

The NMSEA SunPaper

September/October 2010

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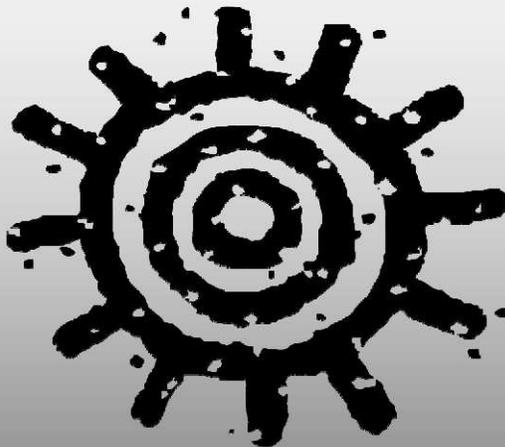
Volume XVIII, Number 5

2010 Solar Fiesta Guide

presented by
New Mexico Solar Energy Association

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The NMSEA SunPaper

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If you wish to submit an article, you may do so by traditional mail or send it by e-mail to info@nmsea.org.

Advertising Rates

All advertising is in black and white, and photos and graphics must have a resolution of at least 250 dpi in JPEG, TIF, or PDF format. Text-only ads may be provided in MS Word (.doc) format (not .docx). Ad copy must be e-mailed by Oct. 15 for the Nov/Dec SunPaper. Circulation is typically 800 (1,500 for the Fiesta Guide). The size requirements and prices for individual ads are as follows:

| | | <u>Nov/Dec</u> |
|---------------|---------------|----------------|
| Full Page: | 9½" H X 7" W | \$122.00 |
| Half Page: | 4¼" H X 7" W | \$66.00 |
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| Biz Card: | 2" H X 3½" W | \$20.00 |

Reduced rates may be available for multiple issues in Solar Fiesta packages. Contact the office for more information.

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The Next Hope?

At the beginning of 2009, Obama's elegant speeches and positive goals for solving the mess of problems facing this country, along with the strong emphasis on education and the "energy crisis," in general, and renewable energy (RE) in particular, in the \$800 billion stimulus package that was designed to help get this country back on track, convinced us that NMSEA was well-positioned to receive some serious financial assistance.

Previous NMSEA President Marlene Brown's goal had been for us to someday have an Executive Director (ED). With all this "Great Hope" in the air, in January of 2009 the newly elected NMSEA officers and Board began discussing the hiring an ED. With the full support of the Board, and with multiple favorable indicators for an organization like ours which promotes education in renewable energy, we started searching for an ED. Resumes were reviewed, candidates were interviewed, and Mary McArthur was voted in and hired. Shortly afterwards NMSEA was contacted by several "stimulus money distribution organizations" who encouraged us to write multiple grant requests.

As our new ED, Mary McArthur, along with some Board members, spent a considerable amount of time writing and submitting grant proposals. In addition to the stimulus-related grants, they have continued to submit proposals for additional small grants similar to those NMSEA has received in past years. It became clear that the economic crisis had slashed foundations' financial resources, while forcing many more non-profit organizations to request financial support. So, although NMSEA has pursued grant funding more aggressively than ever, relatively little financial support has materialized.

Mary has been very effective in helping to organize both ongoing and new committees, such as the long term planning committee. She has been instrumental in setting up organizational databases and detailed financial spreadsheets for tracking most aspects of the organization. She has also assisted in organizing and managing the PV classes taught by Randy Sadewic and Marlene Brown. NMSEA now has a more diversified management structure poised to further expand its education outreach programs and advocacy efforts, as well as to step up its collaboration with other organizations. However, over the last eighteen months a very small percentage of the grants

(Continued on page 4)



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Stop by the PNM Booth.

Get the details about the PNM SolarPV Program at PNM.com/solar, give us a call at 505-241-2750, or send us an email to solar@pnm.com.



(Words of Sol, Continued from page 2)

we applied for were awarded to us, even as our financial commitments significantly increased. As an organization promoting sustainable practices, we are now operating unsustainably.

In this economic environment, raising money is a serious challenge. It is apparent that we need professional help with fundraising and grant writing (FGW). Unfortunately at this time NMSEA would not be able to afford a salaried FGW position, so this person (or persons) would have to work as a volunteer or perhaps on a commission basis. If you or anyone you know might be interested in such a position, please contact Mary or me.

The bottom line: we need to become more financially self-sustaining without losing our primary mission – that of educating about “RE as the Solution.” NMSEA’s PV installation classes have been a good example of how we can successfully charge a reasonable amount for a hands-on RE class. But in order to compensate the instructors and also cover the administrative and associated costs involved in these classes, there will continue to be a need for some additional financial assistance from sponsorships and grants. To those of you who have attended workshops and classes or plan on doing so this year - please let us know what type of classes would be the most valuable for you. I believe we should also revisit the idea of a retail web site that sells materials, parts and equipment pertaining to our educational programs and small RE equipment at a discount to our members. These and other critical items will be discussed at our Board meeting on Sept. 18th at noon at the office, and your input and ideas would be greatly appreciated.

With NMSEA’s hardworking, innovative Board, membership, and chapters around the state we can follow the sun and lead in a vision of sustainable energy.

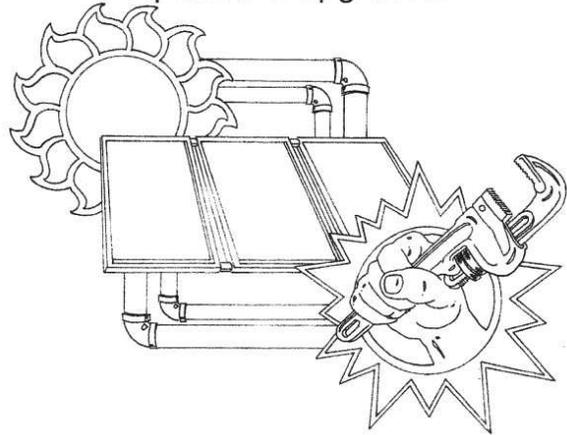
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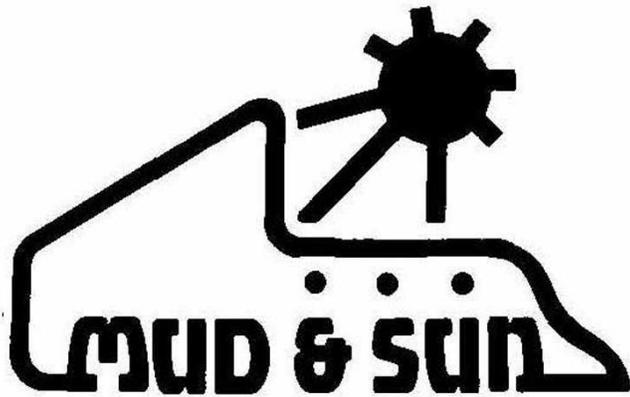
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Second Annual Solar Bake-Off

By Monica Canaris

Attention solar chefs! You won't want to miss the chance to showcase that culinary masterpiece you've been fine-tuning since last year. This year's bake-off competition will feature casseroles made with the state's prized green or red chile! This exciting event will be held Sunday, Sept. 12th at 1 p.m at the Solar Fiesta. Copy your recipe to share with everyone, including the judges, the ingredients to make your casserole, and your solar oven. I will have two ovens available, if you don't have your own, but contact me before the event to borrow one. Prizes will be awarded! You can win! If interested in participating, either as a chef or as a judge, please contact Monica at monica.canaris@gmail.com. ☀



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PV Design and Installation Classes in October in Alamogordo

By Mary McArthur, NMSEA Executive Director

Classes on *Photovoltaic Design and Installation* will be presented by New Mexico Solar Energy Association at the Habitat for Humanity in Alamogordo. The instructor will be Randy Sadewic, Vice-President of NMSEA and Principal of Positive Energy, Inc. The first class, which will focus on system design, will be held on the Friday-Sunday weekend of October 15-17, 2010. Topics to be covered include photovoltaic components, designing and sizing a system, siting, and the configuration of stand-alone (off-grid) and grid-tied (utility-connected) systems. Other topics include safety and energy efficiency, and hands-on labs will be included. This first weekend is particularly good for certified electricians who are comfortable with their installation skills, homeowners who'd like to talk knowledgably with installers, job seekers interested in the industry, and students considering renewable energy careers. Those who take the full Design and Installation course will continue the following weekend, Oct. 23-24, with the installation of a 1.6 kilowatt solar electric system on an Energy Star-rated Habitat for Humanity house. This project will be supported by funding from the PNM Foundation. There is a limit of 25 students in the Installation class, so contact NMSEA soon to enroll.



