



## Using HOMER Simulation Method for Renewable Energy Power Generation Design in South Sumatra Indonesia

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### ABSTRACT

South Sumatra Province is one of the provinces that has abundant natural resources and the largest is coal. The implementation of the case study was carried out in the cities of Palembang, Pagar Alam and Lubuk Linggau using homer software with components Controller Homer Load Following, Generic Biogas Genset (Size-Your-Own), Peimar SG300MBF, Bergey Excel 6-R, Surette 6 CS 25P, Princeton DRI-100 Converter, Hydro Natel Freejet Fi-7A49 kW. Typical load profile determination assuming 100 houses in a village that have a daily load of 10.50 kWh or 3,832.50 kWh/year/house. After the simulation, it was concluded that the combination of an effective and efficient power generation system is Hydro / Solar / battery / converter (HSbc) in Pagar Alam City with energy production of 48,809 kWh / year. A reliable and sustainable Power Generation System is obtained in Hydro / battery / converter (Hbc). Net Present Cost and the highest carbon emissions are found in diesel power plants when compared to other renewable energy power plants.

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