

I WANT TO GET STARTED. WHAT'S NEXT?

The decision to implement a renewable energy system is a multi-step process that requires careful consideration. Here are the initial steps you'll need to undertake.

1. Investigate your renewable energy options.

Information is available from a range of sources, including renewable energy associations, consultants, vendors and current net metering members. A qualified supplier will be your key source of information about the most suitable option for you.

2. Determine what size system will suit your needs.

In order to size your system, identify your individual energy requirements. You can use your previous billing statements as a starting point. It's also worth considering what energy requirements you can reduce through, for example, energy-efficient appliances and lighting.

Remember, your credits can only be carried forward for 12 months, so there is no value in over-sizing your system. And bear in mind, too, that the maximum production allowable is 25 kW.

3. Find out how to interconnect to BEC.

Contact BEC. We can provide details about the technical requirements to interconnect to the BEC system and how to obtain your net-metering agreement.

Sources of further information on renewable energy systems

Information is your best tool. Here is a list of sites where you can find detailed information about small wind, solar and other renewable generation:

National Center for Appropriate Technology
406-721-9908
www.ncat.org

Montana Renewable Energy
www.montanagreenpower.com

Alternative Energy Revolving Loan Program
406-444-6778
www.energizemontana.com

State Tax Credit Information 406-444-6769
www.deq.state.mt.us

State and Federal Incentives for Renewable Projects
www.dsireuse.org

Danish Wind Industry Association Tutorials on Wind Power
www.windpower.org

American Wind Energy Association
www.awea.org

Energy & Environmental Research Center
www.undeerc.org/wind



800-472-9821 Phone

406-446-2310 Phone

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RENEWABLE ENERGY

The Power to Make a Difference

Is renewable energy practical for me?

Small renewable energy systems can be used either in connection with the Beartooth Electric Cooperative's (BEC) distribution system (called grid-connected systems), or in stand-alone applications that are not connected to our grid.

A grid connected renewable energy system can reduce consumption of cooperative-supplied electricity for lighting, appliances, and electric heat by supplying some or all of the power consumption when the generator is operating. If the alternative energy source cannot deliver the amount of energy you need, when you need it, the cooperative makes up the difference. When your system produces more electricity than the application requires, the excess can be delivered to the grid. With the interconnection technology available today, this power flow takes place automatically. Stand-alone energy systems can be appropriate for homes, farms and ranches, stock tanks or simple water heating applications.



Renewable Energy is a Vital Part of Our Electric Power Future

Things to Consider

There have been many sources of energy in Montana over the years. Uses have varied from simple windmills, small dams or solar panels to operate livestock water pumps, to direct current charges used in the 1920s and 1930s and most recently, electric power generation.

Thus far, private generation on a large scale has yet to gain a foothold in Montana. In this brochure, we will focus on small generation, which is connected to the electric grid, touching on the most important points you should consider that will assist your project plan and scope.

Points to Understand

Build close to a power line—Power lines are costly! Unless you plan to be totally isolated from the power grid (stand-alone only), make sure you are within 100 feet of a single-phase meter. For meter information, check with BEC.

For wind, build high—While the majority of Montana has excellent wind generation potential, it doesn't make sense to put your generator in a valley or behind a hill blocking the prevailing wind. Increasing the elevation of the wind turbine above the surrounding land can make a profound increase in your power-generating potential. Average annual wind speed for your location should be at least 10 mph.

Net Metering—Be sure to read and understand your cooperative's Net Metering agreement. In net metering, the cooperative provides supplemental power supply when your generator is not meeting all of your consumption needs. When your generator is producing more power than you need, that surplus is delivered to the grid and "netted" against the amount of power delivered to you at other times. When you "net meter" your generated power against the

amount of power needed for your home, the economics of your renewable energy project can be greatly improved.

Understand your power rate—Your cooperative's retail rate is typically less than the average cost of producing power by a small generator.

Choose your generator carefully—As with any equipment, there are dramatic differences in types and brands of generators. Make sure your choice will withstand the extreme conditions sometimes experienced in Montana. Check with others who already have implemented similar technology and products.

Building codes—Make sure you understand building codes and permitting. Also, make sure you understand your cooperative's interconnection policy for renewable generation, and consider legal and environmental issues in your area.

Noise issues—Particularly with wind generators, even small wind machines can produce noise that may be objectionable to some people, especially in high-wind conditions. Be aware of this possibility.

Tax credit possibilities—There are federal as well as state tax credits available for some renewable energy projects. There are also several grant and loan programs that may help fund your project. There are several sources listed on the back of this brochure.

Wind-electric pumping—Renewable energy pumping systems for stock purposes can be very cost-effective when compared against the cost of extending distribution lines to remote areas and should be considered separately from grid-tied systems discussed here.

For Wind—Build High

Example: If you site a wind turbine on the top or on the windy side of a hill, you will have more access to prevailing winds than in a gully or on the leeward (sheltered) side of a hill on the same



property. Consider existing obstacles and plan for future obstructions, including trees and buildings, which could block the wind or sun in the case of photovoltaics. Also realize that the power available in the wind increases proportionally to its speed (velocity) cubed (V^3). This means that the

amount of power you get from your generator goes up exponentially as the wind speed increases. For example, if your site has an annual average wind speed of about 12.6 mph (5.6 meters per second), it has twice the energy available as a site with a 10 mph (4.5 meter per second) average.

You can have varied resources within the same property. If you live in complex terrain, take care in selecting the installation site.

A renewable energy system can be a good long-term investment. However, because circumstances such as electricity rates and interest rates vary, you need to decide whether purchasing an alternative energy system is a smart financial move. Be sure you or your financial adviser conduct a thorough analysis before you purchase and install a renewable energy system.