



## Colorado Science and Engineering Fair

## 2025 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: Should Solar Panels Track The Sun?

Finalist's Name: Bianca Buczkowski

School and City: Monument Academy, Colorado Springs

Sponsor's Name: Joseph Buczkowski

Category: Energy

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

Purpose:

To determine if a multi-axis solar panel will produce more power than a stationary one.

Procedures:

Set up the music stand to the azimuth angle and put a solar panel on it. Measure the volts and amps and record in the data table for both panels. Move the panel to the stand with multiple axes. Use the different axes to rotate the panel in the direction of the sun until you max out the number. Repeat steps 3-6 but using the data table labeled for the panel with multiple axis. Analyzing the data from the data tables to see if the panel with multi axis did make 30 to 40% more power than the stationary panel.

Results:

The average watts for the stationary panel was 16.3 and for the multi-axis panel it was 21.3. The averages for the volts were very close. The stationary panel had an average of 24.2 and the multi-axis had an average of 24.6, while the amps had a bigger difference, the stationary panel had an average amps of 0.66 and the multi-axis panel had an average of 0.85 amps. The T-Test for watts resulted in 0.0160, amps was 0.0167, and the volts was 0.0758.

Conclusion:

These findings led me to conclude that a multi-axis solar panel on average produces 30% more power than a stationary panel fixed at its azimuth angle and on clear days only it produced 35.04% more power.

*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:

Date:

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.**