROPEAN (SEE) REGIONAL ELECTRICITY MARKET (REM)*

Pavle Jakovac[1]

[1]Ph.D., University of Rijeka, Faculty of Economics, Ivana Filipovica 4, 51000 Rijeka, CROATIA, pjakovac@efri.hr

Abstract

In the Croatian electricity sector de facto prevails only one main subject. It is called Hrvatska Elektroprivreda (HEP Group) which was transformed in the early 1990s from a social to a public company wholly owned by the state. HEP Group is organized in the form of a holding company with a number of daughter companies. Within the HEP Group today there is a clear division (managerial, accounting, legal) of companies which perform regulated activities (transmission and distribution) from non-regulated ones (generation and supply). By signing the Stabilization and Association Agreement (SAA) with the European Union (EU) in 2001 (October 29th) guided with the aspiration to become a full EU member, Croatia has committed to gradually adjust its state monopolies in line with the conditions that correspond with those existing in the EU market. The process of electricity market liberalization was and still is based on the harmonization of Croatian legislation with the relevant EU directives. Despite having met all the formal requirements regarding electricity market opening, this process still has not resulted in emergence of new competitors or higher percentage change of electricity supplier. Restructuring the electricity sector is an imperative, but only in accordance with the degree of market development, the sector's history, national energy resources and the overall economic interests. In the context of Southeast European (SEE) regional electricity market (i.e. Energy Community) Croatia has committed to implement the relevant Community acquis in accordance with the implementation timetable. Within the Energy Community's framework (and thus the EU internal electricity market), Croatia adapted its Energy Strategy to the new conditions and opted to play an active role in the regional electricity sector primarily due to its favourable geopolitical position and transit potential. The potential benefits of regional electricity market (REM) for Croatia (and other countries in the region) can be related with reducing the need for installed generating capacities while maintaining the same level of system security, better use of favourable hydrological conditions, the possibility of increased competition, increased efficiency of the electricity sector and reduced labour costs.

Keywords: Electricity market, liberalization, Croatia, EU, Energy Community, benefits

1 INTRODUCTION

The establishment of REM (i.e. Energy Community) in the SEE represents an extension of the so-called European reform model. Therefore, it can be considered as an important experiment because the countries of the region were given a comprehensive reform model and significant technical assistance but also because the electricity sector reform takes place in the context of a much wider economic, institutional and political adjustments in each country of the region. The SEE countries (as well as other transition countries) during the 1990s entered the so-called transitional depression which resulted in low or even negative economic growth rates, decline in industrial production, rising unemployment, budget deficit, public debt, trade deficit and external indebtedness. Such macroeconomic situation has created a need for structural reforms aimed at reducing public expenditures and increasing the share of private capital. The REM therefore is and will be a test for the evaluation of how successful was the transfer of the European reform

* This article has been fully supported by the Croatian Science Foundation under the project number IP-2013-11-2203. Also, this work is the result of the scientific project "Economic effects of electricity sector reforms on sustainable economic growth" no. 13.02.1.3.05, financed by University of Rijeka.

ISBN: 978-605-64453-2-3

model to the group of European transition (developing) countries. This process is carefully observed by the World Bank, the European Bank for Reconstruction and Development (EBRD) and the EU itself. As a new EU Member State (since July 1st, 2013), Croatia decided to play according to the EU rules. The legislation is harmonized with the Acquis Communautaire (and the relevant Community acquis) and the electricity sector (and market) is formally fully open. Restructuring the electricity sector is an imperative and entering the markets of neighbouring countries is welcomed since Croatia has the needed (geopolitical and transit) potential to harvest the potential benefits. Nevertheless, the Croatian electricity sector must remain the bearer of economic growth and new employment in the near future.

The rest of the paper is organized as follows: Section 2 presents a snapshot of the Croatian electricity sector. Section 3 reviews past and present progress regarding electricity sector reform in Croatia while Section 4 discusses the impacts of SEE REM on Croatia. Final section gives the conclusion.

2 A SNAPSHOT OF THE CROATIAN ELECTRICITY SECTOR

In the Croatian electricity sector de facto prevails only one main subject. It is called Hrvatska Elektroprivreda (HEP Group) which was transformed in the early 1990s from a social to a public company wholly owned by the state. This national electricity company has been engaged in electricity generation, transmission and distribution for more than one century and in heat supply and gas distribution for the past few decades. HEP Group is organized in the form of a holding company with a number of daughter companies.[1] The parent company of the Group, HEP Inc., performs the function of HEP Group corporate management and guarantees the conditions for the secure and reliable electricity supply to consumers. Within the HEP Group there is a clear division (managerial, accounting, legal) of companies which perform regulated activities (transmission and distribution) from non-regulated ones (generation and supply). In the beginning of July 2013 statutory changes have been implemented in HEP Transmission System Operator (previously HEP-TSO Ltd., now Croatian Transmission System Operator Ltd. or HOPS Ltd.) due to unbundling requirements according to the Independent Transmission Operator (ITO) model. These changes and the preferred ITO model are in line with the Electricity Market Act (Official Gazette No. 22/13) and HEP's General Assembly decision dated from April 9th, 2013.

