

REAL ESTATE IN SHAPE: Consider wind power for home

By [Carole Terrell](#)

CTERRELL@CITIZEN-TIMES.com

April 22, 2007 12:15 am

Question: What is wind power used for?

Erika Schneider, Sundance Power Systems: Historically, the energy of the wind has been used by windmills that pump water or grind grains. Today, wind power is used to generate electricity by converting the kinetic energy of the blowing wind into electrical current. Although it now provides less than 1 percent of our nation's electricity, with an average annual growth rate of more than 24 percent, it is the fastest growing source of electricity generation. President Bush has stated it's possible we could generate up to 20 percent of our electricity needs through wind.

The output of a wind-powered system can vary greatly, depending on the size of the system and the amount of wind resources available. For example, a small wind turbine may provide enough electricity to run a water pump, whereas a wind "farm" of large turbines can generate enough power for several thousand houses.

Q: What is small wind?

A: Wind systems come in many sizes, ranging from a 400 watt turbine with a rotor diameter of 46 inches, to a large utility turbine that can produce 750 kilowatts of power with its massive 150-foot rotors. "Small wind" is used to refer to turbines with a capacity of 100 kilowatts or less. A 10 kilowatt wind turbine can generate enough electricity to meet the needs of an average-sized residence. Small wind systems can power homes and businesses that are not served by an electric utility, or they can be interconnected with the utility grid. Small wind systems offer the advantage of offering clean, renewable energy, but on a less obtrusive scale than large, commercial wind farms.

Q: How much noise do small wind turbines make?

A: As the technology of small wind systems advances, the noise they produce has been greatly minimized. The ambient noise level of an operating residential turbine is around 52 decibels, barely audible over the rustling of leaves the same wind may cause. To put this in perspective, a residential wind turbine produces a background noise no louder than an average refrigerator.

Q: What about visual impact?

A: Small wind systems are certainly very visible structures, as they are mounted atop towers where the rotors will receive greater wind. How a person responds to them is very subjective, but many people see them as interesting and graceful. According to the "Public Acceptance Study of the Searsburg Wind Power Project: Year One Post-Construction," conducted in Vermont in 1997, two-thirds of the aesthetic responses were positive. More than 90 percent of the people found them "very attractive" and "fascinating to watch," and expressed a sense of awe and amazement. Cell and radio towers, transmission lines, and other man-made

structures certainly affect our viewscape to a much greater degree than a small wind systems would, but we accept them because of the services they provide to our society. Given the benefits of clean energy produced by a wind turbine, many indeed view them as an innovative and hopeful technology that can help us meet our energy demands in a more sustainable way.

Q: How do small wind systems affect property values?

A: Contrary to the misconception that wind systems might negatively affect property values, a study conducted in 2003 by the Renewable Energy Policy Project showed that in a great majority of projects (26 out of 30) the value of properties within the viewshed of a wind system actually rose more quickly than those in the comparable community. In addition, once the wind systems became operational the values increased faster in these properties than they did before.

Q: What is the cost involved with installing wind power?

A: Buying and installing a small wind energy system ranges from about \$3,000-\$5,000 per kilowatt for a grid-connected system. North Carolina does offer financial incentives for wind energy in the form of tax credits of 35 percent, with residential systems being capped at \$10,500 and commercial ones at \$2.5 million. Commercial applications are also supported by the Renewable Electricity Production Credit, which is a federal incentive. Also, if the system is interfaced with the grid, a partnering with N.C. Green Power could provide additional incentives by paying a favorable rate for each kilowatt of renewable energy produced. These production incentives help bring a small wind system into the range of affordability, and reduce the payback period. See www.dsire.usa.org for more information on financial incentives for wind systems and other types of renewable energy.

Q: How does wind power help the environment?

A: Wind power, by producing clean and renewable energy, offers great promise as a part of the solution to our environmental problems that are caused by the burning of “dirty” fuels. At this time, most of our country’s electrical generation is being produced by coal-burning power plants and the combustion of other fossil fuels. This is the source of much of the carbon dioxide emissions that are contributing to global warming. In addition, they produce many other harmful emissions, which have adverse affects on our environment and health. An operational wind system produces no emissions or hazardous waste, nor does it use water resources. The air that sustains a wind system remains unaltered by the wind turbine and is free to continue on as part of nature’s cycle.

Q: How do you determine if wind power is right for you and/or your property?

A: In accessing your site for its wind potential, the greatest factor is to determine is the amount of wind resources that you have available. Wind maps of each county in North Carolina have been compiled and can be viewed at www.wind.appstate.edu/wind resources/maps.php. These maps delineate areas into wind power classes, depending on wind power density and wind speed.

For a wind system to be economically viable, your site should minimally have an average wind speed of 11 mph, which is a class 3 wind power rating. If sufficient wind data is not available for a particular site, an anemometer may be installed in order to determine average wind speeds.

It is also advisable to research your local zoning ordinances. As wind systems are relatively new in Western North Carolina, many areas have not yet adopted clearly defined policies on permitting wind systems. In 2006, Watauga County was the first in this region to develop a wind ordinance, and upheld that small wind turbines are exempt from the Mountain Ridge Protection Act.

Use of this site signifies your agreement to the [Terms of Service](#) and [Privacy Policy](#).
Copyright 2007 Asheville Citizen-Times. All rights reserved.