



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>David C. Weaver</b>	<b>Project Number</b> <b>J0131</b>
<b>Project Title</b> <b>Winds of Change: A Wind Turbine's Ability to Power a Car's Electrical Components and Reduce Its Carbon Footprint</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective is to determine whether a turbine mounted on automobile can generate enough electricity to power the cars electrical components and if it can have any affect reducing its carbon footprint. <b>Methods/Materials</b> A small sized wind turbine with 35.6 cm plastic blade will need to be purchased as well as an electric meter capable of reading 250 DC volts and 10 amps. Also a car will be needed for testing as well as Noble Wire and Terminal Female blue wire connectors. To test, drive out to a rather empty road and once you have approached the test speed, hold the turbine outside the window while connected to the electric meter. Once you have a stable reading, turn the turbine out of the wind and pull it back inside. Record the data and continue testing. <b>Results</b> It was found the at twenty miles an hour, the turbine could not power any electrical components in the car. At thirty miles an hour, the turbine could power the radio, CD player, dashboard display, a single headlight, or a single taillight, all separately. At forty miles an hour, the turbine could power the radio, CD player, dashboard display, both headlights, both taillights, or a portable air conditioner all, once again, separately. At fifty miles an hour, it could power the radio, CD player, dashboard display, both headlights, both taillights, or a portable air conditioner, all separately. Also it was calculated that if every car in the United States had two turbines attached to it, we as a country could save 6,896,500,000 gallons of gasoline a year which is the equivalent of removing 17,241,250 cars from the road each year. <b>Conclusions/Discussion</b> In conclusion, the turbine was capable of powering many electrical components separately at the speeds or forty and fifty miles an hour as opposed to only being able to power some of the items at thirty miles an hour and none of the items at twenty miles an hour. Also, if every car in the United States had two turbines attached to it, America could save 6,896,500,000 gallons of gasoline each year which is the equivalent of removing 17,241,250 cars from the road each year.	
<b>Summary Statement</b> My projects purpose was to capture the excess energy produced by an automobile and see if it was possible to harness and reroute that energy back to the vehicle in order to power its electrical components.	
<b>Help Received</b> My mother drove the car and helped with calculations and my father helped me figure out how the turbine worked.	