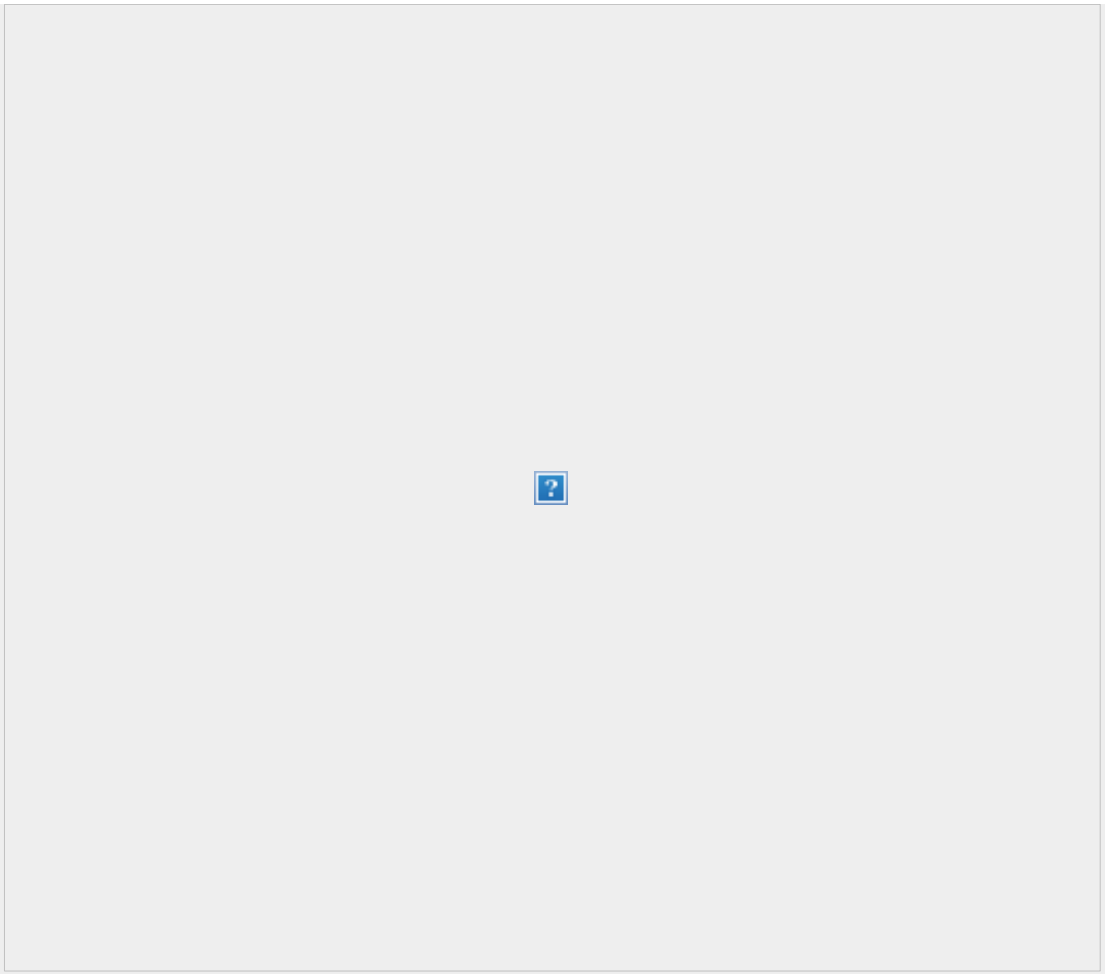
The Blog

Green Product Series: Residential Wind Turbines for Renewable Energy

Posted on 24. Oct, 2011 by Maryruth Belsey Priebe in Articles

OUR MOST POPULAR ARTICLES

Green House Plans Product Series: Drain Water



The Energy Ball

While it'll depend greatly on which way the wind blows in your community, a wind turbine may very well be a great renewable energy investment, especially if you want to hedge your bets again skyrocketing utility bills. Residential wind power is becoming ever more accessible to the average homeowner, and is a must-consider for anyone contemplating their own green house plans.

Small wind turbines, which generally have capacities less than 100 kW, are gaining momentum in the renewable energy field. The American Wind Energy Association (AWEA) estimated a growth of 78% in the domestic market for small wind in 2008, with projections putting growth much greater than this in years to come.

Heat Recovery

Green Product Series: Considering Composting Toilets for Your Green House Plans

Green Roofs: Energy Efficiency for Winter Homes? Yes!

