
MCCR Windpower FAQ #8:

Can I use wind to generate electricity for my home/farm/etc.?

People who ask this question generally mean one of two things:

- Can I go “off grid”?
- Can I cut my utility bill by generating my own electricity, or even make money selling electricity back to my power company?

Let’s look at each of these separately. From a *technical* perspective, the answer to the first is usually “yes”, it’s possible to go off-grid. In most locations in South Dakota, our wind resource is sufficient that we could design a system that includes a small wind turbine and batteries that would power most common loads. Usually, you get a slightly cheaper system that performs better if you go with a “hybrid” that uses wind and solar together, because the wind and sun tend to complement each other well. However, in almost all cases in our state, if you compute the cost of the electricity from this off-grid system and compare it with your local utility rates, you’ll find that the utility is significantly cheaper. That’s the main reason why most of us don’t go “off-grid”; usually, it doesn’t make economic sense.

There are exceptions to this rule, though. If you have a relatively small load (one that doesn’t use much electricity) that is far from the grid, small wind or solar can be the low-cost choice for power because the utility line extension is more expensive than the wind or solar system. Applications like this are where you will find the majority of systems of this type today. We have many of them in our state; they include water pumping for cattle and other livestock, instrumentation packages such as meteorological stations, and cathodic protection systems for high-voltage transmission towers. Also, the range of applications for which wind and solar are economical is expanding; in other words, as technologies improve, the definition of a

“small” load continues to get larger, and the definition of “far” from the grid gets closer.

The second case is more complicated and depends strongly on local utility rates and government incentive programs. Thus, this question usually has to be answered on a case-by-case basis. You might be able to use a small wind turbine to lower utility bills, if:

- your utility rates are very high (\$0.15/kWh or higher);
- your wind (or solar) resource is extremely good;
- a government incentive program exists; and/or
- your local utility has some unique reason to offer an incentive to you for putting in distributed generation.

We have good wind and solar resources almost everywhere in SD, but in most locations in our state, electricity rates are lower than the threshold mentioned above. Also, according to the National Wind Technology Center at the National Renewable Energy Laboratory in Golden, CO, our only state incentive is a “...local property tax exemption for renewable energy systems on residential and commercial property”. Finally, utilities may charge interconnection fees, and although distributed generation *can* have high benefits for utilities, determining their monetary value can be a daunting task.

For more information, browse the web site of the National Wind Technology Center, <http://www.nrel.gov/wind>, and see the “Small Wind Electric Systems: a South Dakota Consumer’s Guide”.

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