Bright Ideas in Renewable Energy

A guide for submitting a renewable energy proposal to NorthWestern Energy

NorthWestern™ Energy

Dedicated to Serving You

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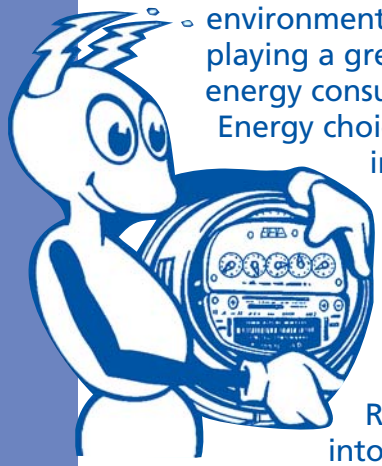
GETTING STARTED

Please read this entire brochure carefully before applying for USB funding from Northwestern Energy. The better you understand how renewable energy works, the more comfortable you will be living with it and sharing it with others. Although you do not have to be an energy rocket scientist, it is important that you have a basic understanding of renewables, as well as the process of creating a proposal as required.

The Frequently Asked Questions section (located on page 14) is designed to address many issues. If, after digesting all this information, you still have questions, please contact one of the resources provided on page 6, call (888) 700-6878 or e-mail www.@northwesternenergy.com.

Qualifications listed in this brochure are specific to NorthWestern Energy (NWE) Montana electric distribution customers. To qualify for NorthWestern Energy's Universal System Benefits (USB) Renewable Energy funding, you must be a NorthWestern Energy electric distribution customer and your renewable energy project must benefit NorthWestern Energy electric distribution customers in some way. How your project might benefit other customers will be addressed in future sections. If you're the customer of another electric utility, please contact that utility about programs it may offer its customers.

INTRODUCTION



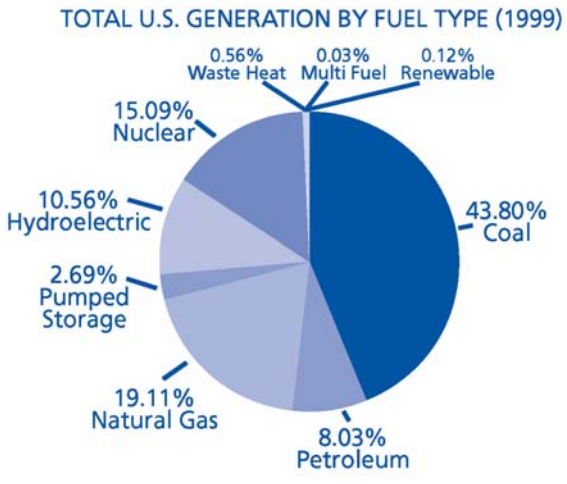
The energy industry is rapidly changing. Costs are fluctuating, and environmental considerations are playing a greater role in our energy consumption habits. Energy choices made today can impact our planet tomorrow. This brochure is designed to walk you, step-by-step, though the process of integrating clean Renewable Energy (RE) into your home or business. Financial assistance may be available from Universal Systems Benefits (USB) funds.

Dozens of Montana residences, schools, businesses and municipalities already have taken advantage of the savings provided by USB programs. Approximately $1 million dollars are available annually through the Universal Systems Benefits Renewable Fund with incentives ranging from $5,000 to $100,000. Some examples of Montana projects funded thus far have included:

- Remote solar electric stock watering pumps for cattle in Roundup, Anaconda and Drummond
- More than 50 solar electric grid-intertied systems on residences in Livingston, Butte, Helena, Bozeman, Great Falls and other locations
- Business and commercial solar and wind installations including a motel in White Sulphur Springs, sustainable education centers in Whitehall and Missoula, an RE dealer in Stevensville, and the National Center for Appropriate Technology (NCAT) in Butte
- Solar electric grid-intertied systems in public schools throughout Montana along with fire stations throughtout NorthWestern Energy's service territory.

Almost all of the funded projects include public education or demonstration to enhance awareness about the opportunities and benefits of renewable energy. Projects proposed that demonstrate benefits to more than one public purpose are preferred, for example, a solar energy installation on a low-income qualified residence, or a wind turbine providing line support for weak distribution systems.

In all of these applications, NorthWestern Energy customers have contributed to a cleaner environment and have seen a decrease in their electric bills. In many cases, electric meters are running backwards for some periods of time. And, NorthWestern Energy credits its "net-metered" customers for the power generated. This brochure is designed to show you how to make a renewable-energy project a reality for a public building, your own home or business.



Source: EIA

HOW TO USE THIS BROCHURE

This brochure is designed to make it easier for you to implement renewable energy and submit a proposal for help funding your project. As you continue reading, you will be prompted to take the next step, which will include making phone calls, taking a picture, studying, or completing a site assessment. Each step will move you closer to your renewable-energy goal in the shortest amount of time. The NorthWestern Energy proposal process may take anywhere from a few hours to a few weeks to complete.

WHAT IS USB?

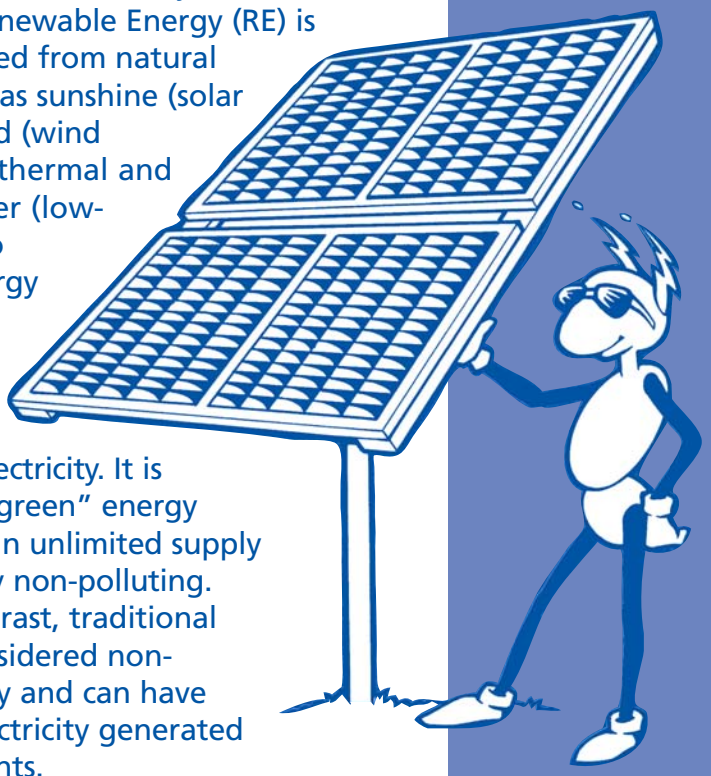
NorthWestern Energy's USB (Universal System Benefits) program; low-income energy assistance; and weatherization; energy-efficiency activities and development of renewable-energy resources. NorthWestern Energy customers have long participated in and helped pay for energy efficiency and low-income energy assistance activities through their electric and natural gas rates. When the Montana Legislature restructured Montana's energy industry, it agreed that these programs are important for Montanans. The result: the Legislature established the Universal System Benefits (USB) Charge.

Under state law, all electric and natural-gas utilities are required to collect USB funds from their customers to fund energy-efficiency programs and activities. In addition, those funds support low-income energy assistance and renewable energy projects. This regulated charge is listed as "USBC" on your NorthWestern Energy billing statement. The typical NorthWestern Energy residential customer pays an average of $1 per month in electric USB charges. About $8.6 million is collected annually through this charge, with about $1 million going to Renewable Energy (RE) projects.

This information packet comes from the USB goal to encourage the development of renewable energy resource projects that use environmentally friendly technology to generate electricity. As a NorthWestern Energy customer, you support and may qualify to participate in a USB funded program. See the Web site www.northwesternenergy.com for more information.

