OASIS MONTANA INC., 436 Red Fox Lane, Stevensville, MT, USA, 59870 Main Web Page: www.oasismontana.com
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406-777-4321 or 4309, or fax 406-777-0830. Hours 8:30 to 4:00 MST, Mon.-Fri.
Toll-free *Order* Lines 877-627-4768 or 877-627-4778 (877-OASISMT or 877-OASISPV) *Winter Flier—January, 2009*

Renewable Energy Design and Supply

oasis MONTANA

01-2009

GREETINGS FROM OUR SOLAR POWERED OFFICE: Well, we wanted to get this flier out in October, but a very busy fall delayed this. Our spring '08 was chilly (yet our last winter's temps didn't get below zero here). We had a hot enough summer to have a terrific garden and no late frosts damaged our fruit crops—the apples and plum trees were full, and the raccoons let us have our apricots, peaches and even the grapes too (they LOVE grapes). And we only had *one day* of smoke this past summer here, from forest fires in Idaho. Believe me, the occasional summer rains we had and lack of smoke let everyone breathe considerably easier.

For those of you who aren't "on line", or are beginning your project, we have an extremely **informative Product Catalog on disc for $10** ($18 out of country)—essential for your energy library! Products, system sizing, pricing, components, importance of energy efficient appliances, battery care, and wind turbines are just some of the topics covered. If you ***are*** on-line, you can see example systems (costs, components and power output) at **www.oasismontana.com/systems.html**

To assist your information input, we've tried to develop as much on-line information as we can. For solar water pumping, see **www.PVsolarpumps.com**; for utility-tied photovoltaic systems, visit **www.grid-tie.com**; for efficient AC appliances, DC 'fridges, coolers and freezers see **www.eco-fridge.com**; for natural and LP gas appliances, see **www.LPappliances.com**. Our main index page is **www.oasismontana.com** and we now offer composting toilets at **www.eco-potty.com**. Visit our web pages and stay a while!

BATTERIES FOR BACK-UP POWER:

In the wake of some of history's most destructive hurricanes, storms and fire seasons, we have been getting many calls from people asking for a system that would allow them to utilize grid power, yet have independent power when a black-out hits, without the noise, hassle and fuel consumption of a generator. There are several inverter companies that are making equipment that does just that. Outback Power has taken a couple of their famous battery-based inverters and given them the ability to interact with the grid. Used along side one of their new FlexMax charge controllers and a power source, you can charge up your batteries, which when full will remain in stand-by mode for the next power outage. Once the batteries are full the inverter begins performing like a grid-tied inverter—powering the home and then sending the excess power back to the utilities for credit. When a power outage hits, the inverter turns to the batteries to power your critical loads to get you through the dark times. Unlike traditional battery based systems, the battery bank is much smaller since you are only powering those critical loads for a day or two at a time. In most cases we recommend 4 to 8 gel or AGM (absorbed glass mat) batteries.

Here is an example system that will provide power for a home's critical back-up loads (4 CF light fixtures, efficient refrigerator, TV & VCR for a couple of hours, and a 3/4hp well pump—the latter being powered for 10-15 minutes a day) for 3 days in a solar climate similar to New Orleans, LA. **780W Grid-Tie PV System with Battery Back-up:**

Quan.	Part	Price ea.	Price
6	Kyocera KC130TM solar modules	649.00	3,849.00
1	DPW pole top mounting rack	680.00	680.00
1	Outback GVFX3524 Inverter	2,421.00	2,421.00
1	Outback FM60 charge controller	658.00	658.00
2	60A 150V DC breakers	13.00	26.00
1	Outback Mate controller	295.00	295.00
1	Hub 4	182.00	182.00
2	Remote temp sensors	29.00	58.00
1	Midnight E-Panel (stretched) *	564.00	564.00
1	X-240 transformer	512.00	512.00
2	#10-2 10' Module output cables	22.00	44.00
4	#10-2 33" module interconnects	17.00	68.00
2	15A 150v DC breakers	26.00	52.00
1	Midnight PV3 combiner Enclosure	89.00	89.00
1	SOV Lightning Protection	41.00	41.00
6	Concorde 12V/212Ah AGM batteries	661.00	3,966.00
1	Battery interconnect kit	482.00	482.00
	Equipment total		14,032.00

Equipment total = $14,344.00; *on average* the system will produce ~2600 watts per day in New Orleans, LA (zone 4)

*The E-panel includes: inverter breaker, AC input and bypass, shunt, buss bars, terminal blocks, din rails, wall mounting brackets, charge controller bracket, and lots of other hardware—ALL PRE-WIRED!

If you are interested in this (or any other battery based grid-tie system), call us with the loads you want to power and we'll propose a system for your project.

