



Newsletter of the Uncompahgre Group
Rocky Mountain Chapter
Volume 7, No. 1
January 2006

Sierra Club members - Last July's newsletter had a article by Sandy Dorr about their "building green homes" business. For the first couple of years they were on the edge economically, but now there is no stopping them. Here is an article from another one of our members who is using the Greening of America to help the environment and creating a very robust business, this time with residential and commercial solar hot water heaters.

Solar Energy Use is Heating Up! Well, we've seen the typical forms of energy (natural gas, electricity, gasoline) rising in cost. To the dismay of many, we're hearing about a resurrection of the oil shale project in our region leading to all kinds of efforts to address the adverse environmental impacts of coal mining and burning.

Happily, a growing number of people are choosing more sustainable, environmentally healthy alternatives to conventional energy options. What are these people choosing? They are using solar energy to provide hot water, space heating, and electricity for their homes and businesses. In addition to reducing their impact on the environment, people who choose to substitute conventional energy use with solar heat or electricity (or other renewable and sustainable energy system) are gaining security. That's right security! The costs associated with a solar system are paid "up front" (at the time of the installation of the solar system). After installation, there is minimal or no fuel costs required to operate the system. The owner now has a known, relatively constant utility bill * now and many years into the future. As such, they are secure from rising energy costs in the years to come.

Benefits to the environment and stable utility costs are just a couple of reasons for the robust activity we are seeing in the Solar Industry here in Colorado, in the U.S., and the rest of the world. Amendment 37's provisions and Federal Tax Credits (in 2006 and 2007) are likely to be additional factors in increased installation of Solar Energy systems in our state.

As someone who works in the Solar Industry, I have enjoyed seeing this growth first hand and look forward to seeing the Solar Industry's continued robust growth in the near future. Our company in Ridgway, Colorado * Alternative Power - has helped to meet the increased demand for Solar Energy here in Western Colorado. This year, we have expanded beyond just providing design and system installation, we are now a regional distributor of Solar Hot Water Collectors for the four corner states. We provide a high quality, evacuated tube style of solar hot water collector. We offer these collectors for sale to both retail customers and dealers/installers. By providing regional distribution, we can offer the latest in solar hot water technology at a more competitive price. The result has been quite pleasing. The demand for solar systems continues to improve, and we can help meet this demand with a more cost effective system!

There are a number of good reasons to take advantage of the solar resources that are quite plentiful in Colorado. The financial incentives may help make it possible for more of us to realize our goals of using a healthier, more environmentally responsible, and sustainable energy resource. Take a look at using solar energy in your life.

If you have questions or would like to talk to someone about using solar energy, feel free to contact us at 970-626-9842. We are happy to provide you with information and other resources that may assist you.

-Jim Heneghan Alternative Power

Protect Colorado's Wild Places!

SIERRA CLUB Rocky Mountain Chapter Uncompahgre Group

Chair: Eric Rechel earechel@hotmail.com 242-4863
Vice Chair: (Currently untended, position available)
Secretary: Duane Carr driveacarr@aol.com 245-3725
Treasurer: Danni Langdon 76265.3070@compuserve.com 245-9829
Outings: Sandy Hennessy angelslap@juno.com

Thoughts Around the Campfire.... *Eric Rechel*

Margaret Mead: "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has."

So, for the past few weeks we have had 10 to 12 °F above normal temperatures. I recall the local paper commenting that September was a warm month. In fact, January of 2005 was a warm month with 300% above normal moisture. You know what I am leading to and you may be shaking your head. Yes, it is the disaster of our times, of all civilization if allowed to continue, but we can indeed reverse it and maybe stop it. Yes, I am talking about "Global Warming," or better called "Climate Change." You may read about it every day if you want to. You may hear about it from the various news sources you listen to. In some cases you may even try to ignore all this talk, all this information, and consider it irrelevant. You may even now be putting this newsletter in the circular file.

The problem for me is that it's global and I'm just one person sitting at my desk. How can I do anything at all about a global problem? I sit and feel so discouraged, so small, so inadequate. There must be a way. What can I do, what can we do? I suggest that we don't let it overwhelm us. ~~We can not let this situation put us in a stupor.~~ There is too much at stake now and for those who follow. We must remember the quote by Margaret Mead. I want us to add to the above quote "...a small group of thoughtful, committed, passionate citizens...." This requires us to stand up and be counted. To stand before our local city councils and remind them of what is at stake.

There are other actions we can take if you have a reserved demeanor. Contact Jim Heneghan about installing a solar hot water heater on your house. Go to <http://42explore.com/globecwrm.htm>. Here you will find information on both, yes I said both, sides of the issue. Here is another web site with lots of information on global warming <http://science.howstuffworks.com/question747.htm> I just typed in "what to do about global warming" in Google. You can do the same.

With all my environmental intentions I am still overwhelmed about what I, one person living in Grand Junction, Colorado, can really do about this global problem. As I sit here there is a resolve in me to do whatever I can. I cannot just let this happen to our planet, our home, our fellow living partners. Please, if you wake in the middle of the night and thoughts of this newsletter editorial wisp through your mind, get up and write that letter to a friend about global warming, mark on your to-do list that you will call both Salazars about this issue. Our actions will be the future. Our voice will be the music of future generations. Our concern, viewed down the hallways of history, will be seen as acts of compassion and as a vision beyond ourselves. Please help our planet.

*At the closing of the day, my friends gather,
But the little voice doesn't stop crying
We close the windows, the doors, the shutters
But the droplets of sorrow continue to fall.*

Protect Colorado's Wild Places!

