

**Planning and Techno-Economic Analysis of PLTS *On-Grid* System at Animal Husbandry Building the State Polytechnic Jember**

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***ABSTRACT***

*Electrical energy plays an important role in the current era of globalization. Because electricity is used to meet human needs. Energy includes electricity in the group of resources that contribute greatly to the world epidemic. Indonesia has an area with potential for solar radiation with an average of 4.8 kWh/m<sup>2</sup>/day. Therefore, there is a need for an innovative power plant that is environmentally friendly, such as a Solar Power Plant (PLTS). The purpose of this study is to determine the estimated production of electrical energy generated and techno-economic analysis of the planning of the On-Grid PLTS system in the Jember State Polytechnic Animal Husbandry Building. This plan uses 56 units of AE Solar AE540MD-144 solar modules and a Sunways STT-25KTL-P inverter with a power of 25 kW. The estimated production of electrical energy produced by PLTS in a year based on manual calculations is 43,471 kWh in the first year. Based on economic analysis, the initial investment cost for PLTS is Rp. 398,251,780. The estimated savings obtained by using PLTS for 25 years is IDR 910,219,571. Based on the feasibility analysis using the method based on the calculation of LWBP rates, it produces an NPV of IDR 189,560,553, a BCR of 2.20 and a PBP of 8.21 years. So based on the results of the research that has been carried out, the construction of this PLTS is feasible to realize.*

**Keywords:** *PLTS, On-Grid, Techno-Economic, Savings.*