Swift Rooftop Energy System

Types of Residential Wind Turbines

Far from the boring three-spoke wind turbines of years gone by, there are now some incredibly stylish and yet highly functional residential wind turbines on the market, like these:

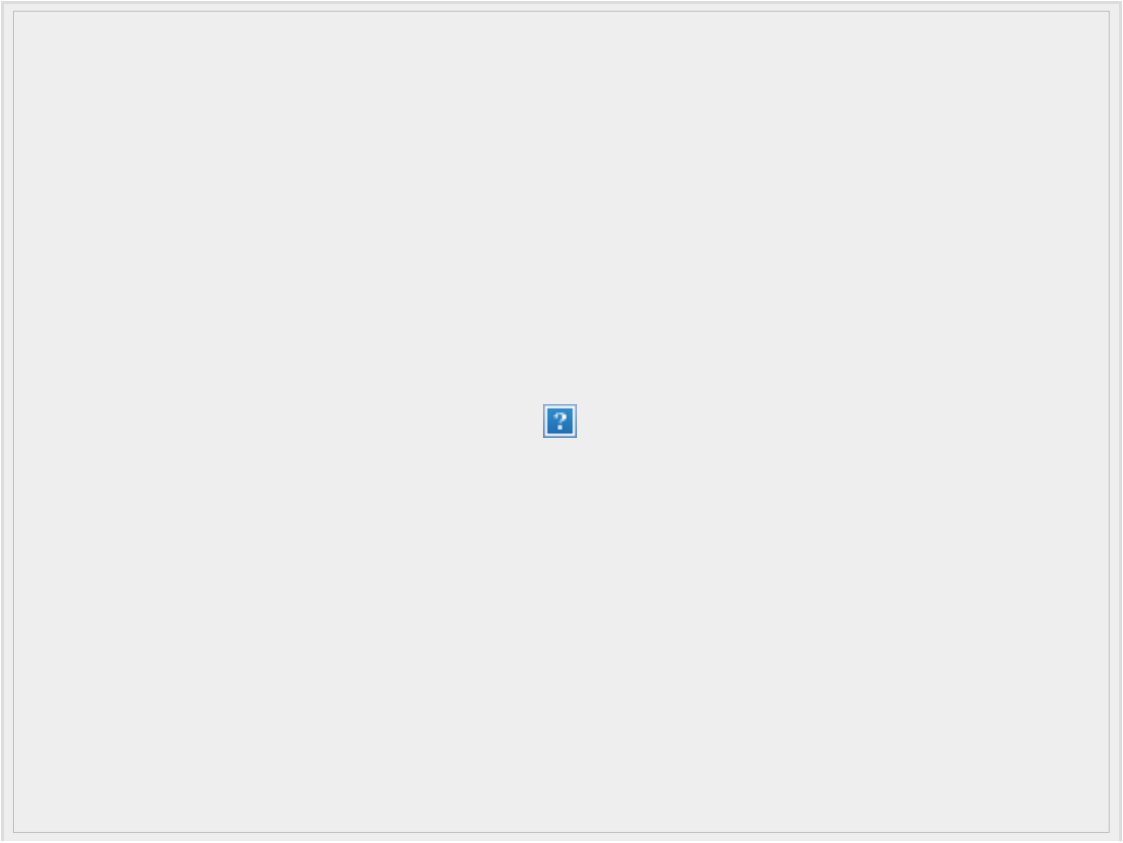
- The Energy Ball by Home Energy – 100-500 kWh annually for between $4,600 and $8,000+
- Air Breeze by Southwest Windpower – 456 kWh annually starting at $1,195
- The Windspere – 2,000 kWh annually for $4,000+
- Swift Rooftop Energy System – 2,000 kWh annually for $10,000 to $12,000

Of course, the style of a turbine largely depends on its type, of which there are two main categories:

- **Horizontal axis wind turbines** are those that have a rotor and generator at the top of a tower, and blades the spin from top to bottom. These resemble the quintessential wind turbines you see in farmer's fields and along ridges.
- **Vertical axis wind turbines** on the other hand have a main rotor shaft set vertically with other components at the base of the turbine. The blades on these turbines spin from side to side and are very suitable for smaller installations.

Regardless of the style you choose, a small residential wind power is usually shorter in stature and width, usually measuring somewhere between 7 and 25 feet tall. They can be installed at ground level, on rooftops or patios, and a variety of other locations.

The US Department of Energy lists the following as recommendations for locating a wind system in a residential setting:



Windspere Wind Turbine

Conditions for stand-alone systems

- You live in an area with average annual wind speeds of at least 4.0 meters per second (9 miles per hour)
- A grid connection is not available or can only be made through an expensive extension. The cost of running a power line to a remote site to connect with the utility grid can be prohibitive, ranging from $15,000 to more than $50,000 per mile, depending on terrain.
- You have an interest in gaining energy independence from the utility
- You would like to reduce the environmental impact of electricity production
- You acknowledge the variable nature of wind power and have a strategy for using variable resources to meet your power needs

Conditions for grid-connected systems

- You live in an area with average annual wind speeds of at least 4.5 meters per second (10 miles per hour).
- Utility-supplied electricity is expensive in your area (about 10 to 15 cents per kilowatt-hour).
- The utility's requirements for connecting your system to its grid are not prohibitively expensive.
- Local building codes or covenants allow you to legally erect a wind turbine on your property.
- You are comfortable with long-term investments.

In addition to these considerations, a homeowner will also need to think through legal, environmental, and economic issues to determine if a turbine is right for their green home plan.

Related posts:

1. Green House Plans Product Series: Drain Water Heat Recovery

2. Green Product Series: Considering Composting Toilets for Your Green House Plans
3. Green Roofs: Energy Efficiency for Winter Homes? Yes!

Tags: green energy, green house plans, renewable energy, utility bills, wind turbine

We were unable to load Disqus. If you are a m

About YellowBlue Designs

We blog about green building practices to help you create energy efficient homes.