

# A DO-IT-YOURSELF WIND

By Eric Peterson

Are you considering a home-scale wind turbine?

Do you have the skills and determination? Would you want to save a few thousand dollars on a \$10-15,000 project?

Here is a step-by-step process of one family's installation of a 2.4-kilowatt wind turbine system.

The photos were taken during two days of work. There were several days of work preparing for the two important steps portrayed here and another day or more following completion.

## Days Before

Careful planning prior to the arrival of the concrete is important because there isn't time to right wrongs while concrete is on the truck! Family members dug the hole for the anchor and the trench for the conduit to the house in preparation for the arrival of the cement. They had acquired all the parts and materials for the build.

A large turbine has to be very well-anchored. In this instance, a 20-inch diameter tube 12 feet deep was filled with rebar and a yard of cement for anchorage.



Notice the stunning hilltop views from all directions. You can bet that, if there is any wind, this location can take advantage. Notice the very top of the 12-foot long concrete tube and, in the foreground, the jig holding the anchor bolts in position.



Shown are the hole with tube and the trench leading to the buildings. This hilltop is about 200 yards from the ranch.



The rebar cage is dropped into the hole.



This shows the rebar cage fixed in position inside the tube. The tube is anchored vertically in the hole and ready for cement.



The first 9 feet of cement is poured in the 12-foot anchor column.



An access hole is drilled for the electrical conduit.



# TURBINE INSTALLATION



7 A view inside the tube and awaiting anchor bolts and conduit.



8 Placing the tower anchor bolts and jig in the tube.



9 Here is a view inside the tube ready for the final concrete pour.



10 The electrical conduit and ground wire is rigged. The electrical wire will be buried in conduit in the trench, enter the concrete anchor, and exit the top of the anchor in the center of the tower.



11 Completing the concrete pour, which fills the 12-foot tube and secures the anchor bolts.



12 Just leave the cement to set! Notice the entry and exit points for the electrical conduit.

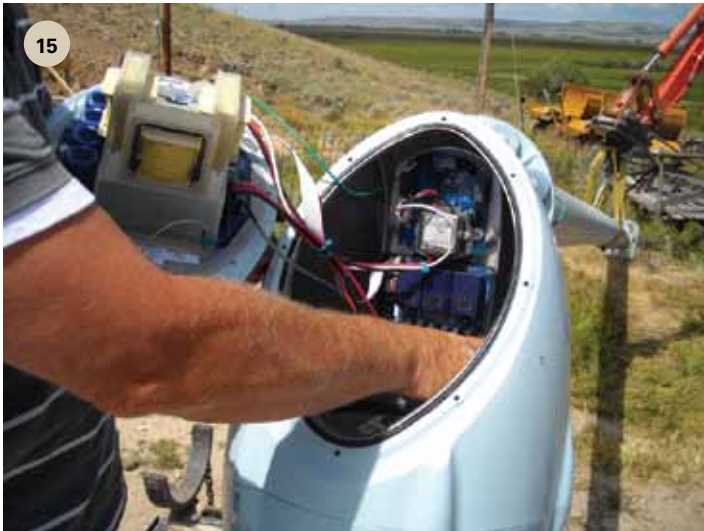




13 The wire is strung from tower to power panel. Dig the trench deep enough to afford protection, but remember, "Call before you dig!" The number is 811.



14 The turbine and tower arrived on a flatbed trailer a day after the concrete anchor had hardened. Here, the technician from the turbine dealership fastens the head to the tower.



15 A look inside at the generator and electronics.



16 The blade units are assembled.



17 Blades are affixed to the head and fastened to the nose cone.



18 The unit is assembled and marched up the hill to the site.





The tower hinge is positioned to the anchor bolts.



String the wires through the conduit and glue the joints together.



Wire-in conduit all the way from tower to the power board, and the trench is ready for backfilling.



With the hinge securely fastened, up she goes!

### Days After

In the day(s) following erection of the tower, the family installed the electrical equipment, which provides power and net-metering capability to their home electrical system. They also installed remote turbine monitoring equipment linked to their personal computer.

The savings you can reap from do-it-yourself installation is dependent upon access to equipment, comfort with manual labor, and technical know-how in wiring and electronics – work you would otherwise have to hire. It is wise to have the power company inspect your hookup before you throw the switch and begin to praise the Wyoming wind rather than curse it!

### Ranch Equipment

Do-it-yourself project managers Charles Price and his son, Kent, had at their disposal equipment to dig trenches and hoist the rebar cage. The red excavator was provided by the turbine dealership to move and lift the tower and turbine.

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