

## ABSTRACT

Electrical energy is one of the energy that is needed today for the purposes of daily life. One of the renewable energy that can be utilized is solar energy. Solar panels can convert solar radiation into electrical energy directly, solar panels that emitted by solar radiation will produce heat in solar panels. In this study the heat that occurs on solar panels will be utilized using 10 thermoelectric generators (TEG) type SP1848 27145 SA arranged in parallel - series and affixed to the bottom of the solar panel to produce electrical energy. Experiments that have been done, the average power produced by solar panel without TEG is 9,319 W with an average efficiency of 12.10% while solar panel with TEG produce an average power of 9,219 W and an average efficiency of 11.97%. TEG can produce average power of 23.40 mW with an average efficiency of 0.00876%. The efficiency produced is very small, that happen because the temperature difference that occurs on the hot side and the cold side of the TEG is quite small, which is an average of 4.34 °C. this happens because on the cold side the TEG only uses the heatsink as a heat dissipator and the air flow as a natural coolant, so the heat dissipation by the heatsink on the cold side of the TEG is not good enough. On the hot side of TEG, the temperature that occurs is caused by solar radiation so that the heat generated depends only on solar radiation so that the temperature on the hot side of the TEG is not too high.

**Keywords :** *Solar Radiation, Thermoelectric Generators, Solar Panel, Efficiency, Power, Temperature.*