*We don't know where the little voice comes from:
We check the kitchen, the garage, the garden,
But the little voice doesn't stop crying*

*When the night comes, the whole heaven is a sob,
Even the firewood on the hearth seems to weep
All by ourselves, we grieve openly
But the little voice doesn't stop crying*

Alfonso Reyes

Review of the Year: Climate Change

Mercury rising, stormy weather - our world is taking a battering

by Michael McCarthy

You see it in heat, you see it in ice, you see it in storms. Climate change without doubt became the critical environmental issue of 2005. The evidence of global warming occurring here and now mounted up during the year and is proving ever harder to ignore, even by habitual sceptics.

The past 12 months have been one of the hottest periods ever recorded. When all the figures are in, this may prove to have been the warmest year in the global temperature record, although in mid-December British meteorological scientists were saying it was still just exceeded by 1998.

But, around the world, there have been unprecedented heat-waves. The thermometer reached an astonishing 50C - that's 122F - in India, Pakistan, Bangladesh and Algeria. Canada and Australia had their hottest-ever weather, while a record drought in Western Europe saw bush fires devastate much of Portugal's countryside.

Two other phenomena besides high temperatures pointed directly at climate change in 2005. One was the record melting of ice in the Arctic Ocean, and of land-based glaciers and ice sheets; the other was the record incidence of tropical storms.

In September, satellite measurements showed that the Arctic sea ice had melted to a record low extent - about 20 per cent below the long-term average - prompting fears that an irreversible decline has set in, and that the whole of the Arctic Ocean may be ice-free relatively soon, perhaps within two to three decades.

This means not just that the North Pole will be a point in the sea; it means that animals that need the ice to live, such as polar bears, may be doomed. In December, there were reports of polar bears being drowned because the gaps between ice masses were too great for them to swim.

There are other significant reports of ice melting, especially in the glaciers and ice-sheets of Alaska and Greenland. Measurements taken in 2005 showed that the Kangerdlugssuaq glacier, which drains about 4 per cent of Greenland's massive ice sheet, is moving into the sea three times faster than a decade ago. If the Greenland ice sheet were to melt completely, sea levels around the world would be raised by about seven metres (23ft). But even a rise of just one metre would be catastrophic for many low-lying areas, such as Bangladesh. In November, American scientists revealed that sea levels are now rising by about two millimetres a year, twice as fast as 150 years ago.

Stronger, more frequent tropical storms are the other pointer towards a changing climate. Scientists predict that the greater energy available in a warmer atmosphere will intensify hurricanes and typhoons, and 2005 has indeed been a record year in terms of both intensity and frequency.

Protect Colorado's Wild Places!

According to the World Meteorological Organisation, there were 26 tropical storms in the 12-month period, exceeding the previous record of 21, set in 1933. Of the year's storms, 14 reached the status of hurricanes. Hurricane Wilma, which hit Florida in October, was confirmed as the strongest hurricane ever recorded.

But it was Hurricane Katrina, of course, which attracted the most publicity. The devastation of New Orleans in August posed the critical question - was there a link with climate change? Some scientists are uncertain about this, but in September Sir John Lawton, who chairs the Royal Commission on Environmental Pollution, said unequivocally that the super-powerful hurricanes battering the United States were the "smoking gun" of global warming.

Not surprisingly, the mounting evidence of a destabilised atmosphere gave a new urgency and dynamic to the politics of climate change during the year, although the administration of George Bush continued to stonewall on the issue. Tony Blair, with his special opportunity as chair of the G8 group of rich countries, while at the same time holding the presidency of the European Union, put climate change at the top of the agenda (along with Africa) at the G8 summit at Gleneagles in Scotland in July.

What emerged was not a change of heart from the US over the Kyoto protocol on greenhouse-gas emissions - as the environmental pressure groups had been demanding, entirely unrealistically - but something just as important. China and India, whose future emissions of carbon dioxide will be a crucial factor in the struggle to control climate change, agreed to talk about them for the first time.

Later in the year, the world took another step forward when almost 200 countries agreed at the UN climate conference in Montreal to start shaping a second stage to the Kyoto treaty to replace the first emissions reduction period, which ends in 2012.

There was a mix of good and bad news on other fronts, such as rainforest destruction and wildlife. The Amazon was struck by its second-greatest bout of forest clearance, new figures revealed - but in September, in Kinshasa, nations home to populations of the four great apes - gorillas, chimpanzees, bonobos (pygmy chimpanzees) and orangutans - agreed on a strategy to try to preserve man's closest relatives in the face of ever-increasing threats to their existence from habitat destruction and hunting.

© 2005 Independent News and Media Limited

Common Dreams NewsCenter

A non-profit news service providing breaking news & views for the progressive community.

www.commondreams.org



Protect Colorado's Wild Places!

Cool Cities: Solving Global Warming One City at a Time

All over America, cities, counties and states are launching an exciting grassroots movement to help solve one of our country's most pressing problems: global warming. Frustrated by stalling on the federal level, local leaders are moving forward with innovative energy solutions that cut our dependence on oil, benefit public health and save taxpayer dollars. These mayors, county commissioners and governors are leading the way toward a safer and more secure future.

The purpose of these webpages is to provide a resource for citizens and local officials who are ready to act on the need to reduce energy waste and heat-trapping global warming pollution by taking real action in their communities. Here you will find inspiring city success stories from a broad range of cities, from larger metropolitan centers such as Salt Lake City, St. Paul and Charlotte to smaller cities like Twin Falls, Idaho and Waverly, Iowa.

The strategies that these and other cool cities are pursuing fall under three categories: **cleaner vehicles, energy efficiency and renewable energy**. Every one of these local solutions is already saving taxpayer dollars and improving public health by reducing energy waste and pollution. By taking innovative actions, forward-looking cities are re-energizing our nation, proving that we can solve global warming one city at a time.

The Time to Act Is Now

The scientific community has concluded that burning fossil fuels-oil, coal, and natural gas-to power our cars, homes and businesses is causing global temperatures to rise. This heating of the earth poses a serious threat to our health, safety and environment.

