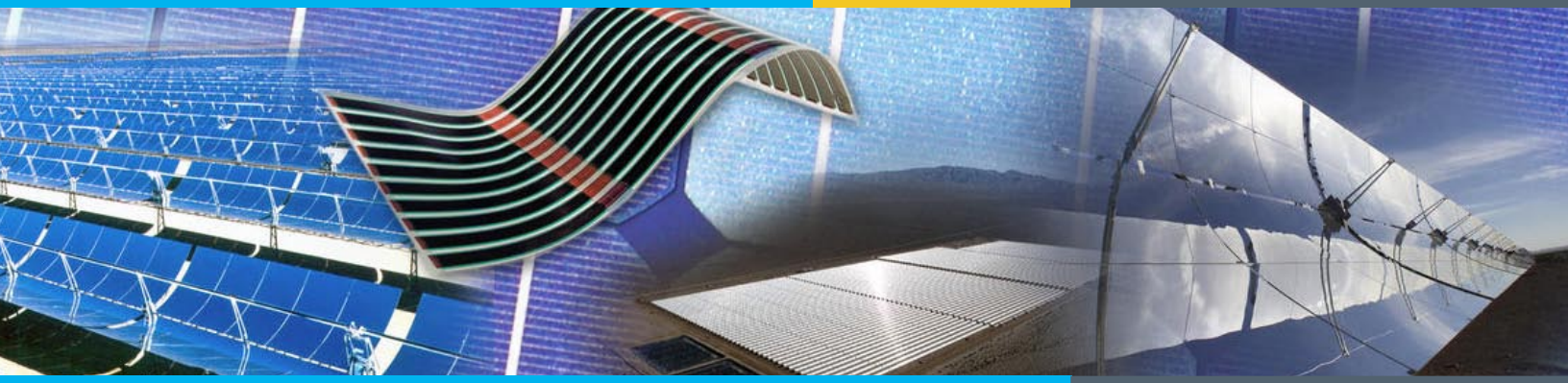


Solar Energy Technologies Program Newsletter

SEPTEMBER 2009

PV System at DOE Headquarters Linking Light, Weather to Energy Performance

The new solar radiation and weather monitoring station on DOE's Forrestal building will provide valuable feedback for solar program researchers.

The photovoltaic (PV) installation on the roof of the U.S. Department of Energy (DOE) headquarters building is now serving double-duty: providing energy to the building complex and collecting valuable data about solar radiation, weather, and system performance.

The 205-kilowatt (kW) installation at the Forrestal building, comprised of five systems representing four different PV technologies, now includes a solar radiation and weather monitoring station from Precision Solar Technologies. The new equipment, installed by DOE's Sandia National Laboratories (SNL), will gather solar radiation and weather data in parallel with SunPower's system performance data. Estimates of solar radiation based on satellite data will also be provided by Clean Power Research.

Continued on following page

SNL will use the collected data to generate statistical comparisons of predicted to measured output. The results will allow researchers to validate and improve solar radiation, energy output, and performance models. Data will also be made available to researchers outside the Solar Energy Technologies Program (SETP).

Because sunlight in Washington, D.C. is more diffuse than at DOE research sites conducting similar work in Golden, Colorado, and Albuquerque, New Mexico, the results from Forrestal's PV system will expand DOE's understanding of solar performance in varying light conditions.

The PV installation went live in September 2008. Total energy generation is estimated at 200 megawatt-hours per year. A monitoring kiosk is available in the building's lobby so that DOE staff and visitors can observe the system's energy generation.

For more information about the Forrestal system, download the DOE fact sheet at www1.eere.energy.gov/solar/pdfs/forrestal_pv_system.pdf.

Program Happenings and Highlights

DOE Awards $11M for Solar Grid Integration Projects

The DOE recently announced the investment of up to $11.8 million, including $5 million from the American Recovery and Reinvestment Act, for Solar Energy Grid Integration Systems (SEGIS) projects. The award represents the advancement of five of the 12 Stage 1 SEGIS contractors to Stage 2 of the solicitation. Stage 2 focuses on development of prototype hardware, such as inverters, controllers, and balance-of-system components. This hardware will support intelligent PV systems, using two-way communications and "smart" energy management to enhance the value of the PV systems to the grid.

> "By integrating more renewable energy into the grid now, we can deliver power more reliably and effectively, lower utility bills for American families, and help rebuild our economy along the way."
>
> ENERGY SECRETARY STEVEN CHU

The five advancing contractors are:

PVPowered (Bend, Oregon)

Project focus: Innovative systems integration to optimize interconnections across the full range of emerging PV module technologies. Partners include Portland General Electric, South Dakota State University, Northern Plains Power Technologies, Schweitzer Engineering Laboratories, and SENSUS.

