

Small Wind Turbines for Homes & Businesses

Frequently Asked Questions

How do they work? The wind turbine, which is installed on top of a tall tower, collects wind energy and converts it into electricity. The turbine output is then made electrically compatible with the utility and the output is fed into the household wiring at the breaker panel.

The home is served simultaneously by the wind turbine and the utility. If the wind speed is below 7 mph there will be no output from the wind turbine and all of the needed power is bought from the utility. As the wind speed increases the turbine output increases and the amount of power purchased from the utility is proportionately decreased. When the turbine output is more than the house needs the extra electricity is sold to the utility. All of this is done automatically. There are no batteries in a modern residential wind system.

The wind turbine typically lowers your utility bill by 50-90%. It is not uncommon for homeowners with total electric homes and Bergey turbines to have monthly utility bills of \$8-15 for part of the year. In northern parts of the country, where less air conditioning is used, the bills can be very low year round.

What size would I need for my home? Homes typically use 1,000-2,000 kilowatt-hours of electricity per month. Depending upon the average wind speed in the area this will require a wind turbine rated in the range 5-15 kilowatts. Our 10 kW unit, the BWC EXCEL-S, is the best selling residential unit in the U.S. It has a rotor diameter of 23 feet and is typically installed on 80 or 100 foot towers.

Who should consider buying one? A wind turbine is a relatively large device and it is not suitable for urban or small-lot suburban homes. We recommend a property size of one acre or more. The economics of a wind system are determined by the average wind speed in the area, the availability of rebates or tax credits, and the cost of electricity. As a general rule-of-thumb, we recommend that you have at least a 10 mph average wind speed and be paying 10¢/kilowatt-hour or more for electricity. We have wind resource maps for the entire U.S. and we can provide you with information on your wind resource. Residential wind turbines have been installed in all 50 states.

Will it help the environment if I install a wind turbine at my home? Wind turbines produce no pollution and by using wind power you will be offsetting pollution that would have been generated by your utility company. Over its nominal 30 year life a BWC EXCEL will offset approximately 1.2 tons of air pollutants and 200 tons of greenhouse gases.

Don't I have to take wind measurements for a year or more? No. For residential systems the cost of taking wind measurements is not justified in most situations. Wind resource data published by the U.S. Dept. of Energy is sufficient to predict performance. In very hilly or mountainous areas, however, it may be prudent to take wind data before purchasing a system to ensure that your site is not in a sheltered area.

Are wind turbines reliable, and what about maintenance? Bergey Windpower sells more residential systems than anyone else because our turbines have proven to be the most reliable on the market. Our turbines have only 3 or 4 moving parts and do not require any

regular maintenance. After a 66 month test of one of our 10 kW units, Wisconsin Power & Light concluded that, "The turbines' reliability could not be improved upon." Our turbines are designed to last 30-50 years or more and they operate completely automatically.

Do they make noise or interfere with TV reception? Small wind turbines do make some noise, but not enough to be found objectionable by most people. They do not interfere with TV reception.

Will the utility company allow me to hook-up a wind generator? Federal regulations (PURPA) require utilities to allow you to install a wind generator and to pay you for any excess power you produce. Bergey Windpower can assist you in arranging the required utility company approvals.

Will I have to change any of the wiring in my house? No, a wind turbine is easily retrofitted to virtually any home without need of changing any wiring or appliances. In some states a second utility meter will be added, however, so that the utility can know how much electricity you have sold to them.

What about towers? Usually a tower of between 80-140 feet is supplied along with the wind turbine. Towers this tall are required to get above the turbulence generated by obstacles and trees on the ground. Also, wind velocity, and, therefore, wind turbine performance, increases as you get higher off the ground. For most situations an 80 or 100 foot tower is sufficient. The most economical type of tower is the guyed lattice type, but other types that are hinged or have no guy wires are also available.

How much do they cost? A 10 kW wind turbine costs approximately \$48,000 - 65,000 to install. The equipment cost is about \$40,000 (see [10 kW GridTek System](#)) and the rest is shipping and installation. Towers without guy wires are more expensive than guyed towers.

How are they as an investment? That depends on your cost of electricity and average wind speed. The wind system will usually recoup its investment through utility savings within 6-30 years and after that the electricity it produces will be virtually free. Compared to purchasing utility power, a wind system can be a good investment because your money goes to increasing the value of your home rather than just paying for a service. Many people buy wind systems for their retirement because they are concerned about utility rate increases.

How would I proceed to have a wind turbine installed at my home? There are two routes: you can work with an authorized Bergey dealer for a complete turnkey installation or you can purchase directly from the factory and have the unit installed yourself. The first route requires less work on your part and offers a higher level of after-sales support. The self-installation route offers meaningful savings. We would be happy to discuss the various approaches with you to determine which is best for your situation. The price of the equipment will be the same through the dealer as from the factory.