Left: Midnight Solar E-Panel

Right: Outback Power GVFX Inverter/Charger mounted on the E-panel.

"Giving money and power to government is like giving whiskey and car keys to teenage boys." —P.J. O'Rourke

Politicians are obsolete problem solvers." —R. Buckminster Fuller

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To design a power system for you, we need your power requirements (electrical load information). See our web page for system sizing information and examples of power systems, which are based on the part of the country you're in and how much sunlight you receive. We have design information on our web site, so please feel free to utilize this. *Or, we also offer a product and design information CD for just $10.00 ($18 international)—filled with information for your energy library! We will soon have a paper catalog, which will cost $15 for U.S. residents.*

SOLAR PANEL PRICING

Call for availability, freight costs, and quantity pricing.

Mitsubishi PV-UD175MF5, 175W, 7.32A, 23.9V (65.3" X 32.8") $999

Sharp NT-175UI, 175W, 4.95A, 35.4V (62.01" x 32.52") $1040
ND-L3E1U, 123W, 7.16A, 17.2V (59.06" x 26.08") $715
ND-80EJE 80W, 4.67A, 17.1V (47.28" x 20.88") $529
(expect price increases by mid-to-late winter on Sharp products)

NEW FROM KYOCERA: KD Series (3-6 month lead time—pallet quantities *only***)**
KD205GX-LP, 205W, 7.71A, 26.6V (59.1" x 39") $1095
KD180GX-LP, 180W, 7.63A, 23.6V (52.8" x 39") $981
KD135GX-LP, 135W, 7.63A, 17.7V (59.1" x 26.3") $720
KC85T 85W, 4.75A, 17.9V (39.6" x 25.7") $499
STILL AVAILABLE: **KC130TM**, 130W, 7.2A, 17.4V (56.1" x 25.7") **$649**
(these 130s are the modules with the junction boxes-in stock at this writing!)

Suntech STP170, 175W, 4.83A, 35.2V (62.2" x 31.8") $999 ea; per skid of 26, $945 ea.

Uni-Solar US-64 64W, 3.88A, 16.5V (53.78" x 29.18") $389

Evergreen ESA-195-RL, 195W, 7.16A, 26.7V (37.5" x 61.8") $1060
(in pallet quantities of 30, $995 each)

BP SX-30U, 30W, 1.78A, 16.8V (23.4" x 19.8") $312
BP SX-20U, 20W, 1.19A, 16.8V (16.7" x 19.7") $226
SOL-1012, 10W, .58A, 17.2V (14.49" x 12.2") Nice little modules! $109
Dura-Series modules, nearly identical to the old 'MSX Lite' series, same 5 yr. warranty
BSP-1012LSS, 10W, 17.3V, .58A, 17.5" x 10.5" $129
BSP-3012LSS, 30W, 18.8V, 1.66A, 26.5" x 20" $299
Other modules offered when available (Yingli, Sunwize, Kaneka, Sanyo, Alpine, Solar World, etc.). Call for your availability and freight.

Regarding MOUNT STRUCTURES for solar modules--

We offer a variety of styles to suit your project, including A-frame roof or ground mounts, top and side of pole mounts, flush mounts, tilt mounts, RV racks, as well as Zomeworks or Wattsun Trackers. Call for your cost, availability and freight. At this writing, some racks may have a 6 week lead time.

CONTROLLERS & REGULATORS are essential for complete battery charging while preventing overcharging. Sizing a charge controller is based on the input amperage and voltage of the solar array.

Sungard 4 (4.5A by Morningstar) $32
Sunsaver 6 (handles up to 6.5A) $48 (with low voltage disconnect option $59)
Sunsaver 10 (handles up to 10A) $55 (with LVD option, $70) also available in 24V
NEW Sunsaver Duo 12V 25A (charges two batteries,w/ display & LCD) $188 --great for RVs!
Prostar PS15 $112; PS15M (with meter) $179; PS 30 $152; PS 30M $219
Tristar Charge Controller, 60A, 12 to 48V, multiple settings & screens, $218; 45A, $169
Tristar Digital Meter for their 45A or 60A charge controller $99 5 yr. warranty on Morningstar products
Xantrex C-40 (handles up to 40A) for 12, 24 or 48V systems $159 (formerly
Xantrex CM (digital volt meter for C-40 and C-60) $99 known as
Xantrex C-60 (handles up to 60A @ 12 or 24V) $199 **Trace**)
Two year warranty on all Xantrex controllers.
Outback Power 60A Controller (MPPT, 60A with varying voltage input) $619
We can provide most brands of solar charge controllers, from Blue Sky Energy (formerly RV Power Products) to Specialty Concepts. Call us for availability and your pricing.

GAS APPLIANCES: Propane refrigerators, freezers, ranges, cooktops - **www.LPappliances.com** for information.

Servel propane refrigerator, 8 cu.ft. capacity $1275
Crystal Cold 12 cu.ft. capacity propane 'fridge $1749
Crystal Cold 15 cu.ft. capacity $1999
Crystal Cold 18 cu.ft. capacity $2199
Stainless 18 cu.ft. capacity (w/ black textured sides) $2349
NEW 21 cu.ft. capacity White Crystal Cold 'Fridge $2399
(it's *the* biggest propane refrigerator manufactured! Also available as a special order is a 19 cu.ft. black model for $2299)
Blizzard 10 cu.ft. capacity LP chest freezer $2150
Blizzard 15 cu.ft. capacity upright freezer $2399
Blizzard 18 cu.ft. capacity upright freezer $2599
Blizzard 22 cu.ft. capacity upright freezer **NEW** $2849

The Servel propane refrigerator can be converted to use natural gas for $200 (includes re-crating). The Crystal Cold refrigerators and Blizzard 10 cu.ft. chest freezers can be converted to natural gas for $50; the Blizzard 15 ,18 and 22 cu.ft. freezers can be converted to natural gas for $100 (more costly as these have *two* gas absorption units on them).

Peerless Premier gas ranges are available in 20", 24", 30" and 36" widths, with model colors ranging from white, bisque, black and stainless. Even the electronic ignition models will work without power (you can light the burners and oven with a match) -- there's no glow bar in the ovens on these mechanically simple, American-made stoves. All ranges are set up for natural gas but LP conversion kits are included for every model at no extra cost (and you don't have to be Mr. Wizard to figure it out). **No power is no problem** with these gas 'fridges, freezers and stoves!

We also offer propane & natural gas **cooktops**, Italian-made by *Verona*; these professional cooking appliances are available in a wide variety of finishes (stainless, black, bisque and white or black glass), with two, four and five burner models. **www.LPappliances.com** for pictures and specifications.

Outback Power Components Pricing

Sealed inverters: FX2012T, 2524T, 3048T $2099
Vented inverters: VFX2812, 3524, 3648 $2279
Grid-tie, mobile, marine and export versions available on most of these sine wave inverters.
MATE system display & controller $270
PSX240 Transformer $498
Communications Manager HUB-4, $185; HUB-10 $350
FLEXmax60 MPPT 60A Charge Controller $658
FLEXmax80 MPPT 80A Controller $699
There are *way* more Outback Power products than we have room to list….call or e-mail for more information. info@oasismontana.com or visit their web page at **www.outbackpower.com** They've got a nice product catalog there you can download too, at **http://www.outbackpower.com/catalog.htm**.

For 12 or 24V battery charging.

NEW MPPT Controller from Morningstar $279

Morningstar's New SunSaver MPPT solar controller with TrakStar Technology™ is an advanced maximum power point tracking (MPPT) battery charger for off-grid PV systems. Now people with smaller systems can get the benefits of MPPT charging that have only been available to folks with larger systems. The SunSaver MPPT is well suited for both professional and consumer PV applications. Its charging process has been optimized for long battery life and improved system performance, featuring a smart tracking algorithm that maximizes the energy harvest. This product also provides load control to prevent over-discharge of the battery. The controller (15 amps at 12/24 volts) enables the use of high voltage and also thin film modules for off-grid PV battery charging, providing a means to use up to a 36V array to charge a 24V or 12V battery. The SunSaver MPPT is epoxy encapsulated for environmental protection, and is fully adjustable via on-board switches or PC connection. This controller is less expensive than other MPPT controllers and is affordable in smaller PV systems up to 400Wp (w/ 24V input). With a peak efficiency of over 97% and almost no power losses, smaller systems now have a way to get maximum power!

For more information about this new charge controller, visit the manufacturer's web site at **www.morningstarcorp.com**.

