

How a wind turbine system works

This drawing depicts the basic elements of a wind turbine generating system interconnected to a utility's electric grid. The configuration may vary, depending on the turbine owner's location and equipment – as well as code requirements and the electric cooperative's policies.

Wind Turbine
A wind turbine sized to meet the needs of a typical family begins generating direct current (DC) power at wind speeds of about 7-10 miles per hour. That power is sent by wire to the inverter.

Tower
The tower supports the turbine high enough (generally 80-120 feet) to avoid turbulence created when the wind flows around nearby structures and trees.

Turbine Cut-Off Safety Switch
To ensure the safety of linemen working on power lines during outages and maintenance projects, the electric co-op must have unimpeded access to an emergency/safety switch that isolates the wind turbine system from the co-op's lines. This switch disconnects the wind turbine system, so it won't accidentally send power to lines that the linemen believe are de-energized. This switch is also used during regular maintenance or repairs of the turbine by its owner.

Inverter
The inverter converts the direct current (DC) supplied by the wind turbine to alternating current (AC) used in the home's circuits.

Metering System
The metering system may include one meter with two displays or two separate meters. One measures the electric cooperative's power being used in the home; the second measures the excess power generated by the wind turbine system that is not being used in the home and is flowing to the electric co-op's power lines.

