

July 6, 2004

## **BPA Fuel Cell Program Update**

Mira Vowles, BPA Fuel Cell Program Manager

**In this Update:** BPA Fuel Cell Program - Introducing Quantum Leap Technology - Climate Change Fuel Cell Program - Fuel Cell Education - Combined Heat and Power Consortium - NWAHA - PNNL - Relion - USFCC - Updates Now Online

### **BPA Fuel Cell Program:**

BPA's Fuel Cell Program includes quarterly steering committee conference calls, working with other fuel cell programs and fuel cell companies. We continue to investigate new companies, such as Quantum Leap Technology; see "Introducing Quantum Leap Technology" below.

BPA is helping with a US DOE Hydrogen Learning Workshop for legislators in Portland on August 31, 2004. We're also field-testing a Relion unit in a battery charging application at a BPA radio site. The field test will be documented in a final report, which will include recommendations for battery charging fuel cell applications at BPA.

### **Introducing Quantum Leap Technology**

Quantum Leap Technology (QLT) is a development stage, fuel cell company, located in Beaverton, Oregon. They've developed a 2 kW PEM prototype using low-cost materials, and their initial testing indicate electrical efficiencies over 50%. QLT is initially focused on stationary power generation applications in the 2-50 kW range. In June, QLT acquired rights to a 30,000 sq. ft. manufacturing facility that gives them early prototype and low volume production capability. QLT expects to close on it's first equity financing later this summer and is in discussions with DOE and DoD regarding cooperative development activities. Next steps for QLT include initiating a rigorous testing program in their new facility and finalizing partnership agreements for product distribution in the U.S., Asia and Europe. For more information contact Bill Sproull, VP Business Development at (503) 641-6002 x425, or [bills@quantumleaptech.com](mailto:bills@quantumleaptech.com) <<mailto:bills@quantumleaptech.com>>.

### **Climate Change Fuel Cell Solicitation:**

BPA is administering the DoD Climate Change Fuel Cell Rebate Program. There were 18 proposals for this year's solicitation, which closed 6/1/04. Most of the proposals were for 200 kW UTC and 250 kW Fuel Cell Energy units. Only 13 awards will be made this year, because the program was oversubscribed. The program will award \$6,000,000 in grants for 6 MW of fuel cell capacity. Unfortunately, none of these new systems are in the northwest. Next year the program will have approximately \$1,000,000 for fuel cell grants.

## **Fuel Cell Education:**

BPA has completed most of the work under a US DOE fuel cell education grant. Two hundred Washington science teachers received training and a fuel cell curriculum and car kit developed for 9<sup>th</sup> - 12<sup>th</sup> grade science classes. The small car uses a photovoltaic module and a reversible PEM fuel cell to generate hydrogen, and the kit includes eight hands-on experiments. For more information on this grant and how to order your own kit, see the BPA web-site: [http://www.bpa.gov/Energy/N/projects/fuel\\_cell/education/](http://www.bpa.gov/Energy/N/projects/fuel_cell/education/)

Under this program we also helped install a ReliOn system at Central Washington University (CWU). A video documenting this installation is being developed by CWU, and will be shown during tours; the television and video player will be powered by the fuel cell. The team of engineering students who designed the CWU fuel cell installation, provide tours, and their excitement and passion make the tours an excellent learning experience. Over 200 people toured the Central Washington University fuel cell during the first month, and they expect over 1,000 to tour it over the summer of 2004. To arrange a tour the CWU system, contact: Dr. Walt Kaminiski at (509) 963-1756, [kaminski@cwu.edu](mailto:kaminski@cwu.edu)

## **Combined Heat and Power Consortium Update:**

BPA is part of a Combined Heat and Power Consortium, spearheaded by Northwest Natural. While the Consortium helped install a 5 kW Plug Power GenSys PEM fuel cell at the Harkins House Juvenile Detention Center in Hillsboro, Oregon, there aren't any more fuel cells planned in the near future. They have four more projects planned this year, including the new OHSU Macadam project and a study on the best way to use methane at Portland's Columbia Waste Water Treatment Plant.

The Consortium has installed several Capstone microturbines and is very interested in other projects in Oregon. For more information, call Chris Galati at 503-721-2472. He's working with the Energy Trust of Oregon to start a CHP incentive program.