The installed electricity generating capacities in Croatia include hydro (HPP) and thermal power plants (TPP) owned by the HEP Group (around 95% of generation capacity), a certain number of industrial power plants[2] and a few privately owned renewable energy sources power plants (wind, solar and small hydro power plants)[3]. Currently, 30 subjects have the approval for electricity generation.[4] The largest among them is HEP Generation Ltd. (a company 100% owned by HEP Inc.). Electricity generation capacities within the HEP Group consist of 26 locations with HPPs, 7 locations with TPPs and one half of the installed capacities of the nuclear power plant (NPP) Krško[5] (located in Slovenia). Total available capacities of all HEP's power plants in Croatia amount to 3,818 MW (including TPP Plomin and excluding NPP Krško) i.e., total capacities serving the needs of the Croatian electricity sector amount to 4,166 MW (with 50% of NPP Krško capacities). Out of this amount, 1,681 MW is placed in TPPs (including TPP Plomin), 2,137 MW in HPPs and 348 MW in the

[1] As the largest Croatian electricity subject with the assets value of 35.6 billion kuna, HEP Group has annual operating revenues in amount of 14.7 billion kuna and employs 11,877 workers (HEP Group, 2013).

[2] Industrial power plants include units within the industrial installations which are connected to the transmission or distribution grid. Industrial power plants generate electricity/heat/mechanical energy for own use in industrial processes, while the electricity surplus can be sold to the transmission/distribution grid. These power plants are not a part of the HEP Group, but they have purchase agreements and can deliver the electricity they generate into the electricity sector. Total installed capacity of industrial power plants amounts to about 200 MW. During 2012, a total of 5.18 GWh of electricity generated in industrial power plants was sold to the network (Energy Institute Hrvoje Požar, 2013, p. 161).

[3] Besides industrial power plants in Croatia there is about 200 MW of installed capacity for electricity generation in private ownership. During 2012, a total of 418 GWh of electricity generated in privately owned power plants was sold to the network. According to the Energy Institute Hrvoje Požar (2013, p. 162), total installed capacity of industrial and private power plants is about 400 MW.

[4] A detailed list of all energy operators licensed for electricity generation can be found on the website of the Croatian Energy Regulatory Agency-HERA (available on: http://www.hera.hr/hrvatski/html/dozvole_tab01.html), which is responsible for issuing licenses for energy activities as well as for temporary and permanent revocation of the same.

[5] NPP Krško Ltd. is under the joint ownership of the HEP Inc. (50%) and the Slovenian company ELES GEN Ltd. (50%). Besides NPP Krško, thermal power plant (TPP) Plomin Ltd. is also an electricity generating facility not completely owned by HEP. TPP Plomin Ltd. is under the joint ownership of the HEP Inc. (50%) and the German company RWE Power (50%). HEP Generation Ltd. however got the management, operation and maintenance contract for the TPP Plomin 2 (Block B) (Energy Institute Hrvoje Požar, 2013, p. 157).

ISBN: 978-605-64453-2-3

NPP Krško (50% of total available capacity).[6] In 2012, HEP's HPPs generated 4,709 GWh of electricity, TPPs generated 3,128 GWh, TPP Plomin Ltd. generated 1,372 GWh while NPP Krško (50% of Croatia's part in installed capacity) generated 2,621 GWh of electricity. In total, 11.83 TWh of electricity was generated in 2012 (Energy Institute Hrvoje Požar, 2013, p. 158).

With its own electricity generation Croatia meets about 70% of its own consumption (the difference, approximately 30%, is covered through imports). At the same time, according to the Energy Strategy (Official Gazette No. 130/09), approximately 1,100 MW of existing TPPs (30% of the installed capacity of the Croatian electricity sector and 65% of installed capacity in TPPs) will go out of operation by 2020. These TPPs need to be replaced by similar generating facilities. In addition to replacing these TPPs, new 1,300 MW of installed capacity in TPPs needs to be built by 2020 which makes a total of 2,400 MW of installed electricity generating capacities in TPPs. It is also estimated that by 2020 the Croatian electricity sector will be extended with additional 2,000 MW of installed capacity in renewable energy sources power plants (small and large HPPs, wind and biomass power plants). Construction of new generating capacities requires significant funds. Necessary investments in the Croatian energy sector are estimated at 15 billion €, and according to the Energy Strategy (Official Gazette No. 130/09) the electricity sector alone will require 9 billion € (or 60% of total investments).

Electricity network/grid has the purpose of connecting the generators to end-users and ensuring reliable electricity supply under given security criteria. In Croatia, the owner of all distribution and transmission lines (up to the metering point) is HEP Inc. According to the data from HERA's website[7], management of the transmission network is under the jurisdiction of previously mentioned HOPS Ltd. while HEP Distribution System Operator Ltd. (HEP-DSO Ltd.) is responsible for managing the distribution network. Electricity transmission system consists of 133 substations (5 substations of 400/220/100 kV, 6 substations of 220 kV and 122 substations of 110 kV) and total lines length of around 7,488 kilometres. The distribution network has the capacity of 25,139 substations (7 substations of 110/10(20) kV, 326 substations of 35(30)/10(20) kV, 4,175 substations of 20/0.4 kV and 20,631 substations of 10/0.4 kV) and total lines length of 136,634.4 kilometres (Energy Institute Hrvoje Požar, 2013, p. 165). Electricity distribution network is the last component of the electricity sector responsible for delivery of electricity to consumers. It covers the entire Croatian territory and electricity supply is provided in 21 distribution areas. At the end of 2012 around 2.35 million consumers were connected on the distribution network out of which 2.13 million refers to households and the rest mainly on public lighting and industrial consumers (Energy Institute Hrvoje Požar, 2013, p. 168).