WHO WE ARE and ORDERING INFORMATION:

Chris Daum, owner and manager of Oasis Montana, has been in the renewable energy field for 20 years, and Mark Dickson, our technical sales fellow, has been in the field of hydrology and RE systems for 7 years. Our new sales tech, Brad Stevens, lives off-grid in his self-built straw bale home. And our new enthusiastic administrative helper is Laura Pettengill. Our staff offers experience, personalized service, quality components and good pricing . We are happy to work with your installer, electrician, or contractor. We provide detailed wiring diagrams with the systems we sell. **TO PLACE AN ORDER**: E-mail or call us for your freight ; if you have any questions about your system or product, please contact us. E-mail is easiest and fastest (but we know that you aren't all on line). We accept **Visa**/**Mastercard** (personal and business checks are fine). For our international customers, we accept bank transfers—e-mail or call us for our banking information. Our hours are 8:30 am to 4:00 pm Mountain Daylight Savings Time, Mon. – Fri. If we're on another line when you call, please leave us a message, and we'll get back to you as soon as we can, but you may have to leave a message if we're with a customer or on one of the other lines. **406-777-4321 or 4309** or e-mail us **at info@oasismontana.com** — for tech support on renewable energy systems, e-mail **mark@oasismontana.com** or **brad@oasismontana.com.** We'd be very happy to help you with your power project — send an e-mail or give us a call!

Grundfos Solar Pumping Systems

If you are looking for a reliable, low-maintenance solar well pump that will fit in a 3" diameter well casing or larger, look no further that the Grundfos SQFlex line of submersible pumps. These German engineered stainless steel pumps come in seven different models that cover a large range of flows and lifts. The SQFlex motor lives up to its name by allowing operation with DC voltages from 30 to 300. This means that the design is flexible, and the ability to increase water output by adding a solar module down-the-road is very simple and cost-effective. Also, with the addition of the IO101 controller you can have the added security of powering the pump from a generator or grid power source. Like all our pump systems, these can be matched up with a Zomeworks passive single-axis or Wattsun active dual-axis tracker to increase summer outputs by up to 35 - 40%. If you have a well you need to develop, or are trying to keep your cattle out of riparian areas, go to www.PVsolarpumps.com and complete the online questionnaire today and we will work up a proposal for you.

1 Grundfos CU200 controller @ $332
1 Grundfos 11SQF2 submersible pump @ $1969
1 Tank float switch @ $28
3 Kyocera KC 130 12v 130w modules @ $649 ea = $1947
1 DP top of pole mount TPM3-KC130 @ $365
2 33" 10-2 interconnects @17.00 each = $34
1 10' 10-2 module output connect @ $41
3-wire splice kit @ $9

Equipment Total = $4725

We also offer the Lorentz line of pumps and controllers.

Equipment total does not include freight, pump wire, pipe, concrete, sonotubes, conduit, labor, or any other site specific items necessary for the installation.

On average the system will produce (in sunny Reno, NV) ~ 3830gpd in July and ~2160gpd in December while pushing against 80' of head, based on 6.8 hours of full sun in July and 3.9 hours in December. Of course, output will vary as to location and sun conditions at your site. Call for your personalized quote with freight, 877-627-4778 toll-free.

Fronius Batteryless Grid-tie System

Are you looking for a way to lower those ever-growing power bills or even get rid of them? You may want to consider a solar electric grid-tied system. These relatively simple systems take the power that you produce from your solar modules and use them to power your home. If there is power left over, it will be diverted back to your power company—effectively slowing your meter or spinning it backwards. If you need more power than you are producing, the power will be taken back from the power company and your meter will spin forward. The goal is that at the end of your contact period (annual or monthly) you will have a decreased utility bill. In many areas you may even get a credit, if you are making more power than you use. Plus, there's no expensive batteries to maintain. Besides the solar modules, the other main component necessary is the grid-tied inverter. This unit will take your high voltage DC from the solar array and invert it to 240V AC that can be used in your home and/or sold back to the utility company. While there are several good grid-tie inverter models, this system (below) will feature the cost-effective and reliable Fronius IG inverter. These inverters come in sizes ranging from 2,000 to 12,000 watts. The smaller of those inverters use a High Frequency Technology that enables them to have a conversion efficiency of 92.5%. The larger of these (4000 & 5100watt) use their MIX concept, which utilizes two power stages--yielding increased efficiency during partial load situations. These units are also known for their ease of installation; they weigh in as the lightest of all the grid-tie inverters—at 26 to 42 pounds. Add a Communication Card and a Datalogger and you can keep an eye on the power you are producing via computer and web. Soon there'll be the larger IG Plus inverter (up to 12,000 watts) to be released soon! Below is an example system. Give us a call and we can design one for you!

	Cost
1 Fronius IG2000 watt inverter	$2103.00
12 - Evergreen ES-A 200W solar modules @ $1193 each	$14316.00
1 - Unirac Solarmount with grounding hardware	$946.00
1 - Square D AC Disconnect Nema 3	$95.00
1 - Square D DC Disconnect Nema 3	$164.00
1 - Readywatt Pass-Through Combiner Box	$140.00
1 - Surge Protector (silicon oxide varistor)	$41.00
1 - 50 ft. #10/2 MC-2 module output cable	$58.00
Total:	**$17863.00**

Costs do not include freight, installation, home-run wiring, grounding wire and rods, wiring between disconnects and inverter, conduit, wire nuts or any site specific items needed for the installation. In Phoenix, AZ, this system will produce an average of 10.9kW per day or roughly 3986kW per year, with array oriented due south on a 4/12 pitch roof. In Sheridan, WY., in July with an average of five full sun hours per day, this system will produce 8.4kW/day.

