

announced a memorandum of understanding with the governors of Arizona, New Mexico, Oregon and Washington to unveil a market design in the next 18 months. Montana is interested in joining, and other states will be invited in as well, Skopec said (see *CEM* No. 914 [16]).

Another paper presented at the all-day conference studied companies that participate in the U.S. Department of Energy's voluntary greenhouse-gas registry and whether that had any impact on their actual emissions performance.

Thomas Lyon and Eun-Hee Kim, both of the University of Michigan, found that companies participating in the DOE's 1605b program saw no statistical significant effect on their carbon intensity, or carbon emissions per unit of electricity generated. "This suggests that firms' participation may be a form of greenwash," the researchers said, with companies appearing more environmentally friendly than is really the case.

Focusing on the 1605b program, established by the Energy Policy Act of 1992, provided an opportunity to compare what companies do with what they claim, Lyon explained. The program allows companies to report what action they have taken to reduce their carbon footprint, such as planting trees, and in return to get "early reduction credits" for their effort should the U.S. go to a national cap-and-trade system.

"Participants claimed they were reducing emissions when they in fact were increasing their emissions," Lyon told the conference. Companies appeared to participate in the program to gain credits and generate positive public relations, he said.

To come to that conclusion, the researchers gathered massive amounts of information about 83 companies that participated in the 1605b program from 1996 to 2003, including electrical usage [*S. G.*].

[16.4] New Edison Project Will Test Storage, Retrieval of Photovoltaic Power

Gaia Power Technologies is teaming up with Southern California Edison and the California Energy Commission to do something that until now has not been done: store and dispatch renewable energy.

"We met the folks over at Southern California Edison a couple of years ago, and they approached us a while back saying with the passage of the California Solar Initiative there was going to be a lot of residential photovoltaic installed in the California market. So Southern California Edison was interested in a better way to match the peak output of those photovoltaics with their peak load," Matt Johnson, Gaia's director of business development, told *California Energy Markets* Tuesday.

The CEC is giving Gaia \$76,731 via its Energy Innovations Small Grants program to hook up its PowerTower storage units to two individual buildings owned by Edison that have installed PV cells. The energy created by the solar panels will charge the battery-based storage system, but the unique part of the demonstration is that the utility will be able to dispatch the power, Johnson said.

The Edison project is a "great opportunity to show that storage can really increase the value of photovoltaics to utilities," he said. "We think it can be a cost-effective way

to provide some additional support to the grid and provide backup power for peoples' homes at the same time."

To demonstrate the concept, Gaia will tie into Edison's supervisory control and data acquisition system using proprietary software technology. The PV cells will send power to the 15 kWh storage units during mid-afternoon solar peaks and then output 5.5 kWh when called upon by the utility. The electricity can be used by the building or, in the long-term vision, by residences, or to meet utilities' peak demand.

The storage units are big enough to demonstrate the concept, Johnson said. For this project, the PowerTowers will be hooked up to a 1 to 2 kWh PV system and over the course of the day will capture 8 to 10 kWh of electricity, he said.

The project is using rather small storage units, but the company is testing a larger 75 kWh storage system with an upstate New York utility that can be adapted to utilities' SCADA systems once this project is finished, Johnson noted.

Physically, the PowerTowers are about the size of a filing cabinet and contain the storage battery, inverters to convert electricity to direct current for storage and switch to alternating current for consumption, and the communications and control technologies.

The power storage units' installation will happen this summer, and the project will run for one year. "We're going to test that from a technical perspective the utility can effectively communicate with and control the PowerTowers," Johnson said. "Then we're going to look at the health of the batteries and determine how batteries perform after undergoing repeated cycling, charge and discharge each day."

Additionally, Gaia will study the economics of the concept to determine if the value of capturing PV for peak demand outweighs the cost of the storage system.

The Edison project will use lead acid batteries, but once the concept is proven, other battery types will be considered as well, Johnson said.

The Peekskill, N.Y.-based Gaia does offer its PowerTower products to utilities as part of an automatic demand-response system, which enables utilities to defer upgrading distribution lines. But the output of the system is not controlled by utilities, and instead is set by predetermined software controls.

It was the SCADA component of this project that first got the attention of University of California trustees. The university manages all EISG proposals, determines the value of the projects and recommends which ones the CEC should fund, said CEC spokesman Adam Gottlieb on Wednesday.

The EISG program, which targets small research projects, funds hardware projects up to \$95,000 and software/modeling proposals up to \$50,000. The program is part of the CEC's Public Interest Energy Research program, which funds up to \$62 million annually for energy research and development [*S. G.*].

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