While engaged in the activity of electricity distribution, HEP-DSO Ltd. also carries out the activity of electricity supply as a function of the so-called public supply service. That means the HEP-DSO Ltd. provides the public service of electricity supply as a universal service (for residential consumers) and as a guaranteed service (available to other end-users which, under certain conditions, remain without the electricity supplier).[8] Besides HEP-DSO Ltd, electricity supply within the HEP Group is also carried by HEP-Supply Ltd. which is responsible for supplying eligible consumers and at the same time is exposed to competition coming from other electricity supply subjects on the market. According to HERA[9], except HEP-DSO and HEP-Supply Ltd., 22 other subjects have the licenses to carry out electricity supply activities where GEN-I Zagreb Ltd. and RWE ENERGIJA Ltd.[10] since mid-2013 have come to be (real) competition to HEP.[11]

[6] These capacities do not include generating units in other countries from which the Croatian electricity sector has the right to withdraw electricity on the basis of capacity lease and share-ownership arrangements. The capacities in other countries include coal-fired TPP Gacko (in Bosnia and Herzegovina-BiH) with the total installed capacity of 300 MW and shared ownership (1/3 of capacity and electricity for a 25 year period) and coal-fired TPP Obrenovac (in Serbia) with the total installed capacity of 305 MW and with the capacity and electricity lease on the basis of construction credit. The capacity and electricity from the above-mentioned facilities is not available, as the status of these facilities has not been resolved yet. The open issues regarding the agreements on investments in these facilities refer to the duration period, the way of treatment of the invested funds and what pricing methods should be applied to electricity deliveries (Energy Institute Hrvoje Požar, 2013, p. 158).

[7] Available on: http://www.hera.hr/hr/html/dozvole.html

[8] All electricity consumers who do not want to exercise their right of the so-called eligible consumer (consumers who can freely choose their electricity supplier) or do not find their supplier have the right to be supplied with electricity under public supply service (either as a universal service or as a guaranteed service) under regulated terms and conditions (http://www.hep.hr/ods/en/customers/default.aspx).

[9] Available on: http://www.hera.hr/hr/html/dozvole_tab04.html

[10] Croatian subsidiaries of the Slovenian company GEN-I and the German company RWE Power.

[11] These two electricity subjects do not present real threat to HEP since they do not have any electricity generation facilities situated in Croatia. Instead they are reselling imported electricity and have used electricity prices decrease on

ISBN: 978-605-64453-2-3

Regarding electricity trade in Croatia there are currently 16 registered subjects[12] where the most important of them all is HEP-Trade Ltd. which carries out the activities of purchase and sale of electricity, optimization of power plants' operation and trading intermediation on the domestic and international market.[13] The activity of organizing the electricity (and gas) market as a public service is performed by only one subject, namely Croatian energy market operator (HROTE Ltd.) which started to operate on April 04th, 2005. HROTE's main responsibilities on the electricity market include issuing Electricity Market Rules, keeping records of participants on electricity market, registration of contractual obligations among market participants, preparation of a day ahead market plan, settlement of balancing energy as well as analysing the electricity market and recommending measures for its improvement.[14]

3 ELECTRICITY SECTOR REFORM IN CROATIA – PAST AND PRESENT PROGRESS

The European Energy Charter Treaty[15] which Croatia signed in 1991 presumed the introduction of long-term energy cooperation in Europe within the market economy framework based on the joint cooperation of the signatory countries. The Croatian Parliament ratified the European Energy Charter Treaty in 1997 (Official Gazette No. 15/97), while the Croatian Government adopted a Regulation on the ratification of the Protocol on energy efficiency and related environmental aspects[16] in 1998 (Official Gazette No. 7/98). Furthermore, at the beginning of 1997 the Croatian Government adopted a Decision on the launch of the national energy programs in order to create the foundation for a new energy policy which must take into account sustainable development, improvement of energy efficiency, usage of renewable energy resources and environmental protection. By signing the Stabilization and Association Agreement (SAA)[17] with the European Union (EU) on 29 October 29th, 2001, Croatia has committed to gradually adjust its state monopolies in line with the conditions that correspond with those existing in the EU market.

After several years of considerable research, deliberation and discussion among experts, in late June 2000 the (most appropriate) Program for the reform of the energy sector was adopted, which signified the formal beginning of energy reform in Croatia. Several aspects had to be taken into account, for example possible consequences of global processes, conditions and limitations arising from the EU energy policy as well as the specifics of the Croatian energy sector (Udovičić, 2004). According to the Program, the unbundling of basic operations, the separation of auxiliary operations, the formation of a market for energy commodities and the privatization of energy companies were determined (Tominov, 2008, p. 282).

Implementation of the reform demanded an adequate legal framework that would allow energy market liberalization and deregulation of the energy sector. Therefore, in July 2001 a package of five energy acts (Official Gazette No. 68/01) was adopted in compliance with the prevailing European directives on the

---

the electricity exchange market (due to favourable weather conditions) to penetrate on the Croatian market with lower tariffs. According to some estimates, in less than one year HEP's competition won over around 68,000 electricity consumers which accounts approximately to only 3% of HEP's loss in total annual electricity sales (http://www.glas-slavonije.hr/228744/1/Iz-HEP-a-otislo-gotovo-70-tisuca-potrosaca) since HEP has 2.3 million electricity consumer out of which 2.1 million refers to households (Energy Institute Hrvoje Požar, 2013, p. 168).

[12] Available on: http://www.hera.hr/hr/html/dozvole_tab04a.html

[13] Daughter companies HEP-Trade Ltd. Brežice (Slovenia) and HEP Magyarorszag Energia KFT (Hungary) have the task of electricity trading on the markets of the countries where they are established and on markets in other countries (HEP Group, 2013, p. 18).

[14] Available on: http://www.hrote.hr/default.aspx?id=100

[15] The European Energy Charter Treaty establishes a framework for international cooperation between European and other industrialised countries with the aim of developing the energy potential of Central and Eastern European countries and of ensuring security of energy supply for the EU.

[16] The Protocol on energy efficiency and related environmental aspects aims to promote energy efficiency policies that are compatible with sustainable development, to encourage more efficient and sound use of energy and to promote cooperation in the field of energy efficiency.

