

The NMSEA SunPaper

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Alternative Energy on a Budget Part 2 of 3

By Gary Vaughn, NMSEA Vice-President

Here are some more ALTERNATIVE alternative energy ideas for New Mexicans on a tight budget. Windows are a major source of energy loss and gain in your house. You can get the most from your windows by following this 5-step program: 1) wind down the wind, 2) add insulation 3) control inside breezes, 4) make radiant “heat” work for you, 5) take full advantage of free light.

If your windows slow down the wind but don’t really stop it, then you’re paying a lot to heat and cool the great outdoors. Hardware stores sell foam, plastic and metal weather-stripping for windows, as well as replacement “fuzzy” pile weather stripping. It’s important to match the exact size and shape when you’re replacing weather-stripping, and it can be challenging to “redo” all your windows, but you’ll save money and also cut down on how much Arizona dust blows thru your house.

Well-sealed windows can still transfer heat in three ways – by conduction, by convection and by radiation. If you touch a glass window on a cold day it’ll be cold – much colder than the wall beside it. Because glass has a low resistance to heat flow (R-value), it conducts heat easily. Double-pane windows increase that R-value by trapping a thin layer of air between the two panes. You can significantly increase the R-values of windows, and thus cut conductive heat loss, by using thermal window shades and drapes like those made by Window Quilt, Symphony Shades or Aindoway (or make your own).

A cold window conducts heat from the warm air next to it. When the air just above the window is cooled by contact with the cold glass, the air becomes denser and falls toward the floor, pulling more warm air down to replace it. This simple convective (air current) “passive cooling” process can drop the temperature of a room quickly – sending your heating \$\$ right out thru the window. Conventional drapes and blinds that are open at the top and bottom can actually turbo-charge this effect.

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PNM to Stimulate PV Growth

by Randy Sadewic, NMSEA Vice-President

PNM’s proposed incentive plan sets the stage for significant growth for PV in New Mexico. They have proposed a new renewable energy plan that could allow interconnection of up to 24 megawatts (MW) of customer-owned, distributed solar generation over three years. This compares to about 2 MW of PV completed during the first three and one-half years of PNM’s present program. This new capacity level equals the electric energy consumption of about 6,600 homes in NM.

This is a significant commitment to distributed generation (DG). The PNM plan of July 2009 only proposed a modest amount of customer-owned DG. This initial proposal received tremendous public objection, eventually sending PNM back to the drawing board to develop a substantially revised, more pro-renewable energy plan. The revision that resulted was a collaborative effort by many stakeholders, including PNM, Governor Richardson’s office, the Renewable Energy Industries Association of New Mexico (REIA-

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The NMSEA SunPaper

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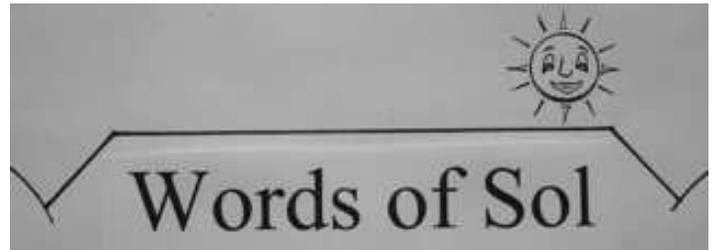
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New Expanded Ventures for NMSEA

A New Endeavor. As part of our planning for a sustainable growth of NMSEA, we are in the process of increasing our retail sales, primarily by becoming a limited dealer of AEE.com, a diversified wholesaler of solar equipment and products. As an approved limited dealer, we would not be selling any of the major equipment that requires professional installations, so we won't compete with solar businesses. (For New Mexico AEE businesses who want to list with us, we will direct inquiries for major equipment from our customers to them.) What we will be offering is the personal-use solar items that may include such things as small 12 volt PV, charge controllers, inverters, pumps, PV backpacks, etc. We can purchase some of the more popular solar items on account for display, demo, and/or sale at our special events. But our goal is to sell most of the items through a new website, so people can order from and pay directly to NMSEA with perhaps our chapters receiving some of the markup. This website will also be valuable to educators for purchasing small solar items and parts, as well as our custom built solar kits and demos. Some of the other reasons for this new endeavor are these:

- we can offer a discount to our membership,
- it will allow us to make enough to cover some of our expenses from our increasing presence at events educating the public, and
- having some "real" solar items available at events also helps draw people to our booth, so we can better inform them and provide more incentive for them to sign up as members.

Some of the collaborative events coming up are the Home and Garden Show Feb. 26th and 27th at the State Fair Grounds, the International Green Ideas Show April 10th and 11th at the Albuquerque Convention Center (www.igishows.org), the 2010 conference and trade show of the American Solar Energy Society (ASES) in Phoenix May 17th-22nd, and the State Fair and our Solar Fiesta this fall.

SOLAR 2010. We are planning on having a booth at ASES 2010, and at least three of our board members will attend the caucus, conference, and trade show. The booth will give NMSEA a good presence at the event, allowing us to get our message out and hopefully attract some people, speakers, and vendors to our Solar Fiesta events.