Petra Solar (South Plainfield, New Jersey)

Project focus: To advance widespread adoption of solar energies through improved systems reliability and resiliency. Partners include University of Central Florida and 15 electric utilities with service in New Jersey, Pennsylvania, Ohio, Delaware, Maryland, Washington D.C., Florida, and Texas.

Continued on following page

NATIONAL LABORATORY UPDATES

Sandia Wins Five R&D 100 Awards, Plays Role in Sixth

Researchers at Sandia National Laboratories (SNL) have received five R&D 100 Awards this year, including one award for a high-temperature silicon carbide power module that more efficiently converts electrical energy from one form to another. SNL also contributed to a sixth award-winning project, a multi-lab and industry artificial retina project funded by DOE.

R&D Magazine presents the awards each year to researchers who have developed the year's 100 most outstanding advances in applied technologies.

Details about Sandia's awards can be found at: www.sandia.gov/news/resources/releases/2009/rd_2009.html.

Princeton Power (Princeton, New Jersey)

Project focus: Development of new inverter designs and reduction of manufacturing costs through integrated controls for energy storage. Partners include: Transistor Device Inc., LaGuardia Community College, Idyllwild Municipal Water District, National Oceanographic and Atmospheric Administration, Princeton Plasma Physics Laboratory, Premier Power, SPG Solar, and Spire.

Apollo Solar (Bethel, Connecticut)

Project focus: Creation of inverters that use energy storage and two-way communication between utilities and solar electrical systems. Partners include Saft Batteries, the Electric Power Research Institute, and California Independent System Operator.

Florida Solar Energy Center at University of Central Florida (Orlando, Florida)

Project focus: Identifying and solving technical challenges that currently serve as barriers to higher PV penetration levels in larger electrical systems. Partners include Satcon Technology Corporation, SENTECH, Inc., SunEdison, Cooper Power Systems EAS, Northern Plains Power Technologies, and Lakeland Electric Utilities.

The SEGIS program is a three-year partnership effort that includes DOE, Sandia National Laboratories, industry, utilities and universities.

For more about the awards, visit www.energy.gov/news2009/7720.htm.

Concentrating Solar Power Gets $52.5 Million Boost

As part of the Administration's continued focus on diversifying domestic energy sources and creating new jobs, DOE has released a funding opportunity announcement (FOA) to provide up to $52.5 million to research, develop, and demonstrate advances in concentrating solar power (CSP) technology. DOE anticipates up to 13 project awards.

Funds will be awarded to projects supporting improved technology and novel system designs that can extend CSP plant operation to an average of 18 hours per day, a level that makes it possible for a CSP power plant to displace a traditional coal one.

Projects will be evaluated for a 42- to 60-month performance period and split into three phases: (1) system feasibility and preliminary design work, (2) engineering design, and (3) expanded design work and prototype testing and evaluation.

Applications are due by October 15.

Current funding opportunities and subscriptions to funding updates are available on DOE's SETP Web site www1.eere.energy.gov/solar/financial_opportunities.html.

NATIONAL LABORATORY UPDATES

Telecom Giant Partners with NREL Solar Group

The recent signing of a multi-year Cooperative Research and Development Agreement (CRADA) marks the pairing of the National Renewable Energy Laboratory's (NREL) Concentrating Photovoltaics Group (CPV) with telecommunications company RF Micro Devices (RFMD). The relationship marries the research expertise of NREL's CPV and its innovative inverted metamorphic multi-junction (IMM) solar cell with RFMD's expertise in mass production of semiconductor devices.

Successful execution of the multi-year CRADA is expected to result in the production of PV cells in RFMD's high-volume compound semiconductor fabrication facilities as early as 2012.

The CRADA will be accomplished in three phases. The final phase of the project will be production readiness, marked by manufacturing of PV cells with high yield, reliability, and reproducibility at low cost in RFMD's fabrication facilities.

NREL's IMM cell is engineered to capture energy from a significant portion of the solar spectrum and achieve high efficiency in conversion. The technology won an R&D 100 Award in 2008 and has demonstrated one of the world's highest reported solar cell conversion efficiencies at 40.8%. Researchers anticipate additional efficiency improvements as the technology is refined.

NREL Principal Scientist Mark Wanlass, inventor of the IMM cell, is the CRADA's principal investigator.

