CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
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Project Number
J0731

Project Title
A New Spin on Hydroelectricity

Abstract

Objectives/Goals
The purpose of this project is to generate electricity by harnessing some of the kinetic energy of water flowing through a 1 1/4 inch pipe. This will be done with a small-scale hydroelectric device.

Methods/Materials
The device was made out of multiple sizes of PVC and copper pipes and fittings, size 10 all thread, 4 mm by 8 mm bearings, 2 ft. by 3 ft. piece of plywood, 4 1 1/2 in. bolts and nuts. It was tested with a multimeter, a hose, and a pressure gauge. It was tested 500 times under the setting DCV 20 on the multimeter to test consistency. It was then tested 50 more times on the same setting and 50 times under the setting DCA 200 on the multimeter. The water pressure was recorded before and after the testing.

Results
The device produced an average volt output of 1.80 volts, a maximum volt output of 1.84 volts, an average amp output of 162.82 milliamps, a maximum amp output of 167 milliamps, and an average watt output of 0.29 watts. The flow was not drastically affected. The flow in gallons per second with the device was 0.535 gallons per second, and the flow without the device was 0.5528 gallons per second.

Conclusions/Discussion
The engineering goal, to create electricity by harnessing some of the kinetic energy of water flowing through a 1 1/4 inch pipe, was achieved. This device has many possible uses for the future. It could be used on any pipeline with any fluid that wouldn't clog the turbine.

Summary Statement
This project was to try to generate electricity by harnessing the kinetic energy of the water flowing through a pipe.

Help Received
Father and Mother recorded data, Teacher helped with various aspects