[17] Croatia was the second country to sign the SAA with the EU. This agreement entered into force on February 1st, 2005. SAA is an essential part of the stabilisation and association process of the EU with the Western Balkan countries. From January 2002 up until the SAA entered into force the so-called Interim Agreement on trade and trade-related matters was implemented. Similar to the so-called Europe Agreements with previous candidate countries, SAA provided contractual framework for establishing the relations between the EU and Croatia until Croatia's full accession to the EU. SAA covered the areas such as political dialogue, regional cooperation, the so-called four freedoms (under the 1957 Treaty of Rome, goods, services, capital and people are supposed to be able to move freely across the EU's internal borders) and the creation of a free trade area by 2007 for industrial products and most agricultural products, the harmonization of Croatian legislation with the EU acquis including precise rules in areas such as competition, intellectual property rights and public procurement and wide-ranging cooperation in all policy areas, including the area of justice, freedom and security (http://www.delhrv.ec.europa.eu/?lang=hr&content=2744).

ISBN: 978-605-64453-2-3

energy market commodities. Three of these five acts (namely, the Energy Act, the Electricity Market Act and the Regulation of Energy Operations Act)[18] defined the anticipated changes in the electricity sector. After the adoption of the legal framework, two new legal entities were formed: the Energy regulatory council-ERC (as an independent entity for conducting the activities defined under the Regulation of Energy Operations Act) and the independent system and market operator (defined under the Electricity Market Act). The aforementioned Electricity Market Act envisaged market competition in the activities of electricity generation and the supply of eligible consumers. In 2002, following the Croatian Government's decision (Official Gazette No. 1/02), HEP Inc. founded within the HEP Group a company called Croatian independent system and market operator Ltd. (HNOSIT Ltd.) with the task of managing the electricity sector and organizing the electricity market.[19] Together with the first Energy Strategy[20] (Official Gazette No. 38/02), rounding the first phase of defining the normative requirements of the electricity sector reform was completed in March 2002 with the enactment of the HEP Privatization Act (Official Gazette No. 32/02). This provided a basis for the functional reorganization of the Croatian electricity sector.[21]

According to (Tominov, 2008, p. 282), the energy sector reform (i.e. the implementation of previously mentioned five energy acts) has progresses rather slowly and knowledge about the reform and the opening of the energy market was modest. Reform placed energy companies, state administrators and electricity consumers in a new situation for which they were not prepared. The implementation of legislation was also hindered by conceptual differences that occurred among energy companies regarding market opening, positioning and the authority of the regulatory body. Since in July 2003 the EU adopted a new directive regarding internal electricity market, the second step in the reform of the Croatian electricity sector was made in December 2004 when Croatia harmonized its legislation from 2001 in line with the Directive 2003/54/EC. Therefore, the Croatian Parliament adopted the following acts: the new Electricity Market Act, the new Regulation of Energy Operations Act and Amendments to the Energy Act (Official Gazette No. 177/04). The new Regulation of Energy Operations Act marked the cancelation of ERC and the formation of HERA in order to establish and implement the regulation of energy operations in accordance with the principles of market competition and the EU legislation.[22] The new Electricity Market Act on the other hand marked the cancelation of HNOSIT Ltd. meaning that the task of managing the electricity sector was integrated into HEP-TSO Ltd. (now HOPS Ltd.) and for the purpose of organizing the electricity market HROTE Ltd. was established.

Moreover, new dynamics was defined for the opening of the electricity market by defining the status of the so-called eligible consumer.[23] From the day when the new Electricity Market Act entered into force (December 23rd, 2004), all electricity consumers with an annual consumption exceeding 20 GWh and all electricity consumers connected directly to the transmission network obtained the status of eligible consumers.[24] On July 1st, 2006 the electricity market was opened for consumers with consumption greater

[18] The remaining two acts: the Gas Market Act and the Oil and Petroleum Products Market Act.

[19] The independent system and market operator was responsible for: managing the electricity sector, continuity and reliability of electricity supply, proper coordination of electricity generation, transmission and supply, coordination of transmission network with neighbouring networks, electricity market organization and managing the electricity buy-and-sell system.

[20] The first Energy Strategy, regarding the electricity sector, aimed to create a competitive and sustainable electricity sector with a high security of electricity supply bearing in mind the fact that independent, regulated and open electricity market is the most efficient and cost-effective way for achieving the proclaimed objectives.

[21] The HEP Privatization ACT stipulated that at least 51% of HEP shares will remain in government ownership up until Croatia joins the EU. Croatian Homeland War veterans and their families will receive, without compensation, up to 7% of the shares, and up to 7% will be sold to current and former HEP employees under special privileges. At least 15% of the shares will be offered to Croatian nationals through a public offering with subsequently determined pre-emptive rights and privileges, while the remaining shares will be offered on the capital market.

[22] Fundamental goals of regulation of energy activities are the following: ensure objective, transparent and non-discriminative carrying out of energy activities, take care of the implementation of principles of regulated access to the network/system, adoption of methodologies for determination of tariff items in tariff systems, establishment of efficient energy market and market competition as well as protection of energy consumers and energy operators. For more details on HERA's scope of work see: http://www.hera.hr/en/html/activities.html.

[23] According to Tešnjak et al. (2009, p. 36), the term "eligible consumer" refers to those electricity consumers who can freely choose their electricity supplier. These consumers retain that status as long as they consume the prescribed amount of electricity based on which they have gained that status.

[24] Before December 23rd, 2004 the limit was set to 40 GWh of annual electricity consumption. Under this condition only 14 electricity consumers got the eligible consumer status and the Croatian electricity market was opened only 9%. By lowering the annual electricity consumption limit to 20 GWh the number of eligible consumer increased to 39 and the electricity market opening rate increased to 14% (Tešnjak et al., 2009, p. 36).

