

# ***ANALYSIS OF THE INFLUENCE OF SOLAR PANEL OUTPUT USING ALUMINUM FOIL REFLECTORS WITH THE ADDITION OF A FAN COOLING SYSTEM***

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## **ABSTRACT**

*The need for electrical energy is increasing along with human activities that continue to develop. Energy use still relies heavily on fossil fuels, so alternatives are needed to overcome this dependence. Solar energy is an alternative energy that is abundant and potential, especially in Indonesia which has a tropical climate. Solar energy is not used up and does not cause pollution, so it can be a substitute for fossil fuels. This energy can be converted into electrical energy using solar panels through the photovoltaic effect. However, the efficiency of solar panels is still relatively low, so it needs to be optimized. This research discusses a comparison of the performance of Solar Power Plants (PLTS) in three conditions: without reflectors, using reflectors, and with reflectors and fan systems. Data taken at 11.00 - 14.00 includes environmental temperature, panel temperature, voltage, load voltage and current. The results showed that the use of reflectors increased the voltage, but also significantly increased the panel temperature, which had a negative impact on the current and overall system efficiency. The use of a fan system with reflectors is effective in reducing panel temperature, but not enough to increase current output significantly. The condition without reflectors shows the best performance in terms of current, even though the panel temperature is high. Further research is needed to optimize reflector designs and cooling strategies to increase energy conversion efficiency in solar power plants. Implementation of materials with high thermal conductivity or additional cooling systems are potential solutions to achieve higher efficiency.*

**Keywords:** *Solar Energy, Solar Panels, Reflectors, Panel Temperature and PLTS.*