Solar Program Funds R&D 100 Award Winners

An ultra-accelerated weathering system, a parabolic trough solar concentrating collector, and a high-efficiency solar cell—all developed with funds from DOE SETP—were honored in July with R&D 100 Awards.

The first two innovations were devised by NREL and its research partners. The Ultra-Accelerated Weathering System is an ultraviolet (UV) solar concentrator designed by NREL, Atlas Material Testing Technology, and the Institute of Laser Optical Technology to evaluate the durability of coatings, paints, and other materials by hastening exposure to UV light. The SkyTrough™ Parabolic Trough Solar Concentrating Collector uses a glass-free reflector material developed by NREL and research partner SkyFuel Inc. to create a low-cost system for utility-size parabolic trough power generation.

The third project, Nanocrystal Solar Cells, is part of DOE's Next Generation Photovoltaic Devices and Processes program, which is aimed at the development of innovative photovoltaic cells and/or processes by 2015. The DOE's Lawrence Berkeley National Laboratory and San Jose, California-based Solexant developed the Nanocrystal Solar Cells. These ultra-thin solar cells are based on dense nanocrystal films—without any organic material—and have an efficiency potential of about 25%.

The R&D 100 Awards are given annually by R&D Magazine to the year's top 100 innovations. The criterion is "demonstrable technological significance compared with competing products and technologies." NREL and SNL both won additional R&D 100 Awards for research outside solar power. Awardees will be recognized at a banquet in November.

For more information about NREL's solar-related R&D 100 Awards, visit www.nrel.gov/news/press/2009/704.html.

For more information about LBL's R&D 100 Awards, visit http://newscenter.lbl.gov/press-releases/2009/07/20/rd-100-award-2009/.

For more information about the R&D 100 awards, visit www.rdmag.com/Awards/RD-100-Awards/R-D-100-Awards/.

SETP to Publish Results of Program Peer Review

The DOE SETP has released notice that it will be publishing the results of its 2009 Program Peer Review Meeting, held in March 2009. The results will be available online and will offer an overview of the meeting, feedback from reviewers for each project, and information on how SETP may integrate feedback into current and future Program activities.

It is anticipated that results will be available to download later this year at www1.eere.energy.gov/solar/review_meeting/program_review_meeting_2009.html.

SETP to Evaluate Results of PV Manufacturing Initiative RFI

DOE SETP recently closed a Request for Information (RFI), which sought stakeholder input about the Program's proposed PV Manufacturing Initiative. This initiative is aimed at accelerating development and providing a strong base for a domestic PV industry.

The RFI requested feedback about three models that might be supported by the PV Manufacturing Initiative: (1) a University-led consortia guided by industry; (2) a collaborative industry-led consortia using shared intellectual property (IP); and (3) manufacturing development programs in which companies maintain exclusive ownership of IP. Respondents were also asked to weigh in on the effect the PV Manufacturing Initiative can and should have on the U.S. PV industry and the most efficient ways to allocate funding.

DOE will use the feedback from the RFI to help determine the best approach to the PV Manufacturing Initiative. Funding for this initiative is expected to be up to $30 million in FY10. For updates on funding opportunities in this area, visit SETP's Financial Opportunities link: www1.eere.energy.gov/solar/financial_opportunities.html.

Event News

UPCOMING EVENTS

Solar Village to Rise on National Mall for Decathlon

For three weeks in October 2009, the DOE will host the Solar Decathlon—a competition in which 20 teams of college and university students compete to design, build, and operate the most attractive, effective, and energy-efficient solar-powered house.

Teams build the original houses on their campuses and then disassemble them to be delivered and re-built on the National Mall in Washington, D.C. Once constructed, the houses will be judged on 10 aesthetic, engineering, and environmental criteria, including architecture, net metering, lighting design, home entertainment, and comfort zones. Houses will be open to the public for much of the event.

The Solar Decathlon is an educational project of DOE, designed to increase awareness about energy efficiency and renewable energy, foster collaboration among students from varying academic disciplines, advance solar energy technology research and development, and promote integrated building approaches to construction. The event is supported by NREL as well as by event and team sponsors from the private sector.

The 2009 Solar Decathlon is open to the public October 9-13 and 15-18. For more information and a complete schedule, visit www.solardecathlon.org.

NATIONAL LABORATORY UPDATES

New SunCatcher™ Power System Unveiled at Sandia

Stirling Energy Systems (SES) and Tessera Solar recently unveiled four newly designed solar power collection dishes at SNL's National Solar Thermal Test Facility (NSTTF) in Albuquerque, New Mexico. The dishes, called SunCatchers™, have a refined design that will be used in commercial-scale deployments beginning in 2010.

