UNBUNDLING OF THE PUBLIC ENTERPRISE "ELECTRIC POWER INDUSTRY OF SERBIA" WITH THE EMPHASIS ON THE ROLE OF THE ELECTRICITY TRADE DEPARTMENT

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ABSTRACT

The restructuring of the electricity sector in the Republic of Serbia started in July 2004 with the new Energy Law coming into force. One year later, in July 2005, vertically integrated state-owned Public Enterprise "Electric Power Industry of Serbia" was restructured, thus forming two new public enterprises. One is Serbian Transmission System and Market Operator - PE EMS and the other is the novel "Electric Power Industry of Serbia" - PE EPS, with new structure, responsibilities and obligations. The Energy Agency of the Republic of Serbia was legally established as a regulatory body in June 2005 and one year later, it started issuing licenses for activities in energy sector. After the description of the abovementioned unbundling processes, the basic information about EPS' operation results in the past decade and future investment plans are presented, as well as the enterprise new organizational scheme. The organizational novelty represents introduction of the trade function in EPS, as a combination of optimal production planning and electricity trade of generation surpluses and deficits at the foreign markets, by establishment of the new Electricity trade department. Further, the redefining of supply regions and functional restructuring of EPS' Electricity distribution companies is given, with plans and prospective of their future development. At the very end, the vision of the whole EPS development in forthcoming years is presented.

INTRODUCTION

In October 2004, electric power systems of South-Eastern Europe were reconnected to the UCTE network after more than a decade. Electric power system of Serbia was enabled to reassume its position in European interconnection and to improve system stability, abiding the accepted UCTE rules. The reconnection also enabled electricity trade in a wider area and created the basis for the forthcoming establishment of an organized modern electricity market, in individual countries as well as on a regional level.

In line with the Directives of the European Union and the principles established by the European Commission for the restructuring of energy sector in the EU countries as well as in the countries that aim to join the European Union, and also with the Athens Memoranda relating to the establishment of the Energy Community (of South-Eastern Europe), the new Energy Law of the Republic of Serbia [1] came into force on 24th July 2004. Application of this law resulted in creation of new companies and market entities in energy sector and in establishment of new rules and relations different to those in former vertically integrated public enterprises.

RESTRUCTURING OF THE ELECTRICITY SECTOR

Energy legislation in Serbia is adapted to modern trends in Europe, i.e. it is harmonized with the EC Directive No. 2003/54. The Energy Law particularly defines electricity generation, electricity transmission, transmission system operation, electricity market organization, electricity distribution, electricity distribution system operation and electricity trade as activities in electric power sector. Concerning the electricity trade, the Law defines principles of electricity market operations, issuing license to market participants, electricity market organization and requirements for the qualified customer status.

As far as international cooperation is concerned, on 25th October 2005, Energy Community Treaty was signed and hereafter ratified in the Parliament of the Republic of Serbia in July 2006. By the Treaty, the energy community between EU countries and 8 South-Eastern European countries was formed. This Treaty reflects determination of signatory countries to improve, with joint efforts, regional balance between generation/supply and consumption of energy, which is crucial for viable economic development of these countries, as well as to implement all the necessary reforms in order to bring operations in the sector in line with standards and practices of EU.

Once the adequate legal regulation had been enacted, new market entities were established as a basic prerequisite for electricity market liberalization in Serbia and its inclusion into regional and Internal European Market.

Newly established market entities

In accordance with the Energy Law, The Energy Efficiency Agency [2] was established on 4th October 2004, with the main goal to increase the energy usage efficiency, reduction of the energy needs by promoting rational usage of the energy resources, development of renewable energy resources and establishment of the energy efficiency fond for financing energy saving projects.

Energy Agency of the Republic of Serbia [3] was also established, on 16th June 2005, as a regulatory body for

performing the following tasks: enhancing and directing the development of the energy market in accordance with the principles of non-discrimination and effective competition, monitoring the implementation of regulation and energy systems operating codes, harmonizing the activities of energy entities in providing regular supply of energy and services to customers and ensuring customers' protection and equal treatment. In June 2006, the Agency started with issuing licenses for carrying out electric power industry related activities and activities in electricity market in Serbia. So far the Agency has issued 14 licenses for electricity trading in the electricity market.