The booth will cost \$1875; however, that includes three full comp tickets at \$675 ea, four booth staff admissions, twenty-five \$5 admission tickets, lunch and breakfast tickets, and more. ASES also gives us one full comp pass and a \$300 travel stipend for attending the caucus. To keep NMSEA costs down, the three of us who have committed to attend have agreed to cover our own travel and lodging expenses. NMSEA usually allocates \$1,000 each year to send one board member to the ASES conference. So, instead, attendance for three and a booth will only cost NMSEA about \$1600. We will be able to have at least one of the board members manning the booth, and we welcome other volunteers to help.

I would appreciate your input and participation in the afore mentioned ventures.

Sincerely,

Monte Ogdahl

NMSEA President



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NMSEA Board Meeting March 13

The next meeting of the NMSEA Board of Directors will be on Saturday, March 13, at the NMSEA office, 1009 Bradbury Dr. SE, Albuquerque, 87106, from 12:00 noon to 3:00PM with a potluck before at 11:30AM. Members welcome. Call 505-246-0400 by March 8, if you have an item for the agenda.

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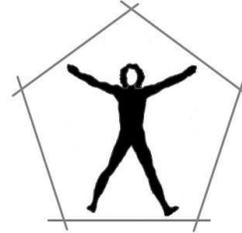
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Las Vegas Solar Homes Tour

By Lloyd Goding and Emelie Olson

Sustainable Las Vegas sponsored its second annual Solar Homes Tour on Saturday, January 23. Nearly 60 people signed up for the self-paced tour featuring four sites. Sunny and chilly weather perfectly demonstrated the value of solar energy. We are very grateful to our generous hosts, all of whom said they enjoyed the experience and learned a lot, and our volunteers, including students from Highlands University and United World College. Thanks also go to the Las Vegas Arts Council, at whose gallery we handed out maps, a description of the sites, and information on solar energy more generally. They also hosted an art exhibit, which brought visitors to the tour, who would not otherwise have come. The Community First Bank of Las Vegas underlined its past support of solar energy by contacting us--a first!--to ask if we would be interested in financial support for the tour. Their grant paid for custom yard signs and a table banner that will also be used for events in coming years.

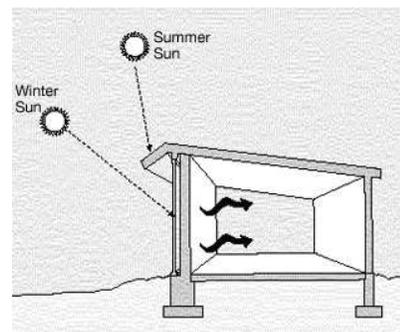
Adobe House

One home on the tour, an old adobe in Las Vegas's Historic District, has been extensively remodeled to be energy efficient and to maximize heat gain from the winter sun. A south-facing greenhouse addition encloses the old adobe exterior wall, including its mass as part of the home's interior and warming it during the winter. The greenhouse will be used to grow vegetables during the winter. Together with clerestory windows the home has significant solar gain with a light and airy feeling. Careful planning was needed to maximize solar gain in cold months when the sun is low in the sky and to minimize it in the summer.

Water for the home is heated by an active solar energy system. Another section of roof is reserved for a photovoltaic array, and wiring to accept it is in place. Roof rainwater for irrigation is collected in tanks, storing a total of 6,500 gallons when completely full. This home is a fine example of creating an attractive energy-efficient and comfortable dwelling by reclaiming an existing home that was in need of improvements.

Trombe Wall House

Another home on the tour incorporates a Trombe wall. It is one of many such homes built in Las Vegas during the first energy crisis back in the late 1970s. The Trombe wall concept, developed by a French engineer in 1956, incorporates a sun-facing masonry wall painted black and set behind glass with a trapped air space in between. (See sketch.) The homes built here featured a one foot thick concrete-filled block wall with a black copper foil applied on its outside and one-quarter inch safety glass set about 2 inches from the wall. As sun hits the wall, it warms it through. Because of its mass, the



Trombe wall performance.

wall becomes a very effective heat storage medium. The wall simply radiates the heat back to adjacent living spaces, heating them later in the day and creating an even temperature. This simple and effective system contributes significant heat and adds very little to the construction cost of the home. Certainly the residents of these homes in Las Vegas are enjoying much lower energy bills than their neighbors in conventional homes. Whether to place windows in the Trombe wall is determined by the need for privacy or the desire for natural light and views.

Workshop and House

At the third location, a "loafing shed," a place for livestock to get out of the cold, has been converted into a passive solar woodworking shop and greenhouse. Glass and polycarbonate are used as glazing materials, which cover the south side. The glazed area is used to grow tomatoes and lettuce, while the shop behind it remains warm from the sun. The sloped shed roof makes collecting rainwater simple; there are 10,000 gallons of water storage on-site.

