

## EERE-PMC News

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### March, 2007

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PMC-News this month takes a look at the [Solar Energy Technologies Program](#).

We explore what's happening in the [Solar America Initiative](#) including a link to the current [funding opportunity](#) for Solar America Showcases. A sidebar piece points to [web sites](#) that help determine if solar-generated electricity is right for your home or business.



**EERE's goal is to increase the capacity of U.S. photovoltaic (PV) systems from the 2005 level of 240 megawatts to 2,850 megawatts by 2010.**

A recent NREL study gives an objective look at how home-buyers feel about [purchasing net-zero energy homes](#).

[Federal and state incentives](#) are being put into place to help improve the economics of solar-generated electricity, and dates are set for the [2007 Solar Decathlon](#).

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### **\$357 million for new solar projects**

Assistant Secretary Andrew Karsner announced on March 8 that 13 solar energy projects will receive up to \$168 million in DOE funding, to be matched by involved, private partners. The \$168 million in awards will be the first of the Solar America Initiative's new Technology Pathway Partnerships (TPPs).

As part of the cost-shared agreements yet to be negotiated, the industry-led teams will contribute more than 50-

percent of the funding for a total value of up to \$357 million over three years. The projects will aim to increase the capacity of photovoltaic (PV) systems from the 2005 level of 240 megawatts to 2,850 megawatts by 2010.

Selected teams include more than 50 companies, 14 universities, three non-profit organizations, and two DOE national laboratories. The projects will focus on a variety of technologies including concentrating PV systems; crystalline silicon solar cells; thin-film PV technologies; organic solar cells; PV-integrated roofing products; PV modules with integrated electronics, including inverters; and manufacturing systems for silicon ingots, solar cells, and PV modules.

The Solar America Initiative is part of the President's Advanced Energy Initiative. It has the goal of making photovoltaic-generated electricity cost-competitive with traditional energy sources by 2015. The program will concentrate on market transformation as well as developing Technology Pathway Partnerships.

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### **Solar America funding reminder**

Solar America Showcases: Notice of Opportunity for Technical Assistance

Deadline for Applications: March 30, 2007



### **Concentrating solar power will help meet expanding needs for electricity in the near future.**

The purpose of Solar America Showcases (SAS) is to accelerate demand for solar technologies among key end-use market sectors. Under this activity, DOE will provide technical assistance to large-scale (in excess of 100kW), high-visibility solar installation projects that have the ability to impact the market for solar technologies through large project size, use of a novel solar technology, and/or use of a novel application for a solar technology.

In addition, it is desired that the projects be replicable or have replicable components. It is not expected that all projects will meet all of these parameters, but projects would ideally reflect some or most of these qualities. Large-scale installations may include photovoltaic, concentrating solar power, and solar water heating applications.

For information on the [Solar America Initiative \(SAI\)](#) Market Transformation: Solar America Showcases:

Notice of Opportunity for Technical Assistance, go to: [Financial Assistance](#).

Funding Opportunity Number: DE-PS36-07GO97008

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### **2007 Solar Decathlon set for Oct. 12-20**

Twenty university teams from around the world are setting out to improve the way we live and, for them, change begins at the front door.

The 2007 Solar Decathlon will bring teams and their houses from across the U.S. and as far away as Germany, Spain, Puerto Rico and Canada to the National Mall in Washington, D.C. this October.

The Solar Decathlon is a competition to design and build the most innovative and aesthetically pleasing, completely solar-powered homes. These zero-carbon, zero-net energy homes combine cutting-edge solar technologies and innovative green building techniques. This year's competition will run from Oct. 12-20.



**The Solar Decathlon challenges 20 collegiate teams from the U.S., Canada, Puerto Rico, Germany and Spain, to design, build and operate the most livable and energy-efficient completely solar-powered house.**

**Photo by Stefano Paltera/Solar Decathlon**

For the past two years the teams have been doing the design work, research and testing necessary to construct and power the homes. In early October, the homes will be shipped to Washington, D.C. where, on Oct. 3, a "solar village" will begin to take shape. Teams have one week to complete their homes before the competition begins on Oct. 12.

This is DOE's third Solar Decathlon. The first two competitions, held in 2002 and 2005, each drew more than 100,000 spectators to the Mall. Visitors had the opportunity to observe advanced technologies such as translucent walls used for day lighting, structural insulated panels (SIPs) for improved insulating value, solar heated fluid flowing under floors to provide warmth, fiber optic cables attached to solar collectors to transmit light inside a house and the latest in solar photovoltaic systems integrated into the building envelope. This year's event will feature these and other innovative technologies, demonstrating the tremendous advances in solar power and energy efficiency.

