



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Anshul Narain	Project Number J0212
Project Title Effect of Wind Powered Electrics vs. Gasoline Powered Generators on Car Battery Life	
Abstract Objectives/Goals The objective of this project is to validate the hypothesis that a commercial wind turbine can produce a minimum 12 volts of electricity to charge a car battery, thereby reducing the amount of gasoline used; to establish how the distance between the wind source and the turbine and varying speeds affects the amount of voltage produced Methods/Materials Materials used : Magnetic wind turbine kit with propeller, anemometer, voltmeter, hairdryer, leaf blower and measuring tape Methods : Assemble the wind turbine apparatus. Connect propellor to the turbine and the 2 wires from the turbine to the voltmeter. Set hairdryer on high speed and test voltage and wind speed reading from a distance of 2, 4, 6, 8, and 10 inches respectively to see which one produces maximum voltage and at what distance the turbine stops. Repeat the experiment using a leaf blower and changing distance to 2, 3 and 4 feet. Then set distance at 5 inches and calculate voltage produced for low and high settings on the hair dryer Results Hair Dryer Distance : The farther away the hair dryer was from the turbine, more voltage was produced. Maximum average voltage of 0.159 Volts was found at 10 inches. Leaf Blower Distance : The closer the leaf blower was to the turbine, higher voltage was produced. Maximum average voltage of 1.49 volts was found at 2 feet. Har Dryer speed : The high speed on the hair dryer was able to produce an average of .128 volts. On the low level of the hair dryer, the turbine was not able to turn and produce any voltage. Conclusions/Discussion I have come to a conclusion that the turbine used was too small to produce enough voltage to charge a car battery. Voltage produced by the hair dryer increased the further it got from the turbine. This is probably because when the hair dryer was closer to the turbine, the wind would disperse in many directions, as was unable to turn the turbine as fast as it could from a further distance. In the case of the leaf blower the voltage produced didn't vary significantly with distance and will need more trials at larger distances to arrive at a conclusion.	
Summary Statement Can we use wind to reduce the quantity of gasoline used to charge a car battery	
Help Received Dad helped buy the materials and Mom helped print the report	