

# *news from* **FUEL CELLS 2000**

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## **Fuel Cell Technology Update – August 1, 2002**

*To: Reporters, editors and investors following business, energy, automotive and technology news.* Let us know if you would prefer to receive the full updates via email, or if you wish to be removed from our list. *For more information on stories, call (202) 785-4222.*

### **TRANSPORTATION**

#### **Honda FCV Receives Government Certification, Will Lease Vehicles by End of Year.**

The Honda FCX fuel cell vehicle (FCV) has been certified by the Environmental Protection Agency (EPA) as a Tier-2 Bin 1 national low emission vehicle (NLEV) and by the California Air Resources Board (CARB) as a zero emission vehicle (ZEV). Honda said the FCX will also meet applicable U.S. safety and occupant protection standards. Honda will initiate a lease program for a limited number of FCXs in the U.S. and Japan by the end of the year. During the first two to three years of the program, the automaker said it will lease about 30 FCVs in California and the metropolitan area of Tokyo, Japan.

#### **Nissan to Sell Fuel Cell Cars in 2003.**

Nissan Motor Co Ltd. plans to sell its first fuel cell car next year, speeding up its original plans for a launch in 2005. Nissan is working with partner Renault SA (RENA) of France in fuel cells.

[http://money.iwon.com/jsp/nw/nwdt\\_rt.jsp?section=news&news\\_id=reu-t301909-u1&feed=reu&date=20020730&cat=INDUSTRY](http://money.iwon.com/jsp/nw/nwdt_rt.jsp?section=news&news_id=reu-t301909-u1&feed=reu&date=20020730&cat=INDUSTRY)

#### **Palcan Introduces New Fuel Cell Stack.**

Palcan has released a new fuel cell stack that optimizes system performance for vehicle and portable products in the one-kilowatt (kW) to five-kW range. The new stack targets a range of applications requiring a compact and efficient proton exchange membrane (PEM) fuel cell power system, including scooters, forklifts, neighborhood electric vehicles, and portable and backup power systems. The first commercial demonstration of the new stack is scheduled for this fall with Celco Profil of Italy. A Celco electric scooter is presently being retrofitted at Palcan's development facility.

<http://www.palcan.com/s/NewsReleases.asp?ReportID=39142>

#### **Japan to Launch Test Project.**

The Japan Electric Vehicle Association (JEVA) announced that the government of Japan will soon launch a three-year joint test of hydrogen and fuel cell vehicle

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(FCV) technology on the country's roads. The test project will include Japanese automakers Toyota Motor Corporation, Honda Motor Company and Nissan Motor Company, U.S. auto manufacturer General Motors (GM) Corporation and German-U.S. carmaker DaimlerChrysler AG. The Japan Hydrogen and Fuel Cell (JHFC) demonstration project will be sponsored by Japan's Ministry of Economy, Trade and Industry.

### **Hydrogenics Receives Orders for Fuel Cells and Test Systems.**

Hydrogenics Corporation has received an order from AeroVironment, Inc. for fuel cell modules, technical support and testing services. The fuel cells will be delivered this year for installation in a high-altitude, unmanned, solar-electric Helios aircraft. AeroVironment will use the fuel cell modules as part of an airborne fuel cell power system to enable continuous multi-day flight operation. Hydrogenics' test systems have been selected by a major European automotive company to support the client's expanding fuel cell activities. This initial order totals approximately US\$1 million and includes test systems for fuel cells and combined fuel cell/reformer systems.

<http://www.hydrogenics.com/ir/NewsReleaseDetail-1.asp?RELEASEID=84782>

## **STATIONARY POWER**

### **Plug Power Introduces GenSys™5C.**

Plug Power Inc. introduced the GenSys™5C, a new Combined Heat and Power (CHP) fuel cell system, at the Town Hall in Babylon, N.Y. The Plug Power GenSys™5C unit provides supplemental heat and electricity to the facility and is capable of generating 5kW of electricity and 9kW of heat and is available immediately, with an expected order-to-delivery lead-time of eight to ten weeks.

[http://biz.yahoo.com/prnews/020723/chtu023\\_1.html](http://biz.yahoo.com/prnews/020723/chtu023_1.html)

### **Flint Energies Installs Plug Power Fuel Cell.**

Electric membership cooperative Flint Energies has installed a five-kilowatt fuel cell manufactured by Plug Power, Inc. at its Warner Robins, G.A.-based service center facility. The co-op said the natural gas-powered fuel cell, which was purchased from GE Fuel Cell Systems, will provide heat and electricity for the service center. Flint Energies is currently the only GE Fuel Cell Systems distributor in Georgia. The utility has built a network with 13 other state electric co-ops to market and distribute fuel cells in 100 central and south Georgia counties.

