



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

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| Name(s) Nicolas A. Armenta | Project Number J2104 |
| Project Title Some Like It Hot | |
| Abstract Objectives/Goals My goal was to find the most cost effective material for heat exchange when using a renewable energy source. If a person were to know my results, they could save money over time. Methods/Materials I submerged Copper, Stainless Steel and Pex piping one at a time in a tank of water one at a time for five minutes at a time. For one set of five minutes, i ran water through the pipes at one gallon per minute, for the next set i ran water through at two gallons per minute, and for the last set, i ran it at three gallons per minute. Every minute i recorded the starting and ending temperature of the water and in the end, averaged out the difference. Finally i calculated the total amount of money saved for each material Results I found that when using a very small system like mine, you could save \$12,000 over thirty years using Stainless Steel piping. You could save \$12,000 over thirty years using copper. Lastly, you could save \$2,000 over thirty years using Pex piping. Conclusions/Discussion In the end, i found that when using a renewable energy source, Stainless Steel piping is the most cost effective material for heat exchange. | |
| Summary Statement My project is about finding the most cost effective material for heat exchange. | |
| Help Received Uncle helped run experiments; mother helped prepare board | |