

BPA Fuel Cell Program Update

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Program Update:

Due to BPA's financial situation, the Fuel Cell Program may be evolving to a rebate program, similar to the Climate Change fuel cell rebate program. We will present this concept to our Steering Committee before the end of the year. We're also working on the Climate Change Final Report, which will include field-test results from the 10 Beta systems. We continue to work with the Pacific Northwest National Laboratories SECA Program, the National Fuel Cell Research Center, Global Thermoelectric, Plug Power and the Combined Heat and Power Consortium to facilitate future projects. We're also focusing on education and outreach. See the next paragraph for more information on our Fuel Cell Education project.

Fuel Cell Education:

BPA has applied for a US DOE Fuel Cell Education grant, with the Washington Department of Community, Trade and Economic Development (CTED). We should know about the award this summer. Under this grant, 200 Washington science teachers would receive training, fuel cell curriculum and two fuel cell model cars, designed for hands-on experimentation by high school students. This small car uses a photovoltaic module and a reversible PEM fuel cell to generate hydrogen. Then the fuel cell is reversed and the car is propelled using the hydrogen. BPA has already tested the car and found kids are very interested in using it. Even if BPA and CTED don't receive the grant, we hope to have fuel cell curriculum tied to state standards available to all middle schools in BPA territory.

Combined Heat and Power Consortium Update:

BPA is part of a Combined Heat and Power Consortium, spearheaded by Northwest Natural, which will be installing a 5 kW Plug Power GenSys PEM fuel cell at the Harkins House Juvenile Detention Center in Hillsboro, Oregon in July. This one-year demonstration project will include heat recovery for pre-heating domestic hot water and will demonstrate remote dispatching. Watch for a special announcement of the "Open House" and dedication ceremony for this demonstration project. The Consortium also already installed a 30 kW Capstone microturbine in the 200 Market Street building in Portland, Oregon. For more info, go to <http://www.bpa.gov/Energy/N/projects/200market/>.

Global Thermoelectric Update:

Field-testing of Global's 2 kW AC, natural gas fuelled, grid-parallel solid oxide fuel cell (SOFC) prototype has demonstrated operational life in excess of 3,000 hours, and peak net AC efficiency of 29%. New cell design and long-term tests indicate a projected cell life of over 25,000 hours, backed by ongoing continuous tests of over 10,000 hours. The initial design for Global's next SOFC prototype version, the Aurora 2 kW natural gas system, is complete and component testing, is underway. It is expected that delivery of the first Aurora unit will be later than originally scheduled due to the recent downsizing at Global.

Global's commercial SOFC stack development program is on track for delivery of a competitively priced, commercial performance stack in mid 2005. Current and next version stacks tested at Global have demonstrated high power density operation (500 mW/cm^2) with 80% fuel utilization and direct internal reforming of natural gas.

Plug Power Update:

In addition to their GenSys 5 kW natural gas PEM system, Plug Power is now offering fuel cell heating appliances and a 5 kW, hydrogen fuel cell system for premium power markets, priced at \$15,000. Ten GenSys systems operated for a year under a DOD program, and demonstrated an average availability of over 94 percent. While the fuel cell heating appliance isn't UL certified yet, BPA hopes to be the first in the US to field test this unit once it's certified. It's currently CE certified for field testing in Europe.

Upcoming Events:

The Fuel Cell Technology Institute (FCTI) is a two-day workshop (June 24-25) that addresses the basics of fuel cell technology, the spectrum of fuel cell types, practical fuel cell systems and the challenges and opportunities associated with the fuel cell market. There will also be workshops on June 23 and June 26 addressing Distributed Generation and Hydrogen, respectively. Speakers this year include representatives from: Air Products & Chemicals, CTG Energetics, FuelCell Energy, Plug Power, Siemens-Westinghouse, Toyota, U.S. Dept. of Defense, U.S. Dept. of Energy and the National Fuel Cell Research Center. The event will be held at the Hyatt Regency Irvine in Irvine, California; and the 2003 Fuel Cell Seminar, now being held annually, will be held in Miami, Florida, November 3-7.