



Jeff McMahon (<http://www.forbes.com/sites/jeffmcmahon/>) Contributor

I cover green technology, energy and the environment from Chicago.

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Backyard Power Plants Can Back Up Solar, Rival Batteries

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Scientists are [scrambling](http://www.forbes.com/sites/jeffmcmahon/2013/04/17/can-caesar-rescue-obamas-energy-legacy/) (<http://www.forbes.com/sites/jeffmcmahon/2013/04/17/can-caesar-rescue-obamas-energy-legacy/>) to develop efficient, reliable batteries that can make solar and wind power less dependent on fossil-fuel back up, but an efficient miniature power plant may beat batteries to the punch, panelists at a smart-grid symposium said in Chicago Tuesday.

Miniature combined heat and power plants (Micro-CHPs) are in development that could provide backup electricity for rooftop solar, using natural gas already piped to most homes, the panelists said. Instead of waste heat vanishing up a smokestack at a power plant miles away, they would employ waste heat the way gas is used in homes now: to heat water and heat rooms. They might even store heat for later use.

“There’s a lot of focus on electrical storage, but I think thermal storage holds tremendous promise in innovation in terms of resiliency and distributed generation systems,” Steve Johanns, the CEO of Veriown Energy, a distributed-generation energy company, told about 100 people Tuesday at the Illinois Institute of Technology.

The efficiency of centralized power plants is less than 30 percent, Johanns said—meaning more than 70 percent of the power generated is lost as heat at the power plant or lost through inefficiencies in the grid—but a distributed-generation system combining rooftop solar and micro-CHP is more than 80 percent efficient.

“At one stage you’ll utilize a free fuel called sunlight, in another stage you might use a cheap and abundant fuel called natural gas,” Johanns said.

A recent [study](http://www.forbes.com/sites/jeffmcmahon/2014/09/21/study-backs-environmentalist-worries-about-natural-gas-2/) (<http://www.forbes.com/sites/jeffmcmahon/2014/09/21/study-backs-environmentalist-worries-about-natural-gas-2/>) found that natural gas offers little or no short-term benefit to the climate over coal, but such studies assume the gas is being burned at less efficient centralized power plants.

Micro-CHP can also improve the resilience of micro grids (self-sufficient sections of the grid that could survive as islands in the event of a major power outage), said Vijay Bhavaraju of Eaton Corp.

“Maybe CHP is one of the technologies that needs to be encouraged,” Bhavaraju said during another panel at the Great Lakes Symposium on Smart Grid and the New Energy Economy.

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