The nearby passive solar residence has a number of interesting features including use of Rastra block, a brand of ICF (insulated concrete form). These blocks, made from reclaimed polystyrene beads mixed with Portland cement, can be stacked in place like so many Lego blocks to form walls and foundations. The home is bermed with several feet of soil on the east to add further protection from the elements. A favorite feature was a solar cooker built into a window, allowing access from the interior.

The home has a composting toilet. Seldom used and much misunderstood, composting toilets "work by providing an enclosed environment for the natural process of aerobic decomposition. The same type of environment on forest floors ... decomposes wildlife droppings and converts them into valuable nutrients for the vegetation to use," according to one website. No, they do not smell, and they can be a real advantage in areas like ours, where water resources are scarce. More widespread use of composting toilets could help

(Continued on page 11)



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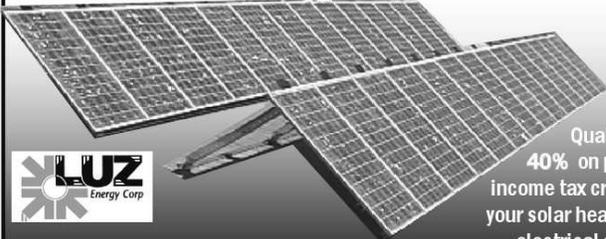
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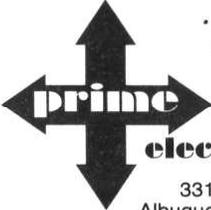
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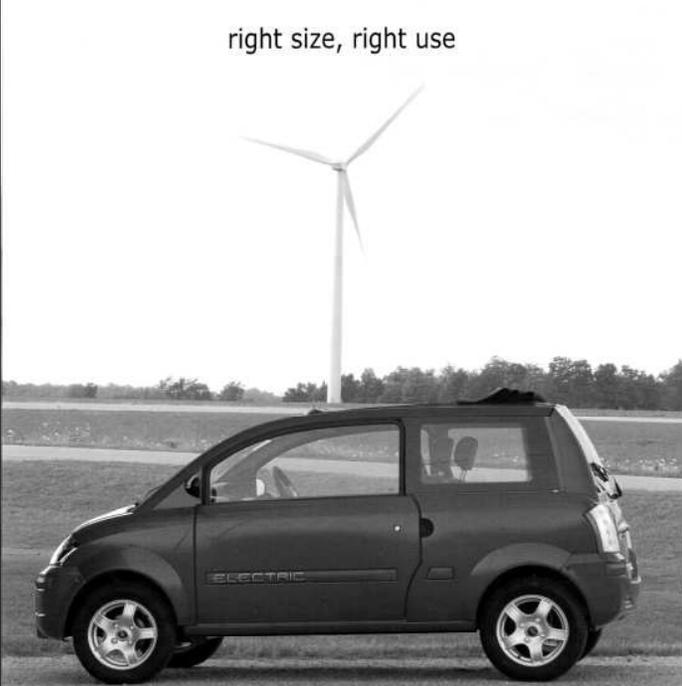


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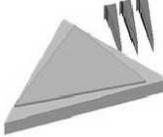
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If you use Venetian blinds, you can help or hinder this cool breeze depending on which way the slats are positioned when they're closed (front up is best). You can check this out for yourself on a cold night if you use a stick of incense and watch how the smoke moves near your windows. Thermal shades and drapes have to fit snugly all the way around the window to prevent this convective heat loss.

Storm windows mount on the outside of conventional windows. They trap a thin layer of air (a good insulator) on the outside of the existing window, thus increasing the R-value and decreasing the window's conductive and convective heat losses. Storm windows have largely been replaced in new construction by modern double-pane windows, but there are still lots of old single-pane windows out there that could benefit from the addition of old fashioned storm windows.

Clear plastic mounted on the inside of the window frame has a very poor R-value, but it traps a layer of insulating air just like a storm window. The nice thing about storm windows and plastic layers is that they don't significantly reduce light during the day. A tight fitting storm window or an interior clear plastic layer over an old single-pane window can cut winter-time heat loss thru the window in half.

Dual or even triple-wall clear polycarbonate panels are often used for greenhouse glazing. They're tough and easy to work with, they allow sunlight in, and they have much higher R-values than glass or sheet plastic. But they're not cheap. They're a good choice for use on the inside of fixed non-opening windows.

Any warm object will "glow" or radiate – that is, it'll emit electro-magnetic energy. That's how light bulbs work, and that's what night vision goggles and scopes (and rattlesnakes) "see." A warm room will "transmit" heat by emitting infra-red radiation right out through your windows. In the summer radiant energy will emit from the (hot) outside to inside, heating the room. In the winter the radiant energy will emit from the (warm) inside to outside, cooling the room. Normal window glass allows infra-red radiation to pass thru easily. New "low-E" (low-emissivity) windows include special film coatings and layers that significantly reduce this transfer, thus keeping some of the radiant "heat" out during the summer, and keeping more of the radiant "heat" in during the winter. If you need to replace a broken window, consider "upgrading" to double-pane glazing with low-E film.

