

# Business Analysis and Recommendations for Reforming and Boosting EPS Investments

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## ***Fiscal Council of the Republic of Serbia***

According to the Fiscal Council's analysis, the Electric Power Industry of Serbia has to take a turn in its business operations and launch a new major investment cycle. By the 1990s, Serbia had a well-established power system, and EPS had excess generation capacity over the country's electricity needs. This made it possible to meet the growth of domestic consumption in the last thirty years without any problems, although not even enough was invested in the entire period to preserve existing generation capacities.

However, such business operations are no longer sustainable - in the last few years, domestic electricity demand has reached EPS generation capacity, and is expected to significantly exceed it in the next 5-10 years. Therefore, it is necessary for EPS to secure new capacity in the medium term.

Serbia should begin to prepare a long-term strategy for the development of its energy sector. In the coming decades, tectonic changes are expected in this sector. This primarily refers to the abandonment of coal as a major resource for electricity generation. Domestic coal reserves are limited and the question is whether sufficient quantities of good quality coal (which has already declined) can be provided.

On the other hand, the European Union poses serious barriers to the use of coal in electricity generation, which would also apply to Serbia in the event of full membership.

The biggest problem would be the introduction of carbon dioxide taxes: EPS would have to pay at least EUR 500 million a year in current emissions and prices per tonne of emissions, which would make its generation unprofitable.

The main problem with EPS is underinvestment, which has led to a decline in generation for several years and EPS is the largest environmental polluter in Serbia.

In the last five years, electricity generation has been falling and in 2018 it was about 3,000 GWh (8%) lower than in 2013. Behind this are systemic problems that do not provide sufficient coal for electricity generation. In addition, frequent generation delays have already slowed down the country's economic growth on several occasions.

Problems with EPS generation in the first half of 2017 knocked down GDP growth rates by 0.2-0.3 percentage points in the first half of 2017, with a negative impact on economic

growth repeated in the second half of 2018.

Another consequence of EPS' poor investment policy is that no plant currently meets all national and EU environmental regulations, making EPS individually the largest environmental polluter in Serbia and one of the largest air polluters in Europe - its thermal power plants top the list of plants with the largest emissions of pollutants. For example, in 2016, EPS emitted more sulphur dioxide than all lignite-fired thermal power plants in the EU combined, although its generation is ten times smaller.

EPS has committed to meeting the EU's requirements for pollution from thermal power plants by 2027.

The bulk of EPS' investment in reducing air pollution over the past ten years has been focused on building and upgrading electrostatic precipitators to reduce dust emissions. Solid results have been achieved in this field and their concentration in flue gas in 2018 at most plants was below or very close to the 50 mg/Nm<sup>3</sup> emission limit value (ELV).

The biggest problem is the high concentrations of sulphur dioxide, which, according to 2018 data, in Kostolac TPP were on average ten times higher than ELV (which is 400 mg/Nm<sup>3</sup>), in TENT approximately five times, and in Kolubara TPP about three times. In 2018, none of EPS' thermal power plants had a fully functional desulphurisation plant.

The situation is somewhat better when it comes to nitrogen oxide emissions, since their concentration in flue gases was generally below the national ELV of 500 mg/Nm<sup>3</sup> (except in Morava TPP and Kostolac B2 TPP). However, in the meantime, the EU has tightened regulations on the permissible concentration of nitrogen oxide and the new ELV is 200 mg/Nm<sup>3</sup>, which is therefore a new relevant limit for Serbia as well. In 2018, none of EPS' thermal power plants were compliant with the new regulations, which is why additional measures are needed to reduce nitrogen oxide emissions on virtually all thermal units.

## **The new investment cycle**

EPS needs an investment cycle worth EUR 5.6 billion to cover future electricity demand and comply with environmental regulations. With existing capacities, EPS generates, on average, little more than current domestic electricity consumption, and anticipated phased shutdown of eight obsolete thermal units by 2024 (TPP Kolubara A1, A2, A3 and A5, TPP Morava A1, TPP Kostolac A1 and CHPP Novi Sad) will reduce the otherwise insufficient generation capacity by about 5%.

Considering the expected growth in electricity demand over the next 5-10 years, the Fiscal Council estimates that EPS will lack capacity to generate more than 5,000 GWh per year.

The largest share of total EPS investments (85% or EUR 4.6 billion) is invested into upgrading and building new capacities: 1) for electricity generation (thermal power plants, hydroelectric power plants, wind farms); 2) for coal mining; 3) into the distribution system.

