Reforms in Kosovo’s power System

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Abstract: -Within the South East European Integrations, the power sector reforms in Kosovo’s have recently stared with a certain dynamic of developments. The main ongoing activities are directed towards the process of further unbundling and restructuring of this sector. Actually, preparing the existing lignite mines, generation units and the network for concession and/or privatisation are the main issues of interest. The important changes are expected to happen in the area of reorganising and operation with the existing power system of Kosova.

Key words: - Power System, Power System Restructuring, Regional electricity market.

1 Kosovo’s power system main characteristics

Republic of Kosovo is the youngest country in Europe with 10,908 km², about 2.1 million inhabitants and with the national gross production of 1,565 $/capita.

Since 1999, the load-shed is still one of the main measures that is applied in order to cover the high demands in Kosova. Therefore the local power company is applying the ABC power supply regime with an average ratio of 5:1. The actual domestic generation units can cover about 90-95% of the demand, while the remaining part is secured by very expensive electricity imports from the regional market and application of load-shed plan. During the high electricity demand season, the transmission and distribution network is characterised with the bottlenecks because of insufficient transforming and transmission capacities. The actual transmission capacities of the net are limited to a maximum of 900 MW, which is about 85% of the last winter demand of about 1,050 MW.

Electricity in Kosovo is produced by three companies: (i) KEK J.S.C with lignite generation units, (ii) Ibër-Lepenc hydro system with hydro power plant Ujman and (iii) the private producer with a small hydro power plant Lumbardh.

In 2007, the Kosovo’s generation units have produced about 4.32 TWh from which 98% was produced by the existing lignite generation units.

The main electricity producer in Kosovo is KEK J.S.C. with an overall production of 98.4% of the total electricity produced, while the remaining part of 1.6% is produced by the hydro power plant Ujman. Due to the operational and technical status of the existing lignite generation units, transmission and distribution network and problems with the fuel/lignite supply, the total domestic production of 4,582 GWh in 2007 was not sufficient to cover the demand. Therefore, in
order to support the domestic generation, about 540 GWh was imported from the regional market. In addition the load-shed plan was applied as well.

The peak demand of about 653 MW reached in 2000 is increased to about 933 MW for 2007. The annual increase of the demand within the analysed period 2000-2007 is 7%.

In 2007, the participation of direct consumers on the overall Kosovo’s power consumption structure was about 5.81%. The losses on the transmission net are 5.18%, while the gross consumption on the distribution net was 89.01%. In the structure of overall consumption of 4,076 GWh, the total losses (technical and commercial) were about 47%. On the remaining part of the controlled consumption, household is participating with 69%, while the commercial sector is booking the rest of 31%.

Based on the evaluation of losses, the technical losses on the distribution net are around 18% while the commercial ones are extremely high of approx 1,186 GWh. The power demand for 2007 is presented in the graph presentation bellow (Fig 1). Based on KEK data, the overall commercial losses (non-technical losses) for 2007 were about 1,333 GWh. In order to better understand the figure of commercial losses, figuratively we can say that complete annual generation from Kosovo A thermal power plant, including 19 GWh generated from Kosovo B TPP, all generation from Ujman hydro power plant and a small hydro power plant connected to the distribution net was engaged to cover these losses.

Based on the KEK electricity balance plan for year 2008, the overall forecast consumption of 4,921 GWh, is planned to be covered from the domestic generation of about 4,510 GWh, electricity import of 497 GWh and apply of ABC load-shed plan.

One of the main strategic targets of Kosovo’s power system/distribution net is to bring under control and management the uncontrolled electricity consumption. Considering the outcomes of the study (referenced under [4] bellow), by proper managing of the distribution net consumption and elimination of commercial losses, the actual consumption can be reduced for about 15%. These measures would allow conditions for uninterrupted and qualitative power supply to the consumers, power sector stabilising, unloading of the network and financial sustainability and independence of the local power company.

The actual government of Republic of Kosova, in his strategic mid term program (2008-2011) is planning to undertake all necessary measures in order to aggressively fight the commercial losses, increase the collection rate by engaging the additional institutional capacity resources. The power flow and related electricity consumption for year 2007 is presented bellow (Fig 1).

