



Solar

Although we may feel in the dead of January that the sun is scorning us, there are still plenty of opportunities for solar energy in Minnesota. Minnesota has more annual solar energy potential than Houston, Texas and nearly as much as Miami, Florida. Although the cost of generating solar electricity is currently expensive relative to traditional sources, solar energy can be economic in many situations, such as for heating hot water and when it is impractical to connect to the electric grid. When buildings are designed to maximize the light and heating potential from the sun, significant “passive solar” energy savings can be realized.¹

Can I use solar for my home or business? How do I know if I have enough sun? Most places have enough solar energy to meet some or all of their needs with solar energy systems. You can get more specific information by contacting a local solar system designer, installer, solar architect or builder to discuss your power requirements, particulars of your property, what type of systems would suit your needs, sunlight availability, etc. In general, solar energy systems produce energy even under cloudy skies (although less than under full sunlight).²

I’m interested in having a solar energy system installed on my home or business. Where do I start? Increasing the energy-efficiency of your building, lights and appliances is always the most cost-effective first step in this process. Look for experienced local solar energy system designers and installers, and check their references as you would any other contractor. If you’re lucky, you can find solar companies listed in your local phone book. There are also web sources that can help, such as www.eere.energy.gov/solar.

Can I use solar electricity to heat water or to heat my house or office? It is impractical to use solar-generated electricity to heat water—a solar water heating system is a far more cost-effective choice. Similarly, space heating is best accomplished with solar thermal strategies or equipment designed for the task—passive solar designs or transpired collectors, for example.

How much can I expect to pay for a renewable energy system? How much will it save me on my utility bill? Your savings will be specific to your circumstances. If

¹ Pawlisch, Melissa, Carl Nelson, Lola Schoenrich. 2003. *Designing A Clean Energy Future: A Resource Manual*. P. 61. Retrieved on February 7th, 2005, from: www.cleanenergyresourceteams.org

² All questions and answers listed come from the American Solar Energy Society’s Frequently Asked Question’s link. Retrieved on February 7th, 2005 from: <http://www.ases.org/>.

you're lucky enough to live in a state with generous incentives and good solar resources, the economics of installing solar systems may be quite attractive. Solar water heating can be cost-effective nearly anywhere in the U.S. compared with heating water with electricity. If you're building new, a carefully thought out, energy-efficient and passive solar design costs little extra to build and pays large dividends in energy cost savings over the life of the building. There are also many inexpensive strategies that can save energy and money in renovated buildings. Like any other major purchase, you have to weigh all the costs and benefits. Renewable energy systems offer many benefits unrelated to cost (clean, quiet operation, low environmental impact, energy independence, etc.) and many people choose them even if they are more expensive.

What is the energy payback time for PV? Typically, the energy payback time (the time it takes the system to generate the same amount of energy that it took to manufacture the system) for PV systems is two to five years. Given that a well-designed and maintained PV system will operate for more than 20 years, and a system with no moving parts will operate for close to 30 years, PV systems produce far more energy over their lives than is used in their manufacture.

What is net metering? In 34 states including Minnesota, consumers can install small, grid-connected renewable energy systems to reduce their electricity bills using a protocol called net metering. Under net metering, electricity produced by the renewable energy system can flow into the utility grid, essentially spinning the existing electricity meter backwards. Net metering is important because it provides a simple, standardized protocol for connecting renewable energy systems into the electricity grid that ensures safety and power quality. In addition, net metering allows renewable energy system owners to receive full value for the electricity they produce without installing expensive battery storage systems. Net metering also provides a simple, inexpensive and easily administered mechanism for encouraging the use of renewable energy systems, which provide important local, national and global benefits.

Links:

Solar Minnesota: <http://www.solarminnesota.org/>.

American Solar Energy Society: <http://www.ases.org/>.

Minnesotans for an Energy-Efficient Economy solar page: <http://www.me3.org/issues/solar/>.

Home Power Magazine: <http://www.homepower.com/>.

Solar Electric Power Association: <http://www.solarelectricpower.org/>.

Solar Midwest: <http://www.solarmidwest.org/Minnesota.html>.

US Department of Energy: <http://www.eere.energy.gov/solar/cfm/pubs/>.

Innovative Power Systems: <http://www.ips-solar.com/>.

The Renewable Energy Policy Project Solar FAQs:

http://solstice.crest.org/articles/static/1/995469913_2.html