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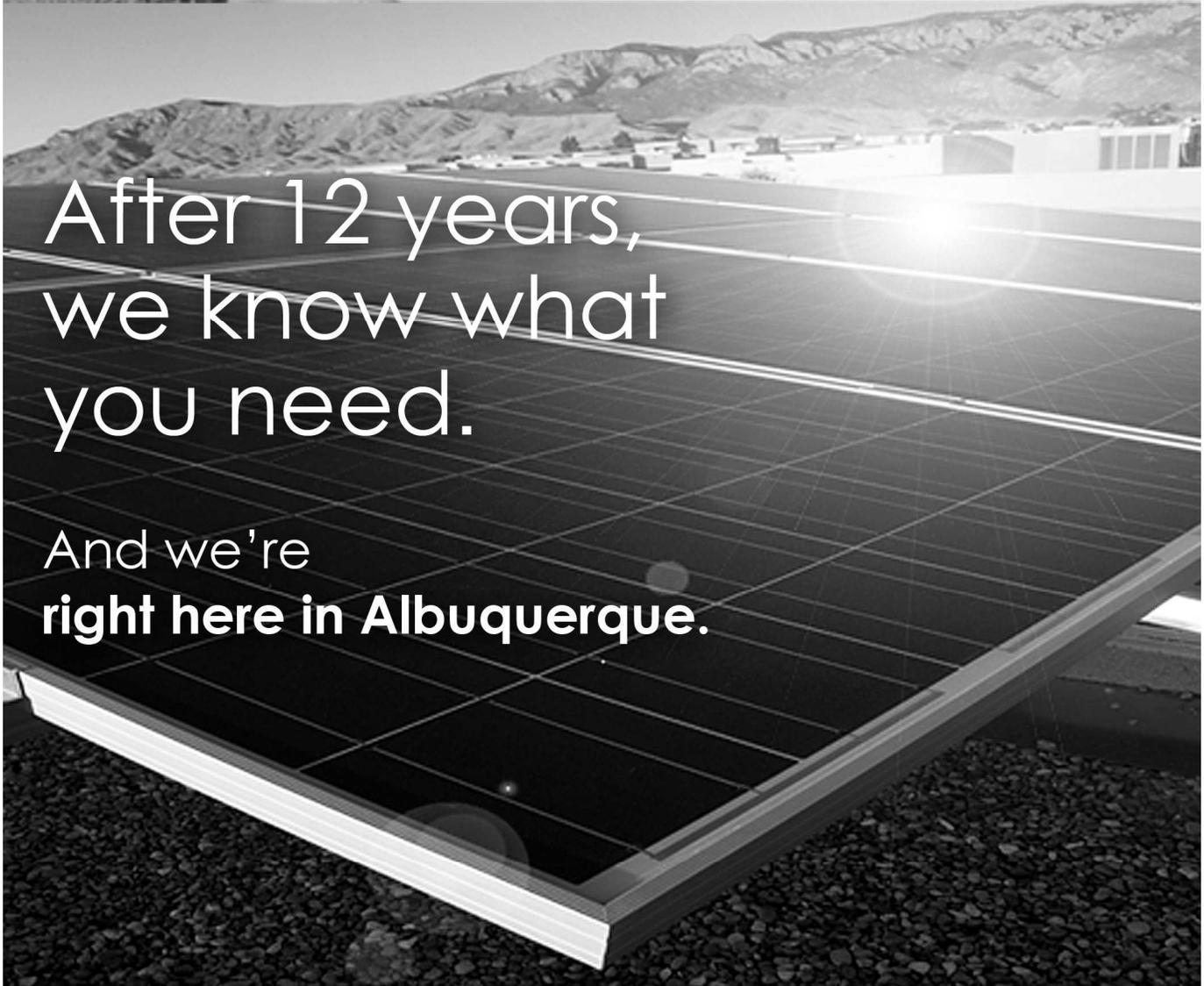
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Our very own engineers will be leading educational seminars this year at the fiesta. Come check them out!

Be sure to also come by our booth to listen to Affordable Solar speakers. We will be on hand to answer any questions you may have.

NMSEA Offers Solar Flea Market

By Janet Bridgers and Monte Ogdahl

NMSEA will conduct a Solar Flea Market as part of its annual Solar Fiesta, which will be held this year on September 11th and 12th at Menaul School (Menaul and Broadway) in Albuquerque. This first-of-its-kind Flea Market will be held as a fundraiser for the organization and will offer the public a wide array of functional, if not quite new or pristine, solar equipment. "As in any flea market or yard sale, nothing sold will come with a warranty, nor is there a return policy," said NMSEA President Monte Ogdahl, "but for those who either have experience with solar equipment or a strong do-it-yourself orientation, it will be a fabulous opportunity for bargains."

Ogdahl continued: "One of the advantages of being a state with such a long history of active solar systems and a maturing solar marketplace is that members of our industry have odds and ends of equipment stuck in their storerooms and sheds. To our esteemed colleagues, we say, 'Let's all clean house to help fund solar education in New Mexico.'"

NMSEA Board members are now busily collecting donated solar items from the state's solar manufacturers, retailers, repair shops and installers. Items being requested include used, scratched or dented solar panels, which might be PV (photovoltaic, electric), solar thermal, or solar hot air collectors. Also sought are new, but outdated, solar equipment, such as inverters, controllers, racks, electrical and plumbing parts (such as

pumps), or other items of some value.

NMSEA members will receive 10% off of the marked price on any item. Individual memberships are \$35, and business memberships are \$75. Those interested in the best deals are advised to arrive promptly at 10 a.m. on Saturday, September 11. Admission to the Flea Market is included in the price of admission to the Solar Fiesta—\$7 for adults and \$5 for students. Children under 12, teachers with ID, and NMSEA members may enter free of charge.

Those wishing to donate to the flea market should contact Gary Vaughn, GVaughn@q.com, in the Albuquerque area, or Monte Ogdahl, solpwr@plateautel.net, in the Santa Fe area. Those near Alamogordo, Las Vegas, Los Alamos, Silver City, Taos or Gallup should contact NMSEA chapter leaders in those cities (see p. 11) to make arrangements. Donors are asked to supply information about the item and an estimate of its as-is value. Donations may be tax-deductible.

Founded in 1972, NMSEA is a 501(c)3 educational nonprofit organization dedicated to promoting solar energy, energy efficiency and related sustainable practices. The Solar Fiesta offers homeowners and community members the opportunity to meet one-on-one with many of the area's most knowledgeable solar experts. For more information about the Fiesta, the Flea Market, and other NMSEA activities, see the organization's website—www.nmsea.org, or call us at (505) 246-0400.



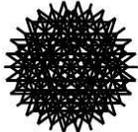
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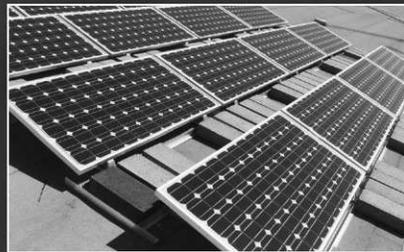
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Bright Thinking in Solar

Otero County Habitat for Humanity: PNM and NMSEA Collaboration

By Jay Harrell, Building Committee Chair
Otero County Habitat for Humanity

Some Otero County Habitat for Humanity (OCHFH) homes will now have PV (solar photovoltaic) systems. In 2007, OCHFH adopted the "Energy Star" efficiency rating as its "Standard of Excellence." Since then we have built twelve Energy Star homes, all rated "Five Star+." Our latest home has a HERS rating of 47 (below 60 is great) and a "Build Green New Mexico" rating of "Silver." PNM and New Mexico Gas Company help us with payments of \$500 or \$1,000 on each Energy Star home, depending on the HERS rating achieved. This help is available to all builders.

In October an OCHFH home in Alamogordo will be the site of the next NMSEA PV Design and Installation Classes. (See separate article.) The PNM Foundation is also helping on this project with a \$5,000 grant to NMSEA, and it is following up with a \$25,000 grant to OCHFH for the installation of PV on our homes. This assistance will help make PV more affordable for our partner families, and it will spur the growth of PV by providing instruction to those technicians who want to install solar PV systems throughout New Mexico. ☀



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NMSEA Chapter Leaders and Contact Information

Alamogordo Chapter

Official Name:
Alamogordo-NMSEA
Chapter President:
Ron Offley, (575) 682-6027,
offley@nmsua.nmsu.edu
Chapter Vice-President:
Lance Pickett, (505) 446-6054
Lancepickett00@yahoo.com

Albuquerque Chapter

Coordinator:
Open

Las Vegas (New Mexico) Chapter

Official Name:
Sustainable Las Vegas
President:
Lloyd Goding, (505) 454-9122,
lgoding@hughes.net
Communications Contact:
Emelie Olson, (505)-454-3920,
eolson@desertgate.com

Los Alamos Chapter

Official Name:
Los Alamos Sustainable Energy Network
(LASE Network)
Website:
www.lasenergy.net
Chapter President:
David Griggs, (505) 661-4572,
griggs2000@hotmail.com
Alternate Contact:
Gale Zander Barlow,
galezbar@earthlink.net
Chapter Box:
P.O. Box 221, Los Alamos, NM 87544

Santa Fe

Leader:
Gary Anderson
Gla_5573@yahoo.com

Silver City

President:
Cissy McAndrew, (575) 538-1337,
cissy@silvercitytour.com.
Chapter Box:
P.O. Box 5129, Silver City, NM 88062

Taos Chapter

Official Name:
NM Solar - Taos Chapter
Chapter President:
Scott Evans (505) 758-5338,
scott@greenbuilderstaos.com
Chapter Vice-President:
Larry Mapes

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Albuquerque Chapter Monthly Meeting Suspended

The Albuquerque Chapter of NMSEA is seeking a chapter coordinator to arrange programs for meetings each month. We have been meeting on the fourth Tuesday at 6:30 pm at REI store, but attendance has declined in recent months. If you would like to help resurrect this program, contact the NMSEA office at 505-246-0400 or write to info@nmsea.org. Perhaps this could be a venue for renewed activism to “level the playing field” for renewable energy sources.

Expired Memberships

The expiration date of your NMSEA membership is on the mailing label on this Fiesta Guide. If your expiration date is before 9/30/10,

please renew

for free admission to the Solar Fiesta and reduced prices for Fiesta workshops. Your membership also supports NMSEA's educational programs and allows you to vote in the upcoming election and to receive the SunPaper. Membership also includes discounts on NMSEA classes and other workshops.

The NMSEA Solar Fiesta Booth

Our **Booth** will be in the northwest corner of the outdoor exhibitor area between Rendon and Davidson Halls. There you will find the following:

- Free Literature** On topics such as solar electricity (PV), space and water heating, passive solar building, and sustainability.
- Sales Items** T-shirts, Kill-a-Watt Meters, Solar Home Plans on CD, Solar Model Cars, Global Warming Mugs, the books *Rainwater Harvesting for Drylands*, Volumes 1 and 2, by Brad Lancaster.
- Workshop Updates** See page 18 for Workshop descriptions and check at our Booth for updates.



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Solar Fiesta!

General Information



Location and Directions

Location: Menaul School, 301 Menaul Blvd NE at Broadway

Welcome to our new Solar Fiesta site! Our gratitude goes to Tonya Wright, Kevin Irwin, Keith Cass and David Cook of Menaul School for their support in the use of their wonderful facility for this year's Solar Fiesta! Menaul School is accessible from both I-40 and I-25. Parking is free.

- From Northbound I-25: Take Exit 225 (Lomas/Menaul/Candelaria). Continue north on the frontage road 1.6 miles, then turn left on Menaul. Travel west 0.6 miles to the main entry gate on your right.
- From Southbound I-25: Take Exit 227 (Comanche/Candelaria/Menaul). Continue south on the frontage road 1.5 miles, then turn right on Menaul. Travel west 0.6 miles to the main entry gate on your right.
- From Westbound I-40: Take Exit 159D (University). Turn right on University, then left on Menaul. Travel west 0.8 mile to the main entry gate on your right.
- From Eastbound I-40: Take Exit 159A (4th - 2nd St/University). Take a left on 4th or 2nd St, then turn right on Menaul. The Fiesta entrance will be on your left.

