

An evaluation of hybrid wind/diesel energy potential in Pemanggil Island Malaysia

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ABSTRACT

This paper analyzed the potential implementation of renewable hybrid wind/diesel energy system in Pemanggil Island, Malaysia. National Renewable Energy Laboratory's (NREL) HOMER software was used to perform the techno economic feasibility of hybrid wind/diesel energy system. The investigation demonstrated the impact of wind penetration and battery storage on energy production, cost of energy and number of operational hours of diesel generators for the given hybrid configurations. Emphasis has also been placed on percentage fuel savings and reduction in carbon emissions of different hybrid systems. At the end of this paper, suitability of utilizing hybrid wind/diesel energy system over standalone diesel system was discussed mainly based on different wind irradiances and diesel prices.

KEYWORDS:

hybrid wind/diesel energy system; HOMER software

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