<http://www.bizjournals.com/albany/stories/2002/07/08/daily38.html>

### **UTC Installs Unit at Health Center.**

UTC Fuel Cells has installed a PC25 fuel cell system to provide distributed power at the Rebekah Baines Johnson Health Center in Austin, Texas. Austin Energy installed the 200-kilowatt fuel cell system, which also produces 900,000 BTUs of usable heat per hour. Electricity produced by the unit is fed into the Austin Energy electric grid, making it the first fuel cell in Texas to feed power to

the grid. The health center is using the heat produced by the unit to heat water for the health center, helping it avoid the cost and the emissions associated with operating a natural gas-fired boiler.

[http://biz.yahoo.com/prnews/020725/neth027\\_1.html](http://biz.yahoo.com/prnews/020725/neth027_1.html)

### **Montana State to Evaluate Global Fuel Cell.**

Global Thermolectric Inc. announced that Montana State University-Billings (MSUB) in partnerships with Montana Dakota Utilities Co. (MDU) will be evaluating Global's fuel cell systems. Under the terms of the agreement with MSUB's Center for Applied Economic Research, Global will provide a 2kW natural gas fueled residential system and a 3-5 kW methane fueled remote power system for light industrial applications to MSUB for MSUB and MDU to test and evaluate. The two systems will be delivered over the next year for anticipated proceeds of US\$125,000 to Global.

<http://micro.newswire.ca/releases/July2002/16/c5112.html/1173-0>

### **GM to Sell Back-up Power Systems.**

General Motors Corp. expects to have a prototype stationary fuel cell for back-up power ready by late next year, and its first customers in 2004. Companies such as hospitals, cellular phone networks and credit card processing centers pay hundreds of dollars per kilowatt hour for an uninterrupted flow of energy, and this application will allow GM to refine its fuel cells as it works toward fuel cell-powered vehicles by the end of the decade.

[http://biz.yahoo.com/rb/020729/autos\\_gm\\_fuelcells\\_1.html](http://biz.yahoo.com/rb/020729/autos_gm_fuelcells_1.html)

### **Ballard Generation Systems Enters Deal with Osaka, Ebara.**

Ballard Generation Systems (BGS) has signed a two-year agreement with Osaka Gas Company, Ltd., Ebara Ballard and Ebara Corporation to develop a one-kilowatt (kW), cogeneration, stationary proton exchange membrane (PEM) fuel cell system for Japan's residential market. BGS said the system is comprised of a Ballard fuel cell and an Ebara Ballard system using Osaka Gas' fuel processing technology. BGS and Ebara Ballard have also signed a license agreement to use Osaka Gas' fuel processing technology worldwide for PEM fuel cell systems up to 10 kW.

[http://www.ballard.com/pdfs/14%20Osaka%20Gas\\_0.pdf](http://www.ballard.com/pdfs/14%20Osaka%20Gas_0.pdf)

### **Millennium Cell and Aperion Announce Agreement.**

Millennium Cell Inc. and Aperion Energy Systems announced a formal development agreement to integrate Millennium Cell's Hydrogen on Demand™ fuel technology into the fuel cell systems manufactured and marketed by Aperion. Under the terms of the two-year agreement, Aperion has purchased a development Hydrogen on Demand™ system and will design, build and test commercial sodium borohydride-based fuel supply system prototypes for telecommunications and utility backup power applications. These systems will be integrated with Aperion partner fuel cell products for field deployment and

evaluation by Aperion's customers.

[http://biz.yahoo.com/bw/020725/252147\\_1.html](http://biz.yahoo.com/bw/020725/252147_1.html)

### **TMI Receives ATP Award.**

Technology Management, Inc. (TMI) has been awarded a US\$2.8 million cost shared award from NIST/ATP. The three-year project is to design and demonstrate an affordable solid oxide fuel cell (SOFC) system using a multi-stage concept to achieve ultra-high (70 percent) fuel to electricity efficiency in system sizes starting at 1 kilowatt.

<http://www.atp.nist.gov/awards/00004739.htm>

## **PORTABLE POWER**

### **GES Demonstrates New DMFC System.**

Giner Electrochemical Systems (GES) has demonstrated a new direct methanol fuel cell (DMFC) system using an aqueous methanol fuel solution to supply methanol and water vapor to the anode of the fuel cell. The amount of water in the system's cathode exhaust is "significantly" lower than in standard liquid feed DMFCs.

<http://www.ginerinc.com/>

### **PolyFuel Secures \$15.6 Million in Funding.**

PolyFuel Inc. has secured US\$15.6 million in its second round of financing for its direct methanol fuel cell for mobile applications. The financing round, led by Vancouver based Ventures West, included Chrysalix Energy LP, Intel Capital, Mayfield, and Technology Partners. PolyFuel's technology is designed to dramatically improve the run time of next generation laptop computers, wireless phones, and PDAs.

[http://biz.yahoo.com/prnews/020725/va156\\_1.html](http://biz.yahoo.com/prnews/020725/va156_1.html)

### **Medis Looks to Enter Japanese Fuel Cell Market.**

Medis Technologies has reached an agreement with Reed, Wasden and Associates (RWA) to help the company enter the Japanese fuel cell market. RWA will provide specific assistance in identifying and establishing strategic manufacturing and distribution partnerships for its direct liquid ethanol fuel cell (DLEF) products. RWA will be working closely with Mizuho Securities Co., Ltd. (Equity Group) in its work for Medis.