Ticket and Workshop Prices:

New ticketing procedure: Entry tickets will be sold to you in your vehicle before parking. Please be ready with cash, check, MasterCard or Visa. Returning on Sunday? Bring your Saturday ticket for a \$3 discount on admission.

Admission to Exhibit Grounds (Paid from Vehicle)

\$7 Adults

\$6 Seniors

\$5 Students with ID

Free Admission for:

NMSEA Members

Teachers with ID

Rail-Runner ticket holders for the day

PNM Employees with ID

Children under 12

Admission to Workshops: Purchase your wristband at the NMSEA Booth. All workshops will be in the three classroom buildings and room locations (A-E) are given across the top of the Schedules, pages 16-17.

Saturday or full weekend: \$15 Sunday only: \$10

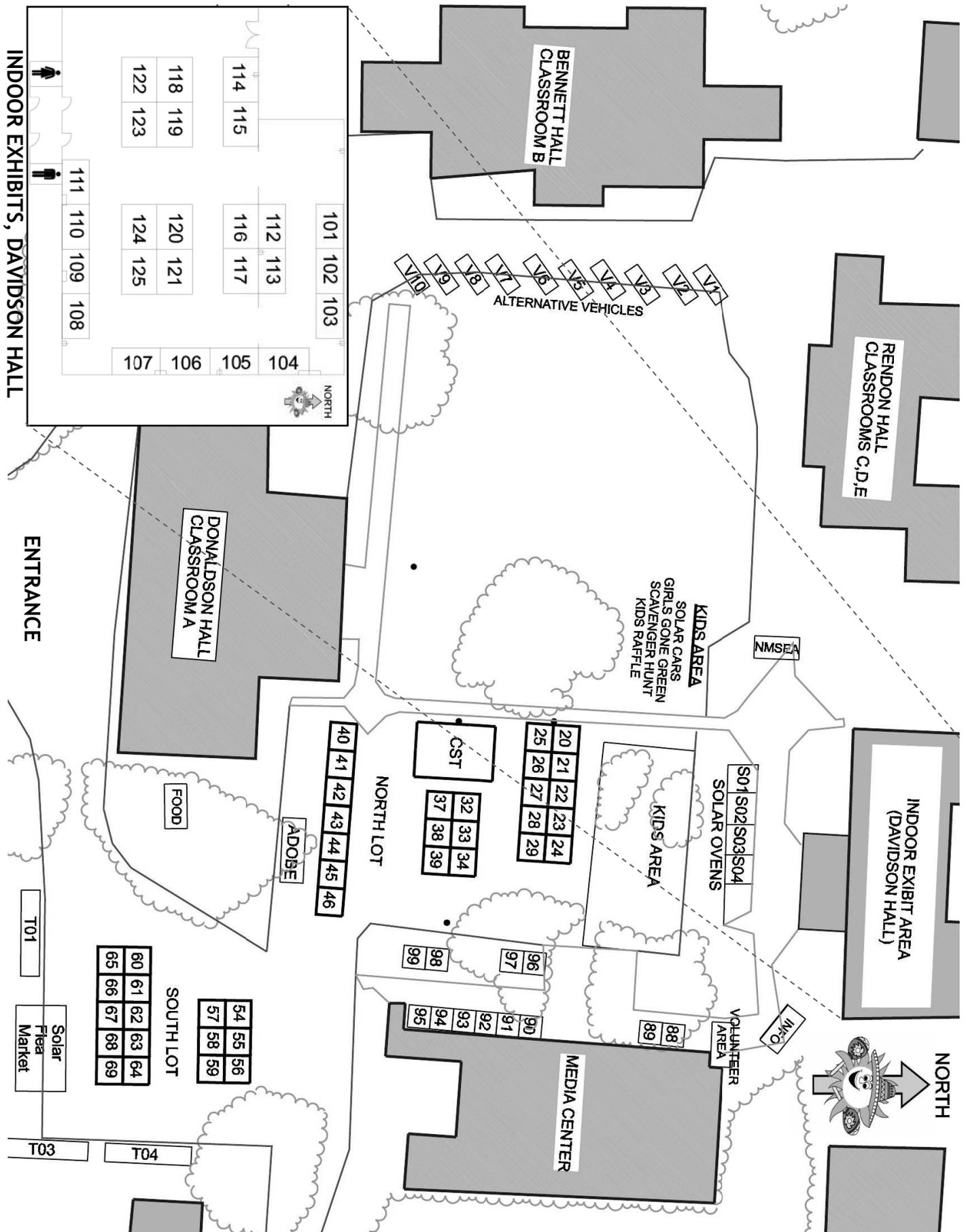
Discounts on Entry

NMSEA Members - Remember to bring your NMSEA membership card for free admission to exhibits and discounted tickets for workshops — Saturday/weekend \$5 discount Sat/weekend, Sunday \$3 discount. Join or renew your membership before or at the Solar Fiesta to receive the discount.

PNM Customers – Check your PNM bill insert for a discount coupon. Bring it with you for \$1 off of exhibit entry (for adults and seniors) or \$2 off of workshop passes.

General Info

- Please leave your pets at home.
- Food and drink will be available from Menaul School organizations in Davidson Hall (Indoor Exhibit area) and from Annapurna (vegetarian) on the west side of the South Outdoor Exhibit Area.
- Handicapped parking will be available; please ask entry staff for directions. General parking will be north and northeast of the Solar Fiesta grounds. Follow the signs.
- Recycling barrels will be available near trash cans. Please dispose of trash and recyclables properly.
- Note: Bottled water will not be sold nor given away at the Fiesta. Water fountains, vending machines and other drinks will be available. We appreciate you bringing your own cup for water and a bag for literature and other items.



MENAU SCHOOL SOLAR FIESTA MAP WITH EXHIBIT NUMBERS

SATURDAY September 11, 2010 Workshops

| Start Time | Astro Rm (A) | Bamboo Rm (B) | Cobalt Rm (C) | Driftwood Rm (D) | Energy Rm (E) |
|------------|---|--|---|---|---|
| 10:30 AM | <p align="center"><i>FREE!</i></p> Energy Literacy: Numbers That Matter (EE) Alan Zelicoff <i>Scientific, Medical/Legal Review</i> | Sustainable Architecture, Without Architects, in Iran (D) Simi Razavian <i>MSA & Assoc, Inc</i> | Vertical Farms and Solar Technologies (SL) Michael David Lipkan <i>Linear City Concepts</i> | Clean Energy & Climate Protection with Local Policy (P) Members of <i>ABQ Climate Coalition</i> | |
| 11:45 AM | Six Steps to a Smart Solar Investment for Home and Business (PV, F) Claudia Pavel <i>Positive Energy, Inc</i> | Preparing for a Green Collar Job, (GJ) Staelia Ursua <i>North American School of Green Technology</i> | Solar Oven: Construction and Cooking (SL) Jeannie Martinez Monaghan <i>UNM-Gallup Campus</i> | Green Transportation Fuels (T) Frank Burcham <i>Land of Enchantment Clean Cities Coalition</i> | The Hybrid House - Ten Strategies for Energy-Thrifty Buildings (D) Catherine Wanek <i>Builders Without Borders</i> |
| 12:45 PM | Solar Thermal-What Works, What Doesn't (TS) Robert Althouse <i>Solarwise, LLC</i> | Net Metering and REC Purchases (PV, F) TBD <i>PNM</i> | Designing and Building a Passive Solar Home (D) Mark M. Feldman <i>High Desert Construction Inc.</i> | Solar Down the Road, (GJ) Steve Baer <i>Zoneworks Corporation</i> | Explore 100 Sustainable Communities (SL) Mandy Creighton <i>Within Reach Movie</i> |
| 2:00 PM | Feasibility of Small Wind in New Mexico (W) Gary Anderson <i>WindSunNW, LLC</i> | EXCERPTS: Review of Multimedia for Solar & Energy Conservation Education (E) Ed Judkins <i>UNUM-NFP</i> | The Truly Sustainable Vegetable Garden (SL) Laurie Lange <i>BotanicArts</i> | Electric Vehicle 4 You (T, E) Monte Ogdahl & Paul Lusk <i>NMSEA, UNM(ret)</i> <i>Indoor/Outdoor</i> | Community Solar Gardens (PV, P) Joy Hughes <i>Solar Gardens Institute</i> |
| 3:15 PM | Off-Grid Solar Power for Your Home (PV) Allan Sindelar <i>Positive Energy, Inc</i> | Sustainability: Individual and Community Efforts Moderated Panel Discussion | Water Walls: Back to the Future (D) Helene Beauchamp <i>Zoneworks Corporation</i> | Solar Cars Already on the Road (T) Olga Lavrova <i>University of New Mexico</i> | |
| 4:30 PM | | | | | |

