

Warming Up To Solar Panels

I will investigate the effect of different temperatures on the efficiency of a solar panel. My project helps the environment because this may make solar panels a more efficient energy source, so it can replace non eco-friendly energy sources that are going to run out.

The experiment is testing a solar panel at different temperatures, using a metal plate, ventilation, a freezer, and a fan to adjust temperature. I will carry out the experiment by building a structure for the solar panel to rest on, which incorporates the factors mentioned above (fan, etc.). A lamp will be the source of light. I will be using a new 40 watt incandescent light bulb for each test. From research I know that this light bulb will produce 450 lumens. The metal plate will start at 30 - 40 ° celsius, with ventilation around 25 - 30° celsius, with the fan it will go down around 15 - 20° celsius and I will set my freezer to -18 - -25 ° celsius. I will be recording temperatures with a thermometer. The control variables are the solar panel and the lumens on the solar panel, the dependent variables are the voltage and amperes from the solar panel, and the independent variable is the temperature. I will repeat the temperatures 3 times, and take these 3 measurements for each temperature and average them out to reveal a trend.

The materials I will need are a solar panel, a voltage meter, a infrared thermometer, a heating bath, an ammeter, a fan, a metal plate, LEGO bricks, a lamp, a freezer, a thermometer. I will need 3 weeks for completing the experiment, 3 weeks for research, as well as 2 weeks to complete the write-up.

