

Cheap, Clean Power

That's what you get from fuel cells, as long as they're subsidized by generous grants

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By Daniel D'Ambrosio

By the time Hartford's Blue Hills Avenue reaches Bloomfield, it has turned into an economic-development director's fevered dream, with a parade of major corporations lining both sides of the wide avenue.

Just down the road from the rambling campus where Kaman Corp. makes helicopter and missile parts behind a tall chain-link fence bristling with barbed wire, sits the low-slung, expansive Pepperidge Farm bakery built in 2003, crisp and white as a bag of Mint Milanos.

I visited the bakery on a bright, sunny afternoon last week for the official unveiling of a 1.2 megawatt fuel-cell power plant that provides more than half the electricity required for the 265,000-square-foot facility. Combined with a smaller fuel cell installed last year, some 70 percent of the bakery's electrical needs are coming from these on-site power plants, manufactured by Connecticut-based FuelCell Energy.

Not only that, the waste heat from the plant is captured and re-used in the bakery operation, where giant 150-foot-long ovens crank out nearly 68 million loaves of bread yearly.

It cost \$6 million for the 1.2 MW fuel cell, with the Connecticut Clean Energy Fund picking up the \$3.5 million bill for the power plant, and Pepperidge Farm chipping in the \$2.5 million required to install it and the heat recovery system.

With the grant from the Clean Energy Fund, a quasi-governmental agency set up to promote clean energy, Pepperidge Farm actually saves money over the cost of power from the electrical grid, according to Harry S. Pettit, manager of systems and infrastructure engineering for the bread and cookie company. Pettit found FuelCell Energy by googling fuel cells on the Internet.

"We generate power at around 11 cents per kilowatt hour; we buy it (from the electrical grid) now at 17 cents," said Pettit.

But without the \$3.5 million from the Clean Energy Fund, electricity from the fuel-cell plant would cost about 28 cents per kilowatt hour, according to Joel Gordes, an independent energy consultant in West Hartford. That's "very, very expensive," said Gordes, up there with the costly kilowatts generated by nuclear power.

Gordes believes the Fund should focus its grants for fuel cells on recipients with a "very public benefit," like hospitals and fire departments, because it's state ratepayers who are providing the grant money through a surcharge on their utility bills.

"I support their mission and their ability to (promote) these technologies," said Gordes. "My problem is I don't think they're picking the most important, mission-critical projects."

Still, it's hard not to get a little misty-eyed in the presence of the fuel-cell plant, even if it is powering a commercial business. Resembling a large portable storage unit hooked into a complex of shiny silver ductwork, the power plant is virtually silent and has such low emissions it doesn't even require a permit from the Department of Environmental Protection.

The plant generates power through an electrochemical reaction — no combustion involved — between hydrogen and oxygen, with water as a byproduct. The hydrogen is stripped from natural gas, but the fuel cell could just as well run off a biogas such as the methane produced by landfills.

"We can use whatever fuel is available," said R. Daniel Brdar, FuelCell Energy's chief executive officer. "We can leverage the infrastructure available today. We don't have to have a hydrogen infrastructure."

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