(CODE) - General Topic

(D) - Green Design/Passive Solar
 (E) - Education
 (EE) - Energy Efficiency

(F) - Financial
 (GJ) -Green Jobs
 (P) - Public Policy

(PV) - Solar Electric Power
 (SL) - Sustainable Living
 (T) - Transportation

(TS) - Thermal Solar Power
 (W) - Wind power

SUNDAY, September 12, 2010 Workshops

| Start Time | Astro Rm (A) | Bamboo Rm (B) | Cobalt Rm (C) | Driftwood Rm (D) | Energy Rm (E) |
|------------|---|---|---|--|--|
| 10:30 AM | Solar Basics: Hot Water and/or Electric (PV/TS) <i>FREE!</i> Odes Arrijo-Caster REIA / Sacred Power Corp. | Technical Session I 10:30 am - 12:30 pm | New Mexico's Path to a Sustainable Energy Future (P) Jason Marks NM Public Regulation Commission | Introduction to Solar Domestic Hot Water (TS) Stephen Skelton Malachite Plumbing and Heating LLC | Greening the Highway with Plug-in Electric Drive (T) Skip Dunn Northern NM Electric Vehicle Ass'n |
| 11:30 AM | Break | Break | Break | Break | Break |
| 11:45 AM | Grid-Tied with Backup: Power During a Utility Outage (PV) Allan Sindelar Positive Energy, Inc | Break | The New American Dream Home (D) Connie Giffin EarthWise Environments | Net Metering and REC Purchases (PV, F) TBD PNM | Energy Independence - A Guide to Reduce Your Utility Bill (EE) 11:45 am - 1:15 pm Randy Sadevic, Positive Energy, Inc Dalinda Bangert EcoTerra |
| 12:45 PM | Break | Break | Break | Break | Break |
| 1:00 PM | Intro to PV (PV 101) (PV) Marlene Brown NMSEA | Technical Session II 1:00 pm - 3:00 pm | Do-It-Yourself Passive Solar (D, SL) Amanda Bramble AmperSand Sustainable Learning Center | Trains, Renewable Energy and All The Other Great Issues (T) JW Madison, Nancy Jones-Francis, John Perry Ralls Inc | Break |
| 2:00 PM | Break | Break | Break | Break | Break |
| 2:15 PM | Basics of Wind Energy - Terms and Technology (W) Mark A. Runsey Sandia National Laboratories | Break | Cooking with Sunlight Basics (SL) Indoor/Outdoor Rose Marie Kern Solar Ranch | How Does Your Garden Grow? An Introduction to Community Solar Gardens (PV,P) Jill Cliburn Cliburn and Associates, LLC | Solar Battery Technologies (PV) Indoor/Outdoor Jonathan J. Jimenez Affordable Solar Group |
| 3:15 PM | Break | Break | Break | Break | Break |
| 3:30 PM | Solar Hydronic Heating and Cooling (TS) Bristol Stickney SolarLogic, LLC | Women and Solar (G1,P) Moderated Panel Discussion Marlene Brown NMSEA | Sustainable Building and Remodeling (D) Steve Hale Build Green NM | Renewable Energy: Applies to Oranges (PV, W, SL, TS) Daniel Jencka Green Energy Works | Sustainability Through Urban Farming (SL) Zoe Wilcox Mother Nature Gardens, A Demonstration Urban Farm |
| 4:30 PM | Break | Break | Break | Break | Break |



Solar Fiesta Workshop

Descriptions and Presenters, Times, and Room Locations



GENERAL SESSIONS

(See p. 27 for Technical Sessions)

Basics of Wind Energy – Terms and Technology (W)

Sunday 2:15pm-3:15pm Astro Rm (A)

Mark A. Rumsey of Sandia National Laboratories

Mark's presentation will answer the who, what and where of residential wind power. Topics to be discussed are: wind resource assessment and turbine siting; wind turbine types, parts, characteristics and sizing; and a few words on storage versus grid-tied, maintenance, vendors and costs.

Mark has been involved in wind energy technology research and development for over 24 years at Sandia National Laboratories. He works with other technicians and engineers researching and developing the next generation of utility-size wind turbines.

Clean Energy and Climate Protection with Local Policy (P)

Saturday 10:30am-11:30am Driftwood Rm (D)

Shrayas Jatar and Members of the ABQ Climate Coalition

We will explore how existing and proposed city policies can and do build a clean energy economy in Albuquerque. Speakers will describe relevant city policies and programs highlighting the City of Albuquerque Climate Action Plan and offer the opportunity for participants to become involved.

The Albuquerque Climate Action Coalition includes the Sierra Club along with about a dozen other environmental and public interest organizations. Representatives of the Coalition will introduce the group's mission, policy priorities, as well as organizing efforts.

Community Solar Gardens (PV,P)

Saturday 2:15pm-3:15pm Energy Rm (E)

Joy Hughes of Solar Gardens Institute

What if everyone could own their own solar electric system, even those with a shaded or historic roof or those who rent? By subscribing to a community solar garden, each person receives clean energy through the grid from a group facility near their home. Learn about Solar Gardens in Colorado and current efforts in NM with Kit Carson Electric.

Joy is the founder of the Solar Gardens Institute, dedicated to community-based energy development. After going through the start-up process in Silicon Valley five times, Joy is now CEO of the Colorado-based Solar Panel Hosting Company - developing locally-based renewables everywhere. <http://www.solargardens.org>

Cooking with Sunlight Basics (SL)

Sunday 2:15pm-3:15pm Cobalt Rm (C)

Rose Marie Kern of Solar Ranch

There is no way to top solar-cooked food for a delicious and healthy meal. This presentation begins indoors with a slide show on how to tune into nature and the sun's angles and shows types of sun ovens that you can build or buy. We then move outdoors to look at the ovens in use and taste some really fabulous recipes!

Rose Marie has been cooking in solar ovens for over 17 years and is the author of "The Solar Chef". Currently in its 7th edition, "The Solar Chef" is the most popular recipe book for solar cooking in the nation.

Designing and Building a Passive Solar Home (D)

Saturday 1:00pm-2:00pm Cobalt Rm (C)

Mark M. Feldman of High Desert Construction Inc.

This workshop will be a presentation of tried and true residential passive solar design. Learn how to get enough sun without overheating a building. Work with nature instead of fighting natural energy flows.

Mark has designed and built 300 passive solar homes in his 35-year career in New Mexico, Texas and Arizona. He has lived in his own passive solar home in Albuquerque since 1976. He earned a Master of Architecture and is a licensed contractor. www.markmfeldman.com

Do-It-Yourself Passive Solar (D, SL)

Sunday 1:00pm-2:00pm Cobalt Rm (C)

Amanda Bramble of Ampersand Sustainable Learning Center

Learn to upgrade your lifestyle by using sunlight to free yourself from fossil fuel just by using salvaged materials and homemade ingenuity. This workshop will emphasize simple passive solar technologies like glazing, thermal mass and insulation to provide the comforts of hot water, cooked food, and warm spaces in the winter.

Amanda is the Co-founder and Director of Ampersand Sustainable Learning Center. She is a permaculturist and educator who has been using and experimenting with passive solar technologies for the past 15 years.

Electric Vehicle 4 You (T)

Saturday 2:15pm-3:15pm Driftwood Rm (D)

Monte Ogdahl of NMSEA and Paul Lusk, UNM (retired)

This workshop will be an overview of electrical vehicles (EVs), Hybrids, Plug-in Hybrids, and pure EVs. Monte will touch on some of the latest technology in batteries, controllers and motors that now make the EV practical for range and speed, and what will be offered in the EV conversion classes. There will also be EVs available for viewing.

Monte's experience ranges from Navy electronics to civilian tech and R&D engineering. He is currently serving as President for NMSEA and been a Board member and active solar educator for the past 15 years. Having

researched and assisted in electric conversions of cars since 1995, he is currently modifying an EV to accommodate Lithium batteries.

Energy Independence - A Guide to Reduce Your Utility Bill (EE)

Sunday 11:45am-1:15pm Energy Rm (E)

Randy Sadewic of *Positive Energy, Inc.* and Dalinda Bangert of *EcoTerra Enterprises*

The first step toward a renewable energy economy is energy efficiency. Learn energy basics, tools to identify savings and practical approaches to save up to 50% of your bill. Learn about home energy monitoring systems. This course focuses on simple, practical solutions to saving money and reducing your carbon footprint.

Randy co-owns Positive Energy, Inc., a solar electric company, and teaches energy efficiency and performs electric energy efficiency audits. Dalinda Bangert is a HERS rater and performs energy audits and ratings for homes in addition to teaching energy efficiency.

Energy Literacy: Numbers That Matter (EE)

Saturday 10:30am-11:30am Astro Rm (A)

Alan Zelicoff of *Scientific, Medical-Legal Review*

The quantity of energy we use -- as individuals and as a society - is enormous, yet few people know where all of those kilowatt-hours and therms go. Alan will use real-world examples (and some not-too-unpleasant math) to help us understand our own energy use and where easy and very cost-effective changes can be made in just about every household.

Alan is a physicist and physician who writes and lectures on energy policy, conservation and healthcare issues. He is the author of "Saving Energy Without Derision" which even political conservatives praise from time to time.

EXCERPTS: Review of Multimedia for Solar and Energy Conservation Education (E)

Saturday 2:15pm-3:15pm Bamboo Rm (B)

Ed Judkins of *UNUM-NFP*

This workshop will explore self-education resources and useful additions to organized curriculum presentations. The participants will view a series of excerpts from films and curriculum packages available for instruction in solar science and technology and energy conservation as well as various multimedia created during the last 30 years.

Ed is president of UNUM-NFP, a 501(c)(3) educational resource provider. See website - unum-nfp.org for more details.

Explore 100 Sustainable Communities (SL)

Saturday 1:00pm-2:00pm Energy Rm (E)

Mandy Creighton of *Within Reach Movie*

Join Mandy in exploring 100 sustainable communities around the United States, including ecovillages, eco-housing, housing co-ops, and more. Attendees will also explore ways in which people are now eco-retrofitting their existing neighborhoods to live more sustainable and more socially conscious lives.

Mandy and her partner recently completed a 6,500 mile bike-packing journey around the USA to visit and document 100 sustainable communities. Their film, due out April 2011, explores the wide spectrum of sustainable living, from tipi to urban high-rise and everything in between. Learn more at <http://www.withinreachmovie.com>.

Feasibility of Small Wind in New Mexico (W)

Saturday 2:15pm-3:15pm Astro Rm (A)

Gary Anderson of *WindSunNM, LLC*

This workshop will provide the basic tools a consumer will need for adding wind to their energy portfolio. Gary will look at siting, permitting and installing small wind turbines in New Mexico, concentrating on turbines from 100 watts to 50 kW and towers from 20 ft to 140 feet.

Gary is the owner of WindSunNM located in Santa Fe and serving northern NM with alternative energy systems for homes and businesses since 1978. He is currently residing in a home using a Sky Stream 3.7 wind turbine, solar thermal system and PV systems.

Green Transportation Fuels (T)

Saturday 11:45am-12:45pm Driftwood Rm (D)

Frank Burcham of *Land of Enchantment Clean Cities Coalition*

This workshop will review green transportation fuels that the public can use in day-to-day life. Frank will give participants the pros and cons of each along with examples of the best applications.

Frank is the Executive Director, State Coordinator, and founding member of The Land of Enchantment Clean Cities Coalition (1994). He is also the State and City of Albuquerque alternate fuels advisor.

Greening the Highway with Plug-in Electric Drive (T)

Sunday 10:30am-11:30am Energy Rm (E)

Skip Dunn of *Northern NM Electric Vehicle Ass'n*

The presentation focuses on renewables on the road: Greening the Grid and the Highway with Plug-in Electric Drive. We will examine how grid-connected cars will decrease the demand for energy by 80%, increase the role that renewable energy plays in the power grid, and change the utility industry.

Skip formed GreenWheels Sustainable Transportation in 2005. He has a collection of mini and micro cars, all-electric cars, and a Honda Insight hybrid. He holds a Ph.D.

