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FOR IMMEDIATE RELEASE:
Thursday, August 6, 2009

DOE Awards \$377 Million in Funding for 46 Energy Frontier Research Centers

Washington, DC – In a major effort to accelerate the scientific breakthroughs needed to build a new 21st-century energy economy, U.S. Energy Secretary Steven Chu announced the delivery of \$377 million in funding for 46 new multi-million-dollar Energy Frontier Research Centers (EFRCs) located at universities, national laboratories, nonprofit organizations, and private firms across the nation.

“As global energy demand grows, there is an urgent need to reduce our dependence on imported oil and curtail greenhouse gas emissions,” said Secretary Chu. “Meeting the challenge to reduce our dependence on imported oil and curtail greenhouse gas emissions will require significant scientific advances. These centers will mobilize the enormous talents and skills of our nation’s scientific workforce in pursuit of the breakthroughs that are essential to expand the use of clean and renewable energy.”

Of the \$377 million awarded to the EFRCs, \$277 million comes from funding made available through the Recovery Act with the remaining \$100 million made from DOE’s FY2009 budget. The 46 EFRCs are being funded at \$2-5 million per year each for a planned initial five-year period and were selected from a pool of applications received in response to a solicitation issued by the U.S. Department of Energy Office of Science in 2008 and announced on April 27, 2009. Selection of the EFRCs was based on a rigorous merit review process utilizing outside panels composed of scientific experts. In total, the EFRC initiative represents a planned DOE commitment of \$777 million over five years.

EFRC researchers will take advantage of new capabilities in nanotechnology, high-intensity light sources, neutron scattering sources, supercomputing, and other advanced instrumentation, much of it developed with DOE Office of Science support over the past decade, in an effort to lay the scientific groundwork for fundamental advances in solar energy, biofuels, transportation, energy efficiency, electricity storage and transmission, clean coal and carbon capture and sequestration, and nuclear energy.

EFRCs funded by the American Recovery and Reinvestment Act include:

- **Arizona State University (Tempe, AZ)** – \$14 million for five years to adapt the fundamental principles of natural photosynthesis to the man-made production of hydrogen or other fuels from sunlight.
- **University of Arizona (Tucson, AZ)** – \$15 million for five years to enhance the conversion of solar energy to electricity using hybrid inorganic-organic materials.
- **University of California, Santa Barbara (Santa Barbara, CA)** – \$19 million for five years to discover and develop materials that control the interactions between light, electricity, and heat at the nanoscale for improved solar energy conversion, solid-state lighting, and conversion of heat into electricity.
- **Columbia University (New York, NY)** – \$16 million for five years to develop the enabling science needed to realize breakthroughs in the efficient conversion of sunlight into electricity in nanometer sized thin films.
- **Cornell University (Ithaca, NY)** – \$17.5 million for five years to understand and control the nature, structure, and dynamics of reactions at electrodes in fuel cells, batteries, solar photovoltaics, and catalysts.
- **University of Delaware (Newark, DE)** - \$17.5 million for five years to design and characterize novel catalysts for the efficient conversion of the complex molecules comprising biomass into chemicals and fuels.
- **Massachusetts Institute of Technology (Cambridge, MA)** – \$19 million for five years to understand the transport of charge carriers in synthetic disordered systems, which hold promise as new materials for conversion of solar energy to electricity and electrical energy storage.
- **University of Massachusetts (Amherst, MA)** – \$16 million for five years to use novel, self-assembled polymer materials in systems for the conversion of sunlight into electricity.
- **University of Michigan (Ann Arbor, MI)** – \$19.5 million for five years to study complex material structures on the nanoscale to identify key features for their potential use as materials to convert solar energy and heat to electricity.
- **University of North Carolina (Chapel Hill, NC)** – \$17.5 million for five years to synthesize new molecular catalysts and light absorbers and integrate them into nanoscale architectures for improved generation of fuels and electricity from sunlight.

- **Northwestern University (Evanston, IL)** – \$19 million for five years to synthesize, characterize, and understand new classes of materials under conditions far from equilibrium relevant to solar energy conversion, storage of electricity and hydrogen, and catalysis.
- **University of Notre Dame (Notre Dame, IN)** – \$18.5 million for five years to understand and control, at the nanoscale, materials that contain actinides (radioactive heavy elements such as uranium and plutonium) to lay the scientific foundation for advanced nuclear energy systems.
- **Pennsylvania State University (University Park, PA)** – \$21 million for five years to dramatically increase our fundamental knowledge of the physical structure of bio-polymers in plant cell walls to provide a basis for improved methods for converting biomass into fuels.
- **Purdue University (West Lafayette, IN)** – \$20 million for five years to use fundamental knowledge about the interactions between catalysts and plant cell walls to design improved processes for the conversion of biomass to energy, fuels, or chemicals.
- **University of Southern California (Los Angeles, CA)** – \$12.5 million for five years to simultaneously explore the light absorbing and emitting properties of hybrid inorganic-organic materials for solar energy conversion and solid state lighting.
- **University of Texas, Austin (Austin, TX)** – \$15 million for five years to pursue fundamental research on charge transfer processes that underpin the function of highly promising molecular materials for photovoltaic and electrical energy storage applications.

A complete list of the 46 EFRCs, their lead institutions, funding levels and objectives, is available at: www.sc.doe.gov/bes/EFRC.html

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