ISBN: 978-605-64453-2-3

than 9 GWh. By doing so, 106 electricity consumers (mainly entrepreneurs) got the eligible consumer status and the openness of the electricity market reached the level of 25%. On July 1st, 2007 the electricity market was opened for all entrepreneurs (over 200,000 electricity consumers) whose electricity consumption in 2006 amounted to 8.5 billion kWh (or 57% of total electricity consumption). The liberalization process of the Croatian electricity market formally lasted until July 1st, 2008 when households (i.e. all electricity consumers in Croatia) obtained the status of eligible consumers (Tominov, 2008, p. 283).

Although the new legislation was formally harmonized with the Directive 2003/54/EC, the liberalization of the Croatian electricity market at that time was still underdeveloped due to a lack of competing suppliers and the fact that Government determined the price of electricity for all consumers in Croatia.

The introduction of EU's Third Energy Package entailed the continued harmonization of Croatian legislation and the HEP Group. The harmonization with the Directive 2009/72/EC meant the following (HEP Group, 2010, p. 13): a) introduction of market conditions in the electricity sector (electricity pricing is left to market mechanisms while the determination of tariffs for regulated activities is within the scope of an independent regulator)[25]; b) increasing the authority, responsibility, independence (from electricity industry and politics) and competitiveness of HERA as well as stronger coordination of national regulatory agencies at the EU level; c) defining the so-called energy poverty, consumer protection and establishing a system of social assistance related with energy costs[26]; d) unbundling of the TSO from commercial (non-regulated) activities (according to either Independent System Operator-ISO, Independent Transmission Operator-ITO or Full Ownership Unbundling concept)[27]; e) the DSO must have legal, organizational, accounting and management independence from other activities within the vertically integrated company (ownership unbundling from the parent company is not required); f) definition and application of acts and regulations must be detailed, efficient and transparent at all levels; g) greater investment in the infrastructure due to obsolescence of existing infrastructure and the need for new power plants; h) initiate necessary activities to finally attract investment and construct new electricity generating facilities.

Since July 1st, 2013 Croatia has become a full EU Member State with its legislation harmonized with the Acquis Communautaire which has shaped current Croatian energy policy and strategy. As it has been already mentioned, Croatian electricity sector has been formally fully open but in both competitive activities (generation and supply) there is no sufficient number of market participants to make a real competitive market (Vlahinić, 2014, p. 121). However, restructuring the electricity sector is an imperative but only in accordance with the degree of market development, sector's history, national energy resources and the overall economic interests. Croatian electricity sector, even after the restructuring process, must remain the bearer of economic growth and new employment in the upcoming period. The privatization of HEP (although delayed until Croatia's full membership in the EU)[28] should be gradual and directed towards attracting private

[25] Although electricity prices, formally speaking, should be formed on the market (starting from July 1st, 2008), the Government ultimately determined the prices and tariffs. With the adoption of the new Energy Act and the Regulation of Energy Operations Act (Official Gazette No. 120/12), the Croatian Parliament on October 19th, 2012 (with the goal of real and full liberalization of the energy market), transferred the determination of prices and tariffs from the Government on energy subjects. From now on, for any changes in prices and tariffs the energy subjects need to get the approval of HERA. According to Eurostat (2014), average electricity prices paid by households and industrial consumers in Croatia (in 2013) are lower than the EU average. Households pay around 30% and the industry only 14% lower price than the EU average. This situation is the result of the so-called cross-subsidies (a relic typical for transition countries). Although these types of subsidies were abolished and competitive suppliers slowly began to "conquer" parts of the market, the prices for industry are still higher than for households mainly for social reasons and efforts to mitigate the economic impact on the citizens (Vlahinić-Dizdarević & Žiković, 2011).

[26] This primarily refers to the neutralization of negative effects arising from higher electricity prices in a form of subsidizing the electricity prices to socially vulnerable categories of population.

[27] The Study on the harmonization of the Croatian energy sector and legislation with the EU's energy legislation (EKONERG et al., 2010) preferred the full ownership unbundling concept as the most effective based on the following reasons: the operator and its administration are independent, the operator owns the network, simple regulatory oversight, more competing suppliers which gives the consumers freedom of choice, correct electricity prices due to competition on the market, protection of socially vulnerable consumers. The HEP Group as the main subject in Croatian electricity sector, however, was against the full ownership unbundling and advocated the ITO model with the following arguments: the choice of the ITO model has the smallest impact on the financial and economic position of the HEP Group, the ITO model has the mildest possible effects in regard to the social aspect of employees protection, the security of the electricity sector is minimally compromised while the level of investment will not be disrupted (HEP Group, 2010). In April 2013, as already indicated, the ITO model was chosen as the most appropriate.

[28] Since the privatization of HEP was not initiated and that it would not have any impact on the completion of negotiation procedure with the EU, it was estimated that in the period of economic crisis (when the role of state is highly emphasized

ISBN: 978-605-64453-2-3

capital in the activities of electricity generation (based either on co-ownership or concession) in order to diversify electricity supply, increase competitiveness (and higher percentage change of electricity supplier) and to maintain price stability (Vlahinić-Dizdarević & Žiković, 2011, p. 119).