(Continued on page 22)



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- Renewable Energy
- Sustainable Building
- Energy Star Rebates
- Clean Energy Incentives
- Energy Efficiency and Conservation
- Clean Fuels and Efficient Transportation



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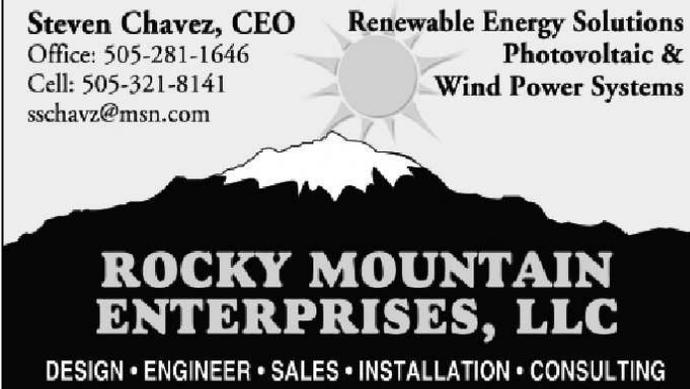


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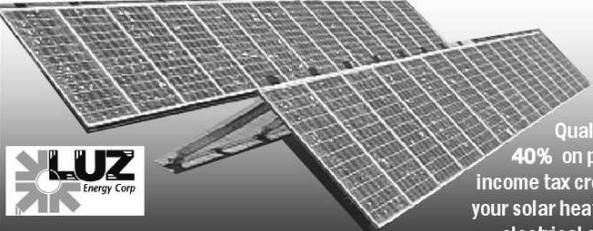
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(Continued from page 19)

in Administration and Policy Analysis and now seeks to revamp the policies, procedures, and designs of our transportation systems for a sustainable post-oil future.

Grid-Tied with Backup: Power During a Utility Outage (PV)

Sunday 11:45-12:45 Astro Rm (A)

Allan Sindelar of Positive Energy, Inc.

This class is for those considering a grid-tied solar photovoltaic system that also includes the ability to power key loads during a utility outage. We will address basic design decisions, capabilities and limitations, and costs; provide a start-to-finish description of the design and installation process; and discuss when a generator is appropriate.

Allan has been designing, installing, and teaching about PV systems since 1988. He is a licensed electrician, a NABCEP nationally-certified PV installer, a regular contributor to Home Power magazine, and the founder of Positive Energy of Santa Fe, Albuquerque, Las Cruces and Taos.

How Does Your Garden Grow? An Introduction to Community Solar Gardens (PV,P)

Sunday 2:15pm-3:15pm Driftwood Rm (D)

Jill K. Cliburn of Cliburn and Associates, LLC

So, you wish for solar PV, but you don't have the money or a house with good solar access. Community Solar Gardens are a response to that need. In New Mexico, Kit Carson Electric Cooperative is planning a solar garden. Find out what communities from coast to coast are doing and whether there's a solar garden in your future.

Jill has been promoting solar and helping utilities nationwide to develop cleaner resource plans for more than 20 years. She consulted on the development of one of the nation's first community solar gardens and currently assists communities craft the policies to promote others.

Introduction to PV (PV 101) (PV)

Sunday 1:00pm-2:00pm Astro Rm (A)

Marlene Brown of NMSEA

Come learn about solar electricity and see what all the excitement is all about. This is an introductory class. Come with questions and learn the basics about photovoltaics.

Marlene has been working in the field of photovoltaics for 20 years. She has been affiliated with the installation of over 200 PV systems including her own where she hasn't had an electric bill in 6 years. Marlene is trained as an electrical engineer and an electrician.

Intro to Solar Domestic Hot Water (TS)

Sunday 10:30am-11:30am Driftwood Rm (D)

Stephen Skelton of Malachite Plumbing and Heating LLC

Learn about the different types of solar hot water heaters. Stephen will provide a basic overview of the systems available, provide a guide to choosing solar thermal panels, and help the consumer navigate through the applications for the various tax credits.

Stephen is the owner of Malachite Plumbing and Heating, LLC. He has been installing Solar Thermal Systems since 2002.

Net Metering and REC Purchases (F, PV)

Saturday 1:00pm-2:00pm Bamboo Rm (B)

Sunday 11:45am-1:15pm Driftwood Rm (D)

Frank Andazola and Anthony Bueno of PNM, Saturday; Sunday TBD.

Learn about net metering and renewable energy credits as well as current efforts PNM is making to integrate renewable energy into its power production portfolio.

New Mexico's Path to a Sustainable Energy Future (P)

Sunday 10:30am-11:30am Cobalt Rm (C)

Jason Marks of NM Public Regulation Commission (PRC)

This presentation outlines a roadmap for transitioning to an electric supply based on sustainable sources in NM. It covers (1) the technical and economic characteristics of renewable resources; (2) the role of transmission; and (3) the various regulatory and policy tools in place to promote customer-owned and utility-scale renewable generation and to encourage energy efficiency.

Commissioner Marks has been a member of the PRC since 2005. He is the sponsor of rules creating diversity targets for solar energy and distributed generation, and has been active in proceedings addressing net metering and incentives for customer-owned renewables, energy efficiency, and greenhouse gas emissions.

Off-Grid Solar Power for Your Home (PV)

Saturday 3:30pm-4:30pm Astro Rm (A)

Allan Sindelar of Positive Energy, Inc.

This class is for those seriously considering living off-the-grid using solar PV power. We will discuss the joys and limitations, the design process and load analysis, and the principles and costs of off-grid living.

Allan Sindelar has been designing, installing, and teaching about off-grid PV systems since 1988. He is a licensed electrician, a NABCEP nationally-certified PV installer, a regular contributor to Home Power magazine, and the founder of Positive Energy of Santa Fe, Albuquerque, Las Cruces and Taos.

Preparing for a "Green Collar Job" (GJ)

Saturday 11:45am-12:45pm Bamboo Rm (B)

Stella Ursua of North American School of Green Technology

Participants will learn about the various industries currently creating Green Collar Jobs, how to locate these types of professions, the preparation required for this type of employment and creative ways in which to get a foot in the door!

Stella is President-Dean of Instruction of North American School of Green Technology, where she offers individuals skills-based training in solar electric, solar thermal, and weatherization training. Stella is passionate about connecting people to world-class green industry training programs and good green jobs.

Renewable Energy: Apples to Oranges (PV, W, SL, TS)

Sunday 3:30pm-4:30pm Driftwood Rm (D)

Daniel Jencka of Green Energy Works

They may all be green, but they are not the same. This workshop will survey some of the most prevalent renewable energy technologies, including PV, solar thermal, geothermal, small wind and low-energy cooling, with a focus on how to select the right one based on a variety of factors and specific needs.

Daniel Jencka has over 10 years experience with renewable energy (RE) technologies, including solar thermal, PV, ground source heat pumps and small wind. (<http://nmgreenworks.com>). He also conducts RE workshops, and teaches through LUNA Community College in Las Vegas, NM, within their alternative energy and sustainability degree program.

Six Steps to a Smart Solar Investment: Solar Power for Home and Business (PV, F)

Saturday 11:45am-12:45pm Astro Rm (A)

Claudia Pavel of Positive Energy, Inc.

Come listen to a fast-paced presentation on solar power (photovoltaic) systems in New Mexico. Get the latest on financial incentives and financing, system sizing and design, solar photovoltaic technology, and the process of grid-interconnection. Residential and commercial systems will be covered.

Claudia Pavel is the sales and marketing manager for Positive Energy, a solar power design and install company with four offices in New Mexico. Claudia teaches solar power classes for architects, engineers, builders and students as well as home and business owners. www.positiveenergysolar.com

Solar Basics: Hot Water and/or Electric (PV, TS)

Sunday 10:30am-11:30am Astro Rm (A)

Odes Armijo-Caster of Renewable Energy Industries Association of NM / Sacred Power Corp.

A basic primer to help the consumer decide between the purchase of a solar hot water system or solar electricity for their home or small business. Maybe purchase both. "Using the Gifts of the Father to Protect the Gifts of the Mother."

Odes Armijo-Caster has nearly 30 years' experience in the solar industry with hundreds of solar installations including solar hot water, pool heating, hot air heating and solar electric systems. He has a rare dual NABCEP certification to install both photovoltaic and solar thermal systems and has presented dozens of workshops both locally and internationally.

Solar Battery Technologies (PV)

Sunday 2:15pm-3:15pm Energy Rm (E)

Jonathan J. Jimenez of Affordable Solar Group

Jonathan will teach us all the latest in battery technology, from advancements in the tried and true lead acid to lithium ion to the latest room-temperature sodium batteries. This seminar will look at current trends in battery based PV and take a look towards the future.

Jonathan J. Jimenez is the battery-based system specialist at Affordable Solar. He is a true expert in battery maintenance and routinely assists corporations and individuals with solutions to problems with their off-grid

systems. He enjoys being part of a company that helps others change the world and their own lives for the better.

Solar Cars Already on the Road (T)

Saturday 3:30pm-4:30pm Driftwood Rm (D)

Olga Lavrova of University of New Mexico

Professor Lavrova will describe the Power and Energy programs and Solar Car design program at UNM. She will share the results of UNM's competition in the all-solar-car challenge which took place in June of this year. Participants will gain an understanding of the challenges going "all solar" means. Look Ma...no battery!
www.ece.unm.edu/solarcar

Olga is a Research Assistant Professor in the Electrical and Computer Engineering Department at UNM. She is a former Albuquerque chapter leader for NMSEA. Her research interests include photovoltaics and other emerging renewable energy technologies, as well as nano-scale semiconductor structures and their applications in power and energy fields.

Solar Down the Road (GJ)

Saturday 1:00pm-2:00pm Driftwood Rm (D)

Steve Baer of Zomeworks Corporation

Join Steve in a peek at the future and see what kinds of "green" products will prove useful in years to come. Learn how to judge whether an activity is worth pursuing. See what changes can be expected from the public in the years to come.

Steve helped organize the first Ghost Ranch conference on solar energy. An industry expert, he has been working with solar heating, lighting and natural cooling for over 40 years.

Solar Hydronic Heating and Cooling (TS)

Sunday 3:30pm-4:30pm Astro Rm (A)

Bristol Stickney of SolarLogic

Learn the principles of solar heating in New Mexico. Solar heating can be used for domestic hot water, radiant heat, baseboard heat, pools, and spas. A solar heating system can be operated "backward" during summer nights to also provide cooling.