2 Restructuring to the integrated electric power utility company

During the period 1999-2007, the poor performance of the existing power system and weak services provided are caused by the following reasons:

- Domestic electricity production is not sufficient to cover the actual demand;
- A bad quality of services provided and power supply with load-shed;
- Bottlenecks due to technical and operational status of the transmission and distribution network including the insufficiency of the existing transforming capacities;
- The high technical and commercial losses since 1999;
- The very low billing and collection rate;
- High level of the demand increase in household sector because of using the electricity for heating purposes during the winter period.

Related to the power sector restructuring issue, each country has his own specificities. Based on
the Energy Strategy of Kosova, the restructuring objectives have been set out as follows:

- Improving of power sector performances;
- Coordination and operation within the integrated regional market;
- Comply with the existing EU Directives requirements, and
- Private capital participation and competitive market.

Based on above, the restructuring of the existing vertically integrated utility into a group of joint stock companies (Fig. 3), can be seen as an effective measure to overcome this difficult situation. Outsourcing of non-core businesses (i.e. transport, catering, security, medical centre, coal sales, etc.) was carried out during the period 2004-2005. In 2005, the publicly owned power utility KEK “Korporata Energjetike e Kosovës” has been incorporated into a new KEK Joint Stock Company. The transmission function has been split from KEK and an Transmission System and Market Operator J.S.C. (KOSTT J.S.C.) was established in July 2006.

The core business of KEK J.S.C. is (i) providing the fuel/lignite to the existing lignite generation units, (ii) power generation from the two existing lignite power plants and small hydro power plants connected to the distribution net and (iii) supply and operation with the existing distribution net.

The main functions of KOSTT are the managing and operation of Transmission Power System of Kosovo, the coordination of the operation with other regional power systems and UCTE grid code requirements within the integrated Interconnection Power System. KOSTT is responsible for power transmission through the existing high voltage (400/220/110 kV) network. As a Market Operator, KOSTT is responsible for the organisation and administration of traders in electricity and manage the settlement process. The backbone of Kosovo interconnected transmission system is a 400 kV network, which interconnects Kosovo with the Former Yugoslav Republic of Macedonia (FYROM), Montenegro and Serbia. There is also a 220 kV interconnection with Albania, FYROM and Serbia. The feasibility study for a new 400 kV line from Kosovo to Albania was completed in 2005. All lines of the 220 kV network are operational except the two lines from Kosovo A TPP to Skopje 1 SS in Macedonia. The existing 110 kV lines are operational as well, but further improvements are necessary due to overload. The Ministry of Energy and Mining has developed a strategy for the power sector which identifies as a priority the upgrade of transmission system as a perquisite for improving the quality of supply for increasing of the network security and reliability.

Kosovo is signatory party of Energy Community Treaty for Southeast Europe and KOSTT is a member of Southeast Transmission System Operator Task Force (SETSO Task Force).

KOSTT has developed a five years investment and development program 2007-2013 that identifies the investment needs in the upgrade of transmission network including the construction of the new 400/110 kV substation Ferizaj 2. In addition KOSTT has recommended the construction of the new 400/110 kV substation Peja 3 which will be funded by German Government through KfW.

The share-out and border determining of the assets was carried out without any difficulties. The network was shared based on the criteria that entire 400, 220 and 110 kV lines and all 110/X kV substations should belong to KOSTT, while all low voltage and middle voltage lines including the related switch yard equipment should be given to KEK. The relationships between KOSTT and KEK are clearly defined through the contracts prepared based on the rules and taxes for network use. By incorporation of previous KEK vertically integrated company, it is foreseen that the number of employees of the new established KEK and KOSTT Joint Stock Companies to be about 7,000 and 200 respectively.

Based on Energy Strategy Paper and Low on Energy listed under reference number [7] bellow, the Government has defined the strategy that the existing transmission and distribution network to be under the Government responsibility. The privatisation of generation division is foreseen to start with the pilot project and will depend from the first outcomes of the project, which will define how the process of the privatisation will continue.
Fig. 3 Transformation of a utility from vertically monopoly into a group of joint stock companies

The KEK J.S.C. unbundling process is ongoing, and it is estimated that for completion of this process would be needed about 2 years (Fig. 3).

As result of the next step restructuring of KEK J.S.C, it is expected to establish the unbundled Distribution System Operator, in order to increase the efficiency of the operation, reduce the cost and improve the security and reliability of power supply. The independent power producer from the new Thermal Power Plan Kosovo C is expected to start by around 2014/15, by when the fully open electricity market in Kosovo will start.

