



Darrell Hoemann/The News-Gazette

Frank Holcomb, a CERL researcher who manages the fuel cell program, displays the 5-kilowatt test unit that's about the size of a couple refrigerators.

U.S. ARMY CONSTRUCTION ENGINEERING RESEARCH LAB

All charged up over fuel cells

Technology developed for military could end up powering homes

By GREG KLINE
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The scenery may be more breathtaking at the U.S. Naval Air Station in Keflavik, Iceland, and the neighborhood more tony at the U.S. Embassy in London, but they've now got nothing over on the U.S. Army Construction Engineering Research Lab in Champaign, at least where residential fuel cells are concerned.

The lab in the Interstate Research Park off North Mattis Avenue on Tuesday formally unveiled a 5-kilowatt test cell from Plug Power Corp., Latham, N.Y., that will be used in an ongoing Department of Defense program examining the cells — kind of a giant, renewable battery — as alternative power sources for installations.

The Army engineering lab, known as CERL, has been overseeing the fuel cell project, which includes test cells around the world, for more than a decade.

CERL develops ways to better build, operate and maintain mil-

itary bases, many of which find use in civilian life — and that's been the case with the fuel cell program.

to which the device, not too much bigger than a couple refrigerators, is located. What CERL researchers learn from studying the new fuel cell in a real-life situation will be shared with cell manufacturers, who already have been using information gleaned from the Defense Department program to improve the technology.

"We get a better product out of it," Holcomb said. "Everybody benefits, not just the military."

Holcomb said the cells also could be fueled by ethanol, methane and hydrogen from coal and mixed with solar and wind power in a "distributed generation" system that differs markedly from the centralized power sources common at military installations now.

Distributed sources would put the power generators closer to the power users, potentially increasing efficiency, and be less susceptible to attack, he said.

At the ceremony Tuesday, Sam Logan, president of Logan Energy Corp., Roswell, Ga., which installs and maintains the cells, said CERL's research has played a key role in the emergence of a commercial residential fuel cell industry that's beginning to flower.

Ilker Adiguzel, CERL's director, said audience members might be getting a glimpse of a future where their personal own fuel cells power their homes — and they can sell any excess electricity generated back to AmerenIP.

The Defense Department is looking at variously sized fuel cells for a range of purposes, from reducing the amount of heavy batteries today's wired soldiers need in the field to powering vehicles, as well as their potential uses on installations, said Frank Holcomb, the CERL researcher who manages the fuel cell project.

"There are lots of applications for fuel cells, and we're just trying to sort out what makes sense," Holcomb said. Among the overall goals: improved energy efficiency — fuel cells are more efficient at producing electricity than conventional power-generating methods — and reduced reliance on foreign oil.

The new fuel cell at CERL runs on propane, from which it pulls the hydrogen and mixes it with oxygen from the air, a chemical reaction that produces electricity.

The two byproducts are heat and water. The cell uses the latter to keep itself moist, and the former is being used to heat the CERL equipment building next