The Solar Decathlon will begin with an opening ceremony on Oct. 12 and houses will be open daily for public tours, except Wednesday, Oct. 17 when they are closed for competition purposes. Daily schedules and a complete list of teams are posted on the [Solar Decathlon Web site](#).

Teams will be judged in 10 areas encompassing architecture, engineering, livability, comfort, power generation for space heating and cooling, water heating, and powering lights and appliances. Each solar house must also produce enough "extra" power for an electric car. An overall winner will be announced on Oct. 19.

The U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy is the primary sponsor of the Solar Decathlon. DOE's National Renewable Energy Laboratory (NREL) sponsors and manages the event. The American Institute of Architects (AIA), BP, Sprint, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and the National Association of Home Builders (NAHB) are title sponsors.

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### **Solar Program Review**

EERE will hold its annual Solar Program Review Meeting in Denver, April 17-19. This year's meeting, which reviews solar research and development activities, will be combined with a peer review of DOE-funded solar projects.

A solar power inverter workshop for all interested participants will follow the meeting on the afternoon of April 18.

[Meeting details and registration](#)

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## Midwest Renewable Energy & Sustainable Living Fair



### **Innovative, small-scale PV systems now meet electricity needs in more and more off-grid applications.**

The Midwest Renewable Energy Association will hold its 18th annual Renewable Energy and Sustainable Living Fair June 15-17 in Custer, Wisconsin.

Thousands of people from around the world have attended this event over the years, making it the largest venue in which visitors can learn about the combination of renewable energy, energy efficiency, and sustainable living.

[Renewable Energy and Sustainable Living Fair](#)

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### **NETL adds PMC staff**

- Holly Ravesloot has joined the NETL Project Management Center Intergovernmental Projects and Outreach Division, and will serve as the Weatherization Assistance Program (WAP) Project Manager for the Northeast States (Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont). Holly is stationed at the NETL Morgantown site, and can be reached by phone at (304) 285-4139, and by e-mail at [holly.ravesloot@netl.doe.gov](mailto:holly.ravesloot@netl.doe.gov)
- Kay Milewski has joined the NETL Project Management Center Power & Vehicles Technologies Division, and will serve as the Clean Cities Project Manager for the Mid-Atlantic States (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia). Kay is stationed at the NETL Morgantown site, and can be reached by phone at (304) 285-4535, and by e-mail at [kay.milewski@netl.doe.gov](mailto:kay.milewski@netl.doe.gov)
- Robert Bonazza has joined the NETL Project Management Center Buildings & Industrial Technologies Division, and will serve as the Buildings Market Transformation Project Manager for activities involving FutureGen and the Army Corps of Engineers. Robert is stationed at the NETL Morgantown site, and can be reached by phone at (304) 285-4759, and by e-mail at [robert.bonazza@netl.doe.gov](mailto:robert.bonazza@netl.doe.gov)

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### **Solar America Initiative**

The Administration has asked for \$148.3 million for solar energy in its FY 2008 budget request; almost double the enacted FY 2006 level.

Within this package, photovoltaic (PV) will receive about \$137 million; concentrating solar power (CSP) \$9 million, and solar heating and lighting \$2 million.

Within this budget, DOE's Solar America Initiative (SAI) will continue working to form new strategic partnerships with industry and universities to help lower the cost of solar energy and help clear away market impediments such as outmoded building codes or installation complexities.

Andrew Karsner, DOE's assistant secretary for energy efficiency and Renewable Energy, recently told Congress that, "The solar program aims to accelerate the market competitiveness of solar electricity as industry-led teams compete to deliver systems that will be less expensive, more efficient and highly reliable. The program will focus

on technology pathways that have the greatest potential to reach cost-competitiveness and grid parity by or before 2015.

"Technology Pathway Partnerships (TPP) led by industry, universities, state groups and national laboratories will address the issues of cost, performance and reliability. Work on PV modules will be conducted, as well as other 'balance-of-system' components.

"To catalyze market transformation, DOE will... seize opportunities for growth and lower barriers to entry. The Department will provide technical outreach to states and utilities, continue pressing work on codes and standards issues, and solicit new applications for our Solar America Cities activities.

"We will emphasize the importance of interconnection standard procedures and net metering regulations designed to accommodate solar and other clean distributed energy systems.

"For CSP, the emphasis will be on development of advanced thermal energy storage technologies, next-generation parabolic trough concentrators, solar engines, and receivers. For distributed applications, research will focus on improving the reliability of dish systems.

