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REDUCING CARBON FOOTPRINT OF A WASTEWATER TREATMENT PLANT USING ADVANCED TREATMENT AND RENEWABLE ENERGY SOURCES

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Abstract

In this paper carbon footprint is estimated for wastewater treatment plant Constanta South, Romania, by using a combined model from the available protocols for carbon footprint calculation. Off-site and on-site emissions were taken into account. The carbon footprint calculations were based on the operational data regarding power consumptions, sludge, chemicals and biogas production. A prediction for carbon footprint is done for upgrading wastewater treatment plant. For the current plant technology it is found that 0.44-0.54 kg CO₂ eq have been released per cubic meter of treated wastewater for 2010-2013 years or 33.08-37.68 [kg CO₂eq/PE and year]. For the upgraded plant, taking into account design data and the credit for biogas usage, it is found that the GHG emissions will be reduced at 0.17 kg CO₂ eq per m³ treated wastewater or 32.33 [kg CO₂eq/PE and year].

Key words: carbon footprint, GHG emissions, renewable energy, wastewater treatment

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