STUDY OF HIBRID WIND-SOLAR-DIESEL POWER GENERATION FOR DAM OUT PRAWN AERATION COST-SAVING ON MUARA GEMBONG - BEKASI

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ABSTRACT

In connection with the depletion of fossil energy reserves in the world which impact on the rising price of fuel oil, of course, the use of diesel as the main energy for aeration process becomes economically unprofitable. Thus, the attempted use of wind energy and solar heat as a renewable energy that are available free of charge at dam out prawn locations in the Muara Gembong.

Potential of wind and solar energy in Muara Gembong are relatively promising. Average wind speed at Muara Gembong for 1 year reach 3.6 m/sec and the intensity of solar radiation reaching 4.187 kWh/m2/hari. With the development of hybrid power system Wind-Solar-Diesel with a capacity of 6.5 kW, the process of aeration can be done by using the power output of the hybrid power system so that the consumption of diesel fuel for the process of aeration can be minimized. From the analysis of prawn business after using PLT hybrid power system, prawn farmers profit in 1 hectare was increasing significantly. From the original profit of Rp. 76.450.000 /ha/cycle, after using hybrid power system reaches Rp123.855.000 /hacycle.

Keyword: Renewable energy, Hybrid Power System, Aeration