

# Get the facts before buying into wind power

**M**ore and more people are attracted to the idea of generating their own electric power, and small wind turbines are one of the choices for “backyard” renewable energy systems.

The most popular residential-scale wind turbines can generate 2 to 10 kilowatts of power—about one-third to one-half of what a typical home needs. In recent years, small wind turbines have become more reliable and, to a degree, prices have come down. More dealers are offering better choices, and more experienced installers are available.

But careful study and your co-op’s assistance can ensure you know the facts before buying one. It’s also important to keep in mind it is always more cost effective to make your home more energy efficient than it is to install renewable energy. Adding insulation, installing high efficiency heating and cooling equipment and sealing ductwork are good examples of measures that should be undertaken prior to installing any renewable resources. These improvements will often save much more energy than renewable energy systems would generate and cost much less.

Whether or not installing a wind turbine at your home is a good idea also depends on two big factors: your goal and location.

## What is your goal?

If your motivation is to save money (to spend less on electricity than you do today) or to make money (expecting the small wind turbine will earn you a profit through selling power back to your electric co-op), proceed with care. Even though federal tax credits and utility incentives and rebates have helped lower the cost for some, in most North Carolina locations it remains



*This wind and solar display is an example of a small renewable energy system that could be placed in a residential area.*

*Source: Maquoketa Valley Electric Cooperative/Iowa*

difficult to generate electricity at a price equal to or lower than what you’ll obtain from your electric co-op. While wind may be free, the equipment needed to capture it is not. And wind doesn’t blow all the time.

Electric utilities are required by law to buy your excess power. But in many areas they are only required to pay the same price they pay any other power generator—what in utility jargon is called “avoided cost.” But even where your bill might be credited for wind power at retail rates, called net metering, the sale of those kilowatts won’t make you rich. Earning enough to equal the cost of installing a wind turbine, which runs from several thousand dollars to \$50,000, can take several years to several decades.

## Fully factor in your location

In more densely settled areas, local zoning laws may prohibit wind turbine construction. But in any location, you must know just how much wind you have, day after day. Average wind speed is critical.

While the federal government has mapped out average wind speeds across the country ([www.nrel.gov/wind](http://www.nrel.gov/wind)), each site is unique, affected by factors such as elevation and tree obstruction. There can also be a huge difference between wind speeds at the 300-foot heights of large-scale wind turbines and at the much lower heights of small wind turbines.

If you are seriously interested in wind energy generation on your property, you should first conduct a study with a wind measuring system (anemometer) for at least one year to truly assess the actual wind over the course of a year. Such measurements are better than relying solely on vendors or wind charts. Measuring the site’s potential can reveal the true economics. A year’s worth of data could prevent disappointment if the wind doesn’t blow as much as you think.

Finally, check with your electric co-op well in advance of making a wind turbine purchase. Being aware of your co-op’s policies and procedures associated with interconnecting a wind system to the grid will avoid headaches and, maybe, unexpected costs. Your co-op may be able to help you estimate those costs in advance and can also help you find additional energy efficiency opportunities. **H**

*Sources: Bob Gibson, Cooperative Research Network, a service of the National Rural Electric Cooperative Association. Rick Schroeder and Rich Radil, GreenCo Solutions, a green services company owned by most of North Carolina’s electric cooperatives.*

## Wind power resources

Database of State Incentives for Renewables and Efficiency,  
[www.dsireusa.org](http://www.dsireusa.org)

NC GreenPower, [www.ncgreenpower.org](http://www.ncgreenpower.org)

North Carolina Solar Center,  
[www.ncsc.ncsu.edu](http://www.ncsc.ncsu.edu)

Appalachian State University,  
<http://wind.appstate.edu>

## Energy Efficiency quick tip

Residential-scale wind turbines can generate about 2 kilowatts to 10 kilowatts of power—about a third to half of what the home needs.