

***DESIGN AND FEASIBILITY OF TECHNICAL DEVELOPMENT OF  
SOLAR POWER PLANTS (PLTS) ON GRID SYSTEMS IN SHRIMP PONDS***

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***Abstract***

*Solar energy is an energy source that will never run out of availability and has almost no negative effects on the environment. The use of PLTS on grid system in meeting the needs of electrical energy is expected to reduce costs for PLN bills on shrimp ponds and PLN loads in the Bengkalis area. The potential solar radiation is 4.63 kWh/m<sup>2</sup>/day and the total daily daytime usage load is 58,360 kWh. In designing this PLTS system using PVsyst 7.2. From calculations, it is known that on-grid centralized solar power plants are planned to have a PV array capacity of 12.1 kWp using 22 solar modules with a power of 550 Wp for each module, and 1 unit of on-grid inverter with a capacity of 100 KW. The initial investment is IDR 181,500,000 with annual operational and maintenance costs of IDR 2,180,000. The results of PLTS electricity production on grid produce a positive Net Present Value (NPV) of Rp 261.327.000, internal rate of retrun (IRR) of 21,12% > 10%.*

***Keywords : PLTS, On Grid, Economic Aspect, Sun, Shrimp Pond***