Sandia's concentrating solar-thermal power team has been working with SES over the last five years to improve the system design and operation. Last year one of the original SunCatchers set a new solar-to-grid system conversion efficiency record by achieving a 31.25 percent net efficiency rate.

Among Sandia's contributions to the new design was the development of a tool capable of evaluating the performance of the mirrors in less than 10 seconds—a significant improvement over the hour required for the previous design to accomplish the same task.

For more information about NSTTF, visit www.sandia.gov/Renewable_Energy/solarthermal/nsttf.html.

SETP to Exhibit, Present at Solar Power International

SETP will participate at the Solar Power International (SPI) conference in Anaheim, California, October 27-29. SPI, the largest solar conference of its type in the United States, is organized by the Solar Electric Power Association (SEPA) and the Solar Energy Industry Association (SEIA).

Program representatives will join more than 750 other exhibitors for the trade show, and several speakers from SETP and DOE's national laboratories will present during the conference sessions. Attendees and exhibitors include global representatives from all sectors of the solar supply chain, sustainable building materials manufacturers, industry associations, and testing and certification organizations.

For information and an agenda, visit www.solarpowerinternational.com.

DOE is seeking participants for the Solar Vision Study Workshop on October 26. For more information, and to register, please visit www.sentech.org/SolarVision/registration.aspx

PAST EVENTS

Workshop Highlights Role of Storage in PV Grid Integration

Nearly 100 attendees from industry, DOE, and the national labs gathered June 24-25 in Santa Ana Pueblo, New Mexico, for the Solar Energy Grid Integration Systems Energy Storage Workshop. Dubbed SEGIS-ES, the workshop brought stakeholders together to discuss needs related to energy storage for high penetration PV applications, both residential and commercial, and to identify priorities in research, development and demonstration (RD&D) activities for those needs.

Representatives from SETP presenting at the event included JoAnn Milliken, Acting Program Manager, and Dan Ton, former Systems Integration Lead. Members of the PV industry also gave presentations at the event.

To view the agenda and presentations from the workshop, visit www.e2rg.com/segis-es.

SETP Partners with SEMI PV Group on Industry Effort

The DOE SETP and SEMI PV Group co-hosted a workshop in July to discuss the development of a global PV industry roadmap. The agenda featured presentations about roadmapping experiences in other countries and industries, followed by breakout sessions to foster participant input.

With DOE support, SEMI PV Group will continue this effort (now called "industry collaboration") through a series of surveys and webinars. The objective is to help systems suppliers reduce prices by identifying and developing a strategy for common components and costs.

Proceedings from the July 12 event are available at www.pvgroup.org/events/ctr_030091.

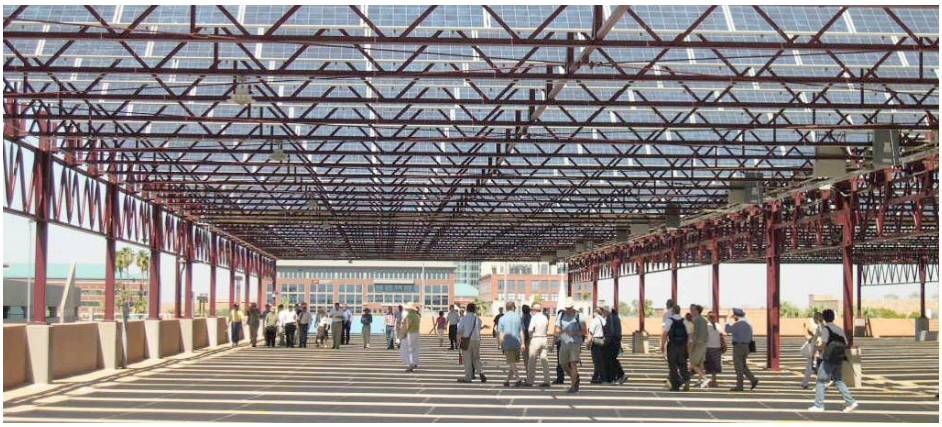
DOE EERE Sponsors Utility Solar Conference

Tours for the SEPA utility solar conference included this PV solar array at Applied Materials.

SEPA held its first Utility Solar Conference July 27-30 in San Jose, California, as a forum for utility representatives to share information and discuss business strategies for bringing solar to utility scale. The event was targeted for utilities with retail customers and a small group of industry sponsors. DOE's Office of Energy Efficiency & Renewable Energy (EERE) was a sponsor for the event, and several representatives from SETP attended.

