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Energy Commission Awards \$4.6 Million for Research Projects **State Grants Leveraged by Nearly \$400 Million**

SACRAMENTO - The California Energy Commission awarded \$4,643,200 for research projects to expand the state's smart grid, improve power plant pollution measurements, and conserve energy and water. The Commission's grants are leveraged by \$392,709,016 of U.S. Department of Energy (DOE) funding, American Recovery and Reinvestment Act (ARRA) funds, and matching funds from the grant recipients. Funds for the six projects come from the Commission's Public Interest Energy Research (PIER) program.

"These research projects will demonstrate the importance of energy research to power California's economic recovery, study how we can reduce air pollution, and produce clean energy jobs," said Commission Chair Dr. Robert Weisenmiller. "By leveraging these grants with an 85-to-1 ratio through federal and private funding, we are investing very wisely in California's 21st century infrastructure."

The award recipients are:

- Glendale Water & Power will use its \$1 million award toward the Electric and Water Advanced Metering Infrastructure project. Glendale Water & Power plans to install a new electric and water advanced metering infrastructure system that includes smart meters with large data storage and two-way communications hardware and software; more than 83,000 electric meters with remotely controllable switches; more than 33,000 water meters with leak detection and tamper-proof information; and a wide area network to allow two-way communications between the utility and each meter in its service territory. The utility, which owns the area grid, will manage the project and install the system in Glendale. This project leverages \$20 million in ARRA funds, to be matched by \$29.3 million from Glendale Water & Power, for a smart grid implementation expected to cost \$50.3 million. The project is expected to last 55 months. A smart meter is an electrical meter that records electric energy consumption in intervals of an hour or less and communicates that information back to the utility for monitoring and billing. Smart meters enable two-way communication between the meter and the central system and may gather data for remote reporting.
- The Sacramento Municipal Utility District (SMUD) will use its \$1 million award to launch a comprehensive regional "smart grid" reaching the smart meters of its 600,000 customers. SMUD is partnering with the California Department of General Services, California State University, Sacramento, and the Los Rios Community College District to accelerate and expand advanced smart grid technologies throughout the Sacramento area, creating new jobs, preserving existing jobs, reducing customer energy costs, and cutting greenhouse gas emissions years sooner than could otherwise be accomplished. DOE is providing more than \$127 million in ARRA funds, while SMUD's share is \$180 million. The project cost totals more than \$308 million.
- UC Riverside will receive \$680,000 to evaluate and improve measurements of fine particulates from natural gas-fired power plants. The project will examine and recommend improvements to current California Air Resources Board test methods to measure more accurately power plant particle emissions. New emission standards require all fossil-fueled power plants to meet very low emission levels of particulate matter (PM). The PM levels are so low that they are near the lower detection limits of the specified measurement methods, leading to greater uncertainty and reduced confidence in the measured values. The release of fine particulates from natural gas power plants concerns regulators as the particle diameters from these plants are small, and these particles can deeply penetrate the lungs. Given this background, new test methods and tools capable of detecting very small concentrations at high exhaust gas velocities are required. The project term is 47 months.
- Geysers Power Company, LLC received a two-year \$410,000 cost-share grant to conduct exploration, reservoir modeling, and re-drilling of an existing abandoned well in the Caldwell Ranch area in The Geysers in Sonoma County. The well is one of three in California's work program. The purpose of the work is to confirm what is suspected

\$5 million ARRA award from the DOE's Geothermal Technologies Program. Calpine is also providing \$5,390,000 in additional cost-share funding. The Geysers is a subsidiary of Calpine. The project's total budget is \$10,800,000.

- Stone & Webster, Inc., will use \$1,053,200 to evaluate the technical design considerations and ability to capture carbon dioxide from natural gas combined cycle power plants and estimate the cost and performance effects associated with capturing and storing the plant's carbon dioxide emissions underground. The funding comes from the West Coast Regional Carbon Sequestration Partnership program. The project is expected to last 10 months.
- Terralog Technologies USA, Inc., will use its \$500,000 cost-share grant to determine if an area off the Long Beach coast called the Wilmington Graben would be suitable for large-scale carbon dioxide storage. Terralog Technologies, a Canadian company with U.S. operations based in Monrovia, has already drilled one study well in partnership with the city of Los Angeles and plans to drill two more wells along with using three-dimensional models to analyze the site. The company received an ARRA grant for \$9.8 million and is providing almost \$2 million in match funds for a total project budget of \$12.2 million.

The Public Interest Energy Research (PIER) program supports public interest research and development that helps improve the quality of life in California by bringing environmentally safe, reliable, and affordable energy services and products to the marketplace. For more information, visit www.energy.ca.gov/research.

Created by the California Legislature in 1974, the California Energy Commission is the state's primary energy policy and planning agency. The Energy Commission has five major responsibilities: forecasting future energy needs and keeping historical energy data; licensing thermal power plants 50 megawatts or larger; promoting energy efficiency through appliance and building standards; developing energy technologies and supporting renewable energy; and planning for and directing state response to energy emergency.

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