



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

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Project Title Blade Efficiency of Wind Generators	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my experiment was to find out how the number of blades and the angle of blades effects the amount of electricity a wind generator produces.</p> <p>Methods/Materials I built a simple stand from my Erector set for the generator to stand on. I bought some balsa wood at a hobby store and cut out the blades using an exacto knife. I drilled holes into a bass wood rod spaced so that they were evenly apart from each other. I attached paper clips to the blades and inserted the ends of them into the holes I had drilled. I then set up a 3-speed box fan a foot away from the front of the generator. I set clip leads from the DC motor of the generator to the volt-meter so that I could measure the amount of electricity it was producing. The last step was to perform the tests and record the data.</p> <p>Results The results concluded that out of 2-6 blades, the 3 blade design did the best in both the 45 degree test and the 25 degree test. I performed 2 tests on different degrees because I thought the results might change from the first test of 45 degrees. When I performed the angle test at 15 degrees, 30 degrees, 45 degrees, 60 degrees, and 75 degrees the angle that turned out to be the best was the 15 degree angle.</p> <p>Conclusions/Discussion My hypothesis was close to the actual results. I discovered that both the number and angle of blades on a wind turbine effect how fast it turns and therefore how much energy it produces. After completing this project I am anxious to continue experimenting with how the length, shape and curvature of blades effect efficiency. I believe all this information could be important today considering that we are in need of developing more efficient & clean alternative energy.</p>	
Summary Statement To maximize the amount of energy wind turbines produce by determining the number and angle of blades that work best.	
Help Received Dad loaned me a volt-meter and explained how to use it. Mom helped me cut out paper for the backboard.	