Riding the Wave: Energy in Motion II

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Although most alternative energy advocates focus upon wind and solar, wave energy is also a viable option, since oceans cover over seventy percent of the Earth's surface and even small swells can generate substantial amounts of energy. This engineering design project focused on designing a unit which can capture wave energy in an economic fashion. The design consisted of a tethered device which itself consists of a floating magnet coil-wrapped PVC tube situated over a magnet array. Data was collected on a LabPro unit for six different amounts of turns and four different wave periods, all of which proved the viability of the design. The power outputs from each of the trials was subsequently compiled into a program which takes in parameters such as wave-height, wave period, and number of arrays and displays the total amount of produceable power, a tool which can be used to ascertain what regions of the planet are best suited for production. These devices have the potential to provide clean, renewable energy for generations to come since, as stated before, they are situated on currently unused ocean surfaces instead of land, they have absolutely no emissions nor detriments to the natural environment, and they have no moving parts and thus, require little to no maintenance once they have been deployed. The power they generate does not have to travel thousands of miles before reaching the sources of mass consumption since over half of the world's population lives within 75 miles of a major coast, a fact which allows for the removal of much of the power transmissions characteristic of other centralized power generation techniques such as wind energy.

Awards Won:

Fourth Award of $500

Society of Exploration Geophysicists: First Award of $1,000