RENEWABLE ENERGY BASICS

Before we begin, it helps to have a basic understanding of what our clean energy options are and what they can do for us. Renewable Energy (RE) is energy derived from natural sources such as sunshine (solar energy), wind (wind energy), geothermal and flowing water (low-impact hydro energy). Energy derived from these sources is converted directly to heat or to electricity. It is considered "green" energy because it is in unlimited supply and is largely non-polluting.

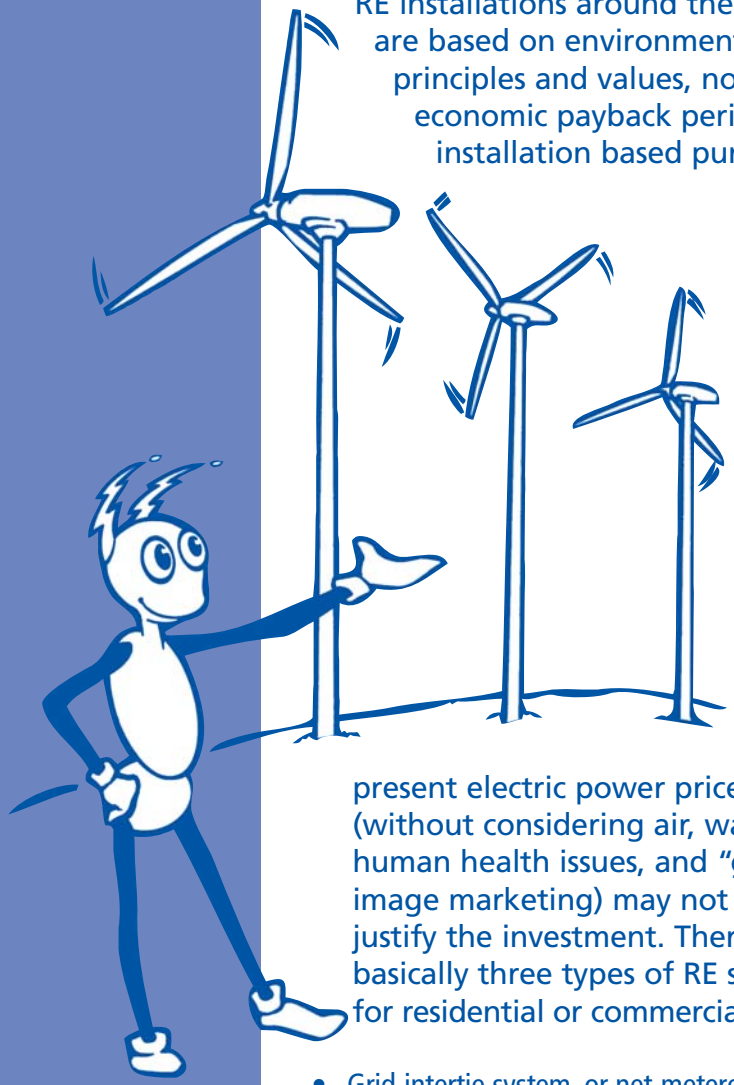


In contrast, traditional energy sources, such as fossil fuels or uranium, are considered non-renewable because they offer limited sources of energy and can have negative environmental impacts. In Montana, most electricity generated comes from coal-fired plants and large-scale hydro plants.

RE systems can be relatively costly, ranging anywhere from $500 and up. Typically, an installed residential grid intertie solar electric system may cost $10,000 to $40,000, while a commercial building system may cost $20,000 to $100,000. While this is a significant amount of money, many of our spending decisions are not based solely on economics, such as purchasing a new vehicle or an expensive vacation.

RENEWABLE ENERGY BASICS

RE systems retain their value and lower your power bill and as electricity costs increase, the payback time for an RE system decreases. On top of this, RE users are immediately contributing to a cleaner planet. These days, most grid-connected residential and commercial RE installations around the country are based on environmental principles and values, not on an economic payback period. A RE installation based purely on present electric power prices (without considering air, water, soil, human health issues, and "green" image marketing) may not always justify the investment. There are basically three types of RE systems for residential or commercial use:



- Grid-intertie system, or net-metered system, is one where conventional power lines – called the electric distribution system or the power "grid" – is hooked up to a building and the RE system is tied into it. Battery storage is not involved. This system is generally the least expensive way to incorporate RE into your lifestyle and is quickly becoming the most popular type of system. It allows you to lower your power bill with your own clean energy source. If you're a NorthWestern Energy customer, you may receive these benefits by delivering any extra power your RE system generates back to the electric company for credit to further reduce your electric bill. Depending upon the size of your system and your energy use, you may be able to offset some of your electricity bill. You still pay the monthly distribution service fee to the utility, any demand charges (for commercial buildings), and for any electric energy (kWh) which you used that was not offset by your own system. The utility electric system still provides electricity when you need it. Power outages may still occur with a grid-intertie system, and the rates the utility charges are still regulated.

- The second type of RE use is the Stand-alone, a system in which 100 percent of your electricity comes from a clean source completely separate of the utility. This approach is used where conventional power line extensions are too expensive or a residence or business wishes to be completely autonomous and independent of power fluctuations, outages and bills. Stand-alone systems cost more up front because a battery bank and controls are needed to store and regulate electricity when conditions are not favorable for RE power production (at night for solar electric, calm times for wind generators, or low-flow periods for micro-hydro). Stand-alone systems generally are designed to provide the full electricity needs of the home or business.

- Uninterruptible Power Supplies are a combination of the Grid-Intertie and Stand-alone systems, where the home or business is still connected to the grid, but battery backup is available in case of a utility blackout. Usually, appliances that serve critical needs in a household or business – computers, water pumps, refrigerators – will be attached to the battery. This way users have the security of clean backup electricity while having benefits of unlimited power (the grid). These systems tend to be the most expensive because they include utility charges in addition to the expense associated with RE components and a battery bank.

Which clean power source may be right for you? Studying the list below will help you decide which option is best for your lifestyle and location. For more detailed explanations, please refer to the bibliography on page 6.

CONSERVATION AND EFFICIENCY

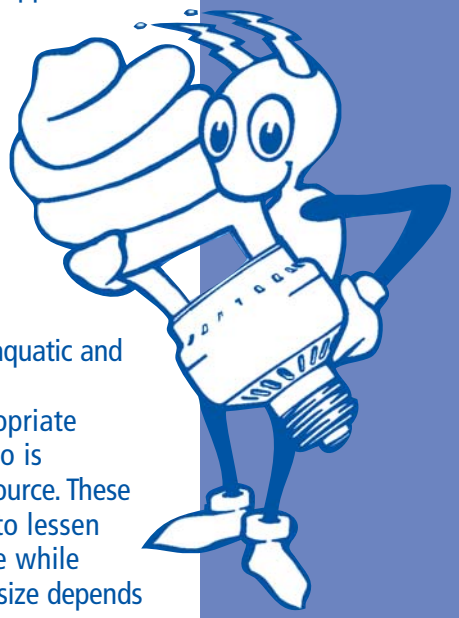
Conservation and efficiency are tied directly to RE in that the less energy we use (through efficient lighting and appliances, well insulated homes, lifestyle habits, etc.), the less energy we need from the RE system or the utility. For every $1 spent on conservation measures, $3 is saved in RE equipment. These efficiency improvements should always be considered, whether you are installing RE or not, because they are so economical and have the greatest long-term effects on the environment.

SUNSHINE

There are three basic types of solar usage: solar electricity (PV), solar hot water and solar space heating. Photovoltaics (PV) convert the sun's light into electricity. When sun strikes a PV panel, an electrical current is created. This electricity is produced cleanly and silently. A typical supplemental solar electric system for a conventional home would be 1 to 2 kW (1 kilowatt (kW) =1000 watts) and 2 to 50 kW for a business. Solar hot-water heaters, sometimes called "solar domestic hot water systems," use the sun's heat to generate hot water. Usually a heat-transfer fluid, such as a water-glycol antifreeze mixture, is used in solar collectors that are mounted on a roof. The heated fluid in the collectors is used to heat a tank similar to a conventional gas or electric water tank. The more the sun is used for heating, cooking, and other water heating, the lower your power bill will be. A typical supplemental hot water system consists of one or two 4-feet-by-8-feet panels with a pump and a storage tank with a heat exchanger. Solar hot-air panels also may be used in a similar manner for space heating.

