Harnessing Renewable Power to Charge a Device

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Utilizing the Seebeck effect with thermoelectric cooling plates, is it possible to make a device that can charge a phone? If there is a substantial difference between a hot plate and ice on 2 dissimilar conductors or semiconductors, it will cause a Seebeck effect. Thermoelectric plates will produce electricity, therefore having the ability to charge a device. Purpose: To produce a device that will be able to harness the excess wasted energy from a heat source to charge a tablet or phone. Whenever people go camping, charging a phone is the hardest thing to do because there is no conventional electricity. Portable solar panel chargers are very expensive and only work when the sun is out. However, there is always heat; especially at night with a fire. Instead of the heat from the fire being wasted, it can be turned into electricity. Thermodynamics: the science of the relationship between heat, work, temperature, and energy. The thermoelectric plates I chose are called TEC (thermoelectric coolers) and use the Peltier Effect. This is the opposing effect of the Seebeck Effect. The thermoelectric plate worked and was able to produce enough voltage to charge a phone. With one plate at 180 to 200 degrees difference it was able to produce approximately 1 volt. Further testing showed a linear progression based on the number of plates at the same temperature.

Awards Won: