

New NREL facility will help researchers study smartgrid technology

By Mark Jaffe The Denver Post The Denver Post

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Hooking a toaster oven to a solar panel is not an easy thing, but the National Renewable Energy Laboratory's new \$135 million integrated energy facility will do just that. While it may seem like a lot of money for toast, the Energy Systems Integration Facility can do a lot more.

"The question is how to connect all the different kinds of work — generation, storage, distribution, appliances — and understand how they interact on the grid," said James Cale, an NREL senior researcher.

This is what the new facility on NREL's Golden campus is designed to do.

In the next few weeks, researchers in fields such as solar technology, energy storage, fuel cells and electricity-grid management will move into the facility's 15 labs, all of which are linked by a supercomputer.

Other NREL facilities, including the National Wind Technology Center, will also be connected, said Martha Symko-Davies, the new facility's business manager.

The lab will be able to replicate the power grid and allow researchers to test everything from truck-size storage batteries and utility-scale power inverters to software for smart appliances — perhaps even a toaster — to communicate with the grid.

"There is very little consolidated research in the utility industry," said Daniel Zimmerle, a senior researcher at Colorado State University's Powerhouse Energy Institute. "This will be a place to do that."

The NREL facility will enable companies to test their equipment and run experiments to improve it with the aid of NREL researchers, Symko-Davies said.

"There isn't another facility like this in the world," she said.

NREL will provide space and research support to companies for a fee, which could be around \$200 an hour but will vary depending on the complexity of the project and the level of NREL staff support, Symko-Davies said.

A company that makes inverters — which switch direct current to alternating current for transmission — has already contracted for work at the facility in May.

Another company testing communications software and smart appliances will also start working at the new lab.

Symko-Davies said NREL is completing a research agreement with another company. She declined to identify any of the companies.

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