Since tariff system is one of the most important elements of the reform of the energy sector and a prerequisite for energy market opening, one of the first tasks of the Agency was to enact the tariff system. Therefore, the tariff systems for access and usage of the electricity transmission and distribution systems, as well as for electricity settlement for tariff customers were adopted on 28th December 2006 and are going to be implemented from 1st April 2007. Tariff system regulates the prices of access and usage of electric power networks, which enables qualified customers, who acquired the right of choosing their suppliers, to view transparently distribution and transmission network usage costs, as well as the cost of each individual service. After 1st January 2007, status of qualified customer is available to all the consumers with annual consumption of at least 3 GWh (the former limit was 25 GWh). Currently there are around 350 such consumers. For the whole region of South-Eastern Europe the total opening of the market, which includes households as well, is scheduled by the Energy Community Treaty for the year 2015.

Based on the Energy Law, two new public enterprises from former vertically integrated public enterprise were founded on 1st July 2005:

- PE EPS (JP Elektroprivreda Srbije) [4], whose core activities are coal and electricity generation, electricity distribution and electricity trade, and
- PE EMS (JP Elektromreža Srbije) [5], Transmission System and Market Operator in Serbia, with core activities in electricity transmission, transmission system operation and electricity market organization. Preparation of the adequate rules for market operation (Market Code and accompanying contracts), with French TSO involved as a consultant, is almost over. Adhering to the principles of the Regulation EC 1228/2003, EMS applies transparent and non-discriminatory methods for allocation of cross-border transmission capacities (by pro-rata method), and from 1st January 2007 explicit auctions have been introduced at western borders with Croatia and Bosnia and Herzegovina.

ELECTRICITY PRODUCTION & FINANCIAL RESULTS AND PLANS OF EPS

Starting from year 2000, within the just finished programme of the European Agency for Reconstruction, general overhauls in amount of 150 million € have been carried out in almost all thermal generation capacities of EPS. They resulted in increased generation and raised reliability of operation. At the moment, the emphasis is on ecology, and until 2015 the investment in environmental protection of 1.2 billion € is planned, namely the installation of electro-filters in remaining thermal power plants, ecological storage of waste, and introduction of ISO 14001 quality system (financed from EPS' own resources and credits).

Activities related to expropriation of land and expansion of the existing open pits in mining basins in order to satisfy increased needs of repaired thermal power plants, as well as for needs of future thermal power plants, are being carried out intensively. For instance, the tender documentation preparation for resumption of Kolubara B TPP (2x350 MW) construction with strategic partner is drawing to an end. The commissioning of the said facility, which is nearby the capital of Belgrade, is scheduled for the year 2012. In addition, installation of the third unit with the power of 600 MW in the nearby TENT B thermal power plant is under comprehensive consideration. In near future, revitalization, with an increase in power grater than 60 MW, of the large hydro power plant on the river Danube – Djerdap 1 (P_{inst}=1058 MW), as well as Bajina Basta HPP (P_{inst}=360 MW) on the river Drina, shall be realized. The revitalization and modernization of CHP Novi Sad as a CCGT is also planned.

The basic energy indicators of Serbian power system operation in the last decade are shown in Figure 1.

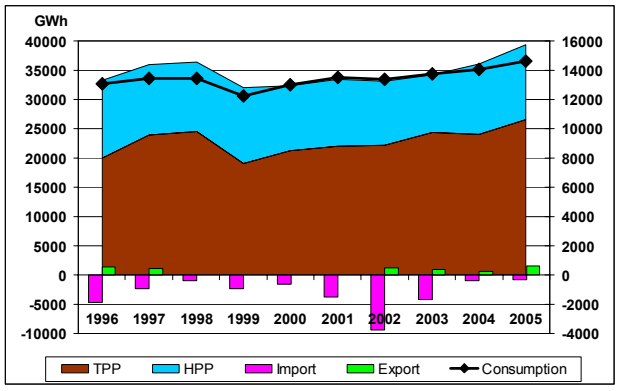

Figure 1: Thermal&hydro production, gross consumption, and commercial import&export (data for 1996-2005)