Topics included distribution planning and impacts, utility solar business models, project valuation and finance, metering practices, and design of rates and incentives. Pre-conference tours of local PV manufacturing facilities and a PV installation were also available.

Information and a copy of the event agenda are available at www.utilitysolarconference.myevent.com.



Participants of the PV Reliability Workshop tour a PV installation at Arizona State University.

International PV Workshop Addresses Reliability, Safety

SETP and two of DOE's national labs recently partnered with industry organizations and international PV experts to host the second of two workshops to address long-term PV reliability qualification and testing needs. The International Photovoltaic Reliability Workshop II, held in July, focused on how reliability codes and standards might help remove barriers to PV technology adoption. The workshop was a follow-up to the first, held in Shanghai, China, in December 2008.

Continued on following page

NATIONAL LABORATORY UPDATES

New Director for National Center for Photovoltaics

Dr. Ryne P. Raffaelle became NREL's new Center Director for the National Center for Photovoltaics (NCPV) in August. Rafaelle comes to NREL with nearly 20 years of experience and leadership in science R&D teams at university laboratories and with photovoltaics or high-technology start-up companies.

Recently, Raffaelle served as Academic Director for the Golisano Institute for Sustainability, Director of the NanoPower Research Laboratory, and as professor of Physics, Microsystems Engineering, and Sustainability at Rochester Institute of Technology (RIT). While at RIT, he led or co-led more than $20 million in research grants in PV, thin-film processing, and nanomaterials research.

Raffaelle has also worked at NASA-Glenn Research Center, the Florida Institute of Technology, and Oak Ridge National Laboratory. He is co-founder of Wakonda Technologies, Inc. and Alpha V, Inc.

Full story available at www.nrel.gov/news/press/2009/707.html.

The July workshop was hosted by SNL and NREL, and sponsored by TÜV Rheinland®, a provider of testing and certification services. The audience of 100 participants included representatives from all facets of PV manufacturing and use: research and development, cells and modules, inverters, installation, applications, and marketing. The workshop was preceded by a full day of site tours at local PV installations and test facilities.

Proceedings from the event will be available soon at www1.eere.energy.gov/solar/past_meetings_workshops.html.

National Academies Event Focuses on U.S. PV Manufacturing

The National Academies' Board on Science, Technology, and Economic Policy hosted "Partnering for Photovoltaic Manufacturing in the United States" on July 29 in Washington, D.C. The symposium was the second in a series planned by the Academies' Technologies, Innovation and Entrepreneurship program, which is part of the Board. The symposia are designed to encourage high-level discussions about the current state of PV manufacturing in the United States and means by which to grow the industry domestically.

Presentations by public and private PV stakeholders highlighted partnerships, industry roadmapping, and other activities that might contribute to the long-term growth of the U.S. PV industry. Alicia Jackson from the U.S. Senate Committee on Energy & Natural Resources led a panel of DOE representatives that included Kristina M. Johnson, Under Secretary for Energy; John Lushetsky, Acting Deputy Assistant Secretary for Energy Efficiency in EERE; and Carol Battershell, Senior Adviser, Commercialization and Deployment in EERE.

The agenda, presentations, and audio from the event are posted on the National Academies' Web site http://sites.nationalacademies.org/PGA/step/index.htm.

More Solar-Related DOE, Policy Updates

Interior Department Works to "Fast-Track" Solar Energy

In July, the U.S. Department of the Interior (DOI) announced initiatives to speed development of solar energy on Western U.S. lands. The main plan involves 24 tracts of land administered by the Bureau of Land Management (BLM) in Arizona, California, Colorado, Nevada, New Mexico, and Utah. DOE will help evaluate these "Solar Energy Study Areas" for environmental and resource sustainability for large-scale solar production. Areas selected as prime large-scale solar development regions will be made available for proposed solar projects of 10 megawatts (MW) or more.

DOI is also working with states to expedite permitting for several solar projects nearing approval. The BLM currently has about 470 renewable energy project applications in its pipeline, including solar applications representing a combined power capacity of up to 97,000 MW.

For more information about renewable energy at BLM and DOI, visit www.blm.gov/wo/st/en/prog/energy.html or www.doi.gov/renewable/.

Small Business Programs to Fund Clean Energy Research, Including Solar

A total of $37 million from the American Recovery and Reinvestment Act will be allocated to support clean energy research at small U.S. businesses over two grant phases. The grants are being administered through DOE's Small Business Innovations and Small Business Technology Transfer programs, which target companies with fewer than 500 employees.