WIND

Wind is caused by the sun's warming of the earth, the earth's rotation and its topography. Traditionally, wind power was used primarily to grind grain or to pump water. Today's technology uses blades shaped like airplane wings that spin in the wind to drive generators and to create electricity. The more wind, the more potential electricity. Like most forms of RE, smaller wind generators can be grid intertied directly to your existing home or business. Larger generators can be grouped together to form "wind farms" to power communities and small cities. Supplemental wind generation for a home will range from 1 to 10 kW, while larger applications use machines that are 65kW to 4MW (megawatts) in size.



HYDROPOWER

Hydropower uses water wheels or turbines to convert flowing and falling water into mechanical or electrical power. While large hydro dams are renewable, they have their own set of environmental concerns mostly focused on their impacts on aquatic and riparian wildlife.

On the other hand, in an appropriate location, low-impact or micro-hydro is considered a reasonable RE power source. These smaller systems may be designed to lessen the impacts on habitat and wildlife while supplying abundant energy. System size depends on location and available water flow.

GEOTHERMAL

If you have ever been to a natural hot spring or spa you have experienced geothermal energy. Geothermal technology uses heat from deep in the earth, in the form of pressurized steam or hot water, to turn turbines and to produce electricity. Two types of geothermal resources are being tapped: hydrothermal fluid resources and earth energy. Hydrothermal fluid resources (reservoirs or streams of very hot water) are well-suited for electricity generation. For heating and cooling, ground-source heat pumps also are an option that may save significant energy compared to using electric-resistant heat or air-source heat pumps.

BIOMASS

Biomass, or bioenergy, is the use of energy that is stored in green plants and other organic matter to create electricity. Biomass electric facilities burn sawdust, agricultural wastes, urban yard waste, or crops grown especially as an energy source, including some kinds of trees and grasses. Methane gases from landfills, ethanol and biodiesels also may be used to generate mechanical and electrical power. In limited applications, biomass projects may qualify for USB renewable energy assistance.

RENEWABLE ENERGY BIBLIOGRAPHY

Conservation and Energy Efficiency

"Consumer Guide to Home Energy Savings (7th Ed)"
By Alex Wilson, Jennifer Thorne and John Morrill
Paperback-225 pages (January 2000)
American Council for an Energy Efficient Economy;
ISBN: 0918249384

"Homemade Money: How to Save Energy and Dollars in Your Home"
By Richard Heede, Owen Bailey
Paperback-258 pages
(July 1996)
Rocky Mountain Institute;
ISBN: 188317807X

Solar Energy

www.eere.energy.gov
This Web site provides a comprehensive list of U.S. organizations involved in PV (Photovoltaics). The directory includes PV manufacturers, designers and installers of PV systems, as well as companies that manufacture related products such as pumping, lighting or battery systems.

"Home Power"
PO Box 520
Ashland, OR 97520 USA
Phone: (800) 707-6585
www.homepower.com
A complete list of solar and renewable energy equipment dealers can be found at Home Power Magazine's Web site under "Search for RE Dealers." Home Power is a leading RE magazine featuring informative articles on renewable energy, how-to downloads, solar and wind maps, and numerous helpful links.

"The Solar Electric Independent Home Book"
By New England Solar
Paperback (May 1991)
Fowler Solar Electric; ISBN: 1879523019

"The Homeowner's Handbook of Solar Water Heating Systems"
B. Keisling, Rodale Press, 1983.
www.abebooks.com

montanagreenpower.com
This Web site provides the latest news on renewable energy in Montana. Visitors will find information on planning and designing solar, wind and micro-hydro systems for a home or business; hands-on activities for the classroom; forums for discussing renewable energy; and examples of technologies in use in Montana. It also offers a wealth of links to other sites as well as a directory of Montana utilities and renewable energy businesses.

Wind

www.awea.org
The American Wind Energy Association (AWEA) promotes wind energy as a clean source of electricity for consumers around the world. This site lists a directory of wind-turbine manufacturers, power plant developers, utilities and others involved in the wind industry.

"Wind Energy Basics: A Guide to Small and Micro Wind Systems (Real Goods Solar Living Book)"
By Paul Gipe (Preface), Karen Perez - Paperback
122 pages, (April 1999), Chelsea Green Pub Co;
ISBN: 1890132071

Micro-Hydro

"Micro-Hydro Design Manual: A Guide to Small-Scale Water Power Schemes"
By Adam Harvey, Andy Brown, Priyantha Hettiarachi, Allen Inversin - Paperback (February 1993) Intermediate Technology; ISBN: 1853391034
Hydro-Power Source Book: a Practical Guide
NRECA International Foundation.

Geothermal

"Stories from a Heated Earth – Our Geothermal Heritage"
By Raffaele Cataldi, John W. Lund, Susan F. Hodgson
Paperback-588 pages 1 edition Vol. 1 (October 19, 1999)
Geothermal Resources Council; ISBN: 0934412197

Biomass

www.ott.doe.gov
Biomass is the oldest known source of renewable energy. This Web site lists some practical applications for converting agricultural, forestry or municipal or solid waste to energy as well as information about growing energy crops.

Tax Incentives

www.deq.state.mt.us/energy/renewable
Some tax incentives may be applicable to certain renewable energy projects. Because state, federal and municipal tax codes change frequently, be sure to refer to updated Web site information to see what projects qualify from year to year.

Sustainable Technologies

The National Center for Appropriate Technology (NCAT) is a non-profit organization headquartered in Butte that promotes sustainable technologies. For more information, contact NCAT at (800) 275-6228 or by e-mail at info@montanagreenpower.com.

You've made it this far and by now you may have an idea of which RE resource could work for you. Be sure to refer to the glossary on page 13 if you need help understanding an RE term.

The Request for Proposals is used when applying for funding assistance.

Use this example as a guide to completing your own proposal. Your proposal details may be different, but you should follow this same structure. The 22 points you must address on the RFP are located on page 10. You also may want to include a cover letter.

PROPOSAL
USB Funded Renewable Energy Project
Proposed Project: PV Grid-intertie for Roper Public Library
Town of Roper, Montana
Anna Carter, Director
1-1-01

1. PROJECT DESCRIPTION
Background: My name is Anna Carter and I am director of the Roper Public Library in Roper, Montana. We have a small library that is housed in an 1890 structure and serves a community of 800 residences. Our library has been the center of the community for years and also serves as a public meeting hall. It is truly the heart of our town. After an extensive remodel to the building in 1995 the town commissioners have agreed to consider incorporating a solar electric grid-inter tie system, of which I am in charge of researching and implementing.

The idea of energy efficiency is not new to the Roper Town Council. Over the last few years, we have developed a commitment to energy efficiency and that commitment is evidenced in the steps we've taken to reduce our energy consumption. The library has made use of NorthWestern Energy's Efficiency Plus Energy Audit, which helped increase our awareness for efficiency improvements. Specific recommendations for lowering our energy needs have already been enacted. As funds were made available, weather-stripping and caulking was applied around all doors and windows, and extra insulation was installed in the attic, crawl spaces and all exposed hot water pipes. We also added compact fluorescent light bulbs in place of incandescents where practical. Compact fluorescents provide the same light but use a fraction of the power. Now that these energy saving measures have been taken and we have seen a noticeable drop in our monthly electric and gas bills, we are seeking funding to incorporate clean, renewable energy into our by adding a grid-intertied solar electric system.

If the library were to receive support in attaining a renewable energy source, monthly power bills would be offset, and at the same time, the venture would contribute to a cleaner environment. The Town Council is also enthusiastic about involving the community in educational lecture series regarding conservation and renewable energy sources.