The national science academies of the United States, England, France, Russia, Germany, Japan, Italy, Canada, Brazil, China and India issued the following joint declaration in June 2005: "The scientific understanding of climate change is now sufficiently clear to justify nations taking prompt action." The world's leading scientists ask us to "recognize that delayed action will increase the risk of adverse environmental effects and will likely incur a greater cost."

[Source: "Joint Science Academies' Statement: Global Response to Climate Change," June 2005]

Re-Energizing Your City

As the success stories in this guide prove, cities are making real progress cutting global warming pollution. No longer waiting for the federal government to act, mayors and other local leaders are putting into place winning energy solutions right now. By using the innovative technologies of cleaner cars, energy efficiency and renewable energy, cities across America are protecting our health and environment, while saving taxpayer dollars.

As the news of these successful city solutions spreads, more cities are joining in the "cool cities" movement. Together, they are helping to lead our country and our world into a new energy future. And that's cool. Now it's your city's turn.

Make your city a cool city.

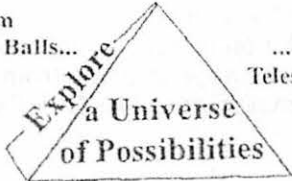
E-mail us at global.warming@sierraclub.org to get information on having your mayor and city council take steps to curb global warming.

Sign up for The Hotline.

Want to make a difference in the fight to stop global warming? Looking for more information about the problem and how it can be solved? **Sign up for The Hotline**, the Sierra Club's global warming alerts! <http://www.sierraclub.org/globalwarming/coolcities/>

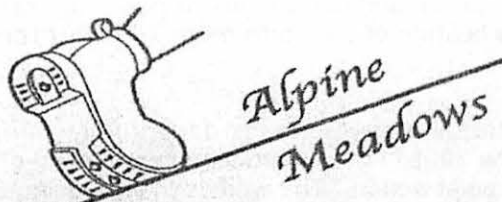
Sierra Club, Uncompahgre Group, thanks the following businesses for their support, which helps to make this newsletter possible.

From
Crystal Balls... ... to
Telescopes



CRYSTAL - Books & Gifts
439 Main Street * Grand Junction, CO * 242-5181

...A
HAGGLE of VENDORS
EMPORIUM
ANTIQUES
&
COLLECTIBLES
"Better Than a Museum"
"A Must See Downtown"
245-1404
510 Main St. * Grand Junction



Hiking and Backpacking

Crested Butte, Colorado
Also offering trips in
Utah, Arizona, and
New Zealand

970/349-0800
www.alpinemeadowshiking.com

Nadine M. Hutchins, D.D.S.

"Gentle Caring Dentistry"



2352 N. 7th Street
Suite #4
Grand Junction, CO 81501
(970) 242-7373
www.doctornadine.com


Colorado West Family Dental Center


*Remote Property?
Tired of High Electric Bills?*

**ALTERNATIVE
POWER
ENTERPRISES, INC.**

- SOLAR ELECTRIC SYSTEMS
- EFFICIENT APPLIANCES • LIGHTING
- ULTIMATE HOME IMPROVEMENT

Silent,
clean,
reliable power -
ANYWHERE



 **ALTERNATIVE POWER ENTERPRISES, INC.**
Leif Juell • 970.626.9842
P.O. Box 351 Ridgway, CO 81432
www.alternative-power.com

Protect Colorado's Wild Places!

SIERRA CLUB UNCOMPAHGRE OUTINGS AND MEETINGS

In order to participate on one of the Sierra Club's outings, you will need to sign a liability waiver. If you would like to read a copy of the waiver prior to the outing, please see <http://www.sierraclub.org/outing/chapter/forms/> or call 415-977-5630.

In the interest of facilitating the logistics of some outings, it is customary that participants make carpooling arrangements. The Sierra Club does not have insurance for carpooling arrangements and assumes no liability for them. Carpooling, ridesharing, or anything similar is strictly a private arrangement among the participants. Participants assume the risks associated with this travel. Pets are not allowed on outings. In inclement weather, the outing will be canceled.

*****PLEASE RSVP FOR OUTINGS (IN CASE OF CANCELLATION). SEE LISTING FOR DETAILS*****

January 12, Thursday: Our every other monthly SC meeting will begin at 6 PM with a potluck followed by a meeting at 6:45. Mark Schofield will be presenting the program that will give us a clear understanding of the Dominguez Canyon Wilderness Study Area. The meeting location is 1622 Glenwood Avenue, behind the Monument Inn. Turn onto 16th from North Avenue, go one block, turn right, go another block to the Global Heart Spiritual Center. Please call Eric with any questions concerning the meeting. It would be great to start this new year of 2006 off with a fully attended meeting. Please come and we will join together to make this a great year.

January 28, Saturday. Bill Iams is leading an energetic desert hike out of snow and into warmth of the beautiful canyons in our area. Join Bill for this hike and experience the serenity of the winter desert landscape. Please call Bill to RSVP and he will inform you of his chosen route and the details of the meeting place and time. 243-9526

February 11, Saturday night. The full moon offers a great chance to ski on Grand Mesa at Mesa Lakes with NJ Fulmer leading the pack. The evening will include an optional meal at the Mesa Lakes Lodge. Please call N.J. at 241-8036 to RSVP and arrange to car pool to Mesa Lakes.

February 25, Saturday. New member, Sandy Hennessy, is leading the way up the trail to the petroglyphs of Palisade. Bring a snack and bask in the warmth of the sandstone while you let your imagination conjure up what it was like for the people of the past who left their marks here on the stone. This is not a difficult hike, does require good shoes, and involves a steady though gradual uphill climb from the trailhead off Hi-Way 6. Please call Sandy at 464-1211 to arrange for a meeting time and get directions.