[http://www.medisel.com/press\\_view.cfm?press\\_id=104](http://www.medisel.com/press_view.cfm?press_id=104)

## **FUELS/REFORMERS/STORAGE**

### **Shell to Build Tokyo's First Hydrogen Station.**

Showa Shell Sekiyu KK (Showa Shell) is building the first hydrogen refueling station in Tokyo, in partnership with Iwatani International Corporation and the Tokyo Metropolitan Government. The station is due for completion in 2003.

Showa Shell's refueling station is part of the Japan Hydrogen and Fuel Cell Demonstration Project, a program sponsored by the Japanese Ministry of Economy, Trade and Industry to build five hydrogen-refueling stations in the Tokyo metropolitan area.

<http://www.shell.com/hydrogen>

### **NOAA Purchases Hydrogen Generators from Proton.**

Proton Energy Systems received an order for up to 10 HOGEN® 20 hydrogen generators from the U.S. National Oceanic and Atmospheric Administration through a contract worth approximately \$605,000. The initial order for three HOGEN 20 systems, valued at approximately \$177,000, includes storage tanks, spare parts kits, installation, and training.

[http://www.corporate-](http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=prtn&script=410&layout=6&item_id=311419)

[ir.net/ireye/ir\\_site.zhtml?ticker=prtn&script=410&layout=6&item\\_id=311419](http://www.corporate-ir.net/ireye/ir_site.zhtml?ticker=prtn&script=410&layout=6&item_id=311419)

### **QUANTUM to Deliver Storage System.**

QUANTUM Technologies Worldwide, Inc. was awarded a contract to provide the hydrogen fuel storage system for a wind-generated hydrogen refueling station being developed for the South Coast Air Quality Management District. The goal of this project is to provide wind-generated hydrogen to fuel vehicles from the California Fuel Cell Partnership and SunLine Transit Agency. This will be the first hydrogen fuel facility powered by wind energy.

[http://www.gtww.com/press\\_releases/pr\\_jul\\_11\\_2002b.shtml](http://www.gtww.com/press_releases/pr_jul_11_2002b.shtml)

### **Hawaii Receives Grant for Fuel Cell Project.**

The Hawaii Department of Business, Economic Development and Tourism (DBEDT) recently announced that the state has been awarded a total of \$450,000 for five energy efficiency and renewable energy projects from the Department of Energy (DOE). The grants are intended to conserve energy, increase Hawaii's energy security and reduce the need for new electricity generating plants. The Natural Energy Laboratory of Hawaii Authority (NELHA) at Keahole on the island of Hawaii will receive \$150,000 to build systems that will generate hydrogen for fuel cells.

### **Dynetek Successfully Tests 12,500psi Storage Cylinder.**

Dynetek successfully tested the world's first 12,500psi (825bar) lightweight hydrogen storage cylinder. The design features a non-permeable aluminum liner wrapped with high strength carbon fiber. The 12,500psi cylinder was developed for hydrogen storage for fueling stations that are capable of fast filling the next generation of Fuel Cell Vehicles (FCV). These vehicles will have onboard storage of compressed hydrogen at 10,000psi (700bar).

<http://micro.newswire.ca/releases/July2002/10/c3742.html/47875-0>

## **FUEL CELL COMPONENTS**

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### **SMP Signs MOU With Heraeus.**

Superior MicroPowders (SMP) has signed a memorandum of understanding (MOU) with Heraeus for the supply, management and recycle of precious metal-based materials to SMP. The MOU addresses three strategic issues: Supply of competitively priced precious metal precursors for SMP's use in the production of its materials for fuel cells and other applications; Professional assistance in the fiscal management of precious metal containing materials; and Recycling of precious metal-containing scraps and parts.

<http://www.smp1.com/news/recentnews.asp>

### **Nuvera Signs Agreement with Renault.**

Nuvera Fuel Cells has reached a multi-year agreement with Renault for the research and development of multi-fuel processing technologies for fuel cell vehicles (FCVs). Nuvera seeks to deliver to Renault a fuel processor that can be adapted to an on-board fuel reformer by 2004.

[http://www.nuvera.com/press/nv\\_renault.pdf](http://www.nuvera.com/press/nv_renault.pdf)

## **REPORTS/MARKET STUDIES**

### **Micro Fuel Cell Report.**

Frost and Sullivan released a new report analyzing future markets for micro fuel cells. The report, titled "U.S. Micro Fuel Cell Markets for Mobile Devices," found that space restrictions will make cell design a leading consideration for manufacturers of micro fuel cell systems. The report predicts that once commercialization efforts begin in 2003, the industry will ship nearly 117,000 units in the first year alone. The report noted that this number may grow to more than four million units by 2008.

<http://www.frost.com/prod/portal.nsf/frmServicesPage?ReadForm&fcmstