

WANNISA WONGWATTANANAN : ASSESSMENT OF GREENHOUSE
GASES EMISSION OF BIOGAS PRODUCTION FROM MODIFIED
COVER LAGOON AND POWER PLANTS. THESIS ADVISOR :
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GREENHOUSE GASES EMISSION/BIOGAS/POWER PLANTS

The purpose of this research was to investigate the amount of greenhouse gases emission generated from Modified Cover Lagoon and the electricity generation process. Inlet waste water was from tapioca starch industry and data were collected from Industrial processes. The scope of assessment was consisted of biogas production processes and electricity generation processes. The biogas production processes were including wastewater inlet process, wastewater/sludge separation process, hydrolysis process, methane generation process (Methanogenesis) and outlet wastewater treatment process. The electricity generation processes were hydrogen sulfide removal process and generator process.

The results showed that the total greenhouse gas emission $0.6849 \text{ kg CO}_2\text{-eq/m}^3$ was emitted from the biogas production processes. The process of outlet wastewater treatment process was taken 98.76% or $0.6354 \text{ kg CO}_2\text{-eq/m}^3$. For electricity generation processes, total greenhouse gas emissions were released $0.9665 \text{ kg CO}_2\text{-eq/kWh}$. The process of generator was the highest greenhouse gas emissions equal to $0.6583 \text{ kg CO}_2\text{-eq/kWh}$ or 68.11% of the processes.

School of Mechanical Engineering

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