



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> <b>Alan T. Begian</b>	<b>Project Number</b> <b>J1103</b>
<b>Project Title</b> <b>What Type of Energy Source Is Economical for Ocean Water Desalinization?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> What type of energy source: natural gas, propane, electricity, and solar power are feasible to purify ocean water. The independent variables are; natural gas, propane, electricity and solar power. The dependent variables are; average ending salinity and how much water will purify in the least coastally way.</p> <p><b>Methods/Materials</b> For solar energy, use an umbrella and cover the inside with foil. Then get two bottles, connected with a tube. Fasten ice packs to one of the bottles, place the other in the center of the umbrella. Pour the water inside the bottle in the umbrella. Measure the amount of water that evaporates and condenses on each day for four days. Empty the collected water from the condenser and measure the amount of purified water. Finally, repeat the process twice. For natural gas, and propane energy sources use a stainless steel pot as an evaporator. Connect the pot to a plastic bottle using a tube. The ocean water in the pot is evaporated by natural gas or propane and condensed by ice packs. Record natural gas and propane consumptions. Measure the amount of purified water and repeat the process twice. For electrical source, use an electrical water heater to evaporate the ocean water and ice packs to condensate it. Record the electricity consumption. Measure the amount of purified water and repeat the process twice.</p> <p><b>Conclusions/Discussion</b> We discovered that even though the solar energy was the least expensive process to purify ocean water, the most economical process was the natural gas.</p>	
<b>Summary Statement</b> To find out which type of energy source would purify water in the most economical way.	
<b>Help Received</b> Father helped me with the construction of the apparatus, and gave me the information needed.	