ABSTRACT

STUDY OF GREEN HOUSE GASSES EMISSION REDUCTION POTENTIAL FROM PALM OIL INDUSTRY BY INTEGRATED WASTE TREATMENT

By

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POME is generally treated by anaerobic process open lagoon system. Solid waste like shell and fiber are utilized as main material of electricity generator, whereas EFB is utilized as compost by applying aerobic composting method. Both of the processes potentially produce biogas with the main composition gasses are methane gas (CH_4) and carbon dioxide gas (CO_2) that are counted as green house gasses (GHG) which cause global warming. One of effort that can be done is by applying palm oil waste integrated treatment process. This research is purposed to find out the GHG emission potential of palm oil waste (POME) treatment conventionally and to find out the GHG emission reduction of palm oil industry by applying waste integrated treatment. This research was done by directly measuring the samples and calculating based on global emission factors. This research was done by using anaerobic digester for POME treatment process and anaerobic composting digester for EFB composting process. The results of this research showed that conventionally POME treatment has a potential to produce GHG emission, it is 215,24 kg CO_2/ton FFB. Palm oil waste integrated treatment process can reduce 288,49 kgCO_2e/Ton FFB GHG emission, that is 77 kgCO_2e/ton FFB from POME anaerobic treatment and 211,49 kg CO_2e/ton TBS from EFB composting.

Key words : POME, EFB, waste integrated treatment, GHG emission, global warming.