

PARTICULATE AND GASEOUS POLLUTANTS AS BYPRODUCTS FROM THE COMBUSTION PROCESS IN LIGNITE FIRED POWER PLANTS. CASE: KOSOVA A AND KOSOVA B THERMAL POWER PLANTS

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Abstract

In Kosovo, more than 5000 GWh of electrical energy are produced annually. The electricity is predominantly generated, around 97%, from lignite fired thermal power plants and the other part, around 3% from hydro power plants. The abundance of Kosovo with considerable lignite resources around 14 Bt, the third richest country in Europe, and the insufficiencies of other alternative resources, make the orientation of policies for a sustainable energy development towards the energy generation through the combustion of lignite in thermal power plants. Electricity generation consumes annually an average of 7-8 Mt lignite. The consumption depends from the efficiency of TPP units, e.g. in the units of Kosova B the generation of 1MWh consumes 1.4t lignite, whilst in Kosova A around 1.8t/MWh. Lignite combustion process is associated with combustion byproducts: particulate and gaseous matter. The gaseous emissions consist mainly of CO₂, SO₂, and NO_x. The particulate matter is in the form of ash, bottom and fly ash. The impact of these emissions and particulate matter in the environment is significantly deteriorating: the CO₂ is a GHG, SO₂, and NO_x contribute to acidic rains. Fly ash and bottom ash are classified as particulate matter. Both bottom ash and fly ash as by products represent a great environmental issue. Around 1Mt of ash is produced annually by the combustion of lignite. For the moment this ash is only a waste dumped in piles. The increase of electricity consumption burns more tons of lignite, i.e. more tons of pollutants. The contribution of this paper is the analytical calculation of the emissions and production of these environmental pollutants resulting from the combustion process of lignite with the aim of finding out the ways of mitigating their harmful impact to the atmosphere and land around.

Keywords: *Lignite, fly ash, gaseous pollutants, particulate matter*