PLANNING ANALYSIS OF ADDITIONAL POWER FOR PLTS OFF GRID SYSTEMS BY UTILIZING VACANT LAND IN PLTH BAYU BARU BANTUL

Tya Fransiska
Electrical Engineering Study Program, Faculty of Science & Technology
University of Technology Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : fransiskatya2@gmail.com

ABSTRACT

Fossil energy and electricity are primary needs that must be met to support daily life. The increase in population, technological developments and increased community activities require a massive increase in energy use so that the longer this occurs, the greater the deficit will be. Renewable alternative energy sources are needed to meet community needs. Based on the measurement data by identifying empty land at the Bayu Baru PLTH, then an ideal design was created and the design showed that there was an empty section next to the PLTH office which could be used for designing a new PLTS, from this area solar panels with a capacity of 450Wp could be installed. 41 units, 1 unit for the inverter uses 30kW. From the calculation results, the resulting energy output is 67.42 kWh/day. This design requires a total investment of Rp. 233,477,340 and potential income of Rp. 31,008,600/year. Data from the calculation results shows that the Payback Period will be achieved in 7 years and 5 months. Compared with the estimated average lifespan of solar panels which is 25 years, it can be concluded that making PLTS using this design is feasible to develop.

Keywords*: PLTS, Solar Panels, Payback Period*