Many home improvement stores sell low-E films that can be applied to the inside of existing windows. It's possible, but not easy, to do a perfect job of applying this film yourself – or you can hire a specialized company to supply and install the film for you. Properly installed and cared for, this add-on film can be well worth the effort –

and it's a whole lot cheaper than new windows. Use it on your sunny west windows to stay cooler in the summer, and on your north, east and west windows to stay warmer in the winter.

The "radiant heat" effect on our comfort level is readily apparent. In the winter, even when the air temp inside is at 70, we often feel chilly. The reason is that we're usually surrounded by much cooler floors and walls. Radiant heating systems that produce relatively warm (68°) floors or walls will often "feel" comfortable, even when the air temp is much lower than 70. In that case we're being warmed directly by infra-red radiation from the walls and floor instead of by the surrounding air. A radiant heating system can save you money by allowing you to significantly reduce the air temperature in your house.

Fortunately, we all have access to radiant heat that's "too cheap to meter" - it's called sunlight. In the winter you want to maximize your house's "solar gain", i.e. the amount of sunlight that enters you house from south facing windows. Hopefully, you have some "thermal mass" such as tile floors and adobe or heavy plaster walls to soak up some of that sunlight, transform it into heat, and then act like a "radiator" at night. Ask any house cat how well that works.

In the summer, all that free radiant heat will drive up your cooling bills. Keep as much direct sunlight out as you can from south, east, and west facing windows by using overhangs and awnings, reflective and thermal blinds, and free shade from deciduous trees, vines and bushes.

We pay a lot of money and burn a lot of dirty coal to generate the electricity it takes to run our light bulbs – even after we've switched to more efficient CFLs. We may be stuck with light bulbs at night, but during the day here in NM there's plenty of free light for the taking. "Daylighting" is the term used to describe the methods of replacing artificial light with natural light during the day. Of course, that's what windows are for, but figuring out how to supply lots of natural light while avoiding unwanted heat, glare and privacy issues is non-trivial.

Light shelves are reflective surfaces mounted on the outside or inside of windows to "bounce" sunlight across the ceiling of a room, greatly reducing glare and the need for artificial light. High transom windows can also be used for daylighting. Skylights are popular and effective, but be careful about heat gain in the summer and heat loss in the winter. You can maximize winter gain and minimize summer gain thru rectangular skylights by using Zomeworks's Sunbenders. Some skylights are now available with double-pane low-E glass. New circular tube type skylights are also very effective and easier to install. Natural light has a lot going for it in addition to saving money on electricity bills; plants and other living things in your home will thank you for the improvement. ☀

Silver City Chapter News

By Gayle Simmons

After a rather laid-back Fall with only one SunChaser presentation for five teachers at Harrison Schmitt Elementary School and no events, the Silver City group is ready to swing back into action for the Spring. Our first SunChaser presentation for 2010 was on January 21 for a home school group. Through our continuing, very successful relationship with the Gila Conservation Education Center (GCEC) we have scheduling requests for SunChaser presentations from Sixth Street Elementary (3-4 classes), Harrison Schmitt Elementary again (5 classes), G.W. Stout Elementary (7 classes), Jose Barrios Elementary (4 classes); and the Water Festival for 4th and 5th graders scheduled for April 29 and 30.

We also have requests for presentations based on what we did last year. These are as follows:

- an adult class on building green at the Western Institute for Life-Long Learning through Western New Mexico University on February 13 and 20 presented by Craig Wentz and Rich Bigelow;
- the Grant Co. Branch of AAUW Inc. 18th Annual "Expanding Your Horizons" for upper elementary to high school-age girls on March 27;
- the La Plata Middle School River Festival on April

26 and 27, 9 am to 3 pm at the Gila River Box Canyon Camp Ground.

As chapter leader and SunChaser instructor, I, with help from the GCEC staff and volunteers, will present all school and other children's programs. Other planned Spring events include booths at Earth Day, Vive Verde, Independence Day in Gough Park, and Cowboy Days.

We have been seeking a new chapter leader, since I would like to turn over event scheduling and chapter building to someone else, so I can put all of my energy into keeping the SunChaser program and kit going. I am happy to announce that Cissy McAndrew has volunteered for that position. Cissy is an eco-broker and has 28 years experience as an energy-efficient properties specialist. She has also been instrumental in starting our new Green Chamber of Commerce here in Silver City, has worked extensively with our Town of Silver City Citizen's Advisory Committee on climate change, and of course is a member of NMSEA. She can be reached at 575-538-1337, or cissy@silvercitytour.com. Thanks, Cissy!

Help Wanted: We need help from NMSEA members for the Silver City booth events. Please check the NMSEA office for updated scheduling and to volunteer to help. Thanks to all who have helped our chapter throughout the year. ☀



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(PNM PV, Continued from page 1)

NM), non-profits such as the Coalition for Clean Affordable Energy and Western Resource Advocates, and city governments, including Santa Fe and Albuquerque. While compromise is seldom ideal, the overall plan provides sufficient incentive to continue to stimulate market growth for PV. This was all accomplished within the limits set by the Public Regulatory Commission (PRC).