DOE recently closed Phase I grant applications. Topic areas that include solar opportunities are: water usage in electric power production and industrial processes; smart controllers for smart grid applications; advanced solar technologies; and advanced industrial technologies development.

For technical topic descriptions and status of the awards, visit www.science.doe.gov/sbir/.

Solar America Cities Notes

DOE Announces Up to $10.5 Million in Solar Energy Education for Local Governments

DOE is expanding support for the Solar America Cities program by releasing a FOA of up to $10.5 million for solar energy education for local governments. This funding will be used to provide comprehensive technical outreach to municipalities across the United States, with the intent of helping local governments build sustainable solar infrastructures and accelerate solar energy adoption.

Under this opportunity, Solar America Cities will partner with one or more organizations that can help foster peer-to-peer communication to provide solar information for county and city officials, sustainability and environmental staff, planners, local businesses, utilities, schools, and other stakeholders. Award partners will help broaden the reach of Solar America Cities tools developed by DOE, including guides, tool kits, and case studies.

Through this outreach, local governments will learn comprehensive approaches to solar energy adoption, including workforce development, support for local solar businesses, and effective financial incentives for residents.

Maximum funding for the first phase of each project, which is three years, is $6 million. Maximum funding for the second phase, which is two years, is $4.5 million. Applications are due by October 15.

Current funding opportunities and subscriptions to funding updates are available on SETP's Web site www1.eere.energy.gov/solar/financial_opportunities.html.

NATIONAL LABORATORY UPDATES

Sandia's Distributed Energy Technologies Lab Gets Upgrades

The Distributed Energy Technologies Lab (DETL) at SNL has recently begun planning and implementing facility upgrades, supported by DOE funds from the American Recovery and Reinvestment Act. These upgrades will increase the capabilities of DETL to provide support for a new line of U.S. industry-developed Solar Energy Grid Integration Systems (SEGIS) products as they are delivered for evaluation in 2010. Upgrades will also facilitate the development of algorithms to address high PV penetration issues and will provide support for storage-based stability and ancillary service developments of PV systems.

The lab has already conducted a system upgrade to its three-phase microgrid-enabling enhanced communications and control capabilities for various generators (including photovoltaic) and loads on the system.

Other upgrades will include construction of a new test facility, refurbishments and upgrades to existing facilities, and the installation of individually monitored test bays and a multi-node test bed.

Continued enhancements will expand the laboratory's capabilities, which include assessment of high PV penetration scenarios and development of solutions through systems integration, predictive controls, and system-level performance standards.

For more information about DETL, visit http://detl.sandia.gov/.

"Train the Trainer" Event Seeks to Accelerate Green Jobs

(left) Train the Trainer" participants dive into five days of solar technology education. Photo courtesy Florida Solar Energy Center.

DOE's Solar America Cities program recently held a "Train the Trainer" event at the Florida Solar Energy Center at University of Central Florida to help continue the growth of solar jobs. Eighteen attendees from eight cities participated in the training, held July 20-24. The goal was to educate representatives about solar technologies and guide them in developing solar training curricula and programs within their communities."

The "Train the Trainer" program encourages participants to develop unique plans that will expand the solar workforce in their cities, creating a "domino effect" to alleviate the shortage of qualified solar installers in the U.S.

Participating cities were Boston, Massachusetts; Knoxville, Tennessee; Milwaukee, Wisconsin; Minneapolis/St. Paul, Minnesota; Philadelphia, Pennsylvania; and San Francisco, San Jose, and Santa Rosa, California. SETP administers Solar America Cities and sponsored the training.

For a video about the Florida event, visit www.renewableenergyworld.com/rea/video (scroll to August 12, 2009).

For more information about Solar America Cities, visit www.solaramericacities.energy.gov.

Solar America Cities Provides Guide for Local Governments

A guide to assist local governments in building sustainable solar communities has been released by DOE's Solar America Cities. The guide details solar policies and programs that have been tested in cities throughout the United States and includes case studies and tips for implementation. Information can be applied at any level of solar involvement, from conceptual stages to full-scale solar infrastructure.

The guide is divided into topic areas such as job creation, policies and regulations, outreach and education, and working with utilities. Case studies of installations on government facilities are also included.

Details and the guide download are available at www.solaramericacities.energy.gov/GuideForLocalGovernments.aspx.