## **NWHA:**

BPA continues to provide technical support to the Northwest Hydrogen Alliance (NWHA). NWHA is working on a membership structure as well as a series of hydrogen-related web-presentations. The May 21st Fuel Cell Friday, which NWHA sponsored at PGE's National Earth Advantage Center, was a huge success. There were fuel cell car races, a fuel cell 101 class and hydrogen BBQ. We hope to continue to co-sponsor these fun educational events. Unfortunately, the NWHA supported International Hydrogen Drive 2004 June start, has been cancelled. Jack Robertson will speak on "Making the Transition to the Hydrogen Economy", at the Solar '04 Conference on July 12<sup>th</sup>. This conference has five hydrogen related sessions. In addition, there will be a free

renewable energy fair at the Portland Lloyd Center DoubleTree Hotel on July 11<sup>th</sup>.

Interested in the hydrogen economy? Get your own Hydrogen Economy "road map" by contacting Becky Clark at BPA (503) 230-3158, or [rlclark@bpa.gov](mailto:rlclark@bpa.gov) [<mailto:rlclark@bpa.gov>](mailto:rlclark@bpa.gov). Packed with information, the road map shows the infrastructure and technologies required to move towards a Hydrogen Economy and includes Internet links and a wide range of applications. The Power Quality Service Center developed the Hydrogen Economy Road Map with help from BPA.

### **PNNL:**

PNNL continues to work on solid oxide fuel cells under the SECA Program. SECA is made up of government agencies, fuel cell developers, universities and national laboratories, and is structured to include competing industry teams. These teams are headed by: FuelCell Energy, Delphi Battelle, General Electric Company, Siemens Westinghouse, Acumentrics, and Cummins Power Generation and SOFCo. The goal of this Department of Energy program is to produce solid-state fuel cells at a cost of no \$400 per kilowatt. At this cost, fuel cells would compete with gas turbine and diesel generators and likely gain widespread market acceptance.

PNNL is also working on several hydrogen projects including comprehensive safety plans to integrate safety into all DOE projects. PNNL is also developing first responder training for hydrogen accident and incidents and publishing a handbook for "Best Management Practices for Safety". They will also establish a national training facility for hydrogen safety.

The goal of the PNNL Hydrogen and Fuel Cell Summit VIII was to provide industry with information and organizational support in developing performance, installation, codes and operation standards for hydrogen and fuel cell technologies. ICC announced that canopy hydrogen storage, prefabricated crypt hydrogen storage and underground liquid hydrogen storage will be approved in the next version of ICC codes.

### **ReliOn (formerly Avista Labs):**

ReliOn will be installing fuel cells for the State of Ohio Multi-Agency Radio Communications System. In May ReliOn successfully completed NEBS (Network Equipment Building Systems) Level 3 compliance testing, which was developed by the telecommunications industry to qualify equipment under extreme environmental conditions. They will also install nine fuel cells at military facilities, including Fort Lewis Army Base, WA. The fuel cells will provide backup power for equipment that enables aircraft landing guidance and telecommunications systems. Watch for an announcement of a commissioning ceremony at Fort Lewis.

## **USFCC Update:**

BPA is a member of the US Fuel Cell Council (USFCC), which is an industry association dedicated to fostering the commercialization of fuel cells in the United States. The following paragraphs summarize some of their recent activities.

Over one thousand members of Congress, congressional staff, federal officials, business executives and news media representatives attended the USFCC's 4th Annual Congressional Fuel Cell Expo on June 22, 2004. Support for fuel cell and hydrogen technologies crosses party lines, and this year's Expo received bi-partisan sponsorship from Congressional leaders: Rep. Nancy Johnson (R-CT), Rep. John Larson (D-CT), Sen. Conrad Burns (R-MT) and Sen. Hillary Rodham Clinton (D-NY). Rep. Johnson, Rep. Larson, and Rep. Sheila Jackson Lee (TX-18th) were on-hand to give remarks to attendees.

USFCC and DOE/NREL are evaluating the effects of impurities that may be present in hydrogen on fuel cells. USFCC is also developing a specification for hydrogen. Finally, the USFCC is developing a series of Sustainability Principles that businesses can adopt, implement and be recognized for. One principle is Evaluate and optimize the full life-cycle of products and processes, to approach the state of natural systems, in which there is no waste.

On July 14th, USFCC and the US Energy Association are cosponsoring a briefing on the International Partnership for the Hydrogen Economy, which consists of 15 nations and the European Commission. This briefing will feature David K. Garman, Acting USDOE Under Secretary, and Emil H. Frankel, US DOT Assistant Secretary for Transportation Policy.

## **Updates Now Online:**

Now you can download BPA Fuel Cell Program Updates, and people interested in receiving Updates can sign-up online. Check them out at [http://www.bpa.gov/Energy/N/projects/fuel\\_cell/Program\\_Updates/](http://www.bpa.gov/Energy/N/projects/fuel_cell/Program_Updates/)