CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
Kian A. Shakerin

Project Number
J1032

Project Title
Power House

Abstract

Objectives/Goals
The objective of my project was to discover if it is possible to generate sustainable electricity using a hydroelectric generator placed in a house water main. I hypothesize that a hydroelectric generator placed in a house water main will not create sustainable energy.

Methods/Materials
A testing device was built and hooked up to a hose in my backyard. Tests were run in two separate categories. A one gallon category and a five gallon category. I tested each category with different water flow amounts to determine which water flow amount generated the highest voltage. The tests were run several times to validate the results. All results were reviewed and compared to each other to determine the correlation of data.

Results
The results proved my hypothesis. The data showed that only 1.61 volts of electricity was generated at most (this occurred during the one gallon tests). Math was performed based on water consumption per gallon of an average four-person home. The results showed that the electricity generated was enough to power eleven 200-watt light bulbs. The electricity generated under the best circumstances, as noted before, is not enough to sustain an average four-person house. The electricity however, could be stored in a backup battery or other storage device. The stored electricity would be very useful if a blackout or a natural disaster occurred.

Conclusions/Discussion
Conclusion:
My conclusion is that a hydroelectric generator placed in a house water main will not produce sustainable energy. The main reason it is not sustainable is because water is not constantly flowing into a house. Water only comes into a house when needed. This inconsistency in water flow prohibits constant energy generation.

Discussion:
The concept of an inline generator could be implemented on a larger scale like at the out flowing pipe of a city water tower. People are constantly using water all over a city; which means that water is almost continually flowing from the water tower. The near consistent water flow, larger pipe size, and higher pressures allows a higher consistent rate of energy generation.

Summary Statement
My project is about generating electricity by placing a hydroelectric generator in a house water main.

Help Received
Dad and mom drove me around and bought supplies with me; Friends dad let me use his tools and workspace to build device; Dad wrote down data I told him