Houston Convention Center Unveils 100kW PV System

A solar education kiosk at the George R. Brown Convention Center is unveiled by (L to R) Houston City Council Member James G. Rodriguez, DOE's Charlie Hemmeline, John Berger from Standard Renewable Energy, Houston City Council Member Wanda Adams, and Houston Architecture Foundation Chair Mike Lewter. Photo courtesy City of Houston.

A 100-kW PV system on the 16-acre rooftop of Houston's George R. Brown Convention Center was unveiled during a ceremony to mark the occasion on June 9. SETP's Charlie Hemmeline was joined by Houston Mayor and former U.S. Deputy Secretary of Energy Bill White, John Berger of Standard Renewable Energy, Mike Lewter of the Houston Architecture Foundation, and members of Houston's City Council.

The 100-kW project is designed to test two PV technologies: crystalline silicon modules mounted on steel beams and amorphous silicon thin film panels adhered directly to the rooftop. The system meets two of four key objectives for the convention center's sustainability project: designing and installing a 100-kW system, and demonstrating how an existing facility can be retrofitted for solar. The other two objectives pertain to comparing the performance of the two technologies in Houston's climate.

For more information about Houston's Solar America Cities activities, visit www.solaramericacities.energy.gov/Cities.aspx?City=Houston.

Nine Oregon Schools Look to the Sun for Power

Sunshine will help keep the power going at nine Portland schools this fall. Through a partnership that includes substantial support from a private investor and more than a dozen management, construction, and energy companies, the Portland school district is working to complete the largest K-12-based solar panel project in the state thus far. The district intends to have a total of 757 kW installed throughout the district, using 175,000 square feet of thin film and providing 18% of the schools' total needs. The project includes plans for educational kiosks where students can learn about the systems and solar power in general.

For more information about the school solar project, visit www.oregonlive.com/portland/index.ssf/2009/08/sun_will_help_power_nine_portl.html.

For information about Portland's Solar America City activities, see www.solaramericacities.energy.gov/Cities.aspx?City=Portland.

NATIONAL LABORATORY UPDATES

Infinia Installs Two Pre-Production 3-kWe Dish Stirling Systems at Sandia

In August, Washington-based Infinia Corporation completed the installation of two pre-production ISS 3.0 dish Stirling systems at SNL's NSTTF. The installed systems utilize Infinia's 3-kWe free-piston Stirling engine/linear alternator technology.

Sandia provided technical support for the systems, including open- and closed-loop tracking and collector optical design. The intent is for SNL to continue to provide assistance through a memorandum of understanding with Infinia.

Industry Updates

IREC Releases Solar Market Report, University Directory

The Interstate Renewable Energy Council (IREC) has released its 2008 U.S. Solar Trends Report, which aggregates public data on U.S. solar installations by technology, state, and market sector. The report, funded by DOE SETP, can be downloaded at www.irecusa.org (click "2008 US Solar Trends Report" on the home page).

DOE SETP also helped develop and fund IREC's university directory, which provides information on four-year universities offering undergraduate- and graduate-level courses in renewable energy and energy efficiency. Users can search by state and/or technology and access a map of course availability throughout the United States. The directory will be updated as providers send information to IREC.

More details and a link to the map are available at www.irecusa.org/universityDirectory/.

eSolar Launches First Operating U.S. Solar Thermal Power Tower Plant

In August, California-based eSolar began supplying concentrating solar power (CSP)-generated electricity to the grid at its 5 MW Sierra SunTower demonstration plant. DOE SETP provided component testing and technical analysis for the plant through SNL.

The Sierra plant covers 20 acres and includes 24,000 mirrors, two towers, and a refurbished 1947 General Electric steam turbine generator. The system's sophisticated computer controls are enabled by 100-foot cell phone towers with sensors that constantly scan the field. Currently the only operating solar thermal power tower in the United States, the plant supplies power to 4,000 homes through a power purchase agreement with Southern California Edison.

eSolar is a utility-scale solar power start-up.

For more information about the Sierra system, visit www.esolar.com/our_projects/.