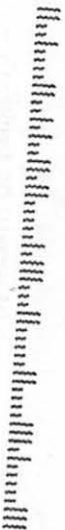
March 9, Thursday. The second club meeting of the year will begin at 6 PM with a potluck followed by a meeting. Location will be at the Global Heart Spiritual Center, 1622 Glenwood Avenue, behind the Monument Inn. Turn onto 16th from North Avenue, go one block, turn right, go another block. For more information as to specific content of the meeting, please call Eric at 242-4863

March 25, Saturday. Please join Ken and NJ Fulmer for a fun and spectacular look at a little-known river vista in the Grand Junction area up Bean Ranch Road. This area has been called "**The Grand Canyon of Grand Junction.**" It is possible to 4-wheel drive or walk the road up to the overlook. Please give N.J. a call at 241-8036 for all the details and plans for this relaxing and enjoyable outing.

Sierra Club
Uncompahgre Group
P.O. Box 1543
Grand Junction, CO 81502

Nonprofit organization
U.S. Postage PAID
Permit No. 187
Grand Junction, CO

1171249 1313 J 1105 1122 519
Mr and Mrs Ralph E Clark III
519 E Georgia Ave
Gunnison, CO 81230-2003



The Uncompahgre News is published 4 times per year, in January, April, July, and October. News articles and items of interest are solicited from all members. Please send items and other comments to Terry Wise at posaidai@fone.net

MEMBERSHIP FORM

- Yes, I want to be a member of the Sierra Club and help preserve the beauty of the Earth.

MY NAME _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

HOME PHONE _____

E-MAIL ADDRESS _____

- From time to time, we make our mailing list available to other worthy organizations. If you prefer that your name not be included, please check here.



Special Offer!*
FREE Sierra Club Messenger Bag
with your membership!

Membership Categories

(CHECK ONE)	Individual	Joint
SPECIAL OFFER*	<input type="checkbox"/> \$25	
REGULAR	<input type="checkbox"/> \$39	<input type="checkbox"/> \$47

Payment Method:

- Check VISA MasterCard AMEX

CARDHOLDER NAME _____

CARD NUMBER _____

EXPIRATION DATE _____

Contributions, gifts and dues to the Sierra Club are not tax-deductible; they support our effective, citizen-based advocacy and lobbying efforts. Your dues include \$7.50 for a subscription to *Sierra* magazine and \$1.00 for your Chapter newsletter.

JOSASRL001



Enclose payment information and mail to:
SIERRA CLUB
P.O. Box 52968, Boulder, CO 80322-2968

To join Sierra Club of Canada,
go to: www.sierraclub.ca

Explore, enjoy and protect the planet.

As the Russian said when visiting the modern cabin on a Canadian lake: "This is nice for a town house, but where is your place in the country?"

THE DECEMBER ARTICLE about solar-powered living was excellent for those who want to borrow money and hire the job out, but off-grid living is also accessible for those with allergies to bankers and hired contractors, who might prefer to do it "the cowboy way," that is, with gumption, ingenuity, elbow grease, and cusswords.

Saving money isn't the only advantage, because after you've hoisted enough batteries like they were haybales, and gelded enough heavy copper wire-ends, and learned the ins and outs of your system, you will be master or mistress in your own domain, able to modify and/or repair as the need may arise.

In out-of-the-way places, it is usually legal, and far more practical, to be your own electrician, as long as you learn the rules and follow them. Reasonable proficiency with tools is all that's required. You can learn quite a bit by reading the informative catalogs offered by alternative-energy mail-order houses — and I've had excellent dealings with a mom-and-pop dealer out of Sandpoint, Idaho. There are also dozens of books on the subject.

You can learn as you go, starting small, and growing your system as your budget allows, but some knowledge and planning will save costly and time-consuming mistakes and/or duplications. This is a fairly new industry and new, more efficient products appear every year — making you wish you hadn't bought that less effective well-pump or charge-controller last year.

But let's digress a bit and talk about the cowboy way. I'm no cowboy, but I've been having off-grid experiences ever since a primitive charity camp gave me a respite from the streets of New York back in 1955.

In the '80s there were still quite a few of us backwoods pilgrims in Central Colorado who thought, like the Russian, that country living ought to offer some liberation from a too-modern world. We were happy with lantern light in rustic cabins, glad for a scrap of dirt on which we could build our own home with little more than a shovel, a hammer, and a saw. No radio, no vehi-

Scrounging for Solar



*Making Electricity
at home in your spare time.*

BY SLIM WOLFE

cle, no problems — until you had to earn a living. For that reason, it's easier to have a power assist for a modest cottage industry, or maybe a light bulb or two for an evening's ease — keeping in mind that greater minds than your own have created their masterpieces by candlelight.

THUS A PERSON planning an off-grid system can acquire equipment according to real need, rather than trying to live like the star of a Pepsi commercial. The thirteen-amp power tool may look better than the one rated fifteen. The cold porch may serve as a fine refrigerator. A book may appeal to you more than the television adaptation, since you need only a low-watt bulb to enjoy it. Before long, you may come to see your on-grid past as one big addiction.

As in most endeavors, when you refer to the experts, you'll find that they disagree, so be prepared for a few surprises as you start living with your off-grid system.

Does a fist-sized shadow keep a solar panel from putting out power? Not according to my little volt-meter.

Do batteries emit so much gas that they need to be in a vented storage box in the cold where they are less efficient? Heck, I've got mine under the couch I sleep on.

Do you need to cough up several hundred dollars for sophisticated safety disconnects? Or will the Dukes of Hazard chop-shop and meth-lab over on the next road draw so much attention that nobody will have time to

One of A Kind construction

This
environment-friendly
Trophy Home
can be yours.

