



CRES NEWS

Newsletter of the Colorado Renewable Energy Society

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A Chapter of the American Solar Energy Society

NOV./DEC. 2009

November Meeting - Topic: Alternative Transportation December - Holiday Volunteer Appreciation Party

REVOLUTIONARY NEW WIND TURBINE



Using features drawn from jet engine design, **FloDesign Wind Turbine, Inc.** has developed a prototype that is three times more efficient at turning the wind into electricity than today's towering, three-bladed models, according to CEO Stanley Kowalski III. Carefully shaped cowlings channel air into patterns that create spinning vortices – like miniature tornadoes – as the currents exit the device. This trick accelerates the air as it pass through (concept shown above is an artist's rendering).

The technology could transform the commercial wind business by providing units that are easier to install, longer lasting, and more adaptable to a variety of environments. Today's wind turbines can top out at 300 feet or taller, requiring a train of tractor trailers to haul tower sections and blades that are as long as a football field. FloDesign's new approach fits on a single rig.

Because its blades are lighter and smaller, the design starts spinning and making energy at lower wind speeds and is more tolerant of volatile wind patterns, making it a natural for windy niches where big turbines can't fit, such as in cities, on ridgelines and beaches.

Scaled down blades also spin faster, reducing the need for the costly gear boxes that today's wind turbines must use to connect slow-moving rotors to a high-speed generator kits. With fewer gears and other moving parts, the company claims it can reduce the parts count in a turbine by up to 75%, thereby boosting reliability, too.

The Wilbraham (Mass.)-based company has received funding from the Department of Energy. In addition, last year the company landed two start-up awards of sizeable amounts from the Massachusetts Institute of Technology.

NOVEMBER 19, 7:00PM... **Note that the meeting will be held at a different location;** Red Rocks Community College (RRCC) at 13300 W. 6th Ave., Lakewood.(between Simms/Union & Indiana on the US 6 Frontage Road). The meeting will be held in the "Community Room" on the lower level. **Alternative Transportation** will be the subject of a panel discussion by top experts in the field. The discussion will center on various electric vehicles and hybrids, transit, bicycles, walkable communities, tele-commuting, and other low- and no-energy transportation options. Some experts invited as panelists are Larry Snyder, head of RRCC's Renewable Energy Program; Graham Hill, owner of 21 Wheels; Carl Lawrence, owner of Hybrids Plus, and Kathleen Osher of the Transit Alliance.

DECEMBER 10, 5:00-7:00pm... Jefferson Unitarian Church at 14350 W. 32nd Ave., Golden.(on 32nd Ave. about 1 mile west of I-70 exchange). CRES will be hosting a special party for all volunteers who assisted in CRES activities throughout the year, as well as those who wish to volunteer in the coming year. Prospective volunteers may sign up by contacting CRES via the hotline or e-mail address on page 3 and receive their invitation to the party.

CRES Monthly Meeting Accessible via WEBCAST

To attend a meeting via webcast go to www.instantlyglobal.com/cres/meeting1. Please log on in this order

prior to start of the meeting:

1. CRES Chapters - **30 minutes**
2. 3+ CRES Membs - **20 min** or later
3. All others - **10 min** or later (until all connections are exhausted-15 max)

Colorado Calendar

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

November 17... Building Green Homes in Boulder. A 1/2 day workshop for homeowners, realtors, builders, engineers and designers. Outlines new energy efficiency and green building requirements in the City and County of Boulder. *Location:* Rodwin Architecture Offices, 1245 Pearl Street, Suite 202, Boulder. *Fee:* \$95.00. For further details call 303-413-8556 or inquire at scott@rodwinarch.com.

November 30 - December 5... RESET Home Energy Rater Training. Six day course, 8am-6pm, presented by EnergyLogic. Training for RESNET Home Energy Rater certification. *Fee for course including required text:* \$1,295. *Location:* EnergyLogic's Office, 525 E. Hwy 56/CR 8, Berthoud, CO. For further details call 970-556-7194 or inquire at linda.bilsens@nrglogic.com.

December 4 - 5...LEED Green Associate and LEED Building Design and Construction Training. Covering green building topics, principles, and strategies in preparation for the LEED Green Associate exam. Will also delve into the specific LEED requirements, reference standards, and calculation methodologies in preparation for the LEED Building Design and Construction exam (LEED AP+). *Location:* U. of Denver, Room 231, 2044 E. Evans, Denver. *Fees:* Students, \$400; professionals, \$500. For further details call 303-871-7987.

