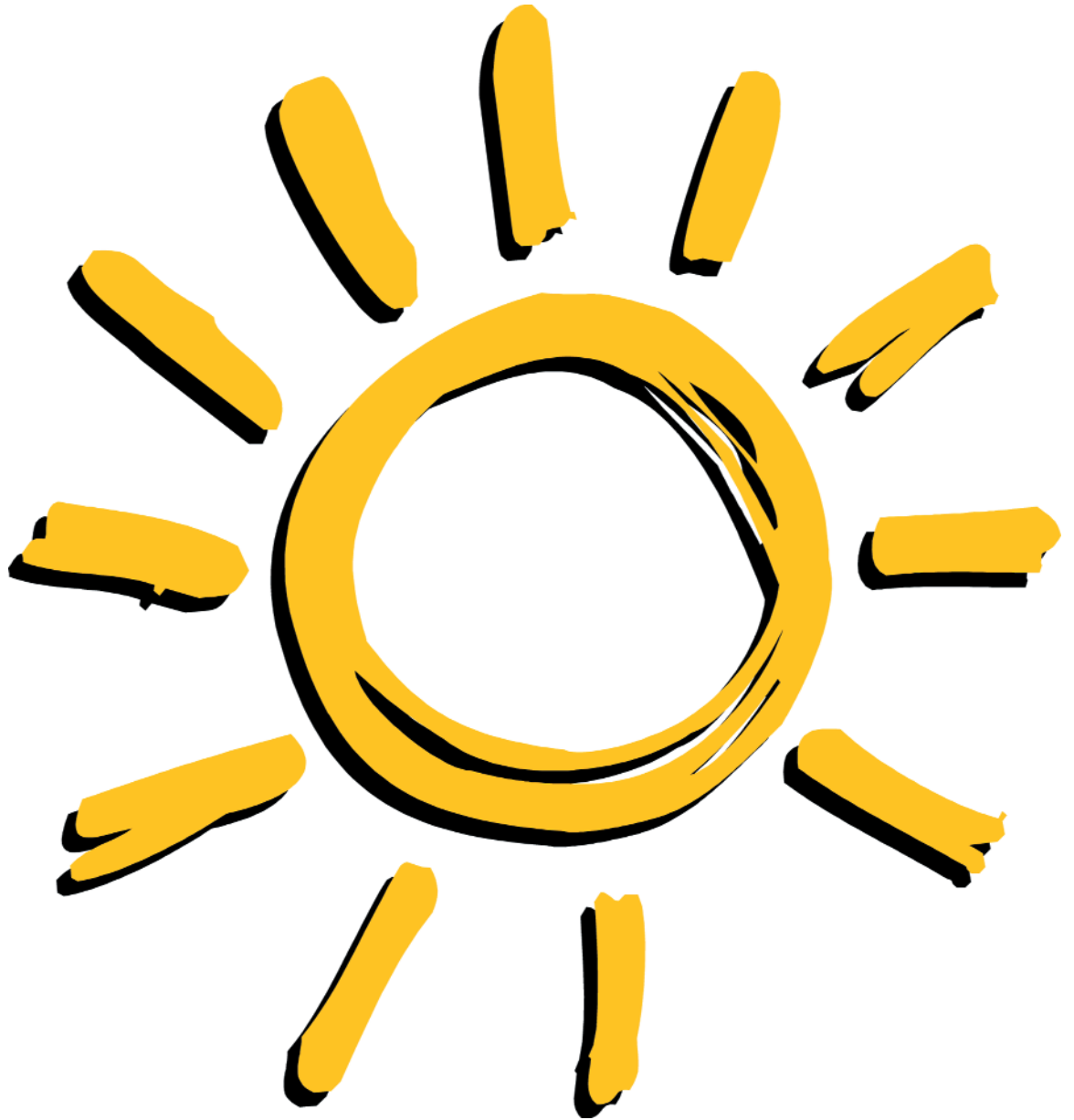


A guide  
to funding  
your  
renewable  
energy  
project

# Bright Ideas in Renewable Energy



The Montana Power Company

# Table of contents

1. Introduction . . . . .	Page 3
2. How to Use This Information Packet . . . . .	Page 4
3. Understanding Renewable Energy (RE) . . . . .	Page 4
4. Universal System Benefits Renewable Energy Proposal (Example) . . . . .	Page 8
5. Completing Your Proposal in Three Easy Steps . . . . .	Page 9
6. Frequently Asked Questions . . . . .	Page 12