"DOE will provide technical assistance to industry in its development of a 1.0 MW dish system in California. We will also provide technical support to the Western Governors' Association and several southwestern utilities to assist in their CSP deployment activities.

"The \$2 million budget request for the solar heating and lighting program will focus on R&D to reduce the cost of solar heating in freezing climates. The program will support collaboration with EERE's Building Technologies programs to integrate PV systems, solar water heating, and solar space heating into home design and structure."

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## **Make solar energy work for you**

The Find Solar web site serves as a convenient, user-friendly means for homeowners and businesses to learn more about solar energy economics and available incentives that can help make it work for you. The site can also lead you to qualified professionals who can install and service such systems.

**[Findsolar.com](#) is a joint partnership among:**

- [American Solar Energy Society](#);
- [Solar Electric Power Association](#);
- [Energy Matters LLC](#);
- [U.S. Department of Energy](#).

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## **Government incentives to transform solar markets**

One key to increasing market opportunities for solar energy is to eliminate institutional barriers, including the lack of interconnection standards and net-metering distributed energy. The federal government and many state governments are beginning to offer more programs and incentives to support solar energy's movement into the mainstream.

Federal Incentives:

- Residential Solar and Fuel Cell Tax Credit: The Energy Policy Act of 2005 establishes a 30-percent tax credit capped at \$2,000 for the purchase and installation of residential PV property;
- Commercial Solar and Fuel Cell Tax Credit: EPAct 2005 also establishes a 30-percent tax credit for the purchase and installation of PV systems on commercial property (no cap).

State Incentives:

Among state governments, California is a leader in promoting solar energy, offering many programs and incentives to its citizens:

- [California Solar Initiative](#): The goal of this \$2.8 billion, 10-year program is to create 3,000 megawatts of

new solar capacity by 2016.

- Property Tax Exemptions for Solar Systems: This is a property tax exemption for certain types of solar energy systems installed by December 31, 2009.
- Zero Energy New Home Program: This program develops new home designs that will optimize energy efficiency and onsite solar generation to decrease household energy bills.

[New Jersey's Clean Energy Program](#) is another example of a state offering solar incentives:

- Clean Energy Financing for Local Schools and Governments: The New Jersey Board of Public Utilities offers local governments and schools a low-interest, long-term financing program to combine energy efficiency and renewable energy incentive programs.
- Solar and Wind Energy Systems Exemption: New Jersey offers a full exemption from the State's 6-percent sales tax for all solar and wind-energy equipment.

Many other states offer similar incentives. Learn more at [State Incentives for Renewables and Efficiency](#).

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### **Zero Energy Homes: buyers want complete package**

Buying a [zero energy home \(ZEH\)](#) is an idea whose time may have arrived. To find out, the National Renewable Energy Laboratory (NREL) conducted a survey to see how residents of Scripps Highlands – a housing development of high-efficiency homes in San Diego, Calif. – felt about purchasing homes that operate nearly or entirely off-the-grid.

The study focused on several areas, including the role that energy played in their purchasing decisions, overall homebuyer satisfaction and willingness to pay for photovoltaic (PV) installation.

Also monitored were a set of homes in proximity constructed under Title 24 building codes, which require the use of more energy efficiency and conservation measures than conventional building codes in other states. These high efficiency homes, though they contained no solar photovoltaic system or solar features, were built in similar style, size and price.



**Creative passive solar design can make a home more pleasant and usable, as well as energy efficient.**

Results of the study concluded that homeowners prefer buying a high-performance home when it comes fully-loaded with energy-efficient systems already in place. Transaction costs were deemed too high when homes and solar energy systems are sold separately, not to mention, homeowners found it difficult to determine the value of solar features when they are mixed in a with bundle of other energy efficiency options.

Moreover, the study concluded homeowners want evidence that energy-efficient systems work, such as digital feedback displays that show consumption and production of electricity. This kind of increased familiarity leads to a heightened awareness of household energy practices that translates to further energy savings.

The study also unveiled ZEH buyers support policies that advance deployment of zero energy, zero carbon homes at a state or federal level, such as net-metering legislation, simplified interconnectivity agreements, advanced energy efficient building codes and standards, utility rebates and subsidies for incorporating solar water heating and PV systems.

To learn more about the New Market Paradigm for Zero-Energy Homes, see [Volume One](#) and [Volume Two, appendixes](#), of the Study. ( Authors: B. C. Farhar and T.C. Coburn)

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