



CRES NEWS

Newsletter of the Colorado Renewable Energy Society

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A Chapter of the American Solar Energy Society

AUGUST 2007

Colorado's Climate Challenge: Reducing your Carbon Footprint - Feature Topic for August Meeting

Local Homebuilder Launches Largest Solar Home Development in Colorado



McStain Neighborhoods, a Colorado-based homebuilder with communities throughout the metro Denver and Northern Colorado, is building a total of 42 solar-powered homes in Bradburn Village in Westminster. The solar electric homes, which will be available for occupancy in November, will come in three two-story plans ranging from 2,446 to 2,842 square feet. The homes are distinguished by the fact that solar power is built into every unit as a standard feature, not as an option.

These homes, powered by photovoltaic panels on the roof, will produce at least half the electricity they consume. In a given day, the electric meter will spin backward and forward, as part of *net-metering*, which allows homeowners to reduce their electric bill to *net-zero* on a monthly or annual basis with an overall utility cost reduction of up to 50 percent. In addition to the economic benefits to homeowners, each of the 42 McStain homes will offset four tons of soot and smog pollution each year for the next 30 to 40 years.

This is something of a breakthrough. To our knowledge, no other new multiple home community in Colorado can boast that solar electricity is being included as a standard feature in this large a number of houses being built there by one developer. If successful, this might set a precedent that could well induce other builders to begin including solar on many or all of their new homes to be offered for sale.

Bradburn Village is located in Westminster off 120th between Federal and Sheridan. Developed by Continuum Partners, the 125-acre neighborhood was created around a pedestrian-friendly village with many amenities, including shops, restaurants, and offices, interspersed with apartments, condos and individual homes.

The next meeting of the Colorado Renewable Energy Society will take place at **5:30pm** on a new day of the week and in a new location. The date is **Thursday, August, 23**. The location is the **Jefferson Unitarian Church** at 14350 W. 32nd Ave. In Golden. (You can take I-70 to exit 264, and then go west on 32nd Ave for about 1 mile... or you can go north or south on any intersecting street and go straight west on 32nd Ave).

Two well known Colorado environmentalists will be giving their take on the looming climate change and its impact on Colorado. They will also explain ways by which each of us can do our part in generating less carbon to counteract the global warming effect. The first speaker will be **Susan Innis** who is the Green Power Marketing Director at Western Resource Advocates (WRA). Our second speaker is **Randy Udall**, Director of the Community Office for Resource Efficiency (CORE).

Susan works with stakeholders in the Rocky Mountain region to develop and implement community-based strategies for selling clean energy, and to develop state level policies to encourage the use of renewable energy.

Randy founded CORE in 1994. It is a nonprofit organization which promotes renewable energy and energy efficiency in partnership with Holy Cross Energy, a rural electric utility on Colorado's Western slope. Randy has been active in CRES, ASES and ISES and currently serves on the Board of Solar Energy International (SEI).

This meeting is being cosponsored by the Green Task Force of the Jefferson Unitarian Church and CORE.

Colorado Calendar

This column features dates for meetings and other events relevant to Coloradans interested in renewable energy.

Sept 15-16... Rocky Mountain Sustainable Living Fair. A solution driven event to move people towards powerful choices for sustainable living. *Location:* New Belgium Brewery, 500 Linden St, Fort Collins. For further information visit www.sustainablelivingfair.org.

Sept 20-22... Building a Greener Colorado. A three-day conference to be presented by the Colorado chapter of the USGBC will promote the understanding and implementation of Green Building practices. Workshops will be held on Thursday; educational sessions and special speaker presentations will take place on Friday, and tours of green buildings will be conducted on Saturday. *Location:* Marriott Hotel, Ft. Collins. For further information visit <http://chapters.usgbc.org/colorado/> or call 720-382-1343.

Sept 23-30... Solar Week in Boulder. The Center for Resource Conservation will be hosting a *Solar Week* including a conference, expo and workshops. *Location:* Boulder. For further information visit www.conservationscenter.org.

Oct 24-26... Integrating Carbon Footprint and Demand Response into Efficiency and Renewable Energy Programs. Hosted by City of Aspen Utilities and Holy Cross Energy Cooperative. Focuses on best practices from Colorado-based utilities currently developing and implementing customer programs. *Location:* Aspen Meadows Resort, Aspen. For further information call Ed Thomas at 970-209-8347 or visit www.marketdevelopment.com/CUE.htm.