The new plan is called the Solar Performance Program (SPP). It would replace the current “net metering plus Renewable Energy Certificate (REC) credit” with a schedule that provides only a REC on a scale that ratchets down as capacity increases. For most residential and small business customers entering early in the program, the incentive would shift from the current 12-year \$0.10/kWh net metering benefit plus the \$0.13/kWh REC to an SPP that pays \$0.26/kWh for 15 years.

The present net metering benefit increases with utility rate hikes – that is, as rates increase, the net metering benefit increases in lockstep. A higher fixed SPP payment is designed to compensate for the loss of that benefit. The existing program hedges against future rate increases, so in this respect it is better for owners than the new program. But, if PNM’s rates increase on average 6% per year, it would take over eight years for the existing program to pay more than \$0.26 kWh.

For larger commercial and industrial customers that install over 100kW, the proposed program requires a bidding process that is more competitive than the current program. Since the rates for larger customers are lower and the cost of PV is expected to decline, the SPP incentive starts at a correspondingly lower rate, \$0.24/kWh. Again, this new SPP program takes the place of the existing program that offers net metering and a \$0.15 REC incentive over 20 years.

These new SPP programs are designed to be more sustainable for the industry, unlike several hot rebate programs implemented in other states that resulted in solar “horror stories.” For example, in New Jersey incentives were suddenly shut down when the total incentive budget was used up, halting the state’s solar industry momentum. The proposed PNM incentive programs will allow the solar industry to hire and train employees, invest in equipment, and make longer term commitments.

The new program is also designed to be more sustainable for PNM. Given PNM’s relatively weak financial condition, the utility is unable to face the revenue loss from net metering that would result from a large growth of customer-owned PV. Therefore, offering a higher fixed payment and eliminating the net metering incentives addresses a core issue for PNM - the lost revenue from net metering that must be made up through general rate increases.

	Shrayas Jatkar Conservation Organizer (505) 243-7767 shrayas.jatkar@sierraclub.org
Solving climate change requires engagement at all levels – from local grassroots projects to advocacy for smarter policies. Join the NM Sierra Club in advancing energy efficiency through the Low Carbon Diet and CoolBiz projects, or help us in implementing clean energy policies at the local, state, or federal levels. Contact the Albuquerque office to learn more and get involved!	



This Plan is finally giving New Mexico a chance to live up to its tremendous solar potential. The proposed program sets the stage for the solar industry to grow and develop a healthier and more sustainable economy.

So, what’s next? The PRC must approve this plan. There is already opposition to it by those who prefer to see PNM developing a greater share of cheaper sources of renewable energy like large-scale wind, or even just buying RECs on the open market.

I believe that customer-owned distributed generation has significant value. It reduces the need to build transmission lines, it strengthens local grid infrastructures, it stimulates our local economy with new jobs, it matches utility peak demand in the summer when the sun shines, and it encourages the demand for PV that is already driving those prices down to where it will soon be competitive with fossil fuels. Almost no one expects prices for fossil fuels to drop! The 24 MW over 3 years should add over 400 person-years of work and over \$15M in direct payroll to our region’s economy.

I encourage you to learn more about this new program, because there are more details behind this, and the renewable energy community needs your support. There will be informative sessions offered at the NMSEA chapters (see www.nmsea.org) and through REIA-NM (www.reia-nm.org). Please get involved in this monumental effort to change to a clean energy economy!



NMSEA Advocating for Passive Solar

By Ron Herman, SAC Chair

The Solar Advocacy Committee (SAC) of NMSEA is helping various architects and builders evaluate the use of the Home Energy Rating System for State tax credit and building code certifications. Jim Barrera and I met with State Senator Dede Feldman in January in Santa Fe to voice our concerns that this rating system might actually be discouraging the construction of passive solar features for all but high-end projects. Senator Feldman brought her husband, architect Mark Feldman, into the conversation via conference phone, and Susan Marbury, LEED practitioner and an administrator for the NM Energy Conservation and Management Division, also attended. Senator Feldman suggested that we do what we can to better identify the extent of the problem, and then, if necessary, we prepare a draft bill for the 2011 legislative session. Ms. Marbury agreed to ask NMECMD for help with an investigation of these concerns, and she subsequently assured us that they would do so.

So, the Advocacy Committee is working to identify the extent of this problem by circulating a petition to NMSEA for signatures and by planning a town hall meeting to obtain feedback from more architects, designers, builders, and owners. If you have had difficulty getting tax credit or code approval for passive

solar, please write Jim Barrera at jimb@nmsolarfiesta.org or call the office at 505-246-0400 for more information. ☀

(Las Vegas Tour, Continued from page 5)

communities better manage water use, which is an increasing problem in our area.

Memorial Middle School

Finally, Memorial Middle School showcased several renewable energy demonstration projects. The school's Agricultural Extension and Education Center is a partnership between NM State University, the Las Vegas City Schools, and the New Mexico Legislature. These students learn about growing plants, irrigation methods, native plants, and traditional acequias.