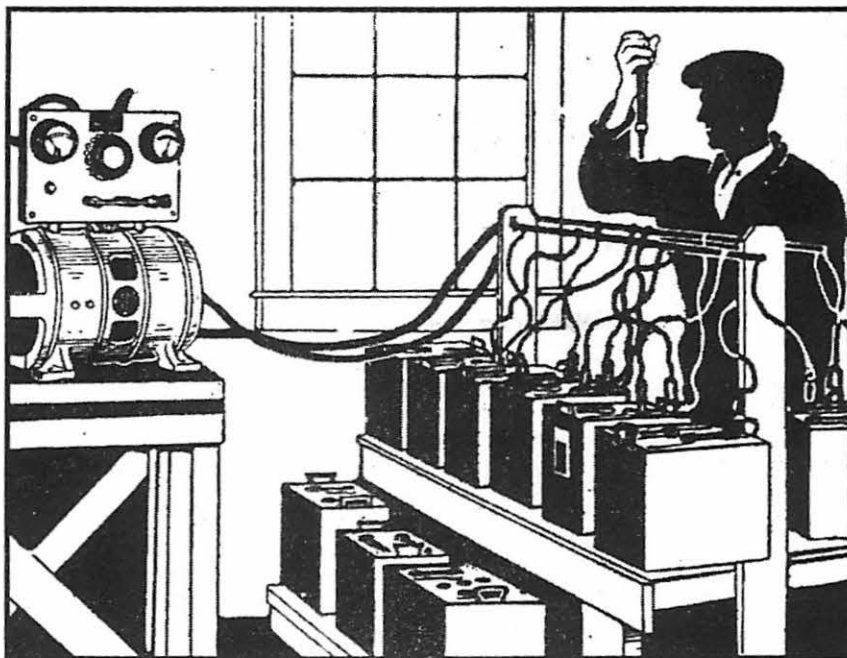
9431 WINDANCE CIRCLE
SALIDA



OAK CONSTRUCTION, LLC
30 Years of Building in Central Colorado
719-539-6716

prosecute your peccadilloes — thus leaving you free to indulge in a bit of trial-and-error assembly, as perhaps the creator intended. After all, the kick from a few batteries is hardly a kick from a large animal, and an inspector's approval may not mean that you have a safe system, any more than a driver's license means you're a safe driver.

But I don't mean to encourage carelessness or ignorance here. Electricians, however, are merely human, and it's sometimes helpful to find one as close as the nearest mirror. That is the key to sustainable living: personal connection with the basics of life. It's the basis of the cowboy way, the Code of the West, the way of Thoreau; it's what slips away with each new trick we buy.



Some basics about photovoltaic and other power systems

Do solar panels work under a cloud? Yes, but slowly: allow about twice the time as you'd need on a sunny day.

What about wind generators? They're best when mounted on a 40-foot pole or tower, above ground turbulence. They vibrate and can be quite noisy, and your tower must be anchored and guyed. There are many models, starting at about \$600 (for a roof-mounted unit supplying about 400 watts, which is suitable for supplemental power to a solar system), and additional gear may be required.

Generally, they kick in at about 7 mph windspeed and reach maximum output at about 28 mph.

Systems supplying 2 kilowatts when conditions are right are available for about \$1,200 to \$2,000 or more.

Will I need a back-up generator? Most people seem to have one, but I don't.

What are the basic cost breakdowns? All figures are approximate:

A 120-watt PV panel: \$600, 25-year life expectancy panels come in different sizes, outputs, and manufacturers; there are no moving parts to break, so they may last longer than 25 years. Figure 200-500 watts for a spartan cabin, 1000 or more watts for a conservative-use couple. You can always add more.

Batteries: A pair of Trojan T105 6-volt golf-cart units sell for \$140; Trojan is considered top-of-the-line, this smaller size allows for ease of handling and best amps-per-dollar economy. But there are other options and lots of new technology. I have 5 pair for night, 10 pair for shop.

Charge controller: Keeps batteries up but not boiled away. 40-amp unit runs under \$200, up to 5 panels (x 7 amps each) or 6 panels (x 6 amps each) could be used with it. Smaller-rated units are considerably less.

Inverter: 300-watt can be found for \$100, runs sewing machine plus a few lights and stereo, but not a vacuum or a drill; 1200-watt can be found for under \$300, will run a smaller circular saw; 3000-watt can be had for \$500 or so, to run larger pumps, appliances 13 amps and over. Better inverters are quite a bit higher in price. Some appliances require "true-sine-wave" devices which are in the thousands, so know your needs.

Safety units: Heavy-duty fuse and holder connects to inverter, \$60. Breakers for PV panels, \$250. Lightning-arrester-diverter, \$40 battery box at your discretion.

Pole mounts for PV panels: Prices vary. A couple of extra panels may be more economical than a high-tech mount that tracks the sun, a homemade hinged or double-hinged device is also effective.

Kit for assembling and anchoring and guying steel poles to build your wind-turbine mount: several hundred dollars.

Wire: At least \$50, not including house wiring, 4 ga welding cable for larger inverters; 6-8 ga stranded copper; elsewhere, welding cable lugs (about \$1 apiece) for secure connections.

The cowboy way: Free. After all, the new bourgeoisie is only doing what the cowboys have always done, namely, raising a huge cloud of dust in search of greener pastures.

—S.W.

Providing insight into the power of solar energy



As more electric cooperatives examine the possibility of offering photovoltaic systems to member-consumers for various applications, the need for sound data and information is essential. In addition to knowing what to expect from the technology, how to foster community support is key to structuring a successful program.

Northwest Rural Public Power District's Rolland Skinner helped establish the Solar Electric Power Association (formerly the Utility Photovoltaic Group) in 1992 to promote the use of solar energy as an option for utilities. Today, the organization works with utilities, energy service providers and the photovoltaic industry in the United States and internationally to offer educational campaigns and outreach programs, create business and government partnerships to expand the solar market, and distribute research and technical data.

"I think SEPA is a player in helping us understand collectively what's going to work, where it's going to work and how much it's going to cost," said Skinner.