The remaining 15% (EUR 800 million) should be directed towards environmental protection, i.e. desulphurisation, denitrification and flue gas dedusting, construction of waste management systems and wastewater treatment plants.

EPS capital expenditure should increase from the current EUR 350-400 million to around EUR 600 million annually.

The key projects of the new generation facilities are the construction of the Kostolac B3 TPP and the wind farm (66 MW) and the solar power plant in Kostolac, which requires another EUR 450 million, securing additional 2,400 GWh annually.

To revitalize thermal power plants and hydroelectric power plants it is necessary to allocate some EUR 1.2 billion, thus contributing to generation increase by 500 GWh per year.

The required investments in the distribution network and more accurate measurement of the electricity consumed are estimated at EUR 1.2 billion, which would reduce the distribution losses by 500-1,000 GWh annually.

Therefore, the total value of existing investment projects is around EUR 2.8 billion, and the impact on increasing electricity supply is about 3.600 GWh per year. This means that in the medium term capacity should be provided to generate an additional 1,500-2,000 GWh per year, which would probably cost from EUR 400 million and upwards, depending on the alternative chosen.

The functioning of the EPS system also requires securing sufficient coal quantities, which entails an investment of around EUR 1.1 billion.

EPS' inability to supply the required quantities of coal of adequate quality has been a major cause of problems in electricity generation in recent years, which may have been averted by timely investment in mining sites.

Serbia does not have a realistic alternative to coal in the near future to generate enough electricity. Therefore, it is justified to increase investment in coal mining, which will enable the stable power system functioning in the next decade, provided that pollution from thermal power plants is harmonized with legal regulations.

Around EUR 800 million should be earmarked for surface mines in the Kolubara Mining Basin in order to maintain the existing annual production, and around EUR 300 million to expand the Drmno mine (from 9 to 12 million tons) to cover the needs of the Kostolac B3 TPP.

Total environmental investments by 2018 amounted to just over EUR 400 million, with only a third of the planned investments made.

EPS will need to invest another EUR 800 million by 2027 to align the operation of thermal power plants with environmental regulations. Serbia has committed to the EU in the National Emission Reduction Plan to implement it by 2027 at the latest.

Serbia recently received the first flue gas desulphurisation plant in TPP Kostolac B, which should soon be in full use. With approximately 130,000 tonnes of sulphur dioxide discharged in 2016, this facility was the absolute European record holder.

Desulphurization plants also need to be built in the remaining EPS-operated thermal power plants. In all plants, both primary and/or secondary measures for flue gas denitrification must be implemented and TENT (units A1 and A2) and Kostolac A TPP electrostatic precipitators upgraded.

Investments (both preparation and implementation stages) have started, with a total value of about EUR 400 million, while for the projects valued at around EUR 200 million it is necessary to start preparing the design documentation.

However, EPS is unable to provide over EUR 600 million annually for necessary investments from its present operations, an increase from the current level of over EUR 200 million.

In 2015-2018, EPS on average, made a profit of only a few tens of millions of euros - this is not close enough for sustainable investment financing. Since 2011, EPS has averaged a return on equity (ROE) of just 0.5%.

## **Reform measures**

The Fiscal Council estimates that EPS is a good medium-term goal of increasing profits to EUR 200-250 million annually.

The Council notes that reform of EPS is necessary to achieve this objective. The biggest problem is the excessive labour cost, which amounts to an average of about 30% of operating income (EPS allocates over 15% more compensation to employees compared to similar companies), due to the redundant and inadequate structure of employees and generous wage system. Therefore, the most important reform task is to ensure strict control over employee expenditures and to prepare appropriate job classification. The Fiscal Council notes that labour optimization can save at least EUR 50 million.

Although the problem of some of the largest debtors of EPS (such as RTB Bor and Železara Smederevo) has been resolved in the past few years, unpaid electricity losses (including interest) amount to around EUR 100 million a year. A new space for savings could be opened by interrupting the delivery of electricity to non-payers.

A specific problem in recent years is the significant EPS payments to the republic budget. In the period from 2015 to 2018, the company paid EUR 250 million to the budget, although in the same period it made a cumulative profit of EUR 150 million.

EPS would also have to put an end to the bad practices of merging unsuccessful SOEs that have no direct links to its core business.

After solving internal problems of EPS business operations, a gradual increase in the price of electricity should be allowed. A projected 3.9% price increase from December 2019 is a step in the right direction. In the medium term, the price increase should be 15%. This would also counteract irrational spending.