

Considering that their capacity is below 300 megawatts, the blocks A1 and A2 of the TPPNT, both blocks A of the TPP Kostolac, the TPPs Morava, Kolubara and Panonske Power Plants are the thermal power facilities of the EPS for which a successive withdrawal has been envisaged within the period up to 2025. Their average age amounts to more than 45 years, and their energy efficiency is below 30 percent. The average annual generation of these blocks amounts to 6.000 gigawatt-hours per year, which means that it will be necessary to provide replacement facilities in the following period.

Because of their scope and their cross-cutting character, harmonization with the European regulations within the field of ecology is a complex and extremely expensive process. The accession negotiations within this field refer to the 200 legal documents that make up as much as one third of the European regulations. According to estimates, the harmonization within this field will cost Serbia as much as 10.6 billion euros by the year 2030.

The key instrument which directs the energy policy of the countries within the region is the Treaty Establishing Energy Community, which obliges the nine Southeast European countries to implement the European regulations within the sphere of energy, environmental protection, competition and renewable energy.

The signatories to the Treaty Establishing Energy Community have undertaken to implement several EU directives. The Directive from the RER sphere obliges the EU member states that renewable energy should account for 20 percent of the total consumption by 2020. Along with the investments in renewable energy resources, in the countries within the region, the preparations for the implementation of the Large Combustion Plants Directive are underway, this Directive being essential for the Energy Community member states. This Directive prescribes the limit emissions of certain pollutants into the air from large combustion plants and its implementation has been postponed until 2027. Had the previous decision on implementing the directive by 2018 remained in force, the reduction in electricity generation from thermal power plants would have represented a serious threat to the energy system stability, considering that the projects directed towards the reduction in sulphur and nitrogen oxides are highly demanding financially and technically, as well as time-consuming.

The preparation of the EPS's facilities for the implementation of two key directives, the Large Combustion Plants Directive and the Industrial Emissions Directive, has already began and, should it continue at this pace, it is expected that the EPS will fulfill its obligations in time, which includes the installation of desulphurization and denitrification systems, as well as of high-frequency electrical filters (the projects are worth 635 million euros), but also the closedown of the blocks in which these measures will not be

implemented.

The projects implemented by the EPS with the aim of enabling the reduction of particles emissions are worth 625 million euros. The most expensive item is the desulphurization in the thermal power plants in Obrenovac and Kostolac, with the total worth of 426 million euros.

At the recently held conference on “Sustainable Development of Energy Sector in Southeast Europe”, Assistant Minister of Energy and Mining Miloš Banjac said that, in Serbia, the preparation of plans for implementing the European Large Combustion Plants Directive began in 2015, the aim of this directive being the reduction of pollution from energy facilities.

The Large Combustion Plants Directive (LCP) refers to the combustion plants the capacity of which is higher than or equal to 50 MW regardless of the kind of fuel used. The directive is aimed at limiting the emissions of sulfur-dioxide, nitrogen oxides and dust emitted by large combustion plants. The Industrial Emissions Directive (IED) consolidates the Directive on Integrated Pollution Prevention and Control (IPPC) and six other directives, including the Large Combustion Plants Directive, replaced by the IED in the member states as of 1st January 2016.

In the National Environmental Approximation Strategy for the Republic of Serbia, an analysis is presented which has shown that there will be no possibility of implementing the Large Combustion Plants Directive before 2023. Consequently, in October 2013, at the Energy Community Ministerial Council, Serbia started the initiative for postponing the implementation of this directive until 2023. The adoption of this decision was explained by the striving for energy stability and it also entails longer transitional periods for implementing the Industrial Emissions Directive.

By postponing the implementation of this Directive, we have evaded the situation in which energy stability would be jeopardized by the withdrawal of blocks with the installed capacity below 300 MW, for which replacement facilities have not been provided, and on the other hand, there is no economic justification for applying the most recent measures for reducing harmful emissions thereon. The overall capacity of these facilities amounts to more than 1.100 megawatts.

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blocks amounts to 6.000 gigawatt-hours per year, which means that it will be necessary to provide replacement facilities in the following period. The transitional period has been agreed upon at the suggestion of the Serbian delegation, with the explanation that, by closing down the TPP "Nikola Tesla" and the "Kolubara" mines, Serbia would be left without 50 percent of electricity.

Had the previous decision remained in force, the reduction of electricity generation from thermal power plants would amount to 10 billion kilowatt-hours in 2018, with respect to the average annual generation, and to more than seven billion kilowatt-hours in 2019 - considering that the blocks smaller than 300 megawatts would have to be shut down, as well as the TPPNT B in which the desulfurization system would not have been finished. The possibility of the "OPT-AUT" mechanism has also been introduced, which enables the use of 20.000 operating hours within the period from 2018 to 2023 for the blocks in which the implementation of protective measures has not been envisaged, with the possibility of their being put back into operation after being brought into conformity with the Industrial Emissions Directive.

Serbia has to act rapidly when it comes to alternatives, i.e. the replacement capacities for the thermal power blocks that will be withdrawn. The situation is not overly optimistic. The alternatives are energy facilities using renewable energy resources such as the hydro power plants, wind power plants, gas power plants. With the suspended construction of the South Stream, Serbia has also lost the possibility of constructing gas power plants. The construction of hydro power plants projects is proceeding very difficultly and all major projects have been stopped in some phase of implementation. The construction of several minor wind power plants in Vojvodina has been started, but the amounts of kilowatt-hours that can be generated in these plants are minor compared to the thermal power plants. Major investments in wind parks are still up in the air, because the financiers are waiting for suitable legal solutions when it comes to the purchase of electricity. As for increasing the use of biomass as a renewable energy resource, Serbia is near the upper limit of the utilization of possibilities with respect to wood biomass considering the existing dedicated plantations. There is greater development potential in agricultural biomass, but there are also certain problems. The agricultural biomass has a lower heat capacity, and it also involves certain problems when it comes to combustion.