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ECO-EFFICIENCY INDICATORS IN THE EVALUATION OF ENVIRONMENTAL PERFORMANCE OF THERMAL POWER PLANTS

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Abstract

Eco-efficiency is a key concept which brings together two essential aspects for economic progress and ecological aspect. Eco-efficiency indicators are very relevant and play an important role for environmental cost management. For a thermal power plant, which has a great impact on the environment, these indicators involve lower costs and efficient use of energy, water and fuel. The paper proposes a number of eco-efficiency indicators applicable to a thermal power plant, according with specific literature. Also, the carbon dioxide emissions generated from thermal power plants has been taken into consideration. CO_2 is one of the greenhouse gases and the reduction of CO_2 emissions is a important target according to Kyoto Protocol and may lead to slowing of global warming. The following indicators have been calculated for CHP Bacau, the power plant analyzed into the study case: core energy intensity, global efficiency, core waste intensity, core water intensity, water discharge, total generated waste and specific carbon dioxide emissions. Once these eco-efficiency indicators are determinate, it is possible to benchmark and compare two or more thermal power plants. Analysis of the proposed eco-efficiency indicators is a real support for any thermal power plant in order to optimize its performance and financial indicators, to increase efficiency and for recording environmental impact.

Key words: eco-efficiency, energy intensity indicator, global efficiency, specific CO_2 emissions, waste intensity indicator, water intensity indicator

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