News from the
Savannah River National Laboratory

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FOR IMMEDIATE RELEASE

SRNL WINS SHARE OF $87 MILLION IN FUNDING TO SUPPORT SOLAR ENERGY TECHNOLOGIES

AIKEN, S.C. (October 12, 2009) – Last week, the U.S. Department of Energy announced $87 million in funding to support solar energy technologies (see attached). Of local interest, a Savannah River National Laboratory project, led by Dr. Elise B. Fox in collaboration with SRNL researchers Ann Visser, Nick Bridges, and Josh Gray, was selected for one of these awards. (Click here) Solar energy is separated into two distinct branches: photovoltaics and solar concentrators. This work was selected to support the development of concentrating solar power (CSP). CSP technology captures the energy of the sun through thermal heat collection and transfer. They operate by concentrating solar radiation onto a receiver tube, which is filled with a heat transfer fluid. The heat transfer fluid absorbs the radiant heat, which is used to create steam at the power turbines. The operational efficiency is limited by the heat transfer fluid's properties.

SRNL, in collaboration with its partners the University of Notre Dame and the University of South Carolina, will focus on the evaluation of nanoparticle enhanced ionic liquids, or NEILs, as heat transfer fluids for the advancement of solar thermal energy. Ionic liquids are low temperature organic molten salts. This work will lead to the development of high temperature heat transfer fluids which will increase the energy and cost efficiency of concentrating solar power plants through increased operation temperatures. If successful, this could result in a 10% - 40% improvement in thermal conductivity.

About this project, Dr. Fox says, "The investigation of NEILs incorporates the use of green chemistry and the rapidly growing field of nanotechnology to develop new materials to support solar energy. Current CSP technology is limited due to the temperature limitation of the current heat transfer fluids. These new materials will help increase the temperature at which CSP can work, which increases the process efficiency."

The Laboratory award is part of the $117.6 million in American Recovery and Reinvestment Act funding allocated for specific activities within DOE's Solar Energy Technologies Program nationwide, announced in May 2009.

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DOE Announces $87 Million in Funding to Support Solar Energy Technologies

Projects Aim to Accelerate Adoption of Solar Energy and Develop Solar Workforce

WASHINGTON, DC – At the opening of the U.S. Department of Energy's Solar Decathlon on the National Mall, Energy Secretary Steven Chu announced up to $87 million will be made available to support the development of new solar energy technologies and the rapid deployment of available carbon-free solar energy systems. Of this funding, $50 million comes from the American Recovery and Reinvestment Act. The 47 projects with universities, electric power utilities, DOE's National Laboratories, and local governments have been selected to support use of solar technologies in U.S. cities, help address technical challenges, ensure reliable connectivity with the electrical grid, and train a new generation of solar workers to install and maintain solar energy systems. These projects will help speed adoption of solar energy nationwide, while supporting development of a skilled workforce, and continuing to pursue new scientific breakthroughs to increase the efficiency and lower the cost of solar technologies.

"Today's awards are among the many investments made to create new jobs and a clean energy future with solar power. The projects will help accelerate the use of solar energy by residents, businesses and communities, and promote the long-term viability of solar energy by investing in the technologies of the future" said Secretary Chu. "I applaud each of these award winners who are vital to moving our country towards a sustainable solar infrastructure."

The selected projects will help accelerate the commercialization of solar technologies in an effort to achieve cost-competitive solar electricity by 2015, in addition to developing advanced solar technologies for the future. Projects focus on both technology improvements and the elimination of market barriers to help make solar electricity accessible to a wide variety of consumers.

The projects selected for negotiation of awards are in four categories:

- **High Penetration Solar Deployment.** Seven projects will model, test, and evaluate the impact of large amounts of photovoltaic (PV) electricity on the reliability and stability of the electric power system. These projects will help pave the way for broader adoption and growth of grid-tied solar energy systems by improving understanding of the impact of PV electricity on the grid.
- **Solar America Cities Special Projects.** As the load centers of energy use across the nation, cities play a strategic role in accelerating solar technology adoption at the local level. Sixteen cities have been selected for projects that will address specific barriers to solar adoption in urban settings and support innovative approaches that can be widely replicated. Many cities will use this funding for multiple efforts.
- **Solar Installer Training.** Nine colleges, universities, and local organizations have been selected to lead regional solar installation "train-the-trainer" programs. The projects will support a national ramp-up and coordinated network of training programs. This funding will help address the critical needs for qualified solar energy system installers.

- **Research projects at DOE National Laboratories.** Fifteen projects at DOE National Laboratories will seek to improve technologies, devices and processes for both the PV and Concentrating Solar Power (CSP) industry. PV projects focus on development of next generation devices and processes, as well as supply chain technologies for the entire PV system. CSP projects focus on improved energy storage technologies to enable consistent and reliable energy generation.

Please visit the Solar Energy Technologies Program home page for more information about the program and a list of selections.

U.S. Department of Energy, Office of Public Affairs, Washington, D.C.