



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Mark R. Wolford, Jr.	Project Number J0133
Project Title Hurricane of Water	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals COMPARISON OF LAMINAR WATER FLOW TO VORTEX FLOW IN THE GENERATION OF ELECTRICITY IN A HYDROELECTRIC DAM</p> <p>The objective is to determine if a vortex of spinning water would provide more kinetic energy than a laminar flow of water and would therefore increase electrical power output in a hydroelectric dam.</p> <p>Methods/Materials I constructed an operating model of a hydroelectric "dam" with the ability to provide either a laminar flow of water or a vortex spinning flow of water to the turbine. An electrical generator is turned by the movement of the turbine and the electrical output of the generator is measured for both types of water flow.</p> <p>Results Water flowing with a vortex spin provided approximately 12% more voltage and 19% more amperage output (measured by the Volt/Ohm meter) as compared to the standard laminar flow.</p> <p>Conclusions/Discussion The vortex spin of the water increases the kinetic energy created from the force of the falling water. Today's hydroelectric plants do not allow a vortex (such as in a bathtub drain) to form. The conclusions shown here would support a modification to the conventional hydroelectric dam so as to maintain a vortex spin--rather than a laminar--which would then increase efficiency.</p>	
Summary Statement Increasing the electrical output of hydroelectric dam by adding a vortex of spinning water.	
Help Received Parents Mark and Deborah Wolford with typing, design and construction and Grandfather Merit Arnold with design.	