## Pocket Inserts in back of Packet:

- Glossary
- List of In-State Renewable Energy Dealers and Installers
- Montana Power Company Net-Metering Requirements and the Interconnection Agreement
- Request for Proposal (RFP) form

## Getting started

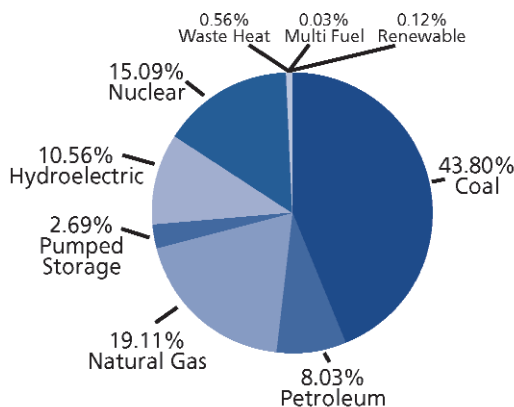
**P**lease read this entire packet carefully before applying for USB funding. The better you understand how renewable energy works, the more comfortable you will be living with it and sharing it with others. Although you do not have to be an energy rocket scientist, it is important that you have a basic understanding of renewables, as well as the process of filling out the Request for Proposal (RFP) form enclosed. The [Frequently Asked Question](#) section (located on the back of this packet) 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 7, call 1-888-700-6878 or e-mail [e+programs@mtpower.com](mailto:e+programs@mtpower.com).

Qualifications listed in this packet are specific to Montana Power electric distribution customers. To qualify for Montana Power's

Universal System Benefits (USB) Renewable Energy Funding, you must be a Montana Power electric distribution customer and your renewable energy project must benefit Montana Power 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.

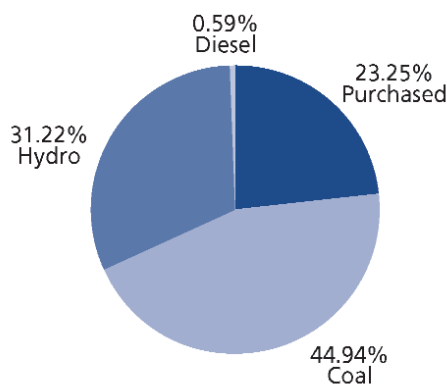


TOTAL U.S. GENERATION BY FUEL TYPE (1999)



Source: EIA

1997 MPC GENERATION RESOURCE MIX



Source: MPC 1999 Form 10-K

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 packet is designed to walk you, step-by-step, through 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, 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 grants ranging from \$5,000 to \$1.5 million. Some examples of Montana projects funded thus far have included:

- Remote solar electric stock watering pumps for cattle in Roundup and Anaconda.
- A wind farm project at the Blackfoot Reservation in Browning. Wind research and development at test facilities near Norris.
- More than 30 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.

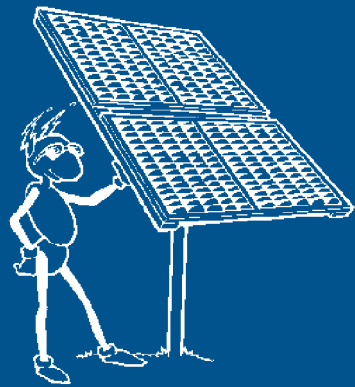
- 12 solar electric grid-intertied systems in public schools throughout Montana along with a fire station in Missoula.

Almost all of the funded projects include public education or demonstration to enhance awareness about the opportunities and benefits of renewable energy. Projects proposed which demonstrate benefits to more than one public purpose are preferred, e.g. 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, Montana Power 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, Montana Power credits its "net-metered" customers for the power generated. This packet of information is designed to show you how to make a renewable-energy project a reality for a public building, your own home or business.

# How to use this packet

## Renewable energy basics



**T**his packet 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, photo-copying materials, or having a site assessment done. Each step will move you closer to your renewable-energy goal in the shortest amount of time. The Montana Power proposal process may take anywhere from a few hours to a few weeks to complete.