On the Figure 1, the values on the axis on the left-hand side represent electricity production and consumption, while the values on the right-hand side axis represent electricity import and export on commercial basis. In the period 2001-2005, electricity production increased by 6.3%, production unit availability increased by 13% and the coefficient of forced outages decreased by 45%. Overburden-removal in lignite capacities is increased by 79%, transmission losses decreased by 17%, import decreased by 44% and collection rate is increased from 65% to 97%. Production costs per MWh decreased by 16%. The country's significant

dependence on the import, particularly during the winter period, was overcome primarily due to the revitalization of generation capacities, thus during the last year winter import was covered by spring export mainly from hydro surpluses. In the period 1st January 2006 - 1st August 2006, EPS sold electricity in amount of 503.68 GWh. The importance of the result may be understood in the best way if we take into consideration the fact that during the previous winter (December 2005 - March 2006) EPS had to import 345.68 GWh of electricity to meet the needs of tariff customers. More significant effects of electricity trade are expected in EPS in 2007.

THE NEW ORGANISATIONAL SCHEME AND INTRODUCTION OF TRADING FUNCTION IN EPS

In determining new organizational structure of the company, the aim was efficient performance of existing activities and introduction of new ones, as well as reduction of costs. New enterprise was established through complete reorganization of the company and it consists now of EPS with 7 departments (among them is also Department for electricity generation, transmission and distribution and coal production on the territory of Kosovo and Metohia) and two independent sectors, as well as of a number of Economic Associations for electricity generation and distribution and coal production. Thus, 2 EAs for hydro generation, 1 EA for thermal generation, 1 EA for coal production, 1 EA both for thermal generation and coal production and 1 EA for electricity and thermal co-generation were formed. In addition, territorial and organizational change in 10 electricity distribution companies was carried out and 5 new Economic Associations for electricity distribution were created out of them. During the process, 27 companies with non-sector activities with 17000 employees were outsourced from EPS. This process as well as the departure of employees through redundancy payments resulted in the overall number of EPS' employees decreasing from 61000 in 2001 to 35000 in 2006. The distinguished international consulting agency started the project on organizational and financial restructuring of EPS in December 2006. This project should, in accordance with EPS' needs, come to an end in mid 2007 and provide a significant contribution to fulfilment of company's strategic goals and enhancement of its effectiveness and efficiency.

The most important novelty in EPS is the combining of the optimal production planning and electricity trade into Electricity Trade Department, with main goal to ensure secure electricity supply for tariff customers, and on the other hand sale of surpluses, purchase of lacking quantities and electricity resale.

The Control Centre is formed within the Department with core activity of operation planning and real time generation dispatch. SDDP and e-terracommit programme packages for long-term and short-term system operation planning are used as software support. Supervision of generation capacities operation is realized through new SCADA system. Modern IT web-based system with accompanying database is implemented, serving to compile and process data for EPS operation analyses reporting to the management of the company at all levels and to the competent state institutions.

On 16th June 2006, The Energy Agency of the Republic of Serbia issued to EPS the license to trade electricity on the market, as well as to trade electricity for tariff customers' supply. In that way, the role of EPS as electricity trader in Serbia became official. Electricity trade should be developed in such manner to contribute directly to increase in revenues of EPS and to stimulate increase in efficiency of the company.

The most important success of the Electricity Trade Department is that, although recently formed, it has experts who are to a great extent qualified to carry out all foreseen tasks in new market environment. In this way, the Electricity Trade Department and EPS are preparing for the forthcoming market conditions. Within the activities envisaged for 2007, electricity purchase contract between EPS and Economic Associations for electricity generation and electricity sales contract between EPS and Economic Associations for electricity distribution are planned to be signed. Thereby, EPS overtakes in full the role of electricity wholesaler in Serbia. In the beginning of 2007, activation of EPS' license for trade in electricity market and significant improvement of EPS' trading activities are planned.

