The Need for Biogas as An Alternative in The Treatment of Palm Oil Mill Effluent and Renewable Energy Generation

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Abstract

Biogas production from palm oil mill effluent (POME) is an effective alternative to control greenhouse gases (GHG) emissions and can provide the best effluent treatment of POME itself. The increasing demand for biogas has led to a total of 125 fully operational biogas plants in Malaysia and contributing to 28% of the national electricity grid revenue. For the palm oil industry, POME biogas can be used to meet the demand for electricity and heat consumption within the mill itself, as has been implemented in most of the KKS in Sabah. In 2020, Malaysia successfully generated around 48 MW of electricity from biogas sources, and this is estimated to be equivalent to preventing the release of 981 kilotons of carbon dioxide gas into the atmosphere. This shows that there is a demand and need for the use of biogas in Malaysia as one of the renewable energy sources, thus supporting the Malaysian government's intention to generate around 18,000 MW of renewable energy by 2035, which is around 40% of the total energy generation in Malaysia. The development of biogas systems in palm oil mills is very helpful to the palm oil mills in treating POME before it is released onto the ground and also into the water course. Biogas production is very good for the environment because it prevents the emission of greenhouse gases into the atmosphere and also reduces the need for fossil fuels. Not only that, biogas production has a positive impact on the non-energy sector, where this energy is generated from various types of organic waste and converted into valuable resources, which can help in developing the country's economy. Since Malaysia has many sources of organic materials needed to produce biogas, the government should provide more practical support and incentives to develop the development of biogas systems in the country. More studies are needed to identify sources of biogas production where the Government needs to inject a lot of funds into research in the field of biogas production, especially from POME considering that Malaysia is one of the largest oil producers in the world.

Keywords: *Biogas, palm oil mill effluent, greenhouse gases*