**B**efore 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 directly converted to heat or 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. Some diesel generation is meeting short-term needs as new natural gas plants and larger scale renewable projects are in planning and development stages.

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, while a commercial building system may cost \$20,000 to \$50,000. 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.

## WHAT IS USB?

Montana Power’s USB (Universal System Benefits) funds pay for low-income energy assistance, weatherization, energy-efficiency activities and development of renewable-energy resources. Montana Power 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 Montana Power billing statement. The typical Montana Power 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 Montana Power customer, you support and may qualify to participate in a USB funded program. See the website [www.mtpower.com/eplus](http://www.mtpower.com/eplus) for more information.

**R**E 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. An 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. They are:

- **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. No battery storage is 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 Montana Power customer, you may receive additional 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 the majority 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.

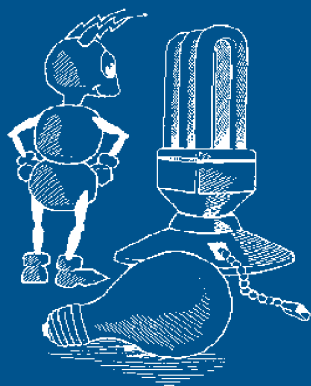
- The second type of RE use is the **Stand-alone**, a system in which 100 percent of your electricity comes from a clean source completely separate of the utility. This approach is used where conventional power line extensions are too expensive or a residence or business wishes to be completely autonomous 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.

## Renewable energy basics



# Renewable energy basics



**W**hich 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 7.

## CONSERVATION AND EFFICIENCY

Conservation and efficiency are directly tied 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, we save \$3 in RE equipment. These efficiency improvements should always be considered, whether you are installing RE or not, since 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 for a business 2 to 50 kW.

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 pump water. Today's technology uses blades shaped like airplane wings that spin in the wind to drive generators and 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 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.

## 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.eren.doe.gov/pv/pvdirectory.html](http://www.eren.doe.gov/pv/pvdirectory.html)

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](http://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. This excellent book is out of print, but you may be able to find a copy of it at:  
[www.abebooks.com](http://www.abebooks.com)

### [montanagreenpower.com](http://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/directory/](http://www.awea.org/directory/)

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/biofuels/what\\_is.html](http://www.ott.doe.gov/biofuels/what_is.html)

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](http://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](mailto:info@montanagreenpower.com).

# Renewable energy bibliography



# Sample request for proposals



**REQUEST FOR PROPOSALS (RFP)**  
 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 and that commitment is evidenced in the steps we've taken to reduce our energy consumption. The library has made use of Montana Power'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 adding a grid-inter-tied 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, and MT. It is zoned residential or commercial.

**3. ALL EXPECTED HARDWARE**  
 1000 actual wats 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: \$10,000 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  
 406-838-888

**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 no 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 games, solar projects, and science kits. This would start young people out thinking about energy, where from, and how it can be used in a sustainable manner. A curriculum outline is available at your request.

**7. COSTS FOR SEMINARS, WORKSHOPS, OR RELATED EDUCATION AND OUTREACH**  
 Curriculum development for youth would include basic principles of solar electricity games, solar projects, and science kits. This would start young people out thinking about energy, where from, and how it can be used in a sustainable manner. A curriculum outline is available at your request.

**8. ESTIMATED RENEWABLE GENERATION SOURCE (kW)**  
 4.5 average sun-hours / day = 4,500 watt-hrs/day X 365 days = 1,642 kilowatt-hours (1.642 kW)

**9. ESTIMATED PROJECT LIFE (YEARS)**  
 Electric.

**10. 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 Montana Power Customers in the community to view and learn more about RE applications.

**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 MPC customers:

- Educational showcase and demonstration site for the Public.
- 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.
- 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 lowest 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 MPC 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 MONTANA POWER CUSTOMERS? YES/NO**  
 Yes

**20. NET METERING IS DONE BY INSTALLING A STANDARD KILOWATT-HOUR METER BETWEEN THE RENEWABLE ENERGY SYSTEM AND THE UTILITY DISTRIBUTION SYSTEM. THE DISTRIBUTION SYSTEM IS WIRED IN PARALLEL WITH THE UTILITY 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. METERING? YES/NO**  
 Yes

**21. SUMMARY**  
 This project provides a unique opportunity for MPC 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 MPC to participate in the realization of this project.

