



BIOMASS



SOLAR



WIND

To learn more about Focus on Energy, call 800.762.7077 or visit focusonenergy.com



FULL SPECTRUM SOLAR

This 7.4 kW solar electric system was installed on this Whitefish Bay, Wisconsin-area home with the help of Focus on Energy.

The solar resource is massive, dwarfing any other energy resource on the planet. The amount of sunlight that strikes the earth in one minute could supply the world's energy needs for a year.

Solar electric or photovoltaic (PV) technology is poised to become an important source of cost-effective, clean power in the next five years to ten years. During the past seven years, the Wisconsin solar electric market grew at a rate of about 80 percent each year.

Benefits of solar electric systems:

- Generate power wherever there is sunlight
- Operate silently without moving parts, requiring little maintenance
- Reduce electricity bills
- Helps reduce our dependence on imported energy, while reducing greenhouse gas emissions and creating jobs.

It is not necessary to depend entirely on solar power. Many grid-connected residential systems provide 50 percent or less of a customer's electricity needs. When the sun goes down, the home still has power—it is simply provided by the electric utility.

All Wisconsin public investor-owned and municipal utilities are required to allow solar electric systems to deliver surplus power to the grid. This surplus power turns your electric meter backward at your current electric rate, with the utility grid functioning like a 100-percent-efficient battery. This process is called net-energy billing.

Focus on Energy Cash-Back Rewards and federal tax credits can cover up to half the cost of a commercial or residential solar electric system. Some Wisconsin electric utilities offer additional incentives including a solar buy-back rate that purchases every kilowatt-hour (kWh) your system generates for 25 cents for ten years.

SOLAR ELECTRIC SYSTEMS

While panels made by companies such as Sharp, General Electric, Kyocera and Sanyo come with warranties of 25 years, solar electric systems have an expected life of 40 to 50 years. Fixed-mounted systems have no moving parts and require little or no maintenance. A statewide network of certified professionals is available to perform high-quality installations.

SITING SOLAR ELECTRIC SYSTEMS

For existing homes and buildings, solar electric panels can be located on the roof, on a separate pole or rack, or attached as awnings.



H&H SOLAR ENERGY

(top) The Urban Ecology Center in Milwaukee, Wisconsin features a fixed-mounted 44.4 kW system on its roof.



WISCONSIN SOLAR USE NETWORK (WISCONSUN)

(right) The Ritger Law Office in Random Lake, Wisconsin, is connected to the grid but stores solar electricity from its solar electric roofing panels to provide uninterrupted power for computers, telephones and lighting.

SYSTEM SIZE AND COST

- A 1 kW solar electric system, requiring about 85 square feet of crystalline modules, will generate one kilowatt hour (kWh) of electricity every hour under ideal conditions. In Wisconsin, an unshaded 1 kW panel, facing roughly south and inclined between 25 degrees and 50 degrees, generates about 1,200 kWh per year. A 1 kW dual-axis tracking system, which keeps the panels continually facing the sun, produces about 1,600 kWh per year.
- A simple grid-connected solar electric system costs roughly \$8,500 per kilowatt (installed) for a fixed-mounted system, and roughly \$11,000 per kilowatt (installed) for a dual-axis tracking system.
- The average single-family home in Wisconsin consumes 10,000 kWh of electricity per year, which would require a six kW to eight kW solar electric system. Reducing power needs by installing efficient appliances and lights—and by replacing electric water heaters, clothes dryers and stoves with natural gas or propane models—rapidly decreases the size of a solar electric system needed to power that home.

- Homes utilizing solar electric power tend to be more efficient than average homes. Recently, the average residential system installed with the support of Focus on Energy has a capacity of 4.6 kW. Some homes are meeting all of their electricity needs with 2.5 kW systems.

OTHER CONSIDERATIONS

- To determine if your site is well suited for a solar electric system, consider a Focus on Energy site assessment or contact a solar electric installer.
- Federal tax incentives for solar energy installations, Focus on Energy Cash-Back Rewards and increasing solar electric buy-back rates in some areas of Wisconsin are rapidly improving the economics of solar electric systems.
- A grid-connected solar electric system costs more than current utility power prices. However, as the cost of electricity increases, and system price falls, the economics of solar electric systems improve rapidly.
- To install a solar electric system, we encourage you to work closely with an experienced solar contractor to help guide you through the installation process and ensure a safe and reliable system.

FOR MORE INFORMATION

Focus on Energy

Focus on Energy is your resource for assistance in the installation of solar electric systems in Wisconsin. We help simplify solar electric projects by providing information, solar site assessments and a list of Wisconsin Full Service Installers. Incentives are available and cover roughly 20 percent of system costs. We also offer a wide variety of fact sheets and case studies featuring other renewable energy technologies and information on energy efficiency. Call 800.762.7077 for more information.

focusonenergy.com/renewable/solar-electric

DSIRE

DSIRE is a comprehensive source of information on state, local, utility and federal incentives that promote renewable energy.

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