2. PROJECT LOCATION
The project site is located at 12 ABC Street, Roper, MT. It is zoned residential or commercial.

3. ALL EXPECTED HARDWARE
1000 actual watts of Photovoltaics, mounting racks, 1500 watt UL listed grid-intertie inverter with all related safety equipment, combiner box, wire, and misc. / solar educational kit (see attached bid sheet).

4. ALL EXPECTED PROJECT DESIGN COSTS
Total project cost: $11,270; $10,020 for hardware, $1,000 installation, plus $250 for educational material and display boards.

Total requested from USB: $6,470.00

For our part, we plan on providing $3,000.00 in cash and will spend a minimum of 120 hours @ $15 per hour ($1,800) in the actual development and educational material to increase public awareness. Our co-funding of the project amounts to $4,800.00 or 43% of the total project cost.

5. ALL DESIGN CONSULTANTS NAMES AND ADDRESSES
Solar Plus Concepts, Inc.
ABC West Ave.
Billings, MT
(406) 888-888

6. DESCRIBE ANY EDUCATIONAL/SEMINAR/OUTREACH STRATEGY
We envision using our library as an educational model facility to teach citizens about the benefits of renewable energy and efficiency. Because of the library's dedication to education, it is in a unique position to be used as a demo site for adults and a learning place for children. Adult education might include tours and classes guided by efficiency consultants. Curriculum development for youth would include basic principles of solar electricity using games, solar projects, and science kits. This would start young people out thinking about energy, where it comes from, and how it can be used in a sustainable manner. A curriculum outline is available at your request.

7. EXPECTED COSTS FOR SEMINARS, WORKSHOPS, OR RELATED EDUCATION AND OUTREACH
The labor and curriculum design costs, as well as the execution of the outreach programs would be absorbed by Roper Public Library.

8. EXPECTED CAPACITY OF RENEWABLE GENERATION SOURCE (kW)
1 kW

9. EXPECTED ENERGY TO BE GENERATED OVER PROJECT LIFE (kWh)
49,275 kWh (1000 watts X 4.5 average sun-hours / day = 4,500watt-hrs/day X 365 days = 1,642 kilowatt-hours/yrs X 30 yrs. = 49,275 kWh)

10. EXPECTED PROJECT LIFE (YEARS)
30 years

11. ALTERNATE SOURCE OF ELECTRIC GENERATION (for example, NorthWestern Energy electric, gas engine) NorthWestern Energy Electric.

12. PERTINENT SITING AND ORIENTATION DESCRIPTION
The roof of our library is south facing and the angle of the roof would lend itself to solar panels that would lay flat and blend in nicely with the structure. It is a good location for NorthWestern Energy Customers in the community to view and learn more about RE applications.

2

13. DESCRIPTION OF ALL BENEFITS ADDITIONAL TO GENERATED ENERGY AND CAPACITY, I.E. EDUCATION, INFORMATION, MARKET TRANSFORMATION, BENEFITS TO LOW INCOME CUSTOMER, DISTRIBUTION SYSTEM BENEFITS, OR NEW TECHNOLOGY DEMONSTRATION
In addition to generating clean energy this project will provide important benefits to all NorthWestern Energy customers:

1. Educational showcase and demonstration site for the Public.
2. Market Transformation: This project will aid market transformation of solar energy design and usage. As more applications utilize this resource, the demands for such resources increase. The current trend between renewable energy costs ($kW) and traditional electric resources such as coal and other fossil fuels is narrowing. Projects such as these help to further close this gap.
3. Prepare future generations for clean alternative energy sources. Many of the parents who bring their children to the library are from low-income situations. We hope to educate the parents along with the children. We plan "Summer Sun Day" events and regular open houses that will expose the parents to the benefits of solar energy and energy efficiency. Commercial and residential customers can also learn to recognize and request available renewable energy sources for their own buildings, while low-income residences can learn about low-cost techniques on how to improve energy efficiency in their own homes and in turn begin to save energy and money through reduced energy bills.

14. IDENTIFY THE CUSTOMER GROUP THE PROJECT BENEFITS, I.E., RESIDENTIAL, COMMERCIAL, LOW INCOME
Primarily residential and low-income.

15. DESCRIBE ENVIRONMENTAL IMPACTS OF THE PROJECT, I.E., VISUAL IMPACT OF WIND PARK, STORAGE IMPACT OF NEW HYDROELECTRIC PLANT, DECREASE IN GREENHOUSE GAS RESULTING FROM BIOMASS ENERGY PROJECT
No negative visual impact expected. Our 1 kW array should displace 30 metric tons of CO2 over a 30 yrs period.

16. DESCRIBE ANY NECESSARY MAINTENANCE REQUIRED BY EQUIPMENT OVER THE LIFE OF THE PROJECT
None

17. IDENTIFY SOURCES OF FUNDING TO BE USED TO ASSURE PROJECT REACHES EXPECTED LIFE
Roper Public Library will supply all funding associated with executing RE education plan after the initial installation of the solar electric equipment

18. DESCRIBE ANY MONITORING AND VERIFICATION PLAN
If NorthWestern Energy requires we would be willing to have a monitoring device installed along with the inverter to keep track of solar power usage and production

19. WILL THIS PROJECT BE USED TO SUPPLY ELECTRIC POWER TO NorthWestern Energy CUSTOMERS? YES/NO
Yes

3

20. NET METERING IS DONE BY INSTALLING A ... DARD KILOWATT-HOUR METER BETWEEN THE RENEWABLE ... GY SYSTEM AND THE UTILITY DISTRIBUTION SYSTEM. THE RENEWABLE ... SYSTEM IS WIRED IN PARALLEL WITH THE UTILITY DISTRIBUTION SYSTEM. IF THE RENEWABLE GENERATOR GENERATES MORE POWER THAN THE PREMISES REQUIRES THE METER WILL RUN BACKWARDS. THE FORWARD AND BACKWARD MOVEMENT OF THE METER IS NETTED OUT AT THE END OF THE YEAR. THE METER MAY REQUIRE SPECIAL PROGRAMMING. WILL THE PROJECT REQUIRE NET METERING? YES/NO
Yes

21. SUMMARY
This project provides a unique opportunity for NorthWestern Energy and all Montana residents to learn and incorporate renewable energies and energy efficiency into their daily lives. The project demonstrates the latest in solar electric technologies complimented by conservation. Roper Public Library will minimize fossil fuel use and demonstrate low-impact sustainable design. We encourage NorthWestern Energy to participate in the realization of this project.

BID SHEET EXAMPLE

Solar Plus Concepts, Inc
1-1-01

Dear Mrs. Carter,

Attached please find an outline and budget estimate for your PV grid-intertie system for the Roper Public Library. Please remember that this is a rough estimate. I hope this will give you something to get started with for your proposal to NorthWestern Energy. Please call if you have any questions. I look forward to working with you as this project develops. Thanks.

Sincerely,

William Roberts
Solar Plus Concepts

QUOTATION 1/1/01

The project would consist of the following components with the following budget estimates

Quantity	Components	Total
(12)	Siemens 100 watt PV panels	$6,720
	Trace Sun Tie ST watt grid-intertie Inverter	
(2)	PV rack roof mount	$2,000
(1)	Cable, conduit, misc.	$1,000
(1)	Installation	$300
(1)	Educational material and displays	$1,000
		$250
		$11,270 Total

4

COMPLETING YOUR PROPOSAL IN 3 EASY STEPS

Basic Steps

1. Determine which RE system is appropriate for you.
2. Estimate a cost for your system.
3. Write your proposal and submit it to NorthWestern Energy.

STEP 1

Once you're sure you are a NorthWestern Energy Montana Electric Distribution Customer or are in NorthWestern Energy's Montana Electric Service Territory, you need to establish which RE source is right for you by performing a site assessment. Site assessments are crucial to the success of an RE installation.

