

Mineral Oil As a Solar Panel Cooler To Optimize The Power Generated

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ABSTRACT

Indonesia is a country traversed by the equator so that Indonesia has abundant solar energy potential with a solar radiation intensity of around 4.8 kWh/m² per day. Solar energy can be converted into electrical energy using solar panels. Solar panels work optimally at a temperature of around 25°C, therefore an increase in temperature on the surface of the solar panel can result in low electrical power being generated. This study aims to cool solar panels to produce optimum power by using mineral oil as a coolant. This study will compare 2 solar panels with a capacity of 10 Wp using liquid coolant and without cooling. Mineral oil will flow continuously for 5 hours of irradiation time. Observations will be made of the voltage, current and temperature of the solar panels to determine the performance of the cooling system. The results showed that mineral oil is able to maintain the stability of the temperature of solar panels with cooling and increase the output power produced. Solar panels with cooling also get increased efficiency compared to solar panels without cooling for 3 days of testing.

Key words: *solar panel, cooling system, performance*