The Effect of a Heat Sink on a Solar Panel's Efficiency on a Large Scale

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The purpose of this project was to increase the efficiency of a solar panel and create a system that uses energy in the most efficient way. It was hypothesized that by putting the solar panels in water and adding peltiers with aluminum heat sink fins on the solar panel the efficiency could be increased by 11%. There were two solar panels used in the tests. The first panel, Solar Panel 1, used the novel cooling system of heat sinks and peltiers. The control was a solar panel, Solar Panel 2 used no heat sink. Each panel was tried three times. The average output of Solar Panel 1 was compared to Solar Panel 2. The data showed that compared to the control solar panel, by adding a peltier and heat sink, the efficiency of the solar panel was increased by 61.1%. In order to accept similarity in the statistical analysis, the P value had to be greater than 5%. The statistical analysis showed that compared to the control, solar panel 1 was less than 0. Showing a significant difference (increase) in solar panel system voltage. The hypothesis was supported. Solar Panel 1 increased efficiency from 98.8W to 161.87W. This proves applicability for the technology on a large scale and thus meets the goals set out for the project/cooling system.

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