# CALIFORNIA STATE SCIENCE FAIR
## 2012 PROJECT SUMMARY

**Name(s)**
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**Project Number**
**S0904**

**Project Title**
## Is Wave Energy a Sufficient Source of Electricity?

**Abstract**

**Objectives/Goals**
Our objective is to demonstrate how wave energy can be converted into electricity by using the vertical motion to pressurize air and light a light bulb.

**Methods/Materials**
We used a large trashcan, a laptop fan, and surgical tubing to construct a device to convert wave-generated air pressure into electricity. We tested the necessary PSI to light the lightbulb prior to testing our device in the ocean.

**Results**
We found that the light bulb was lighted one out of twenty times in experimentation, proving that our device was not a sufficient source of electricity, but had potential.

**Conclusions/Discussion**
One source of error during the process of our experiment could be that when we pulled the mechanism down, it wasn#t level and therefore not getting the full P.S.I. Another could be that outside forces such as wind or water could have affected the air stream from the hose and therefore the speed of the fan. Along the same lines, if the trash can was not properly sealed, we would lose potential P.S.I. From this experiment, we have learned the uses of not only wave energy but pressurized air. In our project we combined the two to potentially generate electricity, but separated, they could both be very useful sources of renewable energy, which is something that has been very popular in the past couple of years. To better our results, we will add one-way valves to allow air to return into the device. To continue our experiment, we could try a larger container that funnels into a more focused outlet at the top to pressurize the air even further to get a higher P.S.I. and therefore more volts of electricity.

**Summary Statement**
Our project is to create a simple device made of household items that can effectively convert wave power into electricity.

**Help Received**
father helped with construction and design