David Spradlin, general manager of Tri-State member Springer Electric Cooperative (Springer, N.M.), also has been involved with SEPA since 1996 and he is now a member of the board of directors. "It's a very worthwhile organization," Spradlin said. "There's a lot of good information they provide. If you're interested in looking into any solar-type project, they can walk you through the process and give you all the technical details. The good thing is that it's done from a utility standpoint – we're able to talk to other utilities to get a good, honest utility perspective."

Spradlin received SEPA direction for Springer Electric's photovoltaic program. The co-op offers PV systems as an alternative to line extensions in addition to the partnership with the National Parks Service to provide 40 portable PV units that power information kiosks throughout parks in New Mexico. SEPA also has directed Springer Electric to U.S. Department of Energy and Rural Utilities Service funding sources as it looks to build a PV demonstration project at the co-op's headquarters, which will utilize solar panels installed on a covered parking structure.

Another resource for co-ops as they look to develop solar alternatives is Albuquerque, N.M.-based Sandia National Laboratories. Sandia Labs' photovoltaics program has compiled a PV Reliability Database that tracks and analyzes the costs of adding PV systems to a utility's service portfolio. For Northwest and Springer Electric, Sandia Labs' PV program and database has proved helpful in identifying trends and defining system lifecycles, which have resulted in a better insight into what comprises a successful program.

Through cooperation, both the PV industry and system users have become critical partners in ensuring that the technology is understood, maintains reliability standards and performance, and results in valuable energy source for consumers.

Below: Springer Electric general manager and SEPA board member David Spradlin finds the collaborative effort and information sharing of utilities sheds "sunlight" on his PV program goals.



On a typical August day in Nebraska, Wayne Cobb, rancher, farmer and Tri-State board representative for Hay Springs, Neb.-based Northwest Rural Public Power District, played host to his neighbors and fellow ranchers, the Niensens, as they discussed the latest technology he has been using to supplement the windmill that pumps water into his stock tanks. For two years, Cobb has participated in an experimental program with his local consumer-owned utility to test the effectiveness of photovoltaic (PV) systems to pump water for livestock.

PV technology employs radiant light energy from the sun and converts it to direct current electrical energy. When sunlight hits the surface of PV cells, volts are generated that power a pump. PV-powered pumping systems typically consist of a PV array of modules, a water pump and a pump controller, which work together to fill stock tanks with water.

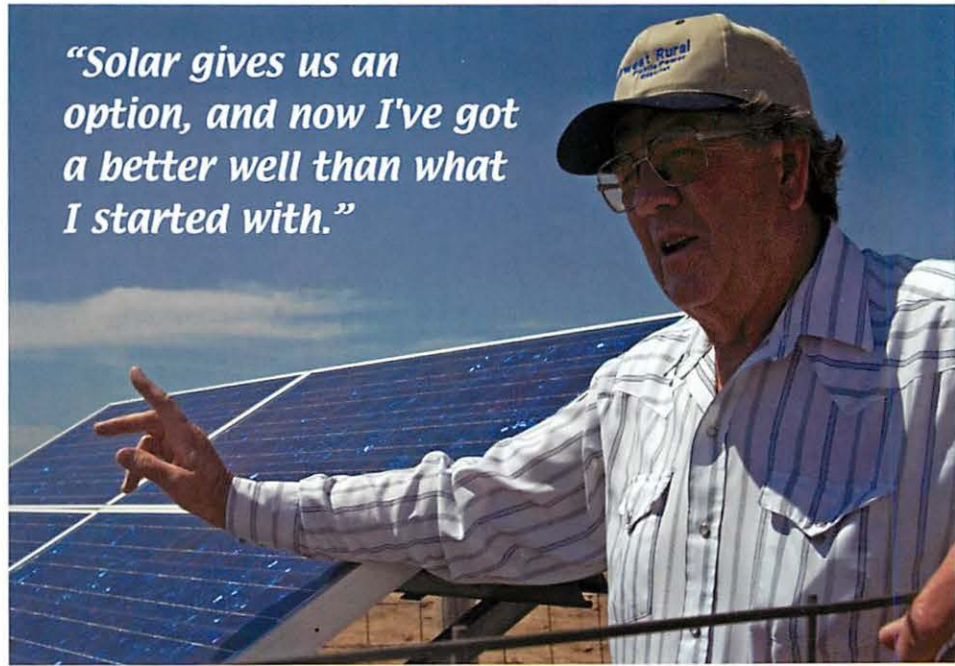
Cobb runs nearly 450 head of Black Angus cattle, which in the “dog days” of August, need a good supply of water. But, at times, those hot summer days are when it is most difficult to keep the stock tanks full. “Now, I’ve got a better well than what I started with. When the wind isn’t blowing, the sun is shining and the solar is pumping,” explained Cobb. “While the windmill was only pumping about 5 gallons a minute from the hole, I get between 8 to 8.5 gallons a minute with the solar unit.”

Before visiting with Cobb, the Niensens had talked to the staff at Northwest about how to increase the output of their stock watering pumps. Considerations include reliability, efficiency, size of the unit and cost. A quick trip to their neighbor’s tanks allowed the husband-and-wife team to see the PV alternative in action, demonstrating the technology’s potential. “Our windmills don’t pump nearly as much water,” said Greg Nielsen.

Harnessing both the power of wind and sun has allowed many ranchers to find the most sensible method to ensure their cattle are healthy and profitable. Meanwhile, for Northwest PV systems have proven to make the most financial sense and have bolstered the utility’s service portfolio.

“We’re just trying to provide a service to our members,” said Rolland Skinner, 44-year industry veteran and Northwest’s general manager. “If the members don’t need it, then we don’t need to do it. If the members do need it, then we need to do it.”

“Solar gives us an option, and now I’ve got a better well than what I started with.”