Two small photovoltaic systems are operational. In one, the direct current output of a 750 watt panel is converted into alternating current using an inverter and other components to send power to the grid. This system is one of many provided statewide in the "Schools with Sol" program. As a complete system it is valuable as a learning tool. The second PV system is used to power a pump that moves acequia water to nearby growing plots. The school expects to have a one-kilowatt wind turbine in operation soon. ☀

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Next Step: Greener Wheels

By Monte Ogdahl, NMSEA President

What are the next steps to an independent, secure society with a cleaner environment? Great progress has been made in the housing market with rebates for renewables and green wind power. Of course, there is more to be done, but congratulations to all those determined individuals and organizations that have made it happen. Move on to the next step.

1. If you are planning to have or already have a PV system installed, how would you like to have a payback twice to three times as fast as PNM's payback?

2. Would you like to tremendously reduce your carbon and toxins footprint?

3. How about getting 150 to 245 mpg equivalent for around town driving?

4. Would you like to have 5,000 to 15,000 watts of electricity available for emergency use during a power outage without a generator or even a PV system? (A PV system will, of course, increase the usage time).

5. If these things interest you, would you like to meet with others of like-minded interests and experiences? Perhaps form a life-line network for sharing info, experiences, problem solving, labor trading, etc?

I would like to offer classes on currently available new, used, and future pure rechargeable electric vehicles (EV), hybrids, and plug-in hybrids that use fossil and non-fossil fuels. The classes will include discussions and demonstrations on how to find the right vehicle for your needs, and where to get conversion parts at good prices. Shown in the photo is one of the EV projects I am currently working on, and I am looking for a used Ford Escape Hybrid to convert to a plug-in. The plan is to give preliminary presentations at chapters and special events, while finding a location where we can do hands-on education and conversions. Contact me at solpwr@plateautel.net and/or come to

Albuquerque Meetings at REI

The Albuquerque Chapter of NMSEA will meet on March 23 at the REI Recreational Equipment store at 6:30 pm. REI is at 1550 Mercantile NE, 87107, near I-25 and Montaño. This meeting will feature Helene Beauchamp of Zomeworks Corporation, which was founded by early solar pioneer Steve Baer. Helene will present passive solar technologies and solutions for the home and small business owner. Ms. Beauchamp studied Biology as an undergraduate, followed by Environmental Science at the Master's level with a specialization in renewable energy use. She coordinates outreach at Zomeworks, a manufacturer of passive solar energy products.

The April meeting will be held on the 27th, when Rich Farrell will present a talk and lead a discussion on the theme "Will every energy generation technology have its place?" Talking points will include an overview with costs and benefits of each grid-tied generation technology, political and business concerns world-wide, third world human implications, and basic environmental impacts. Rich Farrell has 20+ years of sales/engineering liaison in industry and has worked with manufacturing fabrication techniques involving heavy trucks, construction equipment, basic metals, and PV racking. He holds a B.A. in Applied Behavioral Science and continues to study energy science, technology, and applications.

Monthly Chapter meetings are held at REI on the fourth Tuesday, and they are open to the public and free of charge. For more information, contact NMSEA at 505-246-0400 or visit www.nmsea.org.

the NMSEA booth at the International Green Ideas Show April 10 and 11 at the Abq Convention Center.

The truck pictured at left was converted to electric in the mid 90's by a former NMSEA board member Tino Pestalozzi. Tino is an accountant and had very little experience with mechanics or electricity. He simply purchased a conversion kit and in his spare time converted the truck in his garage with some "life line" help from professionals. Due to a life change, Tino sold me the truck complete with all manuals, assembly instructions, mileage and maintenance records, "batteries not included". (The detailed records keeping indicates sometimes accountants make good research scientists.) My goal is to "battery it up" this spring and use the truck for an educational vehicle for schools, special events, and classes, where we can analyze how certain aspects of this electric vehicle can be updated and improved. During the modifications we will reconfigure some of the wiring and components for easier comprehension as an educational vehicle.



Santa Fe Students Study Solar

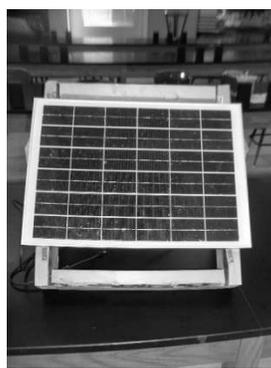
By Kate Sallah

The freshmen in my and Marc Bonem's classes at the Santa Fe Indian School (SFIS) recently completed a unit on solar energy. Several groups chose to build solar water fountains with the PV powered water fountain kits provided by Gary Vaughn of the NMSEA. The school purchased the kits along with the pots, and the students decorated them and assembled all the parts. Ashley Hernandez stated "The thing I liked about the solar powered water fountain was that we got to work with other people. The hard thing about it was connecting the wires with the crimp connectors, because they kept falling off."

