

Renewable Energy Fact Sheet Small-Scale Wind



There is increasing interest among EPUD customers in harnessing the power of wind to offset a portion of their home's energy usage. As a public utility founded on principles of local control, energy conservation, and renewable energy, it is natural for us to support the development of this type of residential-scale wind power. The goal of this fact sheet is to help interested customers take the necessary steps to develop small-scale wind power on their land.

What is small-scale wind power?

At EPUD, we consider a small wind electric system that is 10 kilowatts (kW) or less in size residential-scale. These systems utilize a spinning turbine mounted on the top of a tall tower to produce usable electricity for your home, farm, or business.

How will my site work for wind power?

Wind power is very site specific. More than anything else, it's important to determine the feasibility of wind power for your particular site. Your site must have enough wind blowing in the right direction for long enough periods of time to make the system effective. In general, annual average wind speeds of 10 mph are required to make wind systems economically practicable. There are just a handful of sites in the EPUD service area that

meet this requirement. You'll also need enough room on your site to accommodate the necessary tower height. The required area depends upon your wind resource and the type of system selected. Most manufacturers recommend an acre or more of unobstructed space available for secure and reliable tower placement.

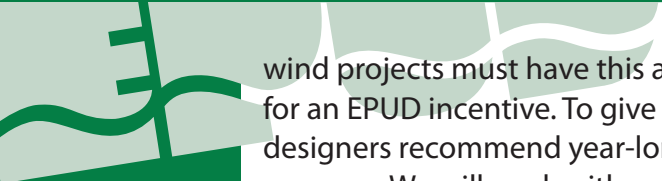
At the 3 Tier Group website (<http://firstlook.3tiergroup.com>) you'll be able to get a custom estimate of wind speeds at your property. Just enter in your street address and it will give you an annual average for available wind at various turbine heights. This will help you determine if it's worth pursuing the required resource assessment for an EPUD rebate.

What kind of permitting requirements are there?

There are a variety of permitting concerns involved with installing a small-scale wind system. It is the responsibility of the customer to contact local and county planning and permitting offices very early on in the development process. For EPUD grid-connected systems, all appropriate land-use permits and electric construction permits are required.

Are there financial incentives available?

Oregon Department of Energy (ODOE) offers a residential energy tax credit of \$2/kWh produced in the first year (up to \$6,000). More information can be found at <http://egov.oregon.gov/ENERGY/CONS/RES/tax/wind.shtml>. ODOE also offers financing through their Small Scale Energy Loan Program. EPUD supports the development of small-scale wind systems in our service area by offering an incentive of \$2/watt of installed nameplate capacity. The EPUD Small Wind Program emphasizes the importance of having our customer-generators quantify the production potential of their system through a site resource assessment. All small-scale



wind projects must have this assessment performed by a qualified installer or dealer to qualify for an EPUD incentive. To give you an idea of the potential commitment, some system designers recommend year-long monitoring at your site to fully understand the available wind resource. We will work with our customer-generators and their installer on a case-by-case basis to determine the extent of the required resource assessment. EPUD will offer Net Metering Agreements for qualifying renewable energy systems installed on our system regardless of whether or not the system qualifies for an EPUD incentive.

What is EPUD Net-Metering?

Qualified net-metered residential wind systems will be interconnected with the EPUD electric grid. The State of Oregon obligates EPUD to enter into net-metering agreements with renewable energy facilities with rated capacities of 25 kW or less. As a net-metered facility, EPUD will allow the customer-generator to “bank” any surplus electricity produced by means of a credit on their bill. We’ll install a bi-directional meter that will “spin backwards” during those periods where a customer-generator is producing more electricity than they’re consuming. Inter-connecting the system lowers the overall cost of the facility because it avoids costly battery storage. Technical requirements for connecting your residential-scale wind system to the grid can be found in the EPUD Net Metering policy (at www.epud.org/documents/net_meter_policy_draft.pdf).

How much does a small-scale wind system cost?

According to the American Wind Energy Association, the average costs for small-scale wind energy systems are about \$5,000 per installed kW. This includes the cost of the turbine, tower, inverter, and interconnection equipment. The costs of the required resource assessment and any permitting costs may drive up the total costs of the system. Comparatively, the installed costs for solar photovoltaic systems in the EPUD service territory average \$8,000 to \$10,000 per kW. Although small-scale wind power systems may be less expensive to install, the space requirements and the initial resource assessment may make the overall costs similar.

What are the benefits?

The economic benefits of installing a residential-scale wind system are highly dependent on your particular site and the size of your installed system. It’s very important to understand what kind of wind resource you have on your property. When determining the estimated payback for your system, the economic benefits must be calculated with real wind and manufacturer’s data. There are certainly environmental benefits from offsetting a portion of your home’s energy use with clean and renewable energy produced right in your back yard.

Other Resources

Customized Wind Power Maps—After registering for a free account, the website <http://firstlook.3tiergroup.com> allows you to enter your street address to assess the wind power potential at your site. While it can’t be used to make a final decision on whether a project will be eligible for an EPUD rebate, it may be enough to determine whether or not it’s worthwhile to take the next steps. If your site has average annual wind speeds of greater than 10 mph, it may be a good candidate for small-scale wind power.

American Wind Energy Association, Small Wind—A collection of frequently asked questions, tips on contacting an installer, and recommendations from the nation’s leading wind power advocacy group at <http://www.awea.org/smallwind>.

Wind Turbine Buyer’s Guide in June/July 2007 Home Power Magazine—The most recent third-party collection of small-scale wind power production equipment with relevant data and reviews.

Small Wind Electric Systems: An Oregon Consumer’s Guide—http://www.homepower.com/article/?file=HP119_pg34_Sagrillo

An Oregon perspective of installing small-scale wind—<http://egov.oregon.gov/ENERGY/RENEW/Wind/docs/smallWindGuide.pdf>