Bristol has been in renewable energy for 35 years (including 17 years in NMSEA) and is an internationally-known expert and pioneer in solar heating and cooling. He is currently Chief Technology Officer of SolarLogic, a start-up focused on solar heating design and controls.

(Continued on page 26)



How Should We Define and Measure the Carrythrough of a Passively Solar Heated House?

by William Shurcliff

(This is an excerpt from an article in the January, 1980, NMSEA newsletter, the *Southwest Bulletin*.— Ed.)

Original Note: This article examines the relationship between time and passive solar heating. It is excerpted from William Shurcliff's book: *New Inventions in Low-Cost Solar Heating: 100 Daring Schemes Tried and Untried*. 1979, Brick House Publishing, Harrisville, N.H. Introduction:

A passively solar-heated house that has massive floors and walls will stay fairly warm for a while even on cold nights with the furnace off. How long will it stay fairly warm? In other words, what is the carrythrough?

Before this question can be answered, a clear and acceptable definition of carrythrough is needed. There has been no such definition. Is a definition really needed? Yes. The main reason for making floors and walls massive is to provide long carrythrough. Yet if we have no definition of this quantity, we cannot measure it, we cannot evaluate the performance achieved. The merit of any given floor-and-wall system cannot be stated. Different systems cannot be compared. Cost vs. benefit analyses cannot be made. Designers lack stimulus to find low-cost ways of increasing the carry-through.

Bad definition:

One could define carrythrough in terms of (a) the mass and specific heat of floors, walls, etc., and (b) a 20-F-deg. cool-down range, e.g., from 80°F to 60°F. ... But such a definition would have little connection with convenience or reality. ... If we wish to put the concept of carrythrough to serious use, we had better be sure that the definition is wisely phrased.

Good definition:

Carrythrough is to be defined in terms of a meaningful test. The test is to be carried out in an overcast period in which the outdoor temperature is close to 32°F. (If it is not close, a correction factor can be applied.) In the period just prior to the test the main rooms in the house are to have been kept at about 70°F for a long time—by any appropriate means such as use of solar collectors, furnace, wood-stove, or electric heaters. By long time I mean a time long compared to the carrythrough in question. ...

At a certain suitable starting time, the person conducting the tests reads thermometers placed at various heights in the main rooms and turns *off* furnaces, wood-stoves, and electric heaters. He cautions the other occupants to continue their normal activities. Hour after hour he reads the thermometers. At a certain instant he

Menaul School History

From www.menaulschool.com

In 1882, the site that is now the current Menaul School campus was purchased through the efforts of local Presbyterians and served as the site of "The Pueblo Training School." In 1891, the government resumed the direct operation of the Indian school, which had originated north of Old Town. In 1896, Rev. James A. Menaul, a Presbyterian minister, sought and received Presbyterian mission funding for a boarding school that would serve boys primarily from the northern portion of the state, where public education was nearly non-existent in those early days.

The grades taught at Menaul School have fluctuated from primary school to high school throughout its history. The first students to complete high school comprised the Class of 1906. In 1934, Menaul became co-educational. Throughout the years, Menaul, as a school grounded in the reformed Christian tradition, gained a reputation for educating good students with excellent values, ethics and moral character.

In 1972, the Presbyterian Church relinquished Menaul School to an independent and volunteer Board of Trustees, but continued with some support. Beginning in the 1970s, the changes in society and the further development of the public school system resulted in a gradual decline in the number of boarding students, and by May 2000 the boarding program was closed.

Today, Menaul School is an independent school for grades 6-12, and it is re-instating the boarding program effective Fall 2010 for grades 9-12. The curriculum at Menaul School is a college preparatory academic program, and in recent years 95% of graduates have continued their post-secondary school education. Today it accepts students from all cultural, religious and socio-economic backgrounds. Fifty percent of students receive financial assistance and more than 60 percent are self-identified as racial and ethnic minority persons. ☀

finds that the average reading is exactly 60°F. He records this instant. He then calculates the elapsed time. This is the carrythrough.

Other choices of outdoor temperature:

In practice, the occupants may make such determinations for several outdoor temperatures such as 14°F, 32°F, and 50°F (i.e. temperatures 18°F degrees apart; the temperatures correspond to -10°, 0° and +10° Celsius). From the resulting data a curve of carrythrough vs. outdoor temperature can be drawn and correction factors for tests made at other temperatures can be figured out. ...

(Continued on page 29)



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Silver City Chapter News

By Cissy McAndrew

The Silver City Chapter of the New Mexico Solar Energy Association gathers the first Friday of each month for meetings, which have included tours of solar homes. The Chapter decided in the spring that it wanted to focus its energy on providing the public with solar education and outreach and arranged to have booths at the community celebrations for Earth Day in April, Cowboy Day in June, and Independence Day in July. In addition, the Chapter set up a portable solar photovoltaic system to power the Community Access Television camera and laptop computer at the Silver City Blues Festival over Memorial Day weekend. Future plans are to continue the SunChaser Program in the schools, create a Solar Financing Forum to educate local lenders and the public on the cost/benefits of loans for energy technology and renewables. We continue to coordinate with the Southwest New Mexico Green Chamber of Commerce, Silver City Mayor's Climate Control Committee, and Habitat for Humanity (Gila Region). For additional info or to become involved contact Cissy McAndrew, chapter president at 575-538-1337 or cissy@SilverCityTour.com.



Solar Fiesta Silent Auction

The Silent Auction this year will include several valuable items. These are the items we have so far (but check for more at the Auction Booth):

Solar Module: Schott Solar Poly™ 217, 217 Watt Polycrystalline. The module is produced in the new SCHOTT Solar plant in Albuquerque. SCHOTT Solar provides a 25-year performance guarantee on it.

User Manual: http://www.schottsolar.com/fileadmin/media/us/installation_and_operation_information/SCHOTT%20Solar%20Installation%20Manual%20c-Si%20US%200609.pdf

Specs are on page 11. Value: \$578

Donated by Schott Solar - New Mexico

Global Sun Oven capable of reaching 420 degrees, produced by Sun Ovens International. For more info, go to www.sunoven.com. Value: \$299

Donated by Solar Ranch

Kill-a-Watt Meter. Info: http://www.nmsea.org/Retail/Kill_a_Watt/index.php. Value: \$29.95

Donated by Southwest Green Building Center

Item to be donated by Sacred Power Corp, to be announced. ☀

(Continued from page 23)

Solar Oven: Construction and Cooking (SL)

Saturday 11:45am-12:45pm Cobalt Rm (C)

Jeannie Martinez Monaghan of UNM-Gallup Campus

This workshop will discuss the various types of solar ovens that can be made from simple materials. Major discussion will focus on foods that can be cooked and time/temp adjustments.

Jeannie was co-awarded the Creative Award from the Science and Technology Corporation at UNM for development of a solar oven. This invention was selected as one of the top 100 innovations in the Better Business Report. She is currently a professor of Health Careers at the UNM, Gallup campus.

Solar Thermal-What Works, What Doesn't (TS)

Saturday 1:00pm-2:00pm Astro Rm (A)

Robert Althouse of Solarwise, LLC

This workshop will cover the types of solar thermal systems available today, and rank them in terms of return on investment, reduction of carbon footprint, dependability, and aesthetics. Participants will also get the skinny on the different hot water or heating backup systems.

Robert has been designing passive and active solar buildings and systems for over 30 years. He currently heads SolarWise, which does consulting, design and construction of solar thermal system and efficient structures.

Sustainability Through Urban Farming (SL)

Sunday 3:30pm-4:30pm Energy Rm (E)

Zoe Wilcox of Mother Nature Gardens, A Demonstration Urban Farm

Learn how to use your land to move towards personal and community sustainability. Find out how Zoe harvests rainwater and uses greywater to water fruits and vegetables, uses outdoor living spaces to control indoor home temperatures, and fits vegetables, fruits, medicinal herbs, six chickens, and two bee hives on an 1/8 of an acre.

Zoe has studied permaculture for 10 years, beginning in Queensland, Australia. She studied and taught permaculture in Zambian villages and under Jim Brookes in Albuquerque. She now co-manages an urban farm, Mother Nature Gardens, and a permaculture landscaping business, Living Edge Landscaping.

Sustainable Architecture Without Architects in Tabas, Iran (D)

Saturday 10:30am-11:30am Bamboo Rm (B)

Simi Razavian of MSA and Assoc .Inc

Learn how creative use of passive solar design techniques and the efficient use of local materials produced energy efficient homes in the ancient city of Tabas, Iran. Find out how architects apply these old techniques to modern structures.

Simi Razavian is an architect and partner in the firm MSA and Associates of San Diego, CA, who specialize in environmentally friendly development incorporating, where possible, ancient ideas into modern buildings. She received a master's degree in Architecture and Urban Planning from Shahid Beheshti University (Iran).

Sustainable Building and Remodeling (D)

Sunday 3:30pm 4:30pm Cobalt Rm (C)

Steve Hale of Build Green NM

This workshop will cover sustainable design considerations for new construction or remodeling. Learn what you as a homeowner or future homeowner can do about energy efficiency, resource efficiency and indoor air quality. Make your home healthier for your family and our planet Earth.

Steve Hale is the Director of Build Green NM, a program for Certification of Residential projects. He is also a custom home builder specializing in smaller sustainable homes. He has worked on several national committees including the development of the ANSI National Green Building Standard approved in January 2009.

The Hybrid House - Ten Strategies for Energy-Thrifty Buildings (D)

Saturday 11:45am-12:45pm Energy Rm (E)

Catherine Wanek of Builders Without Borders

A "Hybrid house" saves energy with smart combinations of design, construction techniques, and home-generated power. Learn how homeowners are enjoying \$10 energy bills, discover the design secrets of insulated thermal mass, and see how architects and builders are creating sustainable solutions to human habitation.

Catherine Wanek is the author and photographer of the books "The Hybrid House, Designing with Sun, Wind, Water and Earth," and "The New Straw Bale Home." She has contributed articles and photographs to Su Casa Magazine, Communities, Mother Earth News and the New York Times. She is also co-director of Builders Without Borders.

The New American Dream Home (D)

Sunday 11:45am-12:45pm Cobalt Rm (C)

Connie Giffin of EarthWise Environments

The New American Dream Home was inspired by a visit to rebuild New Orleans and the coastal area after Hurricane Katrina. Learn how a photo of a simple, southern looking geodesic dome inspired Connie's book and desire to marry that technology with traditional architectural styles to gain acceptance by the public, building departments and our lenders.

