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Keeping the lights on

By: **R. Cathey Daniels | Oak Ridger Staff**
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EDITOR'S NOTE: Oak Ridge National Laboratory says it's ready to help the nation keep its lights on. This is the second of a three-part series, which concludes Tuesday.

Researcher: 'Just a response of 5 to 10 percent would yield billions of dollars in savings.'

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R. Cathey Daniels/Staff

Phil Fairchild, group leader of the cooling heating and power group at Oak Ridge National Laboratory,

What would happen if large consumers of power were able to shed load during a price spike?

Well, not only could there be a huge energy savings, but the economic impact would be enormous, say Oak Ridge National Laboratory researchers.


"It doesn't take much response, just a little, to produce an astronomical impact," said Brendan Kirby, director the of power systems research program at the lab. "Just a response of 5 to 10 percent would yield billions of dollars in savings."

But currently that's difficult to do, as customers are "shielded" from seeing a gyrating electricity market, thereby eliminating a big incentive for modifying their choices, said John Kueck of the National Transportation Research Center.

The two researchers recently made sojourns to three sites in the northeast to assist with the Department of Energy's investigation into the causes of the Aug. 14 blackout that affected eight states and about 50 million Americans.



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explains how microturbines can help generate power at the local level.

While the two would not yet discuss the details of their findings, they have been studying for years technology and policy that could make the power grid more efficient and reliable.

Allowing consumers to buy electricity like they buy bananas would be a start, said Kueck.

"You wouldn't walk into a grocery and buy a dozen bananas, then let the guy tell you the price next week," said Kueck. "You want to know when is the optimum time to buy those bananas.

"If you want large consumers of electricity to shed load during stressful conditions, they need to know the price that's attractive for them to shed that load," he said.

Dropping load can be a site specific power savings, making a megawatt of load much more valuable than a megawatt of generation, which often must run a complex transmission maze before reaching the office air conditioner.

"So the owner of that load could rapidly make a difference," said Kirby. "You could have a bid list, and the cheapest guy would be the first asked to drop load, and you just go down the list.

"You have to move fast when you move, but the technology today is there to do that," he said.

The researchers were testing one technology for dropping load in hotels in New York during the Aug. 14 blackout. They also have a proposed project with the California Department of Water Resources, where 80,000-horsepower water pumps could be used to shed load - at the right price - to help with irrigation needs.

"The actual cost of producing electricity is very dynamic, it's changing all the time," said Kirby. "So it makes sense to let the consumer talk price before talking quantity."

Regulators and consumers must be educated and policy changed to allow the market to work for the grid, say the researchers.


"It's starting to happen on a national level," said Kirby. "We're hoping it will work it's way down to the state level."

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