

Feasibility Study of Utilization and Development of Wind Energy for Electricity Generation in Panjang Island, Serang, Banten, West Java

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Abstract : Wind velocity in Panjang Island, Serang, Banten, West Java, measured 10 m above sea level, is about 8 m/s. This wind velocity is potential for electricity generation using wind power. Using ten of Alstom-Haliade 150-6 W turbines, the placement of wind turbines has 7D for vertical distance and 4D for horizontal distance. Installation of the turbines is 100 m above sea level which produces 98.64 MW per hour. This wind power generation has ecology impacts (the deaths of birds and bats and land exemption) and human impacts (aesthetics, human's health, and potential disruption of electromagnetics interference), but it could be neglected totally, because of the position of the wind farm. The investment spent 73,819,710.00 IDR. Payback period is 2.23 years, and rate of return is 45.24%. This electricity generation using wind power in Panjang Island is suitable to install despite the high cost of investment since the profit is also high.

Keywords : wind turbine, Panjang island, renewable energy, Indonesia, offshore, power generation

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