For example, if your property has a southern exposure that's unobstructed by trees or buildings, solar electric or thermal may be good choices for your application. If your site seems windy all the time, wind generation may be the obvious and best choice for your project. Similarly, if a creek, spring or river flows through your property, you may benefit from the installation of a a small hydro system. Or, if you have access to a large supply of agricultural byproducts, you may be a candidate for a bioenergy plant. A site assessment makes all the difference between the success or failure of a RE system.

If you are unsure which RE source is right for you, there are two things you can do:

1. Research in greater depth the resources listed on page 6 of this brochure.
2. Contact one of the dealers listed on pages 11 and 12 who has experience in site assessment and design.

So, how long will these preliminary steps take? Site assessments, system design and equipment bids can take anywhere from two hours to a year and largely depend on the availability of the designer, installer and the scope of the project.

Here are a few tips to help the process along:

1. While most RE dealers in Montana are small-business owners and often are busy, you may get a quicker response if you fax or e-mail detailed bid requests to the dealers and follow up with a phone call.
2. Consider travel times when contacting dealers. It may not be practical to hire a Missoula dealer if your project is proposed in Billings.
3. When possible, keep it simple. Any special code, engineering, environmental assessments, or architectural considerations may extend the proposal period.

STEP 2

After you have completed a site assessment to determine your best RE source, the next step is to get a component and installation bid. The site assessment often is part of the design and installation bid, but not always. Consult with a dealer for site-specific information. Many people are new to the renewables field, and dealers tend to be sympathetic.

Along with a bid sheet, you need to look into zoning restrictions, lease agreements, insurance policy modifications or engineering issues that need to be addressed. You'll also need to obtain required building and electrical permits, along with commercial permits relating to fire, building, electrical and plumbing codes, if applicable. A good dealer/installer should be aware of what is necessary. Your dealer's bid sheet will have a breakdown of the actual costs of the system. A copy of this sheet must be included with your proposal.

While you are waiting for the bid sheet to arrive, take a few pictures of the installation site. You may consider submitting pictures of your site with your proposal. This is also a good time to map out the ways that you will be contributing to your RE project. The more creative and involved your participation is, the greater the likelihood that your proposal will be funded. Projects that demonstrate benefits to more than one public purpose will be preferred. For example, a solar-energy installation on a low-income qualified residence, or a wind turbine providing weak distribution system line support. Other examples are educational program development, research and development, and green market advertising including Web sites, pamphlets, municipalities, high visibility locations and the use of other media.

COMPLETING YOUR PROPOSAL IN 3 EASY STEPS

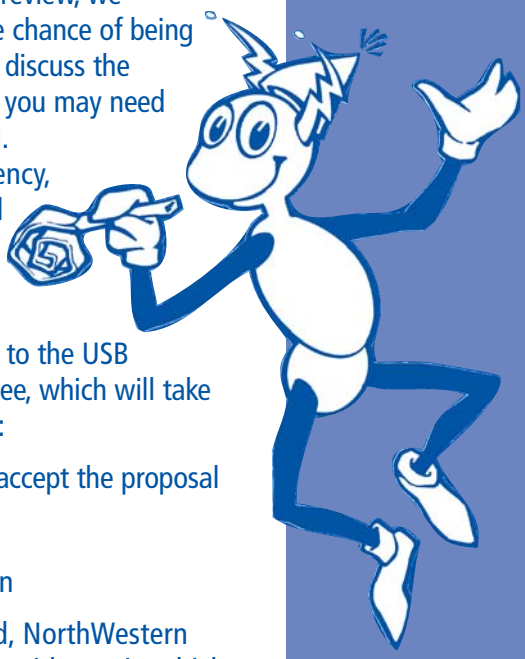
STEP 3

With your bid sheet, project details, and proposal ideas in hand, you now are ready to complete and submit your proposal. The Request for Proposals is located below and on page 10 of this brochure. Included in the envelope you will be sending to NorthWestern Energy are:

- A Proposal following the RFP format described on page 10, including a cover letter
- A copy of your bid sheet showing the expected equipment and installation costs
- Completed and signed copy of the NorthWestern Energy Interconnection Agreement if your proposal requires a grid-intertied installation

If you have any further questions please refer to the Frequently Asked Questions (FAQ) section on the inside back cover of this brochure before calling. After submitting your proposal, you may call the USB Renewables Program at (406) 497-3364 to confirm its arrival.

When NorthWestern Energy receives your proposal, we may call you with questions to clarify one or more points. If, upon review, we think your proposal has little chance of being funded, we'll notify you and discuss the reasons why. In many cases, you may need to submit a revised proposal.



In the interest of efficiency, we may hold your proposal until we've gathered several for presentation to a committee.

Proposals are presented to the USB renewable advisory committee, which will take one of the following actions:

1. Advise the company to accept the proposal
2. Reject the proposal
3. Ask for more information

If your proposal is accepted, NorthWestern Energy will draft a contract with you in which a start and completion date will be established. You may need to provide NorthWestern Energy with additional information, including a certificate of insurance in some cases.

Congratulations and good luck on making clean energy a part of your life!

REQUEST FOR PROPOSALS (RFP)

New Distributed Renewable Resources

Northwestern Energy (NWE) encourages the use and development of renewable energy resources for current and future electricity needs. The Universal System Benefits Charge (USBC) funds new and existing energy conservation activities, renewable resource projects and applications, and low-income energy assistance. For the purposes of this program, new renewable resource projects are described as technologies that create electricity, or useful work that replaces distributed electricity, from virtually inexhaustible energy sources. This RFP is for proposals to be considered using USBC funds collected from NWE electric customers and is available at the beginning of the year for new renewable energy projects.

Projects, applications, and research leading to the use of technologies to encourage the use of renewable energy may qualify for incentives. Purchase of electric supply derived from renewable sources may qualify for cost sharing by NorthWestern Energy. All USBC monies invested in renewable energy technologies shall benefit NorthWestern Energy distribution customers.

Renewable Energy Certificates (RECs) or Green Tag Credits (GTCs) are marketable environmental attributes of electric energy generated using renewable fuel sources. Customers that receive a renewable energy incentive payment from NWE are not allowed to sell the GTCs associated with their RE system. Customers may retain their GTCs or they may donate them to NWE. All GTC revenues collected on USBC incentive funds by NWE will be used to fund additional RE programs and projects.

Preference shall be given to solar, geothermal, and wind projects that have been developed to the extent that project construction will complete before the year's end. Preference shall also be given to projects installed on public facilities or projects that develop central electric power generation, such as wind farms. Other renewable energy sources include biomass and small hydro-electric projects meeting certain criteria. In all cases, siting shall be considered, both to minimize environmental impacts and to provide maximum benefit to NorthWestern Energy's distribution system and NorthWestern Energy distribution customers. Projects proposed that demonstrate benefits to more than one public purpose will be preferred, for example, a solar energy installation on an income-qualified residence, or a wind turbine providing weak distribution system line support.

Specifications For USBC Funded Renewable Energy Projects

Please respond with your proposal to:

John Campbell,
NorthWestern Energy
Renewable Energy Program
40 East Broadway St.
Butte, MT 59701

1. Project description: Identify the source and the use of the new renewable energy, for example, wind, solar photovoltaic, solar thermal, geothermal, micro hydro, biomass, other:
2. Project location (if multiple locations, indicate such):
3. All expected hardware (include on separate sheet if necessary, show full detailed parts list and costs):
4. All expected project design costs:
5. All expected labor costs:
6. All design consultants names and addresses:
7. Describe any educational/seminar/ outreach strategy:
8. Expected costs for seminars, workshops, or related education and outreach:
9. Expected nameplate capacity of renewable generation source (KW):
10. Expected energy to be generated over project life (KWh):
11. Expected project life: (years):
12. Alternative source of electric generation (for example, NorthWestern Energy Electric, Gas Engine):
13. Pertinent siting and orientation description:
14. Description of all benefits additional to generated energy and capacity, i.e. education, information, market transformation, benefits to low income customer, NorthWestern Energy distribution system benefits, or new technology demonstration:
15. Identify the customer group the project benefits: i.e. residential, commercial, low income:
16. Describe environmental impacts of the project, i.e. visual impact of wind park, storage impact of new hydroelectric plant, decrease in greenhouse gas resulting from biomass energy project:
17. Describe any necessary maintenance required by the equipment over the life of the project:
18. Identify sources of funding to be used to assure project reaches expected life:
19. Describe any monitoring and verification plan:
20. Will this project be used to supply electric power to NorthWestern Energy customers? Yes/ No:
21. Net metering is done by installing a standard kilowatt-hour meter between the renewable energy system and the utility distribution system. The renewable energy system is wired in parallel with the utility distribution system. If the renewable generator generates more power than the premises requires, the meter will run backwards. The forward and backward movement of the meter is netted out at the end of twelve months. The meter may require special programming.
22. Will the project require net metering? Yes/No

NorthWestern Energy does not endorse or recommend any dealer. This list is made up of dealers listed on the **montanagreenpower.com** Web site and may not be complete. NWE recommends that you shop around and compare dealers, prices, warranties, and experience; and that you require contractors to provide proof of insurance, appropriate bonding, and a current business license.

