

# HOME WIND TURBINES

Energy costs keep sky rocketing with no end in sight. Pollution levels are increasing and our planet is facing a warming trend that could have devastating results. So the question is what can the average citizen do to save money and help the environment at the same time? One great way to help is to lower the amount of electricity your home purchases from the utility company by creating your own power. There are a few ways to do this, and wind power is one of the easiest and more reliable ways to produce energy at your home.

## **What is a Wind Turbine?**

A wind turbine is a simple machine that collects kinetic energy produced by wind currents and converts this energy into power that can be used in the home. Wind turbines are installed on high towers; these towers are usually around eighty to one hundred and twenty feet high. Towers must be high enough to allow the turbine to be above any turbulence generated by objects on the ground. The higher the altitude also results in higher wind speed and in turn, a higher amount of energy can be produced.

## **How do Wind Turbines Work?**

Wind energy is used to create mechanical energy. Turbines have blades that are turned by the wind; these blades turn a shaft to which they are connected. The shaft is then connected to a generator; the mechanical energy is transferred into the generator through the shaft and converts the mechanical energy into electricity. This electricity can then be used in the home for any electrical need. Homes that are using wind turbines to produce power are still hooked up to the

power grid. Being hooked up to the power grid allows the home to still have power when wind currents aren't strong enough to produce electricity. Another benefit of continuing to be connected to the power grid is that at the times your wind turbine is producing more power than your home can use, the utility company is absorbing the extra energy and paying you for it. This can lead to very low electric bills. A wind turbine can lower your power bill by 50-80% depending on the amount of wind in your area.

### **Types of Wind Turbines**

There are two main types of turbines: horizontal-axis turbines and vertical-axis turbines. Turbines also come in different sizes as well. Utility companies use wind turbines that can range in size from 100 kilowatts up to several megawatts. These larger turbines are found in groups on wind farms. If you ever drive over the Temecula pass in California, you can see large wind farms along the highway. It is a spectacular site. Small turbines, 100 kilowatts or less, are used at homes. These are placed on towers on the homeowner's property and then used to provide some of the energy needed to run the home. Since the size of the tower is quite large, they are usually used in areas where the home is on one acre or more. There are very small turbines on very small towers that may be able to be of use in urban areas or on smaller lots.

### **The Future of the Wind Turbine**

In September of 2008, the U.S. Senate passed a bill that grants a one-year extension of the renewable energy production tax credit. If passed by the U.S. House of Representatives the tax credit would be available until December 2009. Wind power is a viable part of the solution to lessen our dependency on fossil fuels. Wind power is a renewable resource and produces no harmful pollutants. The future looks bright for wind power and hopefully, as a result, there will be a bright future for our planet too.

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