You cannot help the poor by destroying the rich. You cannot strengthen the weak by weakening the strong. You cannot bring about prosperity by discouraging thrift. You cannot lift the wage earner up by pulling the wage payer down. You cannot further the brotherhood of man by inciting class hatred. You cannot build character and courage by taking away people's initiative and independence. You cannot help people permanently by doing for them, what they could and should do for themselves. — Abraham Lincoln

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GREAT GIFT IDEA!

Still $29 ea. or two for $56

Kill A Watt Meter: The Electricity Detector and Monitor can educate you about your monthly electric bill and help you save a lot of money. You can now be a 'detective' and ascertain what appliances are actually worth keeping plugged in. Simply plug in the Kill A Watt meter, connect your appliances to it and Kill a Watt will assess how efficient it really is, showing you the instantaneous power used, and also cumulative energy or kilowatt-hours used.

Kill a Watt, with large LCD display, will count consumption by the kilowatt-hour, same as your local utility. With the help of Kill a Watt you can figure out your electrical expenses by the day, week, month or year on a given device. Kill a Watt can check the quality of your power by monitoring Voltage, Line Frequency, and Power Factor. **Still just $29**.

Now you'll know if it is time to install a power strip on your entertainment center instead of feeding those ghosts loads while you are sleeping or away from home. Or, is that laptop *really* cheaper to power than a desktop PC?

Operating Voltage: 115VAC Max Voltage: 125VAC
Max Current: 15A Max Power: 1875W
Dimensions: 5 1/8" x 1 5/8" x 2 3/8"

When small is all you need…..

Dorm Sized Energy Star Listed Refrigerator

CP-35B $440

These dorm-sized, under the counter, Energy Star rated refrigerators (290Kwh/ Yr) are perfect for dorms, RV's, boats, or even as a beer refrigerator for your garage or recreation room. And, even better, these are made in North America. The dual evaporator design allows independent cooling of the freezer and refrigerator compartments for better efficiency. In fact, this model is 31% more efficient than federal standards. There is a fruit and vegetable crisper and plenty of room in the door to store bottles of all sizes. The fridge compartment is frost-free, but you do need to occasionally manually defrost the 0 degree freezer section. This 115VAC/60 hz model is U.L. approved and is 100% CFC free. With 2.9 cubic feet of space and a reversible door swing you can fit this fine unit anywhere. It comes in 2 colors - white and black. This model weighs 80 pounds. Model options include:

Model CP-35B: Black (pictured) - price **$440**
Model CP-35: White - price **$435**
Model CP-35LL White with 2 side locks - price **$582**
(specify left or right hinged)
Model CP-35BLL Black with 2 side locks - price **$587**
(specify left or right hinged)

Thermostat is adjustable, refrigerator is frost-free but freezer is not. Features include interior light, vegetable crisper; dimensions are 18 3/4”W x 20”D x 33.25”H; electrical usage is approximately 290 kwh per year.

DC50
$699

NEW DC50 Refrigerator or Freezer by Sundanzer!

Save on costs with the new Sundanzer 50 liter DC refrigerator or freezer. This new 1.8 cu.ft. ultra efficient unit has very low energy consumption requiring smaller, less expensive power systems and lower operating expense. Exterior dimensions are 26.5”W x 23”D x 30.5”H, interior dimensions are 17.5” x 12.5” x 12.5”, and cost is **$699** plus freight.

High quality construction provides excellent reliability and long life. A zero maintenance, brushless, thermostatically controlled DC compressor operates on 12 to 24VDC; the chest-style refrigerator or freezer is easy to clean using the drain hole at the bottom of the unit.

Features:
> Refrigerators runs on a single 50W module (and its batteries) in most climates!
> 12 or 24VDC with low voltage disconnect for battery protection.
> Environmentally friendly CFC-free refrigerant (R-134a).
> Rugged scratch resistant galvanized steel exterior.
> Easy to clean aluminum interior.
> Automatic control with adjustable thermostat.