“We’re concentrating on PV because it’s what makes financial sense to us,” emphasized Skinner. “Customers should be able to look to their power company to find out what makes sense. And, when it makes sense financially, technically and ecologically, we’ll bring it to you.”

“It’s not really about being green,” continued Skinner. “It’s about finding and meeting the needs of the consumer, and specifically, that’s finding new technologies and new opportunities, which happen to involve alternative forms of energy.”

Northwest started its PV program more than 15 years ago. Skinner first learned about photovoltaic applications for remote water pumping at an energy audit conference hosted by the Western Area Power Administration. Other co-ops, including Tri-State member K.C. Electric Association in Hugo, Colo., discussed how PV systems were easing the cost burdens of rebuilding damaged or old lines that served small loads such as stock tanks.

“We have more than 1,000 windmills on our system and all of them are getting older,” said Skinner. As ranchers and farmers look for replace-

Wayne Cobb’s experimental PV stock watering pump has allowed the staff at Northwest Rural Public Power District to research which system and pump configurations work best.



Jerry Anderson (left), Northwest’s assistant engineer, explains the utility’s preferred pumping technology to Wayne Cobb and Greg Nielsen. Anderson was key in helping form of the Northwest’s PV program — Skinner credits Anderson with its growth and success.



“We’re trying to convince the consumer to try something new, something he doesn’t know much about.”

Wayne Cobb and Rolland Skinner (right) at one of Northwest’s 55 PV-system installations.

ments for their windmills, Northwest is committed to serving as a resource for them. Replacement options include line extensions out to the wells or the installation of PV systems. But, for the small rural utility in the Sandhills of Nebraska, Northwest has concerns about eagerly granting line extensions. With line construction costs ranging from \$10,000 to \$15,000 per mile, plus an additional \$150- to \$200-per-mile cost for maintenance, it is often to Northwest’s and the member’s benefit to find an alternative.

“We have an aging system that’s nearly 50 years old,” explained Skinner. “We need to make sure we can afford to meet the demand when we have about a half-percent yearly growth with 2- to 3-percent escalation in

costs. I figure that with some new revenue from the PV systems and not having to replace some of the line, it’s worth about a half-million dollars in the next 15 to 20 years.”

Northwest finds that the photovoltaic technology offers a sound addition to its line extension policy. Acknowledging that PV systems are site specific and not the answer for everyone’s needs, employees work closely with customers to determine the best application. However, when it comes to the PV alternative, there is often a little persuading required.

“We’re trying to convince the consumer to try something new, something he doesn’t know much about,” said Skinner. “I think Northwest’s role is to be a point of contact. When we first started the program, we made hundreds of hours of long-distance phone calls to try to figure out what to do and what not to do. We’ve tested and proven the equipment ourselves. There is no reason that our customers should ever have to go through that. Even if they don’t buy it from us, it’s the knowledge service that I think we need to provide.

“If Northwest says it works, then our customers will believe us,” Skinner asserted. “Our yellow trucks have been driving into their yards at three o’clock in the morning in a blizzard for 50 years. We can bring reliability to this industry. And, when it doesn’t work, we’ll be there to fix it.”

Members can either lease or buy a photovoltaic system from Northwest. For those who choose to lease, the utility maintains the unit for the duration of the lease. Currently, Northwest has PV systems at 55 customer sites, about half are leased. Through partnership agreements, Northwest also has photovoltaic units on four other co-op systems: Tri-State members Niobrara Electric Association (Lusk, Wyo.), Panhandle Rural Electric Membership Association (Alliance, Neb.); as well as Black Hills Electric Cooperative in Custer, S.D., and Lacreek Electric Association based in Martin, S.D.

Northwest doesn’t limit the technology to water pumping. It also leases PV systems to one off-grid home and one grid-connected home. Just south of Chadron is a group of homes that relies on wind and gas-driven generators, as well as a small PV system. “Now, we have this community that is tickled to death that their power company was helping them stay green,” said Skinner.

“This is fun,” Skinner continued. “This technology is letting us bring service out to some areas for the first time. We provide the convenience of manageable, electric energy in customers’ homes, and the most important thing is that we’re improving the standard of living in rural America now and for future generations.”

Formed in 1945, Northwest Rural Public Power District serves more than 3,000 meters in Nebraska’s dryland wheat areas, rugged rock terrain, cattle ranches of the Sandhills and irrigated farmland.



Skinner and Anderson acknowledge that customers identify Northwest with reliable electric service and work to ensure their PV program maintains the same dependable quality.



Sustainable communities

Looking for ways to live efficiently

On September 17-19, the High Country Citizens

Alliance will once again host its sustainable communities symposium. GCEA has helped sponsor this symposium for the last several years. Here is this year's schedule.

Friday, September 17, 7 p.m., Taylor Auditorium, Western State College:

Yvon Chouinard of Patagonia and a company called 1% for the Planet is this year's keynote speaker. Chouinard will discuss how making business decisions based on environmental ethics can prove to be advantageous in the long run, for your company as well as for the planet. He believes that business should be very active in stewardship and conservation initiatives because of the market potential, and that this can be done on every level of business.

Saturday, September 18, 9 a.m., Crested Butte

Community School: The day begins with a plenary session led by Luke Danielson of Gunnison who has worked as an international consultant in the natural resources sector as well as a professor of environmental law. The sessions to follow will focus on sustainable practices for home size, healthy building options, the zero emissions theory and a discussion panel designed to empower par-



Photo by Sarah Brandt Green

The symposium tends to be a very hands-on conference.

ticipants in their own personal or grassroots initiatives.

Jay Shafer of The Small House Society, will talk about reassessing your needs and examine the resources needed to build large homes. He will share many slides of small homes across the nation. David Salomon from Zero Emissions Research and Initiatives will discuss the worldwide practice of the ZERI group and how you can incorporate this into your lifestyle.

