

Emission reduction plan NERP and harmonization with LCD & IED directive for coal fired power plants in Republika Srpska BiH will be a severe burden for power utility ERS which have to invest more than 140MEUR in following few years. Bosnia and Hercegovina national emission reduction plan NERP will be calculated as joint emission formula for both of Bosnia power utilities, EPBiH and ERS from Republika Srpska entity. NERP formula will include the sum for all large furnaces emissions from all power plants operated by two power utilities. The NERP plan for power utility ERS Republika Srpska will be implemented from 1.1.2018-31.12.2027 and represents the gradual emission reduction subscribed from LCD directive in 2018 until the emission levels prescribed in IED until 2027. For each TPP unit, for each year and for each emission pollutant the separate emission sealing will be determined. Total emission sealing for ERS represents the sum of emissions from TPP Ugljevik and TPP Gacko.

Secretariat of Energy Community approved that the SO<sub>2</sub> emission sealing for TPP Ugljevik is calculated using the minimum level of flue gas desulphurization. FGD project in TPP Ugljevik is underway. In this way ERS received bigger emission sealing. Considering the fact that TPP Ugljevik will decrease the emissions on IED subscribed level, with this emission sealing TPP Gacko does not have to invest in FGD by 2023 which means that TPP Gacko needed investment amount is decreased for approximately 30MEUR.

Energy Community Secretariat enabled the flexibility of NERP implementation. All projects for which the funding is secured by 1.1.2018, and with proper implementation plan, the Secretariat will calculate them as implemented despite the fact that the equipment is still not installed in the power plants.

With implementation of this NERP plan, the power utility ERS will decrease the emissions in 2027. Investment costs are estimated at 145MEUR out of which 108MEUR needed for FGD project in TPP Ugljevik. Considering operative costs the electricity production costs in TPP Ugljevik will increase for 10Eur/MW and in TPP Gacko for 2,1Eur/MW.

NERP instructions prescribes that FGD facilities by 2023 will have to fulfill the condition for emission border equal to 200 mg/Nm<sup>3</sup>, which is line with IED directive.

TPP Gacko plans to invest in two existing ECP filters while the third will be replaced with bag filter. Existing filter ECP will be replaced with new one.

Entity of Republika Srpska power utility ERS operates with two large combustion power plants, both TPPs use dark or lignite coal with sulphur grade varying from 0,9% in Gacko and 4,3% in TPP Ugljevik. Current value of sulphur emissions in these facilities is 131.027 tons per year, 5997 tons on NO<sub>x</sub> and 4.363t of ash.

The NERP analysis was prepared considering border values of emissions for following

scenarios

Scenario 1, in which all border values are complied with LCD and IED directive

Scenario 2, in which border values for SO<sub>2</sub> are determined with minimum level of flue gas desulphurization for both TPP while the NO<sub>x</sub> and ash particles are like in Scenario 1

Scenario 2a, in which all border values for SO<sub>2</sub> are determined with minimum flue gas desulphurization for TPP Ugljevik while for TPP Gacko and NO<sub>x</sub> and ash emission are as in scenario 1.

After analysis ERS opted for Scenario 2a.

The costs of FGD investments are 108MEUR while NO<sub>x</sub> facility investment is 14MEUR, filters 20MEUR which makes total 142MEUR.

As for the dynamics of investment, TPP Ugljevik have to complete FGD project by 2018 while TPP Gacko have to invest in FGD in 2024. NO<sub>x</sub> projects have to be realized in TPP Gacko in 2019 and in TPP Ugljevik 2020. Filters have to be installed by 2018.

Due to the level of required investments ERS is hoping to find external international sources of financing.