



BIOMASS



SOLAR



WIND

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



LIGHT ENERGY SYSTEMS

This 5.25 kW solar electric system was installed on this Madison, 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 technology is poised to become an important source of cost-effective, clean power in the next 10 years to 20 years. During the past 10 years, the U.S. solar electric market grew at a rate of about 40 percent each year. (Source: Solar Electric Power Association)

Benefits of solar electric systems:

- Generate power wherever there is sunlight
- Operate silently without moving parts, requiring little maintenance
- Powered by the sun with no fuel 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 home's energy needs. When the sun goes down, the home still has power—it is simply provided by the electric utility.

All Wisconsin public investor owned 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 small solar electric system during the system's first year. Some Wisconsin electric utilities offer special solar buy-back rates that purchase every kilowatt-hour (kWh) your system generates for 20 cents to 25 cents.

SOLAR ELECTRIC SYSTEMS

While panels made by companies such as Sharp, BP Solar, Kyocera and Sanyo come with warranties of 20 to 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.



CHRIS COLLINS

(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

- One kW solar electric system, requiring about 85 square feet of crystalline modules, will generate one kilowatt hour (kWh) of electricity every hour when exposed to full sunlight. 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 one 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 \$8,000 per kW (installed) for a fixed-mounted system, and roughly \$10,500 per kW (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 cost of a solar electric system.

- Homes utilizing solar electric power tend to be more efficient than average homes. The average residential system installed with the support of Focus on Energy has a capacity of 2.5 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.
- New federal residential tax credits 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, 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

focusonenergy.com

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.

www.dsireusa.org

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