The students researched how a solar powered water fountain works, and they learned the fundamentals about photovoltaic panels - basically how the panels convert the sun's energy into electrical energy. They also learned about circuits, specifically a series circuit, which was designed to power the fountain. The students created PowerPoint slide shows of their project and research, and they presented this information to their peers at SFIS.

Select students then presented their project to middle school students in Cochiti, Santo Domingo and San Felipe day schools. The SFIS students donated their solar powered water fountains to the science classes at the day schools, so that those students could also learn about solar energy and photovoltaics. The Santa Fe Indian School has kept two fountains to be placed outside when the weather warms up.

(For more information about NMSEA's PV Powered Water Fountain Kit, contact the NMSEA office, 505-246-0400.) ☀



Above, completed and running solar-powered water fountain and PV panel. This one was donated to Cochiti Middle school science students. At right, Chris Mose (9th grade) celebrating his completed dragon painting on his water fountain container.

Las Vegas Events

The next meeting of Sustainable Las Vegas will be Thursday, March 11, 5:15 p.m., at NMHU Donnelly Library, Rm. 325. We will discuss how to enhance the sustainable features of the Sky View Plaza project as presented by Joseph Baca and Jonathan Whitten. Please bring your ideas to this meeting. For further information, call Emelie at 505-454-3920. Please watch for further information on Synergyfest to be held on April 24.

