

***Study of the Effect Flat Fan Nozzle Flow Speed Variations on Solar Panel Cooling on Temperature, Output Power and Efficiency***  
*Supervised by Mochammad Nuruddin, S.T., M.Si.*

**Naila Rohmatul Hidayah**  
*Study Program of Renewable Energy Engineering*  
*Departement of Engineering*

***ABSTRACT***

*Indonesia has very large solar energy capabilities, so it is very possible to implement a Solar Power Plant (PLTS) which only requires a power source from solar radiation. The main problem in solar panel installation is that there is a significant decrease in efficiency due to rising temperatures. The cooling system functions to cool the solar panels when the temperature exceeds the optimal temperature limit and can increase efficiency. Researchers use a flat fan nozzle as a flow medium as a cooling system. On a 10 WP solar panel, the flat fan nozzle cooling system can cool up to 29.1°C than a solar panel without cooling. The voltage and current produced by solar panels with cooling are better than solar panels without cooling. The test results of the output power on the first day of cooling with a maximum variation of 12 LPM were 1.02 watts greater than solar panels without cooling. At irradiation of  $\pm 700$  W/m<sup>2</sup>, the solar panel power will increase and produce the best average output power and efficiency.*

***Keywords :*** *solar panels, cooling system, output power*