Connie Giffin has been an architectural designer and general contractor since the mid eighties. An "earth friendly" mortgage broker, she's helped clients nationwide to finance their dream home. An artist, author and presenter, she resides in Pagosa Springs, CO and is currently constructing five of her Monolithic Dome designs in the Texas panhandle.

The Truly Sustainable Vegetable Garden (SL)

Saturday 2:15pm-3:15pm Cobalt Rm (C)

Laurie Lange of BotanicArts

Growing your own food is a step toward a sustainable food supply, but HOW it's grown is important to consider. Learn how to evaluate the sustainability of all garden practices, how to grow your own fertilizer, and use soil microbes, worms, on-site resources, double digging, rain sponges and other earthworks in your garden.

Laurie Lange is a xeriscape professional who has realized that supporting any plantings on irreplaceable water from aquifers is not sustainable. For the past several years, she's been devising new gardening systems to minimize use of precious desert water supplies. She is a veteran gardener and originator of the rain sponge concept.

Trains, Renewable Energy and All The Other Great Issues (T)

Sunday 1:00pm-2:00pm Driftwood Rm (D)
JW Madison, Nancy Jones-Francis, John Perry of Rails Inc

This workshop will cover rail-related topics such as: Trains, They're More Important Than You Think, National Rail Priorities, and Local Rail Transit. Participants will also find out how rail travel embraces renewable energy. What is well known in Europe can become viable in this great and vast country of ours.

JW Madison is a General/Electrical Contractor, an NMSEA business member, and the founder/president of Rails Inc. John Perry is a student of urban planning and a transit activist at UNM. Nancy Jones-Francis was in journalism for 25 years, but is now an advocate focusing on urban, regional and national rail.

Vertical Farms and Solar Technologies (SL)

Saturday 10:30am-11:30am Cobalt Rm (C)
Michael David Lipkan of Linear City Concepts

Vertical farms incorporate a variety of renewable energy-based technologies in mutually supporting ways to allow people to live close to the producers of their food. This workshop explains the need for vertical farms in burgeoning cities and suggests design ideas that lead to powerful combinations for the future.

Michael is a futurist with a background in science. He has been studying urban design concepts for more than 30 years. He is passionate about transforming our cities so they can be maintained entirely with renewable energy.

Water Walls: Back to the Future (D)

Saturday 3:30pm 4:30pm Cobalt Rm (C)
Helene Beauchamp of Zomeworks Corporation

Thermal mass is an integral part of passive building design. Because of new technologies, water is by far the most outstanding thermal mass provider both in performance and cost. Water walls can be added to new or existing buildings to store heat or cool. Learn about water walls, their energy production in NM, and building or installing them.

Helene Beauchamp does research, development, marketing, and public outreach for Zomeworks Corporation. The company passionately promotes direct use of the sun's energy in all its forms. Using this principle as its driving force, Zomeworks is a premier manufacturer of passive energy products.

Women and Solar (GJ, P)

Sunday 3:30pm-4:30pm Bamboo Rm (B)
Marlene Brown of NMSEA

This panel discussion will focus on the obstacles and barriers to women entering the solar market. Marlene will lead the discussion about what is unique to being a woman in solar. Although this discussion is for women working in or wanting to enter the solar industry, all are invited.

Marlene has been working and teaching in the field of photovoltaics for 20 years. She has taught many women-only classes in PV installation and is trained as an electrical engineer and an electrician.

TECHNICAL SESSIONS

SLASH/D: A Software Tool for Over-the-Internet Solar Heating Design (TS)

Sunday Technical Session I - 1
Fredric Milder and Bristol Stickney of SolarLogic

SolarLogic, a start-up based in Santa Fe, NM, is in development of the "SLASH/D" (SolarLogic-Assisted Solar Heating Design), a software that delivers complete solar heating system designs over the internet to heating contractors. This workshop will describe functionality and theory of operation, and solicit feedback to incorporate into ongoing product development.

Fredric Milder, PhD, is a nuclear physicist by training, and holds over 25 patents in the medical device industry. He is currently CEO of SolarLogic, a start-up developing products to streamline and enhance residential and small commercial solar heating system deployment. Bristol Stickney has been in renewable energy for 35 years (including 17 years in NMSEA) and is an internationally-known expert and pioneer in solar heating and cooling. He is currently Chief Technology Officer of SolarLogic. Bristol's columns appear monthly in Plumbing Engineer and he is a regular contributor to Solar Professional Magazine.

SLIC: SolarLogic Integrated Controller (TS)

Sunday Technical Session I - 2
Fredric Milde and Bristol Stickney of SolarLogic

SolarLogic, a Santa Fe-based start-up, is in development of the SLIC, an integrated solar heating system controller which, in addition to replacing all conventional heating system controls, adds the capability of controlling multiple heat sources in a single system. The control is installed with no need for programming or user-interface and features web-interactivity, diagnostic tools, data-logging, cooling capability, making it the easiest to install and most capable system control available. The SLIC theory of design and operation will be discussed and a prototype unit will be demonstrated.

See above.

Hybrid Solar Radiant Heating: Evacuated Tube Collectors (TS)

Sunday Technical Session I - 3
Richard Chacon of Independent Energy Center

Hybrid Solar thermal heating using evacuated tube solar collectors. These are refined systems using high temperature, high efficient, evacuated tube solar collectors, a high efficient backup boiler and stainless steel storage tanks. The systems provide sanitized domestic hot water and whole house heating in a compact design. These systems run HOT even when the weather is COLD.

Richard Chacon founded Independent Energy Center (IEC) in 1983. With a passion for renewable energy and sustainable design, IEC has been involved in dozens of unique and elegant projects. As specialty wholesale distributors the company provides contractors with complete integrated packages for optimized comfort and sustainability. IEC offers solar thermal, radiant heating, cooling, PV, and quality windows to the trades with technical support to integrate into the most challenging projects.

(Continued on page 28)

(Continued from page 27)

Solar Battery Technologies (PV)

Sunday Technical Session I - 4

Jonathan J. Jimenez of Affordable Solar Group

"What's new in Batteries?" The answer for many years has been...nothing. No longer! From advancements in the tried and true Lead Acid technologies to Lithium Ion to the latest room temperature Sodium batteries.

Jonathan J. Jimenez is the Battery Based System specialist at Affordable Solar. He is a true expert in battery maintenance and routinely assists corporations and individuals solve problems with their off-grid systems. He enjoys being part of a company that helps others change the world and their own lives for the better.

Alternative Energy System Modeling and Estimating (PV, W)

Sunday Technical Session II - 1

Jeff Burmood of Alternative Software Concepts

Discuss benefits and approaches for modeling and estimating the size, type, and cost of an alternative energy system for both grid-tied and off-grid solutions. Presentation identifies some available tools for modeling and estimating, but uses the Alternative Energy Product Suite - System Planning tool in examples and explanations on how to estimate energy demand, and how to generate a size and cost estimate for a solar, wind, hydro, or hybrid AE solution to meet all or some of the energy demand.

Jeff is a software engineer that designed and installed a 1.5 KW hybrid solar and wind powered off-grid system for his home in Cloudcroft, New Mexico. Jeff works for a company, Alternative Software Concepts (ASC), that develops products to help in the planning, monitoring, and control of residential and commercial alternative energy systems.

Smart Energy House (D)

Sunday Technical Session II - 2

Rob Stout of Southwest Solar Design

All thermal insulation and air leaks are addressed from foundation to roof. Air tightness is essential and an Energy Recovery Ventilator is used to provide fresh air without wasting energy. Once the shell is tight then smaller solar systems can provide all the energy needs of the house.

Rob Stout has been designing solar homes since the 70's. He has degrees in engineering and architecture. He teaches green architecture at Santa Fe Community College, does a radio show on sustainable living and his current design work is at or very near zero energy.

Certifying to Build Green NM (D)

Sunday Technical Session II - 3

Steve Hale of Build Green NM

It takes effort to certify a project but it's far from impossible. Learn the procedures, benefits and incentives when certifying with Build Green NM.

Director of Build Green NM. Member of the Consensus committee that developed the ANSI National Green Building Standard, approved in January, 2009. Steve is a custom home builder specializing in smaller sustainable homes.

Small Scale Manufacturing in Photovoltaics (GJ)

Sunday Technical Session II - 4

Patrick Gallagher of Solar Automation Inc.

Contrary to popular trends, small-scale local manufacturing is not only possible but profitable. It's all about tailoring the tools and processes to fit low-volume production. The presentation will include graphic examples of how to make the tools and how to shape processes to fit a new (but old) approach to sustainable local enterprise.

Patrick Gallagher is President of Solar Automation Inc. He is a mechanical engineer with 40 years of manufacturing time in the trenches. This includes work in the automobile, PV, robotics, food packaging, telecom, biomedical, and aerospace industries.



