Renewable Energy Using Peltier Tiles

Castro, Jessica (School: Saint Pius X High School)

This science fair project is about Peltier tiles and determining if the heating and cooling of this device is an ample form of electricity. Peltier tiles will be used to harness energy to produce a temperature difference from the heat of the sunlight and cooling of an ice pack by using the Thermoelectric effect. The difference in temperature between the sun and the cold plate on the Peltier tile will produce a voltage. Data and calculations of voltage and current passing through the circuit need to be gathered. The Thermoelectric effect is the direct conversation of temperature difference to electric voltage. Peltier tiles can be used in any application where a temperature difference is involved to create energy. A series circuit of Peltier tiles will create a temperature difference by heating one side of the Peltier tile and the cool plate creates the cold side of the Peltier tile to create the voltage. Four varying resistors will be placed across the circuit to compare voltage output and current flow. Measuring the voltage output will determine if the thermoelectric device can serve as an efficient renewable energy source. Testing the efficiency of Peltier Tiles as a renewable energy source can provide less developed areas with electricity for societal applications.

Awards Won:
Missouri University of Science and Technology: Summer Camp scholarships (camp tuition and travel expenses, valued at up to $1,500)