

## **Hull CARES**

### **Can your community build a cost-effective wind turbine?**

The question isn't "Does wind technology really work?" That question has been answered by the several billion dollars invested each year by large companies and banks in new wind turbines. Existing wind turbine technology is as reliable as any utility-grade generating equipment.

The questions are "How windy is your site?" and "What is the price of power going to be?"

You can't guess at the wind resource. You have to measure it. Maybe you can get an estimate from a set of data from a nearby airport or other measurement station in the area, but there will ALWAYS be a difference between a measurement at 100 feet at your site (which is what counts) and measurements made at the airport or any other location. Windspeeds are different from one ridge to another, and a mile makes a difference.

Prices are another matter. You can't measure the future price of energy. You can start with the local retail price of power, which your community pays on its bills, and the local wholesale price. Then you can look at the price of natural gas, and the future commodity prices, to get an idea of what the experts today think the price will be next winter. Better, you can consider the budget you (or your school or your town) has to buy electricity in the future, and see if the wind project can deliver power at that price. Let's look at these more closely.

Your bill has an energy price. It may be simple, but probably not. I can no longer read a bill without a couple of minutes of scrutiny, so expect to give this simple question a bit of time and maybe a few phone calls to your state office of utility regulation. Then you should look at the bill of your school or highway department or anyone else in your community that would like to keep electric prices under control with windpower. These are RETAIL prices, and they include delivery and distribution costs. These are not going to be the same for the next 10 – 20 years, either.

With a wind turbine, the energy produced will not go up in price. You might start your calculations of how to put up your wind project using the price of power you are paying now. With the windspeed data, (and here an estimate is nice to have), you can calculate the number of kilowatthours a particular turbine is likely to produce in a year. Multiply that by the retail price of power, and you have an estimate of revenues. Savings will come from 1) future price changes that you would have to pay, 2) reduced environmental and political problems from fossil fuel use, and 3) possible sale of "green credits" or "green tags" where organizations want to have a connection to a renewable energy supply. If you can work out a way for the wind to replace retail purchases, you are likely to be able to produce power for less than the retail price, and start out with savings on Day One.

There are many variables to collect before you can say for sure there will be a cost-effective wind turbine on your site. Look at the website from the National Renewable Energy Lab that really focuses on this question. <http://analysis.nrel.gov/windfinance> for more on the economics of your effort.