DOE Solar Program & Partner Publications

Solar: A Clean Energy Source for Utilities

DOE Solar Energy Technologies Program (SETP), 2009

Fact sheet summarizes SETP's activities to work with utilities to accelerate adoption of solar technology.

www1.eere.energy.gov/solar/pdfs/46259.pdf

Solar Powering Your Community: A Guide for Local Governments

DOE Solar Energy Technologies Program (SETP), 2009

Information and case studies about developing sustainable solar communities.

www.solaramericacities.energy.gov/GuideForLocalGovernments.aspx

Solar America Cities Spread the Wealth

American City & Council magazine, June 2009

Media article discussing the peer-to-peer collaboration approach of Solar America Cities.

http://americancityandcounty.com/topics/green/local-regional-solar-planning-20090629/

Rate Analysis of Two Photovoltaic Systems in San Diego

National Renewable Energy Laboratory (NREL), July 2009

Investigates impact of rate structure on the economics of two PV systems.

www.nrel.gov/docs/fy09osti/43537.pdf

Solar Market Trends Report

Interstate Renewable Energy Council (IREC), 2009

Aggregates data on U.S. solar installations by technology, state, and market sector.

http://www.irecusa.org/fileadmin/user_upload/NationalOutreachDocs/SolarTrendsReports/IREC_Solar_Market_Trends_Report_2008.pdf

Directory of University Courses in Renewable Energy

Interstate Renewable Energy Council (IREC), 2009

Provides information on universities offering courses in renewable energy and energy efficiency.

www.irecusa.org/universityDirectory/

NATIONAL LABORATORY UPDATES

NREL Installs Research Tool Aimed at Reducing PV Cost

NREL has installed its first Atmospheric Processing Platform to prototype lower-cost thin film solar cells from inks and other solutions. This unique tool allows NREL scientists to work directly with industry partners to test novel thin film designs and manufacturing techniques. Ultimately, the intent is to reduce the cost of finished thin film solar cells.

The samples produced by the platform are larger than those in traditional laboratory experiments, making them easier to work with and evaluate. The system's glove boxes allow researchers to work directly with samples in controlled conditions and to test innovative methods for utilizing commercially available solution deposition techniques.

The platform also includes work stations in which researchers can assess prototype PV cells under controlled conditions, including X-ray fluorescence for compositional analysis and X-ray diffraction for structural analysis.

The Atmospheric Processing Platform is located in the Process and Development Integration Laboratory at NREL's Scientific and Technology Facility.

Feature story available at www.nrel.gov/features/20090710_pv.html.

Solar Program Funding Opportunities

Pipeline of Program Activities

The Solar Energy Technologies Program (SETP) is engaged with a range of stakeholders and activities along the solar pipeline. From Materials and Device Concepts to key Market Transformation efforts, SETP is supporting the development of innovative projects to accelerate the growth of the U.S. solar industry.

Summary of DOE Solar Program Funding Opportunities

OPEN PROPOSED

FOA OR SOLICITATION	CLOSING DATE	FUNDING AMOUNT	DESCRIPTION
Solar America Cities - Technical Outreach	October 15, 2009	$10.5M Maximum per Award During 5-Year Performance Period	This project will provide comprehensive outreach to local governments to help them build sustainable solar infrastructures and expand their solar markets. The project will help accelerate solar energy deployment by proactively addressing the needs of local governments for technical information and guidance, focusing on many areas such as policies and regulations, financial incentives, training, and community engagement.
Baseload Concentrating Solar Power Generation	October 15, 2009	Up to $52.5M Total; Maximum Per Award Varies By Topic	The objective is to develop and evaluate Concentrating Solar Power (CSP) components and/or systems that will lead to solar power plants with a capacity to generate electricity at costs competitive to fossil-fired generators. The announcement includes two topic areas: • Research and development of concepts and components that can be part of a CSP baseload system • Evaluation of the feasibility of a complete CSP baseload system and development of a prototype system that can be implemented in the field. The projects will be conducted in three phases during the performance period of 42 to 60 months.
Solar America Showcases	December 31, 2009	Up to $500K per award	Solar America Showcases are designed to help facilitate large-scale installations that involve cutting edge solar technologies, novel applications of solar, high visibility sites, and/or high likelihood of replicability. Solar America Showcase is a Notice of Opportunity for Technical Assistance (NOTA) for proposed installations more than 250 kW and does not include direct federal funding for any recipient. Instead, showcase projects include technical assistance through teams of DOE-funded solar experts from national laboratories.

To view all current opportunities, visit www.solar.energy.gov/financial_opportunities.html.

To view all past opportunities, visit www.solar.energy.gov/past_opportunities.html.

WE WANT TO HEAR FROM YOU

This *DOE Solar Energy Technologies Program Newsletter* is for you—the participants and stakeholders in the DOE Solar Program and the Solar America Initiative. We envision sending this newsletter at least every quarter. If you have any comments or suggestions about the newsletter, e-mail solar@ee.doe.gov.

For More Information

Contact the EERE Information Center
1-877-EERE-INF (1-877-337-3463) or
visit eere.energy.gov/informationcenter.

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