



SMALL WIND ELECTRIC SYSTEMS

Wind is created by the unequal heating of the Earth's surface by the sun. Wind turbines convert the kinetic energy in wind into electricity. When the wind spins the turbine's blades, a rotor captures the kinetic energy of the wind and converts it into rotary motion to drive the generator. Most turbines have automatic over-speed-governing systems to keep the rotor from spinning out of control in very high winds.

If you have enough wind resource in your area, small wind electric systems can be cost-effective, home-based renewable energy systems.

Pend Oreille PUD has a program called "net metering" for facilities up to 100 kW, which allows the system owner to store any excess energy created during windy periods and store them in the form of credits, which you'll see on your bill. Then, when the wind isn't blowing or when you are using more energy than the turbines can generate, you can draw on those credits to make the most of every single kilowatt hour your system produces.

SMALL WIND ELECTRIC SYSTEM COMPONENTS

A wind electric system is made up of a wind turbine mounted on a tower to provide better access to stronger winds. In addition to the turbine and tower, small wind electric systems also require balance-of-system components.

TURBINES

Most small wind turbines manufactured today are horizontal-axis, upwind machines that have two or three blades. These blades are usually made of a composite material, such as fiberglass. The turbine's frame is the structure onto which the rotor, generator, and tail are attached. The amount of energy a turbine will produce is determined primarily by the diameter of its rotor. The diameter of the rotor defines its "swept area," or the quantity of wind intercepted by the turbine. The tail keeps the turbine facing into the wind.

TOWERS

Because wind speeds increase with height, a small wind turbine is mounted on a tower. In general, the higher the tower, the more power the wind system can produce.

FOR MORE INFORMATION

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