Considering the actual Government Program (March 2008), it is foreseen the possibility of giving the existing generation units and the mines to the IPPs (by concession) prior to contract conclusion for the new Kosovo C TPP. This intention is planned to be followed by preparing the related legislation and the implementation of already existing Energy Strategy dated 2005.

3 Ministry of energy and mining (MEM) and priorities in power sector

MEM is responsible for the energy policy making and decision making for entire power sector, which promotes market reforms and good governance. The Ministry has created the organizational and institutional pre-conditions for implementation of these competencies. Within period the 2004-2007 and onwards, is created a good suitable environment for the restructuring of the existing power sector in Kosovo, an effective introduction to the regional power market and further developing of the sector through appropriate private investments.

Since 2006 an introducing and opening of power market in Kosovo for all ≥110 kV eligible consumers has started, while since 2007 this was applied to all 35 kV level consumers.

Some of the highest priority projects about power sector in Kosovo with national and regional interest are as follow:

- Continuous and qualitative power supply and revenue collection improvement;
- Continuing with the market opening for the customers which are connected to 35 kV voltage level;
- Continuing with current power sector restructuring;
- New coal mine development and the rehabilitation of the existing generation units;
- The construction of the new Kosovo C Thermal Power Plant by private investment;
- Construction of the new 400/110 kV/300 MVA Substation Peja 3, (contract is already concluded, will be funded by German Government through KfW);
- Construction of the new 400/110 kV Substation Ferizaj 2 (possible co-funded project between European Commission and Kosovo Consolidated Budget or KOSTT);
- Implementation of SCADA EMS;
- Construction of two 400 kV interconnection lines to Albania and Macedonia;
- Construction of the new Hydro power plant Zhur with the rated capacity of 293 MW;
- Construction of the small hydro power plants and other renewable sources;
- Construction of the new and upgrading of the existing obsolete distribution network; and
Construction of the new National Dispatch Centre.

4 Privatising of regional power system

Time schedule, the form of power sector privatisation including its regionalisation, uncertainties, the way of restructuring and effectiveness of this process are the main issues of the interest of each Government.

Considering the fact that Kosovo’s power system is a small, the legacy problems from the period prior to 1999 (related to power supply, transmission and distribution, etc) are not yet settled. Therefore the privatisation can be seen as one of the possibilities to overcome these existing problems such as the obsolete generation capacities, insufficient transmission and distribution capacities, very high technical and commercial losses, very low collection rate, etc.

Based on the experience of privatisation of some distribution companies in the region, it can be concluded that the privatisation did not achieve all expectations such as the power supply quality improvement and the expected investments on the related distribution networks. The dynamic plan of development and modelling of power sector privatisation applied in the region was different depending from the actual conditions of the networks privatised, or have been postponed for a later stage. From the ex Yugoslav countries, only Macedonian distribution Net has privatised. The Croatian Government has decided to keep the distribution and transmission network under the public ownership until Croatia becomes a member of EU. Slovenia has planned that within the period of 2008-2009 to start with the first phase of privatisation of their existing generation units. The ownership after the first phase of privatisation will be: 51% will belong to Republic of Slovenia, 26% will be given to Strategic investor, the responsibilities for 5%-10% will be given to Slovenian citizens and 13-18% will be provided to portfolio investors. The second phase of privatisation that is planned to be implemented during the period 2012-2014 will change the share holding to the following: 26% to the Government, 40%-49% to Strategic investor, 10% to Slovenian citizens and 18%-24% to portfolio investors. This second phase is conditioned and will depend from the outcomes of the first phase. The practise of privatisation in some regional countries shows that by privatisation it was intended to compensate the Governments the deficiency in their related power sector development, the participation of the country to not be less than 51% at least until 2015 when is expected to start with the operation the power market. Considering the fact that the privatised power sector will be entirely stabilised, the specificities of power sector and the requirements to have the maximal benefit from the privatisation process of power sector, can be achieved.

5 Conclusion

The conclusions related to the privatisation of power sector can be summarised as follows:

- Detailed and necessary prior discussions including the relevant decisions that have to be taken based on the results of the studies;
- Proper defining of the objectives;
- Time schedule of privatisation of different sectors;
- The form of privatisation that has to be applied;
- Legal implications;
- The experience of privatisation that happened in other countries in the region; and
- Identification of potential investors.

References:

[3] Feasibility study for the new 400 kV interconnection line from TPP Kosovo B (Kosovo) to Kashar (Albania), World Bank Project, Energy sector technical assistance project II - Grant. No. H048, CESI, 2005.