

FAQ for Small Wind Systems



General Information about Small Wind Systems

Small Wind Turbines are clean, wind-powered electric generators that produce energy at a rate of 100 kilowatts (kW) or less to power homes, farms, and small businesses. With these simple, yet high-tech small wind turbines, individuals can generate their own power and cut their energy bills while helping to protect the environment. They are also:

- Purchased by individuals looking to stabilize and reduce their energy costs.
- 100% pollution- and greenhouse gas-free.
- The most cost-competitive renewable technology in its market.
- Suitable for about 15 million homes and 1 million businesses in America with an acre or more of property.



A typical residential wind energy system might be 1-10 kW in capacity, measuring perhaps 10-25 feet in diameter, mounted on an 80-foot tower. Such a system can meet the electricity needs of a household, farm, or small business. Turbines as small as 400 watts, with rotors only 46 inches in diameter, may be employed for specific purposes such as pumping water (for stock or irrigation) or running lights and appliances in a home, recreational vehicle, or even a boat.

Small wind turbines may be set up as stand-alone systems, used to complement a solar photovoltaic (PV) systems, or be interconnected with the utility grid.

AWEA member equipment providers include:

Abundant Renewable Energy
www.abundantre.com

Bergey Windpower Co.
www.bergey.com

Distributed Energy Systems
www.distributed-energy.com

Entegrity Wind Systems
www.entegritywind.com

Energy Maintenance Service
www.energym.com

Lorax Energy
www.lorax-energy.com

Proven Energy
www.provenenergy.co.uk

Southwest Windpower Co.
www.windenergy.com

Wind Turbine Industries Corp.
www.windturbine.net



How much do they cost?

The cost of buying and installing a small wind energy system typically ranges from about \$3,000-5,000 per kilowatt of capacity for a grid-connected installation - less than half that of a similar solar electric system. A typical American home can meet the majority of its electricity needs with a 2-5 kW wind turbine. The length of the payback period depends on the turbine, the quality of wind at the installation site, the prevailing cost of traditional electricity, and available financing and incentives. Depending on these factors, the payback period can be as low as six years.

Many states have rebate or tax credit programs in place to encourage investment in small wind (see www.dsireusa.org). AWEA is also lobbying for a federal-level Investment Tax Credit for consumers (see www.awea.org/legislative).

What happens when the wind doesn't blow?

For grid-connected systems, you won't notice a difference. The grid provides electricity when the wind doesn't blow, and, depending on your utility, any extra electricity your turbine generates is sent back to the grid to be used by a neighbor, making your electricity meter literally spin backwards. Off-grid turbines store power in batteries for on-demand use.

Are they easy to get?

Small wind turbines are sold in all 50 states and over 120 countries. Taking detailed measurements to gauge your wind resource is usually unnecessary. Individual installers/dealers or manufacturers are able to determine whether your property is

Small Wind FAQ (continued)

Should I connect to the grid?

Small wind energy turbines may be installed as stand-alone systems, or they may be connected to the utility grid. Connecting to the grid requires the approval of the utility. Technical and insurance requirements for interconnection vary, as do metering arrangements. Connecting your system to the utility grid allows you to sell excess power that you generate to the utility, as well as to buy electricity from the utility when your needs exceed your wind-powered generation. Interconnected systems do not require batteries. If your utility offers a net metering or billing arrangement, you can even sell your excess power at the same price you pay for electricity you purchase, thereby increasing the value of your wind energy system investment and shortening your payback period.

How does interconnection affect my system's economics?

Federal law (PURPA) requires utilities to purchase power from independent providers at the utility's "avoided cost" - usually much less than the retail price you pay for the electricity you buy. However, a number of states require some or all utilities to offer net metering to customers with qualifying interconnected energy generation systems. In this case, all the electricity you generate is valued at the same (retail) price; excess generation can be "banked" with the utility for a month or even up to a year. Standard electricity meters can spin both forward and backward, simplifying accounting for both you and the utility.

How can I advocate for good policies?

AWEA, our members, and our allies actively engage state and federal lawmakers to promote good policies for small wind, such as tax credits, streamlined zoning and permitting, net metering, and standardized grid interconnection rules. Grassroots is a key component of our efforts. To join, visit the links below.

http://www.awea.org/legislative/grassroots_activities.html
and http://www.awea.org/smallwind/toolbox2/drawer_2_promotion.html

Where can I go for more information?

The American Wind Energy Association has a toolbox of information on its Web site for people interested in installing a small wind system at www.awea.org/smallwind. On this site, you can find advice from an expert, some state-specific information about buying and installing a small wind turbine, success stories, technical information, and much more.

Also see "Wind Turbine Buyer's Guide" by Mick Sagrillo and Ian Woofenden in *Home Power Magazine* (June/July 2007) www.homepower.com/files/featured/TurbineBuyersGuide.pdf