ELECTRICITY DISTRIBUTION COMPANIES

On the basis of the Energy Law, previously existing 10 distribution companies were regrouped on 1st January 2006 into 5 Economic Associations for electricity distribution. Their geographical layout is shown in Figure 2.

Figure 2: Economic Associations for electricity distribution

In conformity with the "Programme of energy development of the Republic of Serbia until 2015" [6], Distribution system development plan foresees fulfilment of the priorities in the sector: electric power facilities modernization, energy efficiency increase and exploitation of new renewable sources. Reconstruction, revitalization, extension and modernization of existing electric power facilities and construction of the new ones are in plan. All of this is heading towards increased stability and reliability of distribution system, enlargement of the existing capacities (which will enable new customers to connect to the network), decrease number and duration of faults, quality supply improvement, as well as decrease of technical and non-technical losses. Reduction of operational costs through modernization and automation of the system is also planed, as well as improvement of ecological environment through installation of ecologically acceptable materials and construction of facilities in conformity with the ecological requirements.

Installation of special metering devices for quality control of electricity supplied and recording quality changes of delivered electricity (pilot projects in Negotin region), application of the fast identification and location of faults in the distribution network and development of unique information system and database are scheduled.

Electricity consumption programme for rational usage and energy efficiency includes substitution of electricity by natural-gas in all cases in which electricity is used for heating. It also includes energy efficiency increase in distribution systems and customers. Therefore, in Serbia changing the used-out devices and lamps for more efficient ones is suggested, which may directly influence electricity consumption reduction. In this aspect, recently signed Contract for 400 km long gas pipeline construction across Serbia (from Bulgaria to Croatia) that should be finished by the end of 2009 is very important. This pipeline, which is extension of the Blue Stream delivery route, may lead to significant electricity consumption reduction, and also it could induce construction of significant gas plants in Serbia.

Programme of harnessing renewable energy sources covers sun energy, wind energy and economically acceptable hydro-potential. The plan is to define conditions for these projects and to have the regulations passed as soon as possible, all that in order to urge development of renewable energy sources.

The increase of operational efficiency of electricity distribution Economic Associations is intended with primary purpose to enable their competitiveness in the new market environment. Construction of new small IPPs, connected to distribution network, is expected. Thereat, it is necessary to provide stable distribution network operation and introduce regulation for small power plants connection to the network and their operation.

Decrease in level of technical and non-technical losses, modernization of metering devices and implementation of remote meter reading systems and consumption remote control systems for certain groups of consumers are foreseen. At the end of 2006, contracts in amount of 5 million € for delivery of 140 000 metering devices were concluded, and the devices will be installed during 2007. All metering devices (around 3 300 000) in Serbia are planned to be replaced with new ones within next 10 years.

The Economic Associations for electricity distribution are in the process of establishing electricity trade function within the scope of their activities. All 5 Economic Associations were issued a license for retail electricity trade and they will supply customers in Serbia. It is expected each Economic Association for electricity distribution to pass Distribution Code and takeover the role of Distribution System Operator (DSO) within EPS in the first half of 2007. This would result in creation of 5 DSOs. In the first period, unbundling of customers supply function and electricity transmission through distribution network within Economic Associations is scheduled, and in future, these activities will probably be completely separated into different companies.

CONCLUSION

In spite of the significant consumption increase – partly due to the non-economic price of electricity in Serbia and its non-compliance with prices of other energy resources, and the expected electricity deficit in the region in next few years (one of the reasons is decommissioning of 2 units, each 440 MW, in Bulgarian NPP Kozloduy), EPS as a state-owned company, has the obligation to supply its tariff customers which makes EPS face great challenge in near future. Disregarding unfavourable circumstances, EPS has serious development plans and the vision of promoting its business operation in the market environment. After financial consolidation in the previous period, EPS now turns towards its further development, better exploitation of the existing generation capacities, on market trade development and new investments in generation capacities with foreign partners. In accordance with these plans, the aim of EPS is to become a leading company in the regional market and a competitive player in European environment in the forthcoming period.

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