

Renewable Energy Wind and Solar System Cost and Payback

(2005)

Wind: The price of the AWP wind generator, including the inverters and batteries, after the WI Focus on Energy rebate, was \$16,200. The price of the wind turbine itself was \$12,000. Focus on Energy gave a ¼ cost rebate for the wind turbine, which was about \$3,100. A rebate was not given on the solar system because it was already installed. Focus on Energy guidelines require that rebate paperwork be completed prior to purchase. This home is near Lake Superior with average wind speeds of 11-14 mph so the wind turbine runs almost 24 hours a day at 127 feet high. The wind generator makes about 250 watts per hour at 11 mph wind speeds.



Solar: The price of the solar system, which includes four Sharp solar panels at \$3,436 plus wiring and other miscellaneous items, brought the solar cost to about \$4,000. How much power does this system make? Each solar panel is 185 watts and there are four of them, which equal a 740 watt system. About 3-4 kilowatts of electricity is made each day in the summer and only 1-2 kilowatts in the winter. This house is surrounded by trees and doesn't get the direct sunlight as a system would if it were in a more sunny location.

This wind and solar system cost around \$20,000, which is the same as the cost of a new truck! Why renewable energy? It would have cost these homeowners \$12,000 to bring traditional power lines to the new home. Using renewable energy cost only \$8,000 over that cost and allows for energy independence. Together, the solar and wind systems have complemented each other very well. With both, these homeowners are able to make power 24 hours a day instead of only during daylight hours. A backup generator is on hand in case there is no wind or sunlight for a longer period.

The renewable system was paid for using a construction mortgage. At 5.6% interest on \$8,000, the system costs roughly \$37/month, which is the equivalent, if not less than a monthly electric bill. And \$8,000 (plus interest) can be paid off eventually, whereas the electric bills will keep coming. So, when people ask how long it would take to "break even," in a way, they already have.

These homeowners purposely built a very energy conservative home using all compact fluorescent bulbs and power strips on all vampire appliances such as the microwave, TV, VCR, etc. This home is heated with an outdoor wood furnace and the water is heated by circulating it within the floor which is heated. Solar hot water will be added to the roof in the near future to heat water during the summertime so a fire does not have to be made in the outdoor furnace. There is a gas stove in this home as well as a Sunfrost refrigerator which uses as much power as a small dorm fridge. There is no air conditioning since the cool Superior breezes are always blowing.

The only thing these homeowners wish they could do now is be hooked to the grid so they could sell back their excess power.

Wind turbine	\$3,000
127 ft. tower	\$5,100
<u>Miscellaneous</u>	<u>\$4,100</u>
Total	\$12,000

2 Inverters	\$5,000
24 batteries	\$1,300
<u>Miscellaneous</u>	<u>\$ 800</u>
Total	\$7,100

Total Wind system Cost	\$19,300
<u>Focus on Energy Rebate-</u>	<u>\$3,100</u>
Total cost	\$ 16,200