BID SHEET EXAMPLE

Mr Plus Concepts, Inc  
 01  
 Mrs. Carter,  
 Please find an outline and budget estimate for your PV grid-intertie system for the Roper Public Library. Please let me know if you have any questions. I hope this will give you something to get started with for your proposal to Montana Power. Thank you for your interest in this project. I look forward to working with you as this project develops. Thanks,  
 Anna Carter  
 Director  
 Roper Public Library  
 Roper, Montana

QUOTATION 1/1/01

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

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



## 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 Montana Power.

### STEP 1

Once you're sure you are a Montana Power Electric Distribution Customer or are in Montana Power Electric Service Territory, you need to establish which RE source is right for you by requesting 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 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 and failure of an 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 7 of this brochure.
2. Contact one of the dealers listed in the back of this packet 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. Please 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 had a site assessment to determine your best RE source, the next step is to get a components and installation bid. The site assessment often is part of the design and installation bid, but not always. Tell the dealer what you are doing and don't be afraid to ask for suggestions; many people are new to the renewables field and dealers tend to be sympathetic.

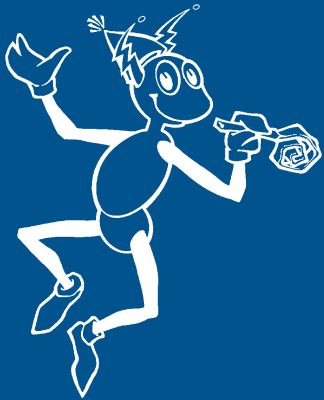
Along with a bid sheet, you need to look into any zoning restrictions, lease agreements, insurance policy modifications or engineering issues that need to be addressed. You'll also need to obtain any required building and electrical permits, along with any commercial permits relating to fire, building, 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. Photos give the USB committee a better idea of what the site looks like. 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

## Completing your proposal in 3 easy steps



# Completing your proposal in 3 easy steps



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 websites, pamphlets, municipalities, high visibility locations and the use of other media.

## 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 form is located at the back pocket of this brochure. Included in the envelope you will be sending to Montana Power Company are:

- A Request for Proposal (RFP) form. Include a cover letter.
- A copy of your bid sheet showing the expected equipment and installation costs.
- Completed and signed copy of the Montana Power Company Interconnection Agreement (located in the pocket at the back of this brochure) if your proposal requires a grid-intertied installation.

If you have any further questions please refer to the Frequently Asked Questions (FAQ) section below before calling. After submitting your proposal, you may call Dave Ryan of the USB Renewables Program at 406-497-2322 to confirm its arrival.

When Montana Power 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 let you know and discuss the reasons why. In many cases, you may submit a revised proposal.

In the interest of efficiency, we may hold

your proposal until we've gathered several for presentation to a committee.

We'll summarize and submit these proposals to the USB renewable advisory committee. This committee provides advice to Montana Power relating to USB programs, in particular the renewable resource program.

All proposals are presented to the 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, Montana Power will draft a contract with you in which a start and completion date will be established. You may need to provide Montana Power with additional information, including a certificate of insurance in some cases

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



# 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?** In some cases, the cost of electricity produced from renewable sources is approaching the actual cost of generating power from conventional sources. Each RE technology is economically feasible in certain applications. Apples-to-apples comparisons may be difficult to calculate. 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, 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 Montana Power pay me for producing more electricity than I use?** Montana Power 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 Montana Power 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. Montana Power, 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 Montana Power 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. Montana Power has long encouraged wise and efficient use of energy and is committed to implementing USB programs to maximize the benefits to Montana Power 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 Montana Power 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 Montana Power 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 website of [www.montanagreenpower.com](http://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 Montana Power customer am I eligible for USB funding?** Projects funded by USB funds collected from Montana Power customers must benefit Montana Power customers. If your proposal is for a project "off-grid" or outside Montana Power territory, you will have to provide compelling evidence that the project will benefit Montana Power 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 Montana Power gas customer but not an electric customer. Am I eligible for USB funding?** USB funds many programs for Montana Power customers. Gas USB funds income-qualified weatherization programs and billing assistance. To find out which programs you may be eligible for, call 1-888-700-6878 or e-mail: [E+Programs@mtpower.com](mailto:E+Programs@mtpower.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.