December 5...2009 Energy Star Summit and Awards Dinner. This is the Smart Energy Living Alliance's fourth annual Summit and its theme is *More Business. Less Energy. NOW.* Provide information on strategies that immediately improve marketing, building methods, business and bottom line. *Location:* Doubletree Hotel at Stapleton, 3203 Quebec St., Denver. For further details visit summit.smartenergyliving.org

Renewable Energy Growth Continues

The figures released on October 15, 2009 by the Energy Information Administration (EIA) in its "Electric Power Monthly" report confirm that renewable energy continues to grow substantially in the electrical generation sector. For the first seven months of 2009, non-hydroelectric renewables (i.e., biomass, solar, wind, geothermal) provided 78,518 thousand megawatt-hours of electricity - an increase of more than 7 percent over the same period in 2008. For the first seven-months of 2008 and 2007, net U.S. electrical generation from non-hydro renewables was 73,321 thousand megawatt-hours and 59, 557 megawatt-hours respectively.

For the period January 1 - July 31, 2009, non-hydro renewables accounted for 3.44 percent of net U.S. electrical generation. Hydropower accounted for 7.4 percent during the same time frame - an increase of 5.1 percent over 2008. Thus for the first seven months of 2009, renewables provided 10.84 percent of net U.S. electrical generation.

"The handwriting on the wall is unmistakable," said Ken Bossong, Executive Director of the SUN DAY Campaign. "Renewable energy has become a major player in the electricity market place and is the wave of the future as fossil fuels and nuclear power fade away."

Record HCPV System Efficiency Achieved

Energy Innovations, Inc., manufacturer of high concentration solar modules and systems, announced that its latest generation Sunflower module has achieved a **world leading 29% conversion efficiency** – almost double the average efficiency of flat plate PV systems.

This significant achievement represents the culmination of substantial research and development work across a broad range of disciplines including advanced optics designs, cell thermal management, tracking systems design and automated robotic assembly techniques. Only with a fully integrated system approach, as employed in the Sunflower Highly Concentrated PV (HCPV) system, can this type of world-leading performance be achieved.

Energy Innovations' Sunflower HCPV system makes solar more cost-effective, more powerful and a smart investment. "Achieving this world-leading efficiency is another example of the advantages our proprietary HCPV architecture provides," said Joe Budano, CEO of Energy Innovations. "We are now starting to see real commercial products delivering on the promise of CPV, for today and into the future."

This significant milestone in module efficiency was achieved while tracking the sun on EI's fully integrated 2-axis tracking system. Sunflower's advanced optics allow for a remarkable +/- 0.9 degrees of acceptance angle, another industry first. Large acceptance angles make tracking systems less complicated and lower cost while producing more power even in high winds.

NREL Awarded Two CSP R&D Grants

On October 8, Energy Secretary Steven Chu announced that NREL had won two CSP research and development grants worth nearly \$5.4 million. They are for the construction and operation of *Advanced Thermal Storage and Solar-Field Test and Evaluation Facilities* and for research and development of *Nanomaterials for Thermal Energy Storage in Concentrating Solar Power Plants*.

These awards complement ongoing NREL research and development in support of CSP. Per an NREL spokesperson, "Over the coming months, NREL will reach out to CSP stakeholders to refine the plans for facilities to meet the near- and long-term needs of the CSP industry."

OCTOBER WAS BIG FOR RENEWABLES IN COLORADO

The month of October 2009 was a big one for renewables in particular, and for the energy scene in general, in the Denver area. The Governor's Energy Office sponsored their annual conference on Colorado's New Energy Economy at the Shearson Denver Downtown Hotel. In addition to Governor Ritter, speakers included: Dr. Kristina M. Johnson, Under Secretary for Energy for the U.S. Department of Energy; Dr. Dan Arvizu, Director of the National Renewable Energy Laboratory; Marc Spitzer, Commissioner of Federal Energy Regulatory Commission (FERC); and Dr. Susan Tierney, Managing Principal of the Analysis Group, and a member of the National Commission On Energy Policy and Co-Chair of the Department of Energy Agency Review Team.

Topics covered included: *The Next Generation of Renewables; Is Baseload an Outdated Concept?; and Transmission Siting: Whose Decision is It?* By all accounts, the conference was a great success. CRES had our exhibit booth at the conference, which was staffed by Sheila Townsend and Phil von Hake.

From Oct. 11-13 the Association for the Study of Peak Oil (ASPO-USA) had its annual conference at the Sheraton Denver Downtown Hotel. The theme of the conference was: *System Reset: Global Energy and The New Economy* The program was opened with talks by Governor Ritter, Mayor Hickenlooper, and ASPO Executive Director, Dave Bowden (2004 CRES President). The agenda included a truly stellar assembly of speakers on the peak oil topic, including Matt Simmons, Richard Heinberg, Robert Hirsch, former Colorado Governor Dick Lamm, Brazil's Marcio Mello, Kevin Phillips, with CRES members Steve Andrews, Dave Bowden, and Randy Udall serving as moderators.

Unlike the GEO conference, the ASPO conference had its detractors. A local oil exploration firm hired people to dress up in chicken costumes (Get it? Chicken Little, the Sky is Falling!) and pass out flyers ridiculing the concept of peak oil. I suppose this sort of nonsense marks progress of a sort—at least the concept of Peak Oil is attracting attention from the representatives of the petroleum status quo (as my former minister used to say—abuse is better than being ignored, because at least it's an indication of personal interest).

