

TECHNICAL ECONOMIC ANALYSIS OF THE USE OF SOLAR PANELS AS A SOURCE OF ELECTRICITY AIRFIELD LIGHTING SYSTEM (AFL) AT YOGYAKARTA INTERNATIONAL AIRPORT

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ABSTRACT

YIA Airport, which is located on Jl. Wates Palihan Kulonprogo, has quite large potential for solar energy as a form of renewable energy. This is by looking at the very abundant potential of solar energy sources, namely having an average daily irradiation of 5,467 kWh/m². The PLTS that will be developed will be integrated with the existing generation system in the utility unit or is called a grid-connected system without using batteries. Planning for PLTS installation uses the web-based Helioscope program. The Helioscope simulation data is used to determine the amount of PV and power potential. The PLTS being developed has a capacity of 577,778 kWh/year. Using 1,430 320 Wp PV modules. Other components needed to support electrical energy production are 13 30 kw inverters. Based on economic analysis, it was found that the cheapest energy costs were using PV modules made in China, namely Rp. 1,820.60/kWh. With investment analysis using the NPV, PI and DPP methods, it shows that it is feasible to implement.

Keywords: YIA Airport, PLTS, Helioscope.