October 30... Colorado's New Energy Economy: The Path forward. Sponsored by the Governor's Energy Office and the Office of Consumer Counsel. Provides an overview of the status of electric power, natural gas, and renewable energy power and use. *Location:* Marriott City Center, Denver. For further details visit www.dora.state.co.us/PUC/

PUC/OCC to Host Energy Town Meetings

The Colorado Public Utilities Commission (PUC) and the Colorado Consumer Counsel (OCC) will be hosting a joint "listening tour" on energy issues all around the state of Colorado in August and September. The town meetings will be held in Windsor on August 14, in Yuma on August 21, in Springfield on August 28, in Alamosa on August 29, in Canon City on August 30, in Steamboat Springs on Sept. 11, in Montrose on Sept. 12, and Vail on Sept. 13.

The PUC and OCC are soliciting opinions on topics such as the selection of new electric generation sources (e.g. renewable energy systems), siting of new transmission lines, encouraging energy efficiency measures, low-income issues and other energy issues of importance to Colorado utility customers. CRES members are encouraged to attend and make their opinions known. The meetings are open and free to the public. For further details visit www.dora.state.co.us/puc/publications/newsrelease/2007-07-18NR_onroadtownmeetings.htm.

CRES Member Article Featured In SOLAR TODAY

The September/October issue of ASES' bimonthly magazine, *SOLAR TODAY* will feature an article written by CRES member, John Avenson. The article will feature John's super efficient solar home in Westminster, but in addition will tout the ASES National Tour of Solar Homes coming in October. John relates, "I wrote this article with a different slant than most. My goal is to encourage children to attend the National Solar Home Tour and for parents, school teachers, Scouts, etc. in this area to bring children to my house for a tour and a special lecture on the importance of renewable energy and energy efficiency. In the article I tell my childhood story of how events from the 50s, 60s, and 70s led up to my being involved in solar. That is the story I will tell the children who come see my house. I am hopeful that this example will convince children and their adult mentors to appreciate the benefits of new age energy technologies such as solar and energy efficiency in building design."

NREL/Boeing Wins R & D Award for 40% PV Cell

A new photovoltaic cell that boasts a conversion efficiency of 40.7% was recognized by *Research and Development (R & D)* magazine as one of this year's major significant innovations. For this achievement the magazine awarded NREL and its subcontractor, Boeing Spectrolab, the *2007 R & D 100 Award*. The high-efficiency metamorphic multi-junction (HEMM) concentrator solar cell is the first photovoltaic cell to break the 40 percent conversion efficiency barrier - "**the solar equivalent of breaking the four minute mile.**" U.S. Secretary of Energy, Samuel Bodman, exclaimed, "once again DOE's labs are at the cutting edge of innovation with new technology developments to enhance America's economic and national security."

The NREL/Boeing Spectrolab HEMM approach represents a powerful new technology for designing super-efficient, multi-junction solar cells. The HEMM solar cell is a triple-junction device that uses mismatched materials. Unlike other triple junction cells, with the MEMM approach, the atoms are unevenly spaced giving researchers more materials to choose from to create even higher-efficiency solar cells.

"The lattice-mismatched design gives designers a greater freedom in multi-junction cell design for greater absorption and use of sunlight" said Dr. Martha Symko-Davies, research senior supervisor at NREL. "This could lead to four, five, and six-junction cells that can convert more than 50 percent of the solar spectrum into electricity."

The NREL researchers who worked on the project are Symko-Davies and Dr. Larry Kazmerski, director of the National Center for Photovoltaics at NREL. The results were confirmed by NREL's Photovoltaic and Module Performance Characterization section managed by Keith Emery.

The Myth of Independence

One of the Great Myths, particularly in the culture of the West, is that we are independent...and aim to stay that way. Even in the early days of the development of the West, this was fantasy. We are dependent on each other for virtually everything that we consume, from breakfast tacos to tap water. We are also dependent on each other for clean air and a safe environment, and each bear responsibility for our small part in the Big Picture.

This translates from the macro to the micro. *Grand visions don't happen without local action* (not a new idea, but feel free to quote me on that). The success of CRES depends on this interdependence. We enjoy the opportunities to share information and influence public policy because of the individual efforts of the many volunteers that step up for the good of CRES.

Throughout the year there are opportunities to volunteer for specific events, ongoing committees and Board positions (we'll be looking for a new Treasurer over the next few months). I hope you will consider your personal resources and how you might contribute toward furthering CRES's leadership in ensuring a clean energy future for Colorado. Excellence comes from the combined efforts of many. I'm not striving for perfection here...just conscious awareness. Know your strengths, and share them!