But the month ended on an up note for renewables: SMA Solar Technology AG of Germany, world's largest manufacturer of solar inverters, announced that it will locate its first manufacturing plant outside of Germany in Denver, in the Stapleton area. The company expects to hire some 700 workers. More Green Jobs for Colorado!

It's been an honor to serve as CRES president for 2009, and I wish my successor, Thom Johnson, all the best for next year. Look for big things from CRES in 2010!

Steve Sargent, 2009 President

CRES NEWS

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NOTICES

CRES NEWS on Website

The latest edition of *CRES NEWS* is available on the CRES website. You may access it by going to www.cres-energy.org and clicking the *CRES NEWS* notation on the lower right side of the page.

Paperless CRES NEWS Option

If you prefer to receive your *CRES NEWS* electronically please send your request to info@cres-energy.org.

Call for Papers - 2010 CREC

The 2010 Colorado Renewable Energy Conference (CREC) will be held in Montrose, Colorado on June 18-20. CRES is now calling for presentations, papers and panel discussions regarding clean energy and energy efficiency technologies, measures, policies, programs, and analytical tools. Those interested should submit an abstract (250 words maximum) to: Gerry Fitzpatrick at fitzpatrick.gerry@gmail.com by no later than **Feb 15, 2010**.

CRES "HOTLINE"

303-806-5317

CRES INTERNET NOS.

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RENEWABLE ENERGY BRIEFS

New Solar Inverter Manufacturing Plant to be Located in Denver...It has been announced that SMA Solar Technology, AG shortly will be opening a 1GW inverter manufacturing plant in Denver. The yearly production capacity of the new facility will be around one gigawatt with an option for expansion. The central SMA site for production is expected to grow substantially in the years to come.

In the new US production facility SMA will produce the Sunny Boy, Sunny Central and Sunny Island product lines for the North American market. SMA, the Etkin Johnson Group, the State of Colorado and the City of Denver have signed agreements for the establishment of this largest production facility for solar inverters in the US.

In the near future, SMA will employ a staff of 700 (including temporary employees) in Denver. Production is planned to begin around the middle of 2010. The investment for the new production line and building enhancements is estimated at around 15 million Euros.

Obama Announces Smart Grid Plan...On October 27, President Barack Obama announced a 3.4 billion investment of stimulus funds to modernize the electric grid. He announced that 100 private companies, utilities, manufacturers, cities and others will receive grants between \$400,000 and \$200 million to help build a nationwide "smart energy grid" that will cut costs for consumers and make the nation's electrical system more reliable.

The grants are expected to create tens of thousands of jobs and lay down the infrastructure to create a new renewable energy industry.

Federal Government Converts Much of its Fleet to Energy Efficient Vehicles... The Obama Administration has now invested \$300 million from the American Recovery and Reinvestment Act to convert much of the federal fleet to more fuel-efficient vehicles. During fiscal year 2009, which ended on September 30, 2009, the federal government ordered 17,246 fuel-efficient vehicles from six different manufacturers, most of which will be delivered by the end of October 2009.

ROSTER OF CRES BUSINESS MEMBERS

We thank the following organizations for their continuing support

Adobe Solar	EMC Engineers	Resolution Energy, Inc.
Apex Risk Solutions	Energy Environmental Corp.	Rocky Mountain GeoExploration
Arapahoe Community College	Enermodal Engineering	SELA - Smart Energy Living Alliance
Astralux Environmental Solutions	GCG Financial, Inc.	Shumei International Institute
Balanced Construction	Golden Solar	Silvertip Int. Eng. Consultants
Black Hills Energy	Gray Construction	SolSource, LLC.
Blakely & Co.	Hydro Electric, LLC	Solar Energy Quest
Bright Idea Energy Solutions, LLC	Innovative Energy	Solargreen Technologies
Brownstein Farber Schreck, LLP	Integral Energy Systems	Solar TEK Energy of Denver, Inc
Burdick Technologies Unlimited, LLC	Jefferson Unitarian Church	Southard Solar
Challenge International, Inc.	Jim Logan Architects P.C.	Standard Renewable Energy.
Chamberlin Architects	Kyocera Solar, Inc.	Starfire Energy, LLC
City of Ft. Collins - Climate Wise	Larson electric, Inc.	Stern Elkin Curray & Alterman, LLP
CO Homefinder.com	Lghtly Trading Energy & Design	Sustainable Solutions, Inc.
Colorado Springs Utilities	Low Energy Systems	T Allen Agency, Inc.
Conundrum Energy	Mi Cocina Mexican Restaurant	Telluride Energy, LLC
Cool Energy, Inc.	Namaste Solar	The Fort Restaurant
Delta Montrose Rural Electric Assn.	NexGen Energy Partners	Western Cultural Resource Mgmt.
DMA Engineering	Poudre Valley REA	Western Resource Advocates
Double D Diversified	Red Rocks Community College	Yes! Solar Inc.