The grassroots inspiration panel includes three people who have turned consciousness into livelihood. The discussion will focus on the steps you can take to turn your passion into your career. In the interactive sessions, Krista Hildebrandt, owner of the Alpengardener, will

return to show local water-efficient gardens. Margie and John Haley will make their Toyota Prius, a hybrid vehicle, available for test drives. Erika Rosenfarb will show how to build a solar stove and prepare various recipes.

Sunday September 19: This day includes numerous tours of exemplary energy-efficient and sustainable homes in the Crested Butte area.

For more information, contact the High Country Citizens Alliance at gesa@hccaonline.org or call (970) 8349-7104.

How much energy do you use?

Knowing the cost of running household appliances allows you to figure out where and how to cut energy consumption

Appliance	Lower	Higher	Time used	Range of cost/day	Appliance	Lower	Higher	Time used	Range of cost/day
Clock radio	10	240	24 hours	\$0.018 \$0.437	Iron	1,000	1,800	15 minutes	\$0.019 \$0.034
Coffee maker	900	1,200	1 hour	\$0.068 \$0.091	Microwave	750	1,100	15 minutes	\$0.014 \$0.021
Clothes washer	350	500	45 minutes	\$0.020 \$0.028	Computer				
Clothes dryer	1,800	5,000	1 hour	\$0.137 \$0.380	(CPU & monitor)	270		3 hours	\$0.062 \$0.000
Dishwasher	1,200	2,400	1 hour	\$0.091 \$0.182	Radio/stereo	70	400	3 hours	\$0.016 \$0.091
Dehumidifier	785		3 hours	\$0.179 \$0.000	Refrigerator	725		24 hours	\$1.321 \$0.000
Electric blanket	60	100	8 hours	\$0.036 \$0.061	Flat-screen TV	120		4 hours	\$0.036 \$0.000
Ceiling fan	65	175	6 hours	\$0.030 \$0.080	Toaster	800	1,400	15 minutes	\$0.015 \$0.027
Hair dryer	1,200	1,875	15 minutes	\$0.023 \$0.036	DVD player	20	25	2.5 hours	\$0.004 \$0.005
Portable heater	750	1,500	6 hours	\$0.342 \$0.683	Vacuum	1,000	1,440	30 minutes	\$0.038 \$0.055

WESTERN COLORADO CONGRESS

Clarion

Vol. 25, No. 6

An Alliance for Community Action

Nov/Dec 2005

Students turn sun's rays to radio waves

by Andy Whipple, WCC organizer

Ms. Super Solar pummeled the Pollution Putz in a dual for environmental sustainability in WeCAN's portrayal of political theater at Mesa State College last month.

"Ms. Super Solar is the queen of campus sustainability" said Leslie Moniot, a Mesa State freshman and proud WeCAN member.

garner about \$60,000 before we're done. We are all very excited about the progress that we've made this year."

Shell Energy recently pledged \$20,000 to the project after WeCAN members approached them with a proposal. Other corporate sponsors are interested in the project and WeCAN hopes that their project will inspire college administrators and local businesses to take a look at using renewable energy to power their



Students turn sun's rays

by Andy Whipple, WCC organizer

Ms. Super Solar pummeled the Pollution Putz in a dual for environmental sustainability in WeCAN's portrayal of political theater at Mesa State College last month.

"Ms. Super Solar is the queen of campus sustainability" said Leslie Moniot, a Mesa State freshman and proud WeCAN member.

Ms. Super Solar, played by Moniot, was dressed in a golden toga while her face shone through a bright cardboard cut-out sun. Pollution Putz, played by WeCAN member Trevor Jones, tried to smother Ms. Super Solar with pollution filled cotton balls and looming smoke stack top-hat.

"We wanted to raise awareness of our campaign on campus and give people something to laugh at. We wanted it to be fun" said Jones. "I think we succeeded".

WeCAN has been campaigning to bring solar energy to Mesa State College since November of 2004. Students are fundraising to install a solar photovoltaic system large enough to offset the amount of energy that the college radio station uses. WeCAN received \$13,500 from the Mesa State Associated Student Government (ASG) and held a media event on campus to highlight the progress they have made.

"We've been busy writing grants and doing grassroots fundraising," said WeCAN member Kim Lisenby. "We've raised over \$36,000 and we expect to

garner about \$60,000 before we're done. We are all very excited about the progress that we've made this year."

Shell Energy recently pledged \$20,000 to the project after WeCAN members approached them with a proposal. Other corporate sponsors are interested in the project and WeCAN hopes that their project will inspire college administrators and local businesses to take a look at using renewable energy to power their future energy needs.

"Renewable energy is an important addition to our future energy needs both here at Mesa State College and around the world," said new WeCAN member Jason Sullivan. "We want MSC to be a leader in campus sustainability so we can set an example for the next generation."

WeCAN has plans to install the solar system early next year along with campaigning for a campus Green Fund that will enable students to access funds for future renewable energy projects on the Mesa State College campus.

For more information about WeCAN's solar project or to join contact Andy at 970.256.7650 or whipple@wecongress.org.



n's rays to radio waves

fore
very
ess that
y pledged
fter
oached
Other
interested
AN hopes
nspire
and local
ok at using
ower their

is an
our future
re at
nd around
WeCAN
ran. "We
ader in
ty so we
or the next

is to install
ly next year
ning for a
i that will
ccess funds
e energy
a State

ation about
ject or to join
0.256.7650 or
ess.org.



(above) After his initial assault, Pollution Putz (played by Trevor Jones) last out to Ms. Super Solar (played by Leslie Moniot) during a light-hearted and celebratory media event at Mesa State College.

(at left) At the media event, from left to right: Jason Sullivan (WeCAN member), Joel Dyar (ASG President), Matt Hudson (ASG Senator), Ron Turner (Director of Finance), Alison Gese (ASG Senator), Celia Demers and Kim Lisenby (WeCAN members)