

Resources

Ten Steps To A Sound Decision

1. Does the company have experience installing grid-connected systems?
2. Does the company use licensed and certified contractors?
3. Does the company provide assistance in evaluating the potential electric production for your site and determine economic payback on your investment?
4. Does the company have any consumer complaints, judgments, or liens against it?
5. Will the company help with the applications required by the local building permitting agency and the utility for grid-connections systems?
6. How much, if any, of the work will be contracted out?
7. When will construction begin and how long will it take?
8. What type of warranty is offered? Will the company provide a performance bond?
9. Does the company do service and repairs on the equipment?
10. Will the company provide reference of previous installations and can you contact them?

Wind

MN Department of Commerce/Division of Energy Resources
www.mn.gov/commerce/energy/

American Wind Energy Association
www.awea.org

US Department of Energy
www.eere.energy.gov

Windustry
www.windustry.org

Solar

MN Department of Commerce/Division of Energy Resources
www.mn.gov/commerce/energy/

Solar Electric Power Association
www.solarelectricpower.org

US Department of Energy
www.eere.energy.gov

Grants and Tax Incentives

MN Department of Commerce/Division of Energy Resources
www.mn.gov/commerce/energy/

USDA Rural Development
www.rurdev.usda.gov/mn/

Database of State Incentives for Renewables and Efficiency
www.dsireusa.org

EnergyStar®
www.energystar.gov



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Renewable Energy

Resource Guide for Small Energy Systems



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A Touchstone Energy® Cooperative
The power of human connections® 

Renewable Energy

At Todd-Wadena Electric Cooperative we believe that alternative energy sources and energy conservation are important considerations when addressing our future energy needs. If you are planning to tap into alternative energy sources or if you're just curious about how alternative energy works, this brochure is intended to help answer your questions and provide you with introductory background information.



Purchasing an alternative energy system is a major investment. I strongly encourage you to do your homework. Talk to others that have a system, conduct thorough due diligence on economic benefits, legal issues, zoning regulations, operating and maintenance costs, and obtain vendor references before making a purchase. When you've done all of the necessary background work and have made a decision to purchase, we can assist you in the process of connecting your system to the electric grid and will provide you with a contract to purchase the power you produce.

Robin Doeg, Pres., CEO
Todd-Wadena Electric Cooperataive

Net Metering

A net metering program allows the electric meters of customers with generating facilities to turn backwards and send electricity back into the grid - when a customer's generator produces more energy than is used. Net metering allows customers to offset their electricity consumption over the entire billing period, not just instantaneously. This offset enables customers with generating facilities to receive retail prices for the excess electricity they generate.

Wind



Determine Wind Potential

Consider installing a wind recording device for at least one year to determine the wind potential for your site. Wind gets stronger and more consistent at higher elevations.

Interconnecting With Your Utility

In Minnesota, your utility is required to allow you to connect any turbine 40kW or less. Working with your utility before you start construction can save you money.

How Much Does It Cost?

A general rule of thumb for estimating the installed cost of a residential turbine is \$5,000 to \$10,000 per kilowatt, depending on size, application, and service agreements with the manufacturer.* As an example, a 20kW turbine may cost \$75,000 to \$100,000.

How Long Before My System Is Paying For Itself?

It can take 10 to 40 years to recapture costs of equipment and installation, depending on the size and complexity of your installation, the wind resource, price of electricity (or distance from the grid), electricity use, finance rate and available rebates or incentives.*

Incentives

Various federal and state tax incentives, grants, and low cost financing options are available. See the back of this brochure for more details.

County Regulations and Permits

Contact your local county to determine if they will allow a wind turbine to be built on your property.

Electrical Inspection

Minnesota requires small energy producers to follow the National Electric Safety Code. Wiring must be performed by a licensed electrical contractor.

Insurance

Contact your insurance agent before you begin construction. It is a good idea to protect yourself against liability in addition to properly insuring the equipment.

Dealers

Use "due diligence" when considering a dealer for your project. Ask for references and a list of projects they have completed. For a comprehensive list of dealers see the MN Dept. of Commerce web site.

Solar



Solar Thermal

Solar Thermal Energy

Solar thermal technologies use sunlight to provide heat for domestic hot water and space heating. These systems are generally divided into passive designs that absorb and store the sun's heat and active systems that use collector panels and mechanical components to provide thermal energy to a building. Solar thermal systems are meant to supplement a building's primary hot water and heating systems rather than to replace them.

Potential Energy

A typical solar water heating system in Minnesota can provide 50% to 75% of total energy required for hot water. In Minnesota, solar thermal can reduce a buildings need for other energy sources by up to 30%.

Cost

Solar hot water systems cost \$10,000 to \$12,000 for a typical residence.* For a residential system that employs both water and space heating, the range is \$20,000 to \$25,000.*

PV Solar

Solar Electricity

Solar electricity or photovoltaic is the use of sunlight to generate electricity. The single biggest barrier to solar electricity is the initial cost of installation; however, there are significant incentives available for PV solar.

First Step

Before investing in a solar electric system, reduce your home's energy consumption by increasing efficiency, which is more cost effective and reduces the size of solar energy system that is needed.

Benefits

Solar electric systems have low maintenance and can produce electricity for 30-50 years. After your initial purchase, your return on investment (in future years) will improve as electric rates increase.

Cost

The cost of a solar electric system varies with the size and type of system and available incentives. A typical 2kW residential system (which might provide 2,400kWh per year) costs about \$17,000 to \$20,000 installed, before incentives.*

*Estimates provided by MN Department of Commerce.