Letter to the Editor

NMSEA encourages members to express their opinions in letters to the Editor of the SunPaper.

~~~~~  
I've been waiting and hoping ... that NMSEA could/would become a more-realistic/more-relevant organization for small, simple, sustainable living. In that vein, I applaud Ron Herman's and Gary Vaughn's recent articles ("Reality Check" and "Alternative Energy on a Budget"). So much of solar development touts expensive (thus "elitist") technology that is not available to most Americans. I gag on the over-used societal marketing term, "up-scale" as applied to so many basic-survival goods and services. For me, NMSEA can become a more-realistic/more-relevant organization for all New Mexicans if it focuses on "Down-scale", grass-roots education, and activism approaches advocating for research and development efforts that prioritize reducing the cost of the technology. I believe that if NMSEA can walk that talk, it won't be merely "preaching to the choir" of well-off consumers.

Misty Blue (who frequently cooks with reasonably-priced solar ovens to reduce fossil fuel costs.) ☀



# Solar Properties Near Santa Fe



**875 Ojo de la Vaca**  
sophisticated solar adobe home, 4 beds,  
2 baths, 2800 sqft, on 18.9 ac., detached  
studio, organic gardens, expansive views  
\$685,000 | MLS 902725

**53 Ojo de la Vaca**  
Peaceful serenity on Glorieta Mesa.  
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acres. Strong well, sturdy barn, ample  
pasture for your horses  
\$385,000 | MLS 902452

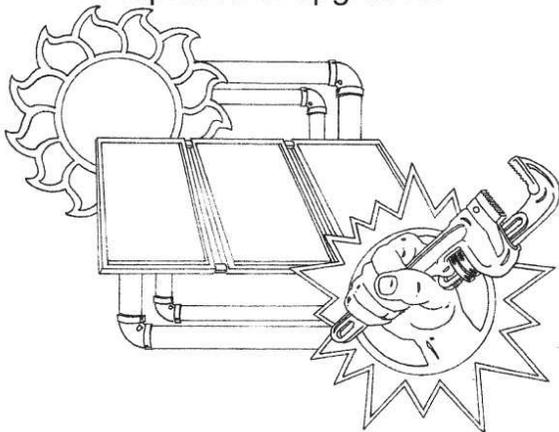


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# Join the New Mexico Solar Energy Association!

Be a part of a creative, innovative organization dedicated to bringing renewable energy and sustainable building to New Mexico!

Keep informed of what's happening through our bi-monthly newsletter, the SunPaper! Actively support education for kids and adults and learn of workshops and classes where you can learn about photovoltaics, hot water, green building, solar rights and all the wide range of sustainable living and building practices.

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Company or  
Affiliation: \_\_\_\_\_

Address: \_\_\_\_\_

City, State,  
ZIP Code: \_\_\_\_\_

Phones: \_\_\_\_\_ (W)

Email: \_\_\_\_\_

Any special solar interests? \_\_\_\_\_

How did you hear about us? \_\_\_\_\_

Yes, I would like to volunteer on occasion!

## NMSEA Membership Dues

- |                                                                                        |       |
|----------------------------------------------------------------------------------------|-------|
| <input type="checkbox"/> Individual and Family, 1 year                                 | \$30  |
| <input type="checkbox"/> Business, 1 year                                              | \$75  |
| <input type="checkbox"/> Individual Lifetime                                           | \$250 |
| <input type="checkbox"/> Business Lifetime                                             | \$400 |
| <input type="checkbox"/> Teacher/Student/Senior (62 & up)<br>w/copy of ID (circle one) | \$10  |

## NMSEA Chapter Options

All NMSEA members are invited to participate in our local chapters around the state. When you register, you will be placed in the chapter nearest to you geographically, or you may contact the office to change your chapter, if you desire. (Note: members are not limited to the chapter in their area and are welcome to visit other chapter events.)

Check if you would like to be affiliated with and/or donate an additional amount to any of the following chapters or to the main office general fund:

| <u>Affiliation</u>                                        | <u>Donation</u> |
|-----------------------------------------------------------|-----------------|
| <input type="checkbox"/> Alamogordo Chapter               | \$ _____        |
| <input type="checkbox"/> Albuquerque Chapter              | \$ _____        |
| <input type="checkbox"/> Las Cruces Chapter               | \$ _____        |
| <input type="checkbox"/> Las Vegas, Sustainable Las Vegas | \$ _____        |
| <input type="checkbox"/> Los Alamos Chapter (LASE)        | \$ _____        |
| <input type="checkbox"/> Santa Fe Chapter                 | \$ _____        |
| <input type="checkbox"/> Taos Chapter                     | \$ _____        |
| <input type="checkbox"/> Silver City Chapter              | \$ _____        |
| <input type="checkbox"/> Main Office / General Fund       | \$ _____        |

## ASES Membership

NMSEA is a chapter of the American Solar Energy Society, and we encourage our members to join ASES as well. ASES members receive SOLAR TODAY magazine, Solar Action Network (SAN) alerts, the Sunbeam e-newsletter, discounts on publications, and more! Five percent of your ASES dues are dedicated to special outreach programs including ASES Legacy Schools, library gift subscriptions and the purchase of Green Tags.

For more information and for ASES business membership categories, please visit [www.ases.org](http://www.ases.org).

If you join or renew ASES at the Professional level *and* join or renew NMSEA, deduct \$10 from your ASES dues (as indicated below). If you join or renew ASES at the Basic level and join or renew NMSEA, deduct \$5 from your ASES dues.

- |                                                               |      |                                                      |        |
|---------------------------------------------------------------|------|------------------------------------------------------|--------|
| <input type="checkbox"/> Professional                         | \$89 | <input type="checkbox"/> Supporting                  | \$125  |
| <input type="checkbox"/> Senior Professional (proof required) | \$45 | <input type="checkbox"/> Contributing                | \$250  |
| <input type="checkbox"/> Basic                                | \$39 | <input type="checkbox"/> Lifetime                    | \$1200 |
| <input type="checkbox"/> Student (proof required)             | \$35 | <input type="checkbox"/> SOLAR TODAY Subscriber only | \$29   |

### ASES Options

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|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
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| <input type="checkbox"/> I do not wish to receive Solar Action Network Alerts | <input type="checkbox"/> I do not wish to be listed in the on-line Membership Directory |

NMSEA Dues \$ \_\_\_\_\_ + ASES Dues \$ \_\_\_\_\_ (- discount \$ \_\_\_\_\_) + Donation \$ \_\_\_\_\_ = Total \$ \_\_\_\_\_

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Credit Card # \_\_\_\_\_ Exp. Date: \_\_\_\_\_ Signature \_\_\_\_\_

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Mail this form with payment to: NMSEA, 1009 Bradbury Dr. SE #35, Albuquerque, NM 87106.

For more information, please call 505-246-0400 or 888-886-6765 or visit [www.nmsea.org](http://www.nmsea.org).

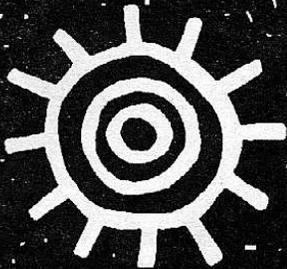
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**NMSEA**



**Mission Statement**

We promote clean, renewable energy and sustainability in New Mexico through education, empowerment, collaboration and advocacy.

Your tax-deductible donation is urgently needed to continue our work benefiting the citizens of New Mexico.

**Vision Statement**

We envision a thriving, bio-diverse earth, with civilization powered by clean, renewable and sustainable energy from the sun.

**Coming Events**

- March 13 Board of Directors Meeting, Saturday, NMSEA office, 1009 Bradbury Dr. SE, Albuquerque, 87106. Members welcome. Call 505-246-0400 by March 8, if you have an item for the agenda. 12:00 noon to 3:00PM; potluck before at 11:30AM.
- March 11 Sustainable Las Vegas will hold its monthly meeting at NMHU Donnelly Library, Rm 325 at 5:15PM.
- March 23 Albuquerque Chapter Meeting, 6:30 pm, at REI Recreational Equipment store at 1550 Mercantile NE, 87107. Speaker: Helene Beauchamp, Zomeworks, on passive solar technologies and solutions.
- April 10,11 International Green Ideas Show, Albuquerque Convention Center, [www.igishows.org](http://www.igishows.org).
- April 24 Sustainable Las Vegas Synergyfest. Call 505454-3920 for information.
- April 27 Albuquerque Chapter Meeting, 6:30 pm, at REI. Speaker: Rich Farrell on "Will every energy generation technology have its place?"
- May 17-22 SOLAR 2010, national conference and trade show of the American Solar Energy Society in Phoenix.