Average energy use:
As a refrigerator, 114 watt-hours/day at 32C (90F), 9.6Ah/day @ 12V
As a freezer, 280 watt-hours/day at 32C (90F), 24.5Ah/day @ 12V
Shipping dimensions are 27.5”W x 24.5”D x 36.5”H, weight is 75 lbs.
These ship by truck carriers. Applications include:

Remote homes	Cabins	Eco-resorts
Remote stores	Markets	Disaster Preparedness
Farms	Boats & RVs	Churches & Schools
Traveling Vendors	Villages	Missionaries

Remote Medical or Veterinary Vaccine Storage **$699 plus freight!**

The importance of keeping your S** together!** (that’s *stuff*, by the way). Those of us who own renewable energy power systems generally know how crucial it may be to have your technical information on hand—and pronto! If you are having any problems, you will need to know what your major components are, your inverter brand and model, the kind of photovoltaic modules you have, size and capacity of battery bank, service records, etc. If you sell your place with its RE system, you will want to hand off a stack of manuals, as well as dates and invoicing information, to its new owner. Your installer or RE salesperson should have provided you with detailed technical drawings of your system. And of late, there’s been a rather insidious rash of thefts of solar modules and related equipment throughout the country. This is an expensive technology, and bad people are learning how to lift a solar array swiftly in the dark of the night.

First thing’s first: like any other important thing you own (car, home, etc.) your goods should be insured. A solar power system is no longer so esoteric that your insurance carriers cannot cost effectively provide coverage for it. Next, keep a list of serial numbers of **all** your equipment. All PV modules come with a sticker on the back that has its electrical information on it, as well as manufacturer and serial number. Your inverter and other components offers similar information. Pictures of your system may come in handy for documentation. While no one’s giving it away, you can generally get security mounting hardware (for your modules) that will help prevent theft. It may not deter a serious thief, but it will make stealing more difficult. And a metal engraver may not be a bad idea to personalize your goods in a discrete fashion. As to our latest home/office system upgrade….

We just replaced our system’s batteries here at Oasis Montana. Our 16 old ones were nine years old, and we replaced them with slightly higher capacity batteries (Rolls/Surrette S-530s). Except for the occasional equalizing and topping off with distilled water, our system has operated flawlessly, and with *no other maintenance* during those nine years. Of course, I have gone out and dutifully checked the connections annually; initially I tightened the lugs on the batteries a time or two. But I did coat the batteries with an anti-corrosive gel, and I have been amazed at how little maintenance this system has needed. We did also upgrade our little wind generator too (which has been working great for about ~2 years). By the way, if you are in need of some insomnia-curing information on batteries, check out our page at **www.oasismontana.com/batteries.html**. ZZzzzzzzz……..

The 'new' guy and the 'old' guy….
Mark Dickson (left, below and far right) has been working for Oasis Montana since November of '07. Mark lives off-grid with a hydro system, in the forests on the west side of our picturesque Bitterroot Valley. The new guy, learning the ropes (Brad Stevens, below right), lives off-grid in a straw bale home of his own construction, near the mouth of beautiful Blodgett Canyon. Both of these fellows are happy to help you with your water pumping, grid-tie, RV, marine or remote power system. Since we at Oasis Montana are trying to do as many things as we can in a 'smart' way (meaning telecommuting and using a lot less gas, whenever possible), the phone and internet lines for keeping our office connections with our (occasionally) remote salespeople can be a bit of a challenge—especially here in the mountains where cell phone and internet connections may be rather tenuous. When he can, Mark works out of his home while the phone and wireless connection is good. But, generally speaking, you can always reach our tech support and system design staff during the day at our toll-free number, 877-627-4778 or at 406-777-4321.

Mark Dickson and Brad Stevens

Mark Dickson below, engaging in one of his many forms of transportation…..

With an educational background in hydrology and a professional background in education, Mark has the right skills to educate our clients on the systems he designs. Prior to living in Montana, Mark lived on the Big Island of Hawaii, serving as the operations manager to an ecology retreat center and sailing on a professional sailing team. Mark has his own renewable energy installation business, Simple Power LLC, which works in partnership with Oasis to install the systems we offer. Mark is proud to live and work from his off-grid home, relying solely on hydropower. On his days off, Mark can usually be found climbing, flying or snowboarding around the Bitterroot Mountains in his backyard. On the all too rare occasion he makes a brake for the west coast with surfboard in hand.

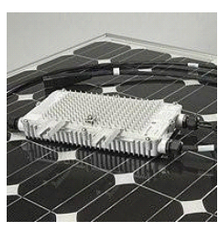
Renewable Energy Incentives—the good news and the bad. The bad news is that the comprehensive energy bill passed by Congress was attached to the rich guy bail-out bill—which frankly we were not happy about. Whatever happened to fiscal responsibility? If I make bad business decisions, I don't expect anyone to bail ME out! But, be as it may, there are some good improvements in tax credits for renewables, so hopefully it will make for a more level playing field (based on what incentives that *have* been available to fossil fuel and nuclear industries for decades). What started out as a true effort to advance renewable technologies ended up largely co-opted by petroleum interests; in addition to much needed assistance for the nation's young renewable energy industry (and assistance to related homeowners and businesses), the bill included millions of dollars for oil shale, tar sands and coal...not exactly a grand commitment to clean, green power, to be sure.

