Accessory to Optimize the Functionality of Solar Cells Using Reflective Materials

Martinez-Ballagas, Javier (School: University Gardens High School)

This research is intended to determine ways to maximize the efficiency of solar cells using reflective materials. The objective was to investigate whether the use of reflective materials can help solar cells generate more energy, in addition to investigating whether the angle at which these materials are installed has an effect on energy generation. To achieve these objectives, three bases were built to place the reflective materials; mirror, galvanized metal and aluminum. The mirror, the galvanized and the aluminum foil-lined panel were placed on these bases, then placed 10 cm away from the front part of the solar panels which were already installed in the study area. During the first ten days, the data was recorded with the reflective materials inclined at a 30 degrees; the ten days that followed the angle was changed to 60 degrees. The results obtained showed that in both inclinations the panel in front of the mirror generated more energy than the other panels. The percent increase in generation of panels receiving mirror-reflected light was 2.2% at a 30 degree tilt and 17.8% at a 60 degree tilt compared to the control panel. All the experimental panels had higher energy generation when the reflective materials were at 30 and 60 degree inclination compared to the control panels.

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