Shawm Coggins and Glenn Nelson
Advanced Composting Systems, LLC
195 Meadows Road
Whitefish, MT 59937
Phone: (406) 862-3854
www.compostingtoilet.com

Mark Gray
Alternative Energy Systems, LLC
P. O. Box 83
Black Eagle MT 59414
4129 N. Park Trail
Great Falls MT 59405
Phone: (406) 761-7200
e-mail: aes@sofast.net

Authorized Onan generator dealer, certified Bergey Windpower dealer and installer. Solar and wind water systems. Design, installation and service of renewable energy systems (net metering, off-grid, and hybrid applications). Complete line of renewable energy products.

Michael & Lumarie Strickland
Dearborn Solar Electric Co.
633 Dearborn River Rd
Cascade, MT 59421
Phone: (406) 788-7023

PV modules, wind generators for electricity and water pumping, inverters, charge controllers, high-efficiency refrigeration, AC and DC, high-efficiency fluorescent lights, solar-powered water pumps; mail order, design, installation, maintenance, and troubleshooting.

Al Borrego
Del Sol Technologies, Inc.
P.O. 6268
Bozeman, MT 59771
Phone (406) 570-8340
e-mail: delsoltech@theglobal.net

Complete solar and wind system design, supply, installation and maintenance; site assessment; grid-tie and independent systems for residential and light commercial applications.

William E Gross
Gross Electric
638 Badrock Drive
Columbia Falls, MT 59912
Phone: (406) 892-4940
Fax: (406) 892-4914

Design, installation, maintenance, and troubleshooting.

Allan Hardtke
H & H Enterprises of Montana, Inc.
280 Wind Cave Circle
Billings, MT 59102
Phone: (406) 651-0566
Fax:(406) 651-0533
Cell: (406) 860-7400
e-mail: hardtkeac@bresnan.net

H & H Enterprises of Montana, Inc. is now a Southwest Windpower dealer in the following states: Montana, North Dakota, South Dakota, & Wyoming. They produce the following wind turbines: AIR X, Whisper and Whisper Link.
www.handhenterprisesofmontana.com

Russell Aleksey & Paul Gentile
H-Tech
P.O. Box 7033
Bozeman, MT 59771
Phone: (406) 579-7247 or
(406) 579-8981
e-mail: russ@htechenergy.com
paul@htechenergy.com

While technology is advancing closer to the hydrogen age H-Tech is working to design, install and maintain a variety of alternative energy systems for residential or small business applications. H-Tech offers FREE energy assessments and estimates. Green, energy-efficient home design and development. Design, installation, service and sales of a full-line of solar, wind, hydrogen and energy-efficient products for home, ranch and office. Free energy assessments and clean energy system estimates. Authorized dealers, licensed & insured contractors.
www.htechenergy.com

Tony Boniface
Independent Power Systems
1404 Gold Avenue #4
Bozeman, MT 59715
Phone: (406) 587-5295
Fax: (406) 587-5332
e-mail: tboniface@montanadsl.net

Designs, suplies, installs, and troubleshoots hydroelectric, solar, wind, and generator/battery/inverter systems.
www.solarwindmontana.com

Steve Hicks
Mountain Pass Wind Co.
P.O. Box 394
White Sulphur Springs, MT 59645
Phone: (406) 547-2266
e-mail: steveahicks@yahoo.com

Design, install, repair wind generation systems; design, sell, install and service wind and solar systems; mail order, design, installation, maintenance, and troubleshooting.

Chris Daum
Oasis Montana, Inc.
436 Red Fox Lane
Stevensville, MT 59828
Phone: (877) 627-4768 or 4778
Fax: (406) 777-0830
e-mail: info@oasismontana.com

Alternative energy supplies, including solar panels (PV modules) regulators and controllers, inverters, batteries, wind generators, hydro turbines, energy-efficient and propane refrigerators; mail order, and troubleshooting.
www.oasismontana.com

Jason Schmidt
Phanes Solar Division
789 Carter Dr.
Helena, MT 59601-9711
Phone: (800) 662-3662
Fax: (406) 442-1220
e-mail: mcapcom@ixi.net

Jenni Bryce
PineRidge Products
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Great Falls, MT 59403
Phone: (406) 738-4284
e-mail: wlbryce@direcpc.com

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262 Badger Rd.
Ennis, MT 59729
Phone: (406) 682-5646
Fax: (406) 682-5644
e-mail: brethors@3rivers.net

Designs, installs and services renewable energy systems, including solar, wind, and microhydro. Catalog available.
www.planetarysystems.com

Jimmy Martin
Quality Solar
31923 South Fork
Yaak River Rd.
Troy, MT 59935
Phone: (406) 295-5072

Dale Pickard
Radiant Engineering, Inc.
501 E Peach, Suite A
Bozeman, MT 59715
Phone: (406) 587-3442
email:
radiant@radiantenegineering.com

Provides advice, design, equipment and labor to complete systems incorporating hydronic radiant floor heating, hot water baseboard and radiators, high-performance boilers, advanced controls and monitors. Also specializes in geothermal systems and active solar water heating.
www.radiantengineering.com

For Information Regarding USB Proposal Submissions Contact:

John Campbell,
NorthWestern Energy
Renewable Energy Program
40 East Broadway St.
Butte, MT 59701

Chris Borton and Linda Welsh
Sage Mountain Center
79 Sage Mountain Trail
Whitehall, MT 59759
Phone: (406) 494-9875
e-mail: smc@sagemountain.org

Sage Mountain Center offers an array of seminars and workshops. For more information see the SMC Web site.
www.sagemountain.org

Lee Tavenner
Solar Plexus
1605 Stephens Ave., Suite B
Missoula, MT 59801
Phone/Fax: (406) 721-1130
e-mail: solplex@montana.com

Design, supply, install, and troubleshoot hydroelectric, solar, wind and generator/battery/inverter systems.
www.solarplexus1.com

Henry & Barbara Dykema
Sundance Solar Systems
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Luther, MT 59051
Phone: (406) 425-1153
e-mail: sundancesolar@starband.net

Design, sell and install residential PV systems; PV pumping systems; mail order, design, installation, maintenance, and troubleshooting.
www.sundancesolarmt.com

Tom & Nilda Bishop
Sunelco, Inc.
2086 US Hwy. 93 North
Victor, MT 59875
Phone: (888) SUNELCO or
(406) 642-6422
Fax: (406) 642-9768
e-mail: info@sunelco.com

Photovoltaics, back-up power, AC and DC power systems.
www.sunelco.com

Gail Snow
Sun Power Plus
85 Skyline Road
Three Forks, MT 59752
Phone: (406) 539-9782
e-mail: gailsnow@starband.net

Design, sell, install and service residential PV systems. Sales and service of Sunwise and Siemens solar products.