But, this bill is now law, and the incentives (after Jan. 1st, 2009) include: 30% tax credit for all solar power systems, which will remain in place until 2016. For wind, 30% tax credit of the cost of a system, up to $4000, limited to systems generating no more than 100kW. Also, for electric vehicles, there's a new tax credit worth up to $7500 for the purchase of plug-in hybrid electric vehicles (PHEVs — which should be available as soon as 2010). For information on the different aspects of this bill, visit **www.energy.gov/taxbreaks.htm www.seia.org www.awea.org/legislative/ www.solarelectricpower.org** and for incentives particular to your state, also visit **www.dsireusa.org**

The time is now to make the commitment to renewable energy!

No one has ever become poor by giving. —Anne Frank

NEW ENPHASE INVERTERS MAKE AN "AC" SOLAR MODULE??? Enphase Inverters are the first commercially available Micro-Inverter System for residential and commercial PV applications. Instead of the centralized inverter approach for a batteryless PV system, (that converts power from strings of modules), micro-inverters convert DC power from *each module* in a distributed approach.



The main key elements of an Enphase Micro-Inverter System 1) the Enphase Micro-Inverter (shown at the right), 2) the Energy Management Unit and 3) the Enlighten web-based analytics and visualization. All three elements are integrated to provide a comprehensive energy production and management system. The Enphase Micro-Inverter itself has a 15 year warranty, and the modules that work with them have a 20 to 25 year output warranty. Features include:

> Every module has maximum power point tracking (MPPT), increasing energy production for the entire system.
> No string calculations or combiner needed. > No single point of system failure
> Simplifies designing for roofs with multiple angles and orientations.
> The system includes 24/7 monitoring and management for each module. These are available with 240V or 208V AC voltage output; the inverter itself is available for **$225** (240VAC) or **$180** (208VAC).

One of the advantages of this 'PV module/inverter' is that purchasing a system can be spread out over time; at present we can offer an SGT-160 system, a single 160W module with this inverter built on to it, for **$1599** plus freight. The SGT-160 comes with everything you need to start generating your own solar power; all you need is a 240VAC power line to run through a disconnect, then to the location to where the panels are to be installed; after that everything gets plugged in. The SGT-160 comes with its panel, flush mounting system, and inverter built-in on the back. You can install just one, then as your finances dictate, you can add up to 15 more; once the first one is up, the rest just plug in. Here are the **SGT-160 kit specifications:**

64"L x 32"W x 4.5"D, weight 40 lbs.; the solar module has a max power output of 160W, nominal voltage is 24VDC. The inverter has a maximum output of 175W, with maximum voltage input of 54VDC, and AC voltage output of 240VAC, with peak inverter efficiency of 95%; UL 1741/IEEE1547 compliant.

If you thought you couldn't afford a solar electric PV system, it may be time to look at the Enphase Inverter System!

This is not your grandfather's energy crisis.
—Thomas L. Freidman

Renewable Energy and Alternative News Bites: Comparing Denmark to the U.S. is not exactly apples and apples; Denmark is about the size of Illinois. But, there's some food for thought in this article about how the Danes have attained their energy independence, using wind, biogas, co-gen facilities, and landfill technology innovations: **www.nytimes.com/2008/08/10/opinion/10friedman1.html?_r=2&th&emc=th&oref=slogin&oref=slogin**

MIT has developed a way to bank solar energy at home; a U.S. scientist has developed a way of powering fuel cells that may make it practical for home owners to store solar energy to run their electrical loads at night. It's a new catalyst that produces the oxygen and hydrogen that fuel cells use to generate electricity, while using a lot less energy that methods currently used. For more information visit **http://www.enn.com/energy/article/37841**

Biofuels are the major reason for a world-wide rise in food prices, according to this article by a World Bank economist; large increases in the U.S. and Europe in production of biofuels have reduced grain inventories and speculative trading. The story's at **www.planetark.com/dailynewsstory.cfm/newsid/49574/story.htm**

Ocean currents can save the world, says scientists. A new device that can harness energy from slow moving (i.e., less than one knot) ocean or river currents could provide enough power to run the world. The unit consists of a system of cylinders and springs that produces vortices, which in turn pull the cylinder up and down and create electricity. **http://www.telegraph.co.uk/earth/energy/renewableenergy/3535012/Ocean-currents-can-power-the-world-say-scientists.html** for the article.