Call for CRES Member Proposals

There are two activities coming up that would welcome proposals for participation by CRES members. They are:

1. NCRES Solar Home Tour

The NCRES Solar Home Tour is scheduled for October 6th. Currently the NCRES solar tour committee is reviewing various homes or businesses that would be appropriate to show this year. If you know of such a dwelling in the Fort Collins area, the solar home committee would like to know about it. Please understand that the committee is asking for suggestions; this does not guarantee that the site will be on the tour. Final site decisions will be based on driving distances to the site and the uniqueness of the solar technologies incorporated in the building. Submit your proposal to Michelle Taylor at michelle_suzette_taylor@yahoo.com. Be sure to include a short description of the site and the person to be contacted with his/her phone number and e-mail address.

2. Colorado State Brownfields Conference

The Colorado Brownfields Foundation is interested in ideas for individual presentations at its upcoming conference entitled *From the Ground Up* on November 15 & 16, 2007. The conference is to be held at the Doubletree Stapleton Hotel in Denver. One topic listed in the "Call for Proposals" that is most appropriate for CRES member presentation is *Renewable Energy/Brightfields Development*. If you are interested in making a presentation, you will be required to submit a 150 word summary of your talk along with a completed proposal form that can be downloaded at www.coloradobrownfieldsfoundation.org. For further information contact Juanita McConkey at 303-962-0941.

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NEXT CRES MEETING

CRES monthly meetings are now held at the Jefferson Unitarian Church, 14350 W. 32nd Ave., Golden. The meetings will take place on Thursdays and begin at 5:30 pm.

September 27... CRES Monthly Meeting. The speaker is Jim McMillan, Group Manager for Bio-Refining Process R & D and a principal engineer at the NREL Bioenergy Center.

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CRES CLASSIFIEDS

Position Opening

Red Rocks Community College (RRCC) is looking for someone to teach a course on grid-tied PV. The course will meet for four Saturdays starting in mid-September, will include a hands-on component, and will pay about \$3000, plus some prep time expenses. If you are interested, contact Cathy Rock, Construction Technology Department Chair at RRCC at 303-914-6513 or cathy.rock@rrcc.edu.

CREC Keynote DVD Now Available

Dr. Chuck Kutscher's keynote address at the recent 2007 Colorado Renewable Energy Conference (CREC) is now available in DVD form. The title of the address is *Climate Change and the Role of Renewable Energy and Efficiency*. It may be purchased for \$25 including shipping from CRES. For more information or to place an order contact Paulette Middleton at paulette@panorama-pathways.net.

Building America Series-Vol. 6

Volume Six of the *Building America's Best Practices Series: High Performance Home Technologies: Solar Thermal and Photovoltaic Systems* can now be downloaded in PDF format at www.buildingamerica.gov. The series is widely recognized as a great resource for builders and consumers, with photos and graphic details on everything from selling the product, to installation, to worker safety.

BOOK REVIEW

by CRES Member Joel Leventhal, PhD

Plug-in Hybrids

Cars That Will Recharge America

by Sherry Boschert

(New Society Publishers, 231 p. 2006, \$16.95)

In the same vein as the topic presented by Prof. Frank Kreith at the CRES April meeting, Sherry Boschert presents this new book with eleven chapters on the future of transportation in the U.S. First she gives us some history about how the electric car that was introduced almost a decade ago was killed. Then in chapter 2 she explains the basics of hybrids, plug-in hybrids and electric vehicles. The conversion of a Prius to a plug-in is described next followed by a glimpse of how hydrogen will someday become the fuel of the future.

Chapter 5 is a political commentary on saving the electric cars on the streets from the crusher. Chapter 6 gives info on why the grid can handle the plug-ins. Next there is a chapter describing the negative impact that any disruption in our oil supply will have on the world's economy. This is followed by a short chapter on world energy and peak oil. The last 3 chapters tell how plug-in hybrids can go a long way towards solving the world's energy problems.

The book is suitable for CRES members who are not technically bent; however, scientists and engineers will be interested in the detail and data given. The book can be ordered on line at www.sherryboschert.com.

ROSTER OF CRES BUSINESS MEMBERS

We thank the following organizations for their continuing support

Astralux Environmental Solutions
Aztec Radiant Heating, Inc.
Balanced Construction
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Burdick Technologies Unlimited, LLC
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City of Ft. Collins-Climate Wise
CO Homefinder.com
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