Joanne Smith
SunWize Technologies, Inc.
611 S. 4th Street
Hamilton, MT 59840
Phone: (800) 232-7652
Fax: (406) 375-9194
e-mail: sunwize@montana.com

SunWize Technologies specializes in the manufacture of integrated solar power systems and the distribution of solar modules and components, providing solar power systems for industrial, commercial, government and residential applications.
www.sunwize.com

Bob Quinn
Wendy Kleinsasser
Wind Park Solutions America, LLC
154 Johannes Ave. East
P.O. Box 70
Big Sandy, MT 59520
Phone: (406) 378-2179
Fax: (406) 378-2657
email: info@windpark-solutions.com

Paul T. Miller, President
Sustainable Systems LLC
Montana Biodiesel
91 Campus Dr. PMB 1005
Missoula, MT 59812
Phone: (406) 549-2893
email: info@sustainablesystemsllc.com

Sustainable Systems has a 1500-square foot pilot production plant that is capable of producing 10,000 gallons of premium biodiesel per month. The company projects to ramp up to more than 10 million gallons per year. Sustainable Systems has identified an engineering partner who can facilitate this growth. This capacity is expected to satisfy the current and future demand for the State of Montana plus provide surplus biofuel and products for export. The company is linked to the University system for additional crop and product development. Sustainable Systems plans to operate a research and development lab and office at the new MonTEC facility. The production plant will be located within agricultural producing regions.
www.sustainablesystemsllc.com

Jeff Wongstrom
Thirsty Lake Solar
P.O. Box 538
Eureka, MT 59917
Phone: (406) 889-5324
email: thirstylake@interbel.net

Equipment sales, design and installation of home power systems. This is a small solar-powered business and home with seven years experience living off-grid. Specializes in complete system design and installation, including site analysis, load analysis, energy conservation, system operation, and system maintenance.

Martin Wilde
Wilde Coyote Engineering
4478 Trumble Creek Rd.
Columbia Falls MT 59912
Phone/Fax: (406) 892-0211
email: info@coyote-energy.com

Wilde Coyote Engineering and Wilde Coyote Development Company offer integrated technical and business development services. The company provides expert assistance from project conception through publicity and marketing. Since 1984, the company has worked with an extensive network of science and engineering educators and professionals, researchers and government officials to investigate and implement technical aspects of highly engineered projects. Over the past seven years the company has played a major role in the development of wind energy generation in Montana.
www.wilde-coyote.com

GLOSSARY OF RENEWABLE ENERGY AND RELATED TERMS

Alternating Current (AC): electricity delivered by U.S. utilities at 60 Hz, and 120 volts.

Amp: electrical current; measure of flowing electrons.

Amp-hour: measure of flowing electron for a period of time.

Audit: an energy audit seeks energy inefficiencies and prescribes improvements.

Battery: A collection of cells which store electrical energy; each cell converts chemical energy into electricity or vice versa, and is interconnected with other cells to form a battery for storing useful quantities of electricity.

BTU: British Thermal Unit, the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit; 3411 BTUs equals one kilowatt-hour.

Compact fluorescent Light (CFL): a modern form of light bulb with an integral ballast using a fraction of the electricity used by a regular incandescent light bulb.

Direct current (DC): the complement of AC, or alternating current, presents one unvarying voltage to a load. This is standard in automobiles.

Efficiency: a narrow mathematical concept describing the proportion of a resource that can actually be converted into useful product or work; for example, sunlight falling on a PV module contains a given amount of energy, but the module can only convert a percentage of it into electricity.

Electronic ballasts: an improvement over core/coil ballasts used to drive fluorescent lamps.

Embodied: of energy, meaning literally the amount of energy required to produce an object in its present form; an inflated balloon's embodied energy includes the energy required to manufacture and blow it up.

Generator: any device that produces electricity.

Grid: a utility term for the network of wires that distribute electricity from a variety of sources across a large area. The "grid" powers most homes and offices across the country.

Heat exchanger: device that passes heat from one substance to another; in a solar hot water heater, for example, the heat exchanger takes heat harvested by a fluid circulating through the solar panel and transfers it to domestic hot water.

Hydronic: contraction of hydro and electronic, usually applied to radiant in-floor heating systems and their sensors and pumps.

Incandescent bulb: a light source that produces light by heating a filament until it emits photons.

Insolation: or incident solar-radiation is the amount of sunlight falling on a place.

Insulation: a material which keeps energy from crossing from one place to another: on electrical wire, it is the plastic or rubber that covers the conductor; in a building, insulation makes the walls, floor, and roof more resistant to the outside (ambient) temperature.

Inverter: the electrical device that changes direct current (DC) into alternating current (AC).

Kilowatt: 1000 watts.

Kilowatt/hour: one kilowatt of power used for one hour. A typical house uses 750 kW/hrs per month.

LED: Light Emitting Diode. A very efficient source of electrical lighting, typically lasting 50,000 to 100,000 hours.

Load: an electrical device, or the amount of power required by such a device.

Megawatt (MW): 1,000,000 watts.

Modules: the manufactured panels of photovoltaic cells; a module typically houses thirty-six cells in an aluminum frame covered with a glass or acrylic cover and provides a junction box for connection between itself, other modules in the array, and the solar electric system.

Net metering: a desirable form of buy-back agreement in which the line-tied house's electric meter turns in the utility's favor when grid power is being drawn, and in the system owner's favor when the house generation exceeds its needs and electricity is flowing into the grid. At the end of the payment period, when the meter is read, the system owner pays the utility the difference between what was used and what was produced.

"Off-the-grid": not connected to the power lines: electric self-sufficiency.

Passively heated: a shelter that has its space heated by the sun without using any other energy.

Petroleum: an oily flammable liquid composed of a complex mixture of hydrocarbon occurring in many places in the upper strata of the earth. A fossil fuel.

Phantom loads: appliances which draw power 24 hours a day, even when you turn them off. TVs, VCRs, microwave ovens with clocks, and plugs with the integrated little black box all contain phantom loads.

Photovoltaics (PVs): A technology for using semiconductors to directly convert light into electricity.

R-value: resistance value, used specifically for materials used for insulating structures. Three inches of fiberglass insulation has an R-value of 11.

Renewable energy (RE): an energy source that renews itself without effort; fossil fuels, once consumed, are gone forever, while solar energy is renewable in that the sun we harvest today has no effect on the sun we can harvest tomorrow.

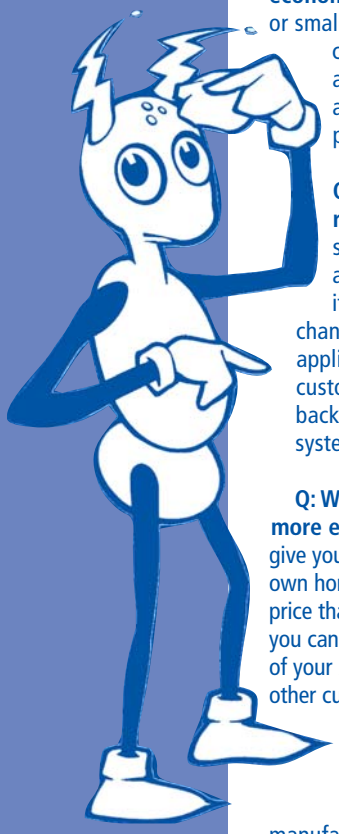
Renewables: shorthand for renewable energy or material sources.

Sustainable: material or energy sources that, if managed carefully, will provide at current levels indefinitely.

Volt: measure of electrical potential. 110-volt house electricity has more potential to do work than an equal flow of 12-volt electricity.

Watt: measure of power (or work) equivalent to 1/746 of a horsepower.

FREQUENTLY ASKED QUESTIONS



Q: How do I know if a renewable energy source will work for me? By having a site assessment you should be able to determine whether RE may be incorporated into your lifestyle or not.

Q: What is the payback time for an installed system? Is it economical? The simple payback with savings using solar PV or small-scale wind typically range from 10 to 40 years at current power prices. Presently, most RE installations are based on personal values, resource conservation and environmental considerations rather than purely payback periods.