Thirty reasons why organizations must get off petroleum now: an interesting article from an alternative fuel management consultant about peak oil and future possibilities; the blog is as good as the article! View it all at **www.renewableenergyworld.com/rea/news/reinsider/story?id=53247**

I like this idea over more nuclear power plants: **http://www.guardian.co.uk/environment/2008/sep/03/alternativeenergy.renewableenergy** for some far-seeing ideas of turning a desert into as oasis, with self-generating water and related sustainable crops.

Seventh grader and solar researcher, twelve year old William Yuan has come up with an innovative solar cell that absorbs both visible and UV light, and he's received a $25,000 scholarship from the Davison Institute. Read the story at **www.beavertonvalleytimes.com/news/story.php?story_id=122109656865633500**

Interest is surging for California cow power; pipelines will be built to connect major dairies, to make methane which will be transported to Pacific Gas & Electric Co. to be used to heat homes and generate power: read the article at **http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/11/19/BUBE147B02.DTL.**

Think you know something about energy and related policies? Take this quick and fun test to find out! **http://quiz.wecansolveit.org/**

Wind turbine towers are appearing on the U.S. landscape at about the rate of ten per day; the need for qualified people to maintain and repair these is getting critical. Several community colleges in North Dakota and other states are jumping at the chance to help fill that need and develop a niche for themselves at the same time through their wind tech programs. Read the article at **www.helenair.com/articles/2008/07/27/weekly_features/business/top/50bz_080727_wind.txt**

Solar powered streetlights are illuminating parts of Baghdad; their price tag is around $2,000 apiece, but for an additional $4,200, they can even be bulletproof! Check out the article at **www.treehugger.com/files/2008/07/solar-powered-street-lights-baghdad.php**

An energy hungry world needs to either make other arrangements for powering industrial economies, or contest for control of the remaining oil reserves. —James Howard Kunstler

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Utility Tie Systems: www.grid-tie.com
Efficient Appliances: www.eco-fridge.com
Gas Appliances: www.LPappliances.com
Solar Modules: www.PVsolarmodules.com
Water Pumping: www.PVsolarpumps.com
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Fax: 406-777-0830

Renewable Energy Newsletter!
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QUOTABLE QUOTES:

"The way of the wind is a strange, wild way." --Ingram Crockett

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"If people concentrated on the really important things in life, there would be a shortage of fishing poles." --Doug Larsen

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"I had a rose named after me, and I was very flattered. But I was not pleased to read the description in a catalog: No good in a bed, but fine against a wall." --Eleanor Roosevelt

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"Socialism collapsed because it did not allow prices to tell the economic truth. Capitalism may collapse because it does not allow prices to tell the ecological truth." --Oystein Dahle

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Human history has become more and more a race between education and catastrophe." --H.G. Wells

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"People who complain about taxes are divided into two classes: men & women." (unknown)

WE'RE STILL REDUCING OUR MAILING LIST— with rising printing & mailing costs, we will be removing some old addresses from our mailing list. But, if you get e-mail, ***subscribe to our EMAIL LIST***. It saves paper, labor and postage, and only disturbs a few electrons. Sometimes we have a great deal to offer, or just some good RE news to pass on. We do not sell or share our (small, hand-maintained) list with anyone. Contact us at info@oasismontana.com. This newsletter is available as an online version — just the same except the links work! If we have a sale or new product, e-mail *may* be your only notification. And we *promise* we won't bother you more than a couple of times a year.

"My best customers start with nothing and are thrilled with solar. The worst want everything for nothing. The third world will leave us to drown in our own pollution within 50 years if we don't get to work. Either this country takes up its role as leader or we hand over the torch." --Ray Walters, solar tech/installer

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"Blessed are the young, for they shall inherit the national debt." --Herbert Hoover "The future will be better tomorrow." --Dan Quayle

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"There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle." -- Albert Einstein

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"Never cut a tree down in wintertime. Never make a negative decision in the low time. Never make your worst decisions when you are in your worst moods. Wait. Be patient. The storm will pass. The spring will come." --Robert H. Schuller

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"Ethics cannot be based upon our obligations towards people, but they are complete and natural only when we feel this reverence for life and the desire to have compassion for and to help all creatures insofar as it is in our power. I think this ethic will become more and more recognized because of its great naturalness and because it is the foundation of humanism toward which we must strive if our culture is to become truly ethical." --Albert Schweitzer

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"How far you go in life depends on you being tender with the young, compassionate with the aged, sympathetic with the striving, and tolerant of the weak and the strong. Because someday in life you will have been all of these." --George Washington Carver