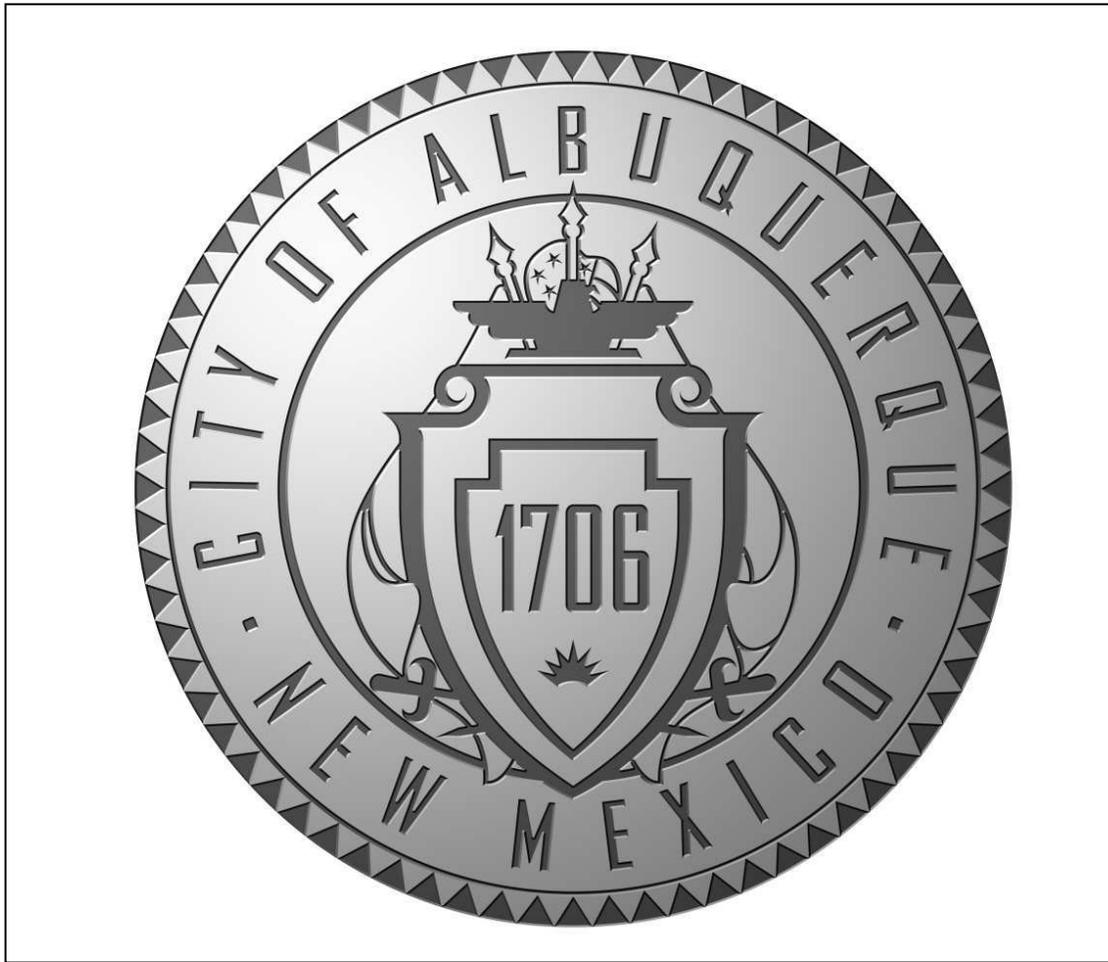
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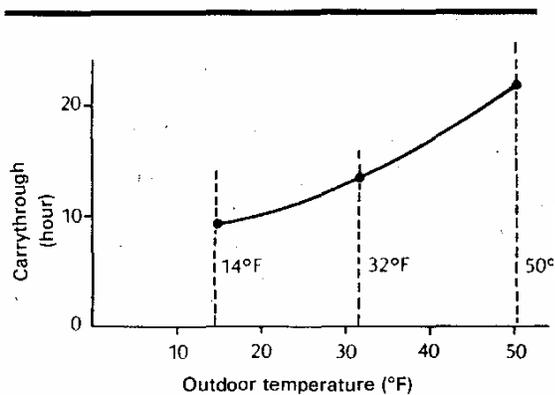
Solar Energy Investments
Closing share prices compared to the DOW index (approximate, rounded):

| 8/25/10 | 6/28/10 | 8/28/09 |
|---|---------|---------|
| First Solar (FSLR): | | |
| \$125 | \$119 | \$124 |
| Market Vectors, Solar Energy ETF (KWT): | | |
| \$10.78 | \$10.17 | \$13.43 |
| Dow Jones Industrial Average (\$INDU): | | |
| 10,060 | 10,139 | 9,544 |

Selected prices provided for relative information, only; NMSEA does not recommend specific investments. All investments involve risk, so invest cautiously. ☀



(Carrythrough, Continued from page 24)



Carrythrough of the Shurcliff house in Cambridge, Mass. This is a big, old, conventionally heated house that has recently been well insulated. The data are based on rough estimates only.

Can Carrythrough be increased easily?

Using the above-proposed definition and using the experimental data that may soon become available, designers can start figuring the greatest carrythrough, which configuration gives the greatest carrythrough per

dollar of capital cost, and what minor modifications would increase the carrythrough significantly, while increasing the cost only insignificantly? A spurt in hard thought and inventiveness is to be expected.

Here are some possible ways in which (even without increasing the mass of floors, walls, etc.) designers can increase the carrythrough:

- Use materials that have greater thermal conductivity, so that the heat can flow faster and farther into the floors and walls and can later emerge from them faster....
- Provide larger surface areas of walls. Use deeply grooved walls or perforated walls. Provide channels for circulation of air.
- Use small fans to force air to circulate over the surfaces of floors and walls, or through channels therein....

Of course, attention should be given also to reducing heat loss by improving the insulation of the house and installing thermal curtains on the big windows at night; this may be the cheapest way of increasing carrythrough. In general, the subject of maximizing carrythrough should be considered carefully by the architect at the time the house is being designed. ☀

Santa Fe Buckman Project Adopts PV

<http://nmsierraclub.org/buckman-solar>

Early in 2009, David Van Winkle and Dexter Coolidge of the Northern New Mexico Group of the Sierra Club met with Santa Fe Mayor David Coss, City of Santa Fe City Councilors and Santa Fe County Commissioners to convince them to use renewable energy for the Buckman water project. It became a reality last week (June 4).

The Buckman Direct Diversion (BDD) Project Board has authorized a landmark Solar Energy Agreement (SEA) for the BDD Water Treatment Plant. American Capital Energy, Inc. (ACE) will build and operate a 1-megawatt solar photovoltaic (PV) plant to satisfy most of the electrical energy required by BDD's advanced water treatment facility.

About eight acres of solar panels located in an out-of-view location next to the water treatment plant will generate as much as one megawatt of solar electricity. The SEA provides for a 20-year fixed solar electricity price of \$0.155 per solar kilowatt hour (kWh). During the first year of operation more than 2.34 million kWh will be generated, supplying much of the water treatment plant electricity at peak production and about 30 percent of its total energy needs.

In October 2009, ACE was selected as the top-ranked bidder as part of competitive procurement advertised by the BDD Board for solar energy services. ACE is a national solar developer, which has a Santa Fe office and has built a 500-kW solar project in Taos, New Mexico. Since last fall, the New Mexico Public Regulation Commission (PRC), the Legislature, and the New Mexico Supreme Court have addressed the legality of solar developers selling solar electricity to a host customer. The New Mexico legislature passed a new law that goes into effect in 2011 specifically authorizing such arrangements, and the New Mexico Supreme Court has dismissed an appeal of the PRC ruling by two public utilities. These events clear the way for ACE to proceed with construction of the photovoltaic electrical generating system, which ACE will finance, design, build, operate and maintain. Construction is scheduled to begin this summer and be completed this fall.

According to Rebecca Wurzbarger, BDD Board chair and Santa Fe Mayor Pro Tem and Santa Fe City Councilor, "The benefits to our customers are significant: fixed price solar electricity for 20 years, no upfront capital costs, reduced carbon footprint, and economic benefits from the construction and 20 years of maintenance. We are delighted to have authorized this contract and have instructed the BDD Project Manager to secure more solar energy."

The solar system will be located on federal land owned and managed by the Bureau of Land Management (BLM) adjacent to the south border of the BDD water treatment plant. The BDD will pay \$10,000 annual rent to the BLM for an additional 8.5 acres of right-of-way.

The SEA requires ACE to minimize soil disturbance during construction, restore vegetation, and to effectively control weeds, dust, and erosion. Drinking water cannot be used for construction, and water used to clean solar panels during operation is restricted to a maximum of 5,000 gallons per year. ACE expects to use less than that.

The SEA allows ACE to use tax incentives and accelerated depreciation, which would not be available directly to the BDD as a non-taxable public entity. The BDD will receive all the Renewable Energy Certificates (RECs) and other environment credits for sale to PNM under the utilities' current large solar PV program. PNM will not legally commit to purchasing the RECs until after the solar generating plant has been constructed and tested to pass PNM requirements. The BDD has no price guarantees for the RECs. Under PNM's existing solar incentive program, the value of the RECs will reduce the BDD Water Treatment Plant total annual power bill by nearly \$200,000 in 2011.

"The customers we serve deserve the benefits of clean, fuel-free, renewable solar energy. We are trying to get the solar project built before the rules change again," said Virginia Vigil, BDD Board Vice-Chair and Santa Fe County Commissioner. "We will get the project built by fall before the BDD Project goes on line. Cooperation between city, state and federal governments have been necessary for the success of this project, and I have confidence that PNM will also be a cooperative partner in this project," she said. ☀

About the Buckman Direct Diversion Project — The BDD Project will provide a sustainable way for the City of Santa Fe and Santa Fe County to access surface water supplies by diverting San Juan-Chama Project water and native Rio Grande water to reduce their reliance on over-taxed ground water resources. Design and construction on the BDD began in September 2008 and is expected to be completed, with the project operational, in spring 2011.

About American Capital Energy — With offices across the country, including Santa Fe, New Mexico, American Capital Energy (ACE) provides full-service project development, finance, and construction services for large-scale solar energy projects. ☀





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.

Name: _____

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) 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.

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 |
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- | | |
|---|---|
| <input type="checkbox"/> Do not rent my name | <input type="checkbox"/> I do not wish to receive the Sunbeam on-line newsletter |
| <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 \$ _____

Payment options: Check or money order enclosed Visa MasterCard

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For more information, please call **505-246-0400** or **888-886-6765** or visit **www.nmsea.org**.

The SunPaper

New Mexico Solar Energy Association
1009 Bradbury Dr. SE
Albuquerque, NM, 87106
www.nmsea.org

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**Solar
Fiesta
Edition
2010**

NMSEA Vision Statement

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

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.

Coming Events

- Sept. 11-12 **What a Bright Idea! NMSEA Solar Fiesta**, Menaul School, Albuquerque. Gates open for exhibits and activities from 10:00AM – 5:00 PM. Go to our website for Solar Fiesta 2010 information: www.nmsea.org.
- Sept. 18 Board of Directors Meeting, Saturday, NMSEA office, 1009 Bradbury Dr. SE, Albuquerque, 87106. Members welcome, 12:00 noon to 2:00PM; potluck before.
- Oct. 15-17, PV Design and Installation Class, Alamogordo Habitat for Humanity. Design section first
- Oct. 23-24 first weekend. Full-course Installation section continues the second weekend. Call NMSEA for information or see details on our website, www.nmsea.org.

Use This Solar Fiesta Guide!

Help us be gentle on the Earth and bring this Guide with you to the Solar Fiesta. Plan ahead for the exhibits and workshops you want to see. Recycle your guide as you leave.

Double-check Schedules!

Some events and activities for the Solar Fiesta may change after this Guide is printed, so please verify schedules and locations upon arrival.