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## Utilization of oil palm biomass as a renewable and sustainable energy source in aceh province

(Article)

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### Abstract

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Oil palm production can convert and produce biomass waste, which has high energy value. Oil palm biomass (OPB) that can be discarded includes empty fruit bunches, palm oil leaves, stems, palm kernel shells and mesocarp fibres. Palm oil mills can produce a variety of products, one of which is renewable and sustainable energy, especially for power plant generators. This research concentrated on biomass-based cogeneration plant modelling and simulation. The objective of this article was to develop unit processes and configurations, simulate and optimize the cogeneration process in Aspen Plus simulator using biomass such as EFB, PKS and OPF as fuel. Moreover, this simulation is carried out to find the constant value of the biomass flow rate and the airflow rate and to do some variations with different variables and scenarios. Simulation results have shown results that are appropriate for the biomass flow rate of 5 kg/s with an airflow rate of 58.5 kg/s. Recycle LP-Stream without utilizing stream exhaust which is simulated that the recycle value that can be charged is 20%. While recycle using the exhaust value that can be installed is 80%. The more recycles that are made with various variations show better results. Overall simulation results in this paper have reached a constant value. © 2020 PENERBIT AKADEMI BARU.

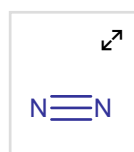
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[Aspen plus](#) [Cogeneration](#) [Modelling](#) [Oil palm](#) [Simulation](#)

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