

Power for your life

Can I save money by installing a wind turbine?

This question is being asked more and more as members are looking for ways to reduce energy costs. The answer is maybe, depending on many factors, and how fast you want to see a return on your investment.

Start with energy efficiency

Before installing a wind energy system, consider reducing your energy use by making your home more energy-efficient. Many energy efficiency measures have a faster return on investment, and the initial investment is less than that of a renewable energy system.

Is wind energy right for me?

If you have made your home as energy efficient as possible and now want to install a wind turbine, contact your local electric cooperative in the initial planning stages. Be sure to conduct thorough research on all aspects of the system before making the investment. Determine what your goal of installing a wind system is. Do you want to install wind energy because you believe it is the right thing to do? Or are you looking to save money? If you want to save money, look at the financial considerations first.



Financial considerations

The Missouri Department of Natural Resources (DNR) indicates that in Missouri, it is difficult to buy and install a wind energy system at your home, farm or business that will “pay back” its cost (recover the investment cost through utility bill reductions during the life of the system). DNR states that in most of the United States, in order for small wind energy systems to be economically attractive:

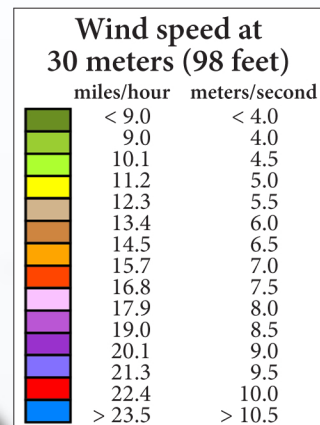
1. *The site must have an average annual wind speed over 12 mph at 80 to 120 feet. Based on the map below, the majority of the state does not meet that requirement.*
2. *Retail cost of residential electricity must be above the national average. Recent data from the Department of Energy reports the Missouri average at over two cents per kilowatt-hour less than the national average.*

Given the above information, the Missouri DNR states that use of small-scale wind turbines to generate electricity at homes, businesses or farms is often economically marginal, even on the most promising sites.¹

¹Source: Missouri Department of Natural Resources Division of Energy fact sheet, June 2012. www.dnr.mo.gov/pubs/pub2313.pdf

Residential wind system installation examples

Missouri annual average wind speed at
30 meters (98 feet)*



Example #1 - Maryville, Mo.

Installed: March 2003

Maximum output: 10 kW

Rotor elevation: 120 feet

Installation & equipment
cost: **\$50,000**

Generation output and cost savings:

Total kWh output since
install: **74,633**

Total savings since
install: **\$7,463.30¹**

Average kWh/year: **7,996**

Average savings/year:
\$799.60¹

Estimated payback:
62.5 years²

Example #2 - Chillicothe, Mo.

Installed: September 2010

Maximum output: 10 kW

Rotor elevation: 45 feet

Installation & equipment cost:
\$50,000³

Generation output and cost savings:

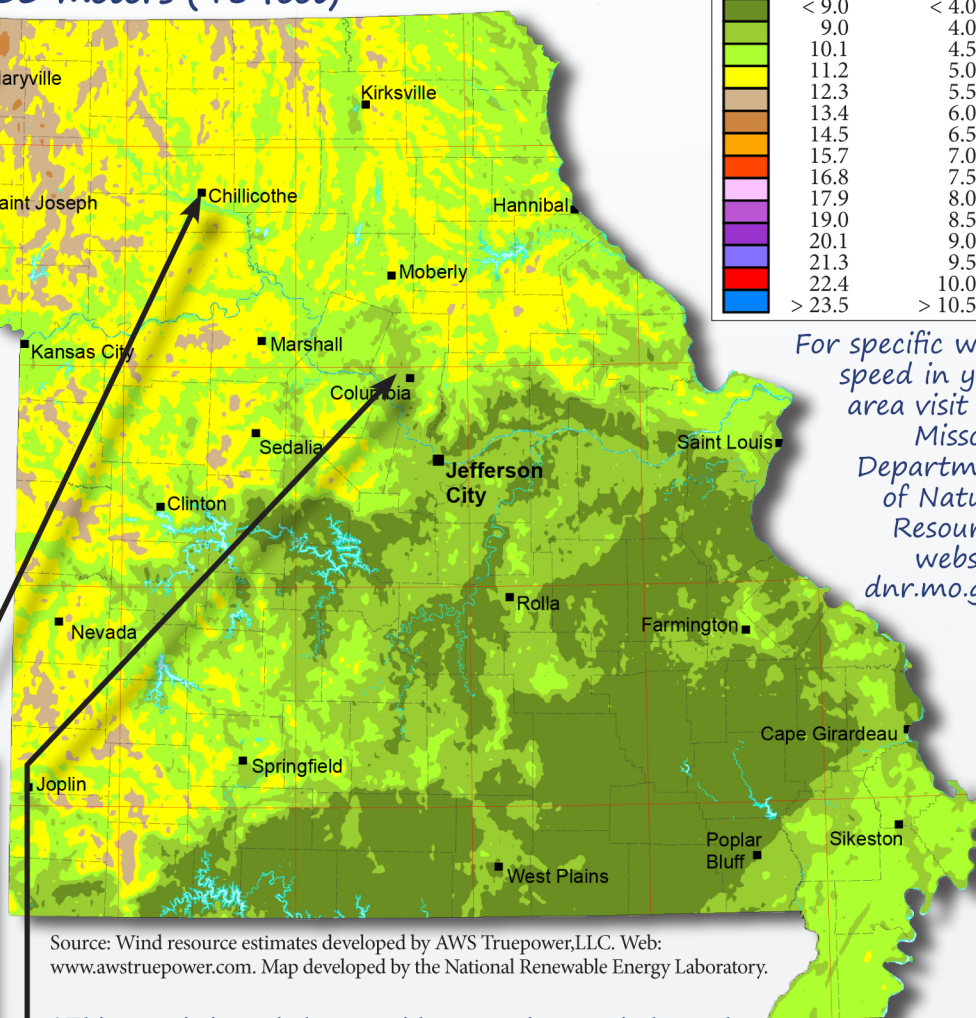
Total kWh output since install:
12,361

Total savings since install:
\$1,236.10¹

Average kWh/year: **6,450**

Average savings/year: **\$645.00¹**

Estimated payback: **77.5 years²**



For specific wind
speed in your
area visit the
Missouri
Department
of Natural
Resources
website:
dnr.mo.gov.

Source: Wind resource estimates developed by AWS Truepower, LLC. Web:
www.awstruepower.com. Map developed by the National Renewable Energy Laboratory.

*This map is intended to provide approximate wind speeds
in your area at **30 meters (98 feet)**. Wind speeds are higher at higher
elevations. For example, a 120-foot tower will see higher wind speeds
than a 35-foot tower. Many residential wind turbines are installed at 35 feet.
Consider this when examining this map for your wind speed.

Example #3 - Harrisburg, Mo.

Installed: January 2008

Maximum output: 2.4 kW

Rotor elevation: 35 feet

Installation & equipment
cost: **\$15,000**

Generation output and cost savings:

Total kWh output since install: **2,334**

Total savings since install: **\$233.40¹**

Average kWh/year: **583**

Average savings/year: **\$58.30¹**

Estimated payback: **257 years²**



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¹Based on an average Missouri rate of 10 cents per kilowatt-hour (kWh)

²Based on data collected since installation.

³Cost does not include 30 percent Federal tax credit. Consult a tax advisor for details.