4 IMPACTS OF SEE REM ON CROATIA

With the reorganization of the electricity sector and the opening of the electricity market in the EU Member States emerged a need to improve the economic efficiency of the former electricity trading method in the Southeast Europe (SEE). This resulted with the establishment of the institutional framework for the joint regional electricity market (REM) or the so-called Energy Community. Due to the great importance of REM and the efforts of SEE countries regarding their (potential) accession in the EU, the European Commission and the countries of the region have recognized the need to harmonize the organization of the electricity sector in SEE in line with the organizational principles that exist in the EU (Majstrović, 2004).[29] The construction of the REM is not only determined by the EU directives. It is also the result of global stimulus due to which new opportunities are opening for electricity companies in these markets and also for those subjects that were not previously present in these markets. According to Teodorović et al. (2006, p. 200), the establishment of the REM, in the context of SEE, can be considered as a step towards building an integrated electricity market in the EU, and in particular this will come to the fore if all member countries of the Energy Community become full EU members.

The process of establishing the REM, under the arrangement of the Stability Pact for SEE[30] and the EU's initiative, formally began in 2002 with the signing of the so-called first Athens Memorandum (The Athens Memorandum, 2002). Countries in the region interested in participating in the REM have committed themselves to cooperate in order to achieve common regional market that will result in free flow of goods and services, the abolition of national or regional monopolies, increasing the efficiency of the electricity sector and transparent operations of all entities in the market. The Memorandum was not legally binding but merely represented a political will for regional cooperation (Majstrović, 2004). The main aim of the first Athens Memorandum was to create an integrated REM by 2005 and to gradually integrate it into the European market in compliance with the requirements of the Directive 96/92/EC (and other supporting documents). Specifically, the first Athens Memorandum required the adoption of legislation, the establishment of regulatory agencies and TSOs in all signatory countries by July 2003, the establishment of DSOs by January 2005 and the opening of the electricity market for all consumer categories (except households) until 2005.[31]

The second Athens Memorandum (The Athens Memorandum, 2003) complements the previous one and the signatory countries[32] committed to harmonize their legislation in accordance with the Directive 203/54/EC. The signatory countries have also committed to adopt the basic market operation principles similar to those in the EU especially those related with the unbundling of vertically integrated electricity companies, functioning of the national system operators and independent regulatory agencies, definition of the so-called

---

in maintaining the stability of electricity sector in terms of supply and avoiding price shocks) and restructuring obligations due under the Third energy package it was not justified to start the privatization process (Official Gazette No. 21/10).

[29] According to Pollitt (2009), the establishment of a REM in SEE is an important experiment because the countries of the region received a clear and comprehensive reform model (the so-called European reform model) that must be followed and significant technical assistance but also because the electricity sector reform takes place in the context of a much wider economic, institutional and political adjustments in each country in the region.

[30] On June 10th, 1999, at the EU's initiative, the Stability Pact for SEE was adopted in Cologne. In the founding document, more than 40 partner countries and organisations undertook to strengthen the countries of SEE in their efforts to foster peace, democracy, respect for human rights and economic prosperity in order to achieve stability in the whole region. Euro-Atlantic integration was promised to all the countries in the region. The Pact was reaffirmed at a summit meeting in Sarajevo on July 30th, 1999 (http://www.stabilitypact.org/about/default.asp).

[31] The signatory countries of the first Athens Memorandum also committed to adopt both national and coordinated regional action plan that relates to the reform of the tariff system, reduction of technical losses, identification of preferential regional investment plan, definition and implementation of revitalization plan regarding hydro and thermal power plants at the regional level, preparation of fee system regarding cross-border electricity transmission and congestion management, adoption of network codes (rules) as well as ensuring the exchange of information among national dispatching centres. The signatory countries were Albania, BiH, Bulgaria, Croatia, Greece, Romania, Turkey, Macedonia (FYR), Serbia and Montenegro (from June 8th, 2006, both are recognized as independent states) and Kosovo (UNMIK), while the "observers" were Austria, Hungary, Italy, Moldova and Slovenia.

[32] The signatory countries were Albania, BiH, Bulgaria, Croatia, Romania, Turkey, Serbia and Montenegro (from June 8th, 2006, both are recognized as independent states), Macedonia (FYR) and Kosovo (UNMIK). Greece, Italy and Austria were denominated as political participants to the process while Hungary, Moldova and Slovenia had the "observer country" status.

ISBN: 978-605-64453-2-3

regulated third party access to the transmission network, gradual opening of the electricity market, development of mechanisms for market control, definition of harmonized market and network rules and fees for cross-border electricity transmission as well as the definition of congestion management mechanisms (Majstrović, 2004).

The basic prerequisite for the establishment of the REM was to reconnect two synchronous Union for the Co-ordination of Transmission of Electricity (UCTE) zones which was conducted on October 10th, 2004. This event marked the reconnection of electricity sectors in Western and Southern Europe.[33] One year later (on October 25th, 2005), the Treaty establishing the Energy Community was signed in Athens and it entered into force on July 1st, 2006. This allowed the creation of the biggest internal electricity (and gas) market in the world with effective participation of EU Member States (25 at that time) and 9 countries of SEE.[34] The fundamental task of the Energy Community is to establish cooperation between the signatory countries and the creation of a single stable regulatory and market framework attractive for new investments in electricity transit (and gas transport) and energy production infrastructure. Furthermore, the Energy Community is focused on the development of market competition, increasing the security of energy supply in the region (through connections with the Caspian, North African and Middle East gas reserves and using the region's natural gas reserves, coal and hydro energy) and on improving the environment through increased energy efficiency and greater usage of renewable energy resources (Vlahinić-Dizdarević, 2010).

