



Colorado Science and Engineering Fair

2024 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Cooling For Solar

Finalist's Name: Rylen Ross

School and City: Monte Vista Middle School

Sponsor's Name: Kristi-Lee Mathiesen

Category: Energy

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

My experiment tests whether solar panels are more efficient with cooling systems so we can be more efficient with clean energy. I built a stand for the solar panel and then figured out how to cool the panel with an air cooling system and a hydraulic cooling system. The purpose was to determine what was more efficient. I tested to see if the voltage the panel was putting out would change while being cooled. I found that the water cooling system was the most efficient way of cooling. Hydraulic cooling made the most change overall as it went from 19.92 to 20.32 and air cooling didn't change, it remained at 19.34. I then built a hydraulic cooling system that recirculates the water. The system runs did show an average increase in voltage from 18.22 to 19.91 over a 30-minute time period. It also was able to run the pump independently but the increase didn't cover the amount of voltage lost to run the pump. The initial trials show that hydraulic cooling systems are effective and my next steps are to figure out how to increase the efficiency so it can be self-sustaining by running the pump and having increased voltage.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature: *Rylen Ross*

Date: *3-3-24*

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. A signed copy of this form must be included in your notebook.