Q: Will using renewable energy on my house reduce my power bills? Yes, but the amount of savings is dependent on the size of the system and the amount of wind or solar potential at the site, especially if efficiency measures are included. Adding insulation, changing to compact fluorescent lights and efficient appliances can dramatically lower your power bills. Many customers are able to watch their electricity meters run backwards as their homes deliver electricity back to the system at times when their own energy needs are low.

Q: Will NorthWestern Energy pay me for producing more electricity than I use? NorthWestern Energy will not give you a check for the electricity that you produce from your own home or business. However, it will credit your bill at the price that you pay for electricity. At the end of the year, the best you can do is zero out the energy portion (kWh related charges) of your bill. Any extra power from you goes onto the grid for other customers to use.

Q: Is there any maintenance involved with having a solar or wind grid-intertie? If your system does not include a battery back-up, then any manufacturer-recommended maintenance is minor. (Some wind-power manufacturers suggest with a wink that you should go out once a year to inspect your blades; if they're turning, you've completed your maintenance.) Solar and hot-water systems also are virtually maintenance-free. We suggest you always follow manufacturer's recommendations.

Q: Will NorthWestern Energy fund my entire proposal or part of it? Each RFP is reviewed on its unique characteristics and how it fits with the mix of renewable projects already funded. NorthWestern Energy, with advice from an external committee, seeks a broad variety of projects. In almost every case, some cost must be borne by the system owner, whether it is co-funding, providing labor, educational programs, and/or research and development. Funding is negotiable.

Q: Do I need to modify my homeowners insurance if I install a grid-intertie system? Major insurance companies insure solar systems as a part of the home without special provisions. For wind and other RE sources, consult your insurance representative.

Q: Why is NorthWestern Energy encouraging me to use less of their power? Universal System Benefits programs are intended to encourage energy conservation and renewable resources. USB also pays for low-income energy assistance and weatherization. NorthWestern Energy has long encouraged wise and efficient use of energy and is committed to implementing USB programs to maximize the benefits to NorthWestern Energy customers.

Q: Are there any federal or state tax breaks or credits for installing renewables on a structure? Presently, there are some state tax credits for wind energy producers, low-interest loans, and federal energy credits that include PV, solar thermal, and other renewables. Legislation always is changing; consult your accountant in regard to your specific circumstances.

Q: When will I know if my proposal has been accepted or rejected? Proposals are continually being processed and that process generally requires between 4 and 8 weeks.

Q: Will I have to open up my home or business to the public in order for my renewable proposal to be accepted? It depends on your proposed project. For research and development or a private business, it may be inappropriate to open the door to the general public. Many proposals involve demonstrations and tours as a component of the proposal. Others provide data which, while not including the site location and owner information, will be used to promote other renewable energy projects. It all depends on the project.

Q: How long will my contract period with NorthWestern Energy run if my proposal is accepted? Depending on the terms of your proposal and negotiated contract it could be anywhere from one year to several years.

Q: Does NorthWestern Energy provide net-metering? Yes. Net-metering is a special installation that allows any surplus energy generated by the customer's system to go back on the utility electric system and allows the customer to receive credits for the electricity put back on the system at retail rates. The customer's meter measures the electricity the customer uses from the utility system minus the electricity the customer's system puts back.

Q: Can I tour other USB funded RE projects before I submit a proposal? The best place to get an idea of other projects that have been funded is to visit the Web site of www.montanagreenpower.com. This site is funded through USB and features many renewable energy projects throughout the state of Montana.

Q: If I'm not a NorthWestern Energy customer am I eligible for USB funding? Projects funded by USB funds collected from NorthWestern Energy customers must benefit NorthWestern Energy customers. If your proposal is for a project "off-grid" or outside NorthWestern Energy territory, you will have to provide compelling evidence that the project will benefit NorthWestern Energy electric distribution customers. If you are served by a different electric utility, check with that utility as to what USB renewable activities they may offer.

Q: I'm a NorthWestern Energy gas customer but not an electric customer. Am I eligible for USB funding? USB funds many programs for NorthWestern Energy customers. Gas USB funds income-qualified weatherization programs and billing assistance. To find out which programs you may be eligible for, call (888) 700-6878 or e-mail: www.northwesternenergy.com.

Q: If I'm leasing a space for my business, what is the process for making modifications to the building to accommodate RE? Any modifications to a structure should be made with the full written consent and cooperation of the building owner. This provision also applies to rental properties.

Net Metering Requirements for Grid Connection of Renewable Resources

NorthWestern Energy (NWE) Montana customer owned generation may be interconnected to NWE's distribution system using a technique known as "Net Metering". A net metering system is one which: **1.** Uses as its fuel renewable resources; defined to be solar, wind or hydropower, or other generation system pre-approved by the utility. **2.** Has a generating capacity of not more than 50 (fifty) kilowatts. **3.** Is located on the customer-generator's premises. **4.** Operates in parallel with the NWE distribution system. **5.** Is intended primarily to offset part or all of the customer-generator's requirements for electricity at the specific site where the generation is installed. Parallel generation is covered in the NWE Electric Service Requirements and Guidelines. Systems generating more than 50 kilowatts will be handled on an individual basis and will require a special contract between the customer and the utility.

Any net metered system interconnected with NWE's distribution system is expected to use NWE's distribution system for backup power, and so shall not employ any non-renewable resource to provide power, for example, propane fired engine generator. These types of generator interconnections are addressed in the NWE Electric Service requirements and Guidelines section 7.07.

These requirements are designed to ensure that the generating facility will meet the utility's safety and power quality requirements. In particular, the requirements are designed to prevent back-feeding of power from the generating facility to the utility grid during power outages, and to match the utility's own power characteristics with respect to voltage and frequency.

Requirements:

1. The generating facility shall be metered with a NorthWestern Energy utility installed meter.

2. Any direct current (DC) generating facility shall be interconnected to the NorthWestern Energy utility system through a static inverter that complies with the following requirements:

   Institute of Electrical and Electronics Engineers (IEEE) standard 929, "Recommended Practice for Utility Interface of Photovoltaic (PV) Systems."

   Underwriters Laboratories (UL) Subject 1741, "Standard for Static Inverters and Charge Controllers for Use in Photovoltaic Power Systems"

3. Any alternating current (AC) generating facility interconnected to the NorthWestern Energy utility system shall employ a controller which will disconnect the generator if the power generated is over 60.03 Hz and under 59.97 Hz. Also, the controller shall disconnect the generator if the voltage of the power generated is over 128 volts, or under 112 volts.

4. The generating facility shall be installed in conformance with all applicable requirements of the National Electric Code and local building or electrical codes.

5. The owner of the generating facility and/or the owner's agents or representatives shall agree not to alter the factory set points for the owner's inverter without first notifying the utility in writing of the owner's intent to make any such modifications.

6. The generating facility shall be capable of being manually isolated from the utility system by means of an external, visible load break, electrically located between the generating facility and the utility system. For generating facilities of not more than 3 KW capacity, if the customer installs a separate disconnect switch for this purpose, the disconnect switch shall be located within 10 feet of the customer's electric meter and shall be clearly marked "Generator Disconnect Switch". This switch shall be readily accessible to utility personnel at all times, and the utility shall have the right to lock this switch open whenever necessary to maintain safe electrical operating conditions. If the customer does not install a separate disconnect switch for this purpose, the utility shall be permitted to remove the customer's electric meter to provide the required manual isolation of the generating facility. The customer understands that removal of the electric meter isolates the customer's electric service as well as the generating facility and that electric service will not be restored until the meter is replaced. For generating facilities of over 3 KW capacity, a disconnect switch shall be installed and marked as indicated above.

   The utility will assume that the customer's generating facility is serving the customer load while the utility system is disconnected as described in Paragraph 5 above. Before connection to the utility system is reestablished, the generator must be taken completely off line. When the customer generator is completely off line, the utility service may be restored. At that point in time, the customer generator may reconnect in parallel to the utility system.