In the context of the REM Croatia has committed itself to implement the relevant Energy Community acquis in accordance with the implementation timetable. Within the Energy Community's framework (and thus the EU's internal electricity market), Croatia adapted its Energy Strategy to the new conditions and opted to play an active role in the regional electricity sector primarily due to its favourable geopolitical position and transit potential. With the reconnection of two UCTE zones in 2004, Croatia emerged from a peripheral located country without greater electricity import, export and transit possibilities (due to war devastations and the consequent separation of two synchronous UCTE zones in 1991 which left the Croatian electricity sector on the edge of the first synchronous zone and radially connected to the rest of the UCTE network only across Slovenia) to a central transit route between Eastern and Western Europe. This is the result of Croatia's specific geographical shape[35] but also a result of an integrated transmission network planning in the former republics of Yugoslavia (Majstrović, 2004). The aforementioned UCTE reconnection significantly intensified electricity trading, especially cross-border, and also had a positive influence on the process of electricity market liberalization in Europe. The potential benefits of the REM for Croatia (and other countries in the region) can be related with reducing the need for installed generating capacities while maintaining the same level of system security, better use of favourable hydrological conditions, the possibility of increased competition, increased efficiency of the electricity sector and reduced labour costs. Croatia's specific geographical location and shape of its national territory makes it is possible to establish direct telecommunication links with all neighbouring dispatch centres. In that way the Croatian National Dispatch Centre can become a regional or sub-regional coordination centre in which all the necessary technical data could be collected, exchanged and processed (Majstrović, 2004).

According to Granić (2009), possible areas of cooperation between the countries in the region include linking the transport/transit networks (for electricity, natural gas and oil), harmonization of legislation, establishment of institutions necessary for market development and system security in the region, creating a supportive environment for investments in the energy sector, linking professional and scientific institutions and energy centres as well as the development of regional electricity exchange. The establishment of a regional electricity exchange in Croatia was a strategic plan of HEP Group announced in 2012 and its realization was expected by the middle of 2013. By removing HEP's former chief executive officer (CEO) the project was put on hold. At the end of 2013, HROTE Ltd. and HOPS Ltd. signed a Business Cooperation Agreement regarding the establishment of the Croatian electricity exchange thus reaffirming the importance of regional

[33] The separation of the single synchronous Union for the Co-ordination of Production and Transmission of Electricity (UCPTE) area (now UCTE) occurred after the significant destruction of key parts of the electricity transmission network in Croatia (especially Eastern Slavonia) and BiH during the war aggression on Croatia in 1991 and BiH in 1992.

[34] Albania, BiH, Bulgaria, Montenegro, Croatia, Macedonia (FYR), Romania, Serbia and Kosovo (UNMIK). Meanwhile, Bulgaria and Romania (on January 1st, 2007) and Croatia (on July 1st, 2013) became EU Member States. Moldova (on May 1st, 2010) and Ukraine (on February 1st, 2011) signed the Energy Community Treaty. Norway, Turkey and Armenia have the "observer country" status while Georgia has the "candidate country" status. In October 2013, following the third harmonization with the EU legislation and efforts to establish the so-called Pan-European energy market, the Ministerial Council has unanimously decided to extend the duration of the Energy Community Treaty for an additional 10 years.

[35] According to Kulić et al. (2007, p. 440), Croatia's location represents a geographical connection between the Northern, Central and Southern Europe which initially makes the Croatian territory geopolitically very attractive.

ISBN: 978-605-64453-2-3

cooperation and the importance of connecting Croatian exchange with the national electricity exchanges in Croatia's vicinity.[36] At the EU level, the final date for connecting national electricity exchanges, including Croatia, is set to December 31st, 2014.

5 CONCLUSION

Geographically speaking the SEE region covers the area of 613,317 km^2 and approximately 53 million inhabitants. Due to its favourable geopolitical position and transit potential, Croatia has to finally take an active role in the REM. In other words, HEP Group should enter more vigorously on the market of neighbouring countries and achieve its aspirations in becoming the leading company in the region. The formal harmonization with the latest relevant EU legislation and Croatia's position as a central electricity transit route between Eastern and Western Europe (due to reconnection of two UCTE zones) could enthrone Croatia and HEP Group as a regional leader. The potential benefits (reducing the need for installed generating capacities while maintaining the same level of system security, better use of favourable hydrological conditions, the possibility of increased competition, increased efficiency of the electricity sector and reduced labour costs) are worth the effort. Also, the Croatian National Dispatch Centre could finally bear the burden of being a regional or sub-regional coordination centre. Today, after 32 years and 7 years of renovation, Croatia has a new and modernized national dispatch centre for electricity sector management. From only one location (in Croatia's capital city) the entire Croatian electricity network can be managed (for example, balancing the electricity consumption and generation, resolving the disturbances in the sector and reducing the losses in electricity transmission). This serves as a clear example that Croatia is one of the leaders in Europe regarding the quality of controlling the electricity network. If the plans of establishing the Croatian electricity exchange should realize by the end of 2014 then Croatia and HEP Group will definitely (re)affirm their importance in the regional electricity sector.

REFERENCE LIST

EKONERG, Institute of electricity and energy Inc., & Law Office Tilošanec (2010). The Study on the harmonization of the Croatian energy sector and legislation with the EU's energy legislation. Ministry of Economy, Labour and Entrepreneurship, Zagreb.

Energy Institute Hrvoje Požar (2013). Energy in Croatia 2012. December 2013, Zagreb.

Eurostat (2014): Statistical database. http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database (retrieved on November 7th, 2014).

Granić, G. (2009). State and development of Southeast European energy sector [Stanje i razvoj energetskog sektora jugoistočne Europe], http://www.eihp.hr/hrvatski/prilozi_novosti/stanje%20i%20razvoj%20energetskog%20sektora%20ji%20europe.pdf (retrieved on January 22nd, 2014).

HEP Group (2013). Annual report 2013. http://www.hep.hr/hep/publikacije/godisnje/2013godisnje.pdf (retrieved on October 29th, 2014).

HEP Group (2010). What the EU's Third Energy Package brings Croatia? [Što Hrvatskoj donosi Treći paket propisa EU-a?]. HEP News [HEP Vjesnik], No. 238-239/278-279, November/December 2010, Zagreb.

Kulić, S., Aralica, Z., & Cvijanović, V. (2007). Holistic approach to the possibility of positioning a company on the Southeast European market – the case of Hrvatska Elektroprivreda (The Croatian electricity company). Economic review, 58 (7-8).

Majstrović, G. (2004). Regional electricity market in Southeast Europe and the role of Croatia [Regionalno tržište električne energije u jugoistočnoj Europi i uloga Hrvatske]. Electro [Elektro], No. 6, December 2004, http://www.eihp.hr/~gmajstro/Elektro%20-%20REM.pdf (retrieved on January 22nd, 2014).

Official Gazette (1997). Act on ratification of the European Energy Charter Treaty. No. 15/1997, February 11th, 1997. Zagreb.

Official Gazette (1998). Regulation on the ratification of the Protocol on energy efficiency and related

[36] However, the potential leadership position of the HEP Group on the REM, which among other things depends on the quality of corporate governance, could be threaten by Serbia when it comes to electricity exchange. The start of the Serbian electricity exchange (SEPEX) is expected by the end of 2014. By 2018, when SEPEX is expected to work at full capacity, Serbia pretends to become a leader in the region.

ISBN: 978-605-64453-2-3

environmental aspects. No. 7/1998, January 23rd, 1998. Zagreb.

Official Gazette (2001). Energy Act, Electricity Market Act, Regulation of Energy Operations Act, Gas Market Act, Oil and Petroleum Products Market Act. No. 68/2001, July 27th, 2001. Zagreb.

Official Gazette (2002). Decision on giving the approval to HEP Inc. to establish a company Croatian independent system and market operator Ltd. No. 1/2002, January 3rd, 2002. Zagreb.

Official Gazette (2002). HEP Privatization Act. No. 32/2002, March 28th, 2002. Zagreb.

Official Gazette (2002). Energy Strategy of the Republic of Croatia. No. 38/2002, April 16th, 2002. Zagreb.

Official Gazette (2004). Electricity Market Act, Regulation of Energy Operations Act and Amendments to the Energy Act. No. 177/2004, December 15th, 2004. Zagreb.

Official Gazette (2009). Energy Strategy of the Republic of Croatia. No. 130/2009, October 30th, 2009. Zagreb.

Official Gazette (2010). Act on Cessation of the HEP Privatization Act. No. 21/2010, February 15th, 2010, Zagreb.

Official Gazette (2012). Energy Act and the Regulation of Energy Operations Act. No. 120/2012, October 31st, 2012. Zagreb.

Official Gazette (2013). Electricity Market Act. No. 22/2013, February 22nd, 2013. Zagreb.

Pollitt, M. (2009). Evaluating the evidence on electricity reform: Lessons for the South East Europe (SEE) market. Utilities Policy, 17 (1).

Teodorović, I., Aralica, Z., & Redžepagić, D. (2006). Energy policy of the EU and Croatian perspective [Energetska politika EU i hrvatske perspektive]. Economics [Ekonomija], 13 (1).

Tešnjak, S., Banovac, E., & Kuzle, I. (2009). Electricity market [Tržište električne energije]. Graphis, Zagreb.

The Athens Memorandum (2002). Memorandum of Understanding on the Regional Electricity Market in South East Europe and its Integration into the European Union Internal Electricity Market. November 15th, 2002. Athens.

The Athens Memorandum (2003). Memorandum of Understanding on the Regional Electricity Market in South East Europe and its Integration into the European Union Internal Electricity Market, December 8th, 2003. Athens.

Tominov, I. (2008). Liberalization of the electricity market – is it meeting expectations?. Energy [Energija], 57 (3).

Udovičić, B. (2004). Unsustainability of sustainable development: energy resources in globalization and free market [Neodrživost održivog razvoja: energetski resursi u globalizaciji i slobodnom tržištu]. Kigen, Zagreb.

Vlahinić-Dizdarević, N. (2010). Preconditions and impacts of regional electricity market in Southeast Europe. In: Economic integrations, competition and cooperation. Kandžija, V., & Kumar, A. (Eds.), Faculty of Economics, University of Rijeka, Rijeka.

Vlahinić-Dizdarević, N., & Žiković, S. (2011). Energy economics – selected topics [Ekonomija energetskog sektora – izabrane teme]. Faculty of Economics, University of Rijeka, Solution Ltd., Rijeka.

Vlahinić, N. (2014). Energy market reforms in Croatia: challenges and perspectives. Journal of International Scientific Publications, 8.

*** http://www.delhrv.ec.europa.eu/?lang=hr&content=2744 (retrieved on January 12th, 2014).

*** http://www.hera.hr/hrvatski/html/dozvole_tab01.html (retrieved on October 29th, 2014).

*** http://www.hera.hr/hr/html/dozvole.html (retrieved on October 30th, 2014).

*** http://www.hep.hr/ods/en/customers/default.aspx (retrieved on November 1st, 2014).

*** http://www.hera.hr/hr/html/dozvole_tab04.html (retrieved on November 1st, 2014).

***http://www.glas-slavonije.hr/228744/1/Iz-HEP-a-otislo-gotovo-70-tisuca-potrosaca (retrieved on November 1st, 2014).

ISBN: 978-605-64453-2-3

*** http://www.hera.hr/hr/html/dozvole_tab04a.html (retrieved on November 2nd, 2014).

*** http://www.hrote.hr/default.aspx?id=100 (retrieved on November 2nd, 2014).

*** http://www.hera.hr/en/html/activities.html (retrieved on November 5th, 2014).

*** http://www.stabilitypact.org/about/default.asp (retrieved on November 18th, 2014).

ISBN: 978-605-64453-2-3