



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>William T. Whitehead</b>	<b>Project Number</b> <b>J1040</b>
<b>Project Title</b> <b>Got Wind?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my project was to investigate whether McKinleyville, California has enough wind to generate the electricity needed to power a house using a household wind turbine. <b>Methods/Materials</b> I bought a Speedtech SM-18 Skymate Wind Meter to measure the wind, a 10-foot PVC pipe to attach the wind meter to, along with the necessary fittings. I acquired the daily average wind speed for the year 2008 using the Preliminary Climate Data from the National Oceanic and Atmospheric Administration (NOAA) website, whose weather station is located at the airport. This is very close to one of the houses I used to measure the wind. The other house is near the ocean, about one mile to the west. I measured the wind at the same time of day, at both houses. I recorded the max speed, time and date. I graphed the data to compare it to the cut-in speeds of the wind turbines: Bergey XL.1 and South West Skystream 3.7. I used the PG&E bills from the house near the airport to find the average kW used per month during 2008. <b>Results</b> I found that the house near the ocean consistently had almost twice as much wind as the house near the airport. I also found that the Bergey would make about 1.2 kW and the Skystream would make about 1.7 kW in the windiest month. That's only 1/468 to 1/330 of the kW needed for the monthly average. <b>Conclusions/Discussion</b> My data shows that McKinleyville does not have enough wind to power a house using a household wind turbine. More research is needed to discover if a hybrid wind/solar system would generate the electricity needed to power a house in McKinleyville.	
<b>Summary Statement</b> My project is to investigate the feasibility of a household wind turbine in McKinleyville, California.	
<b>Help Received</b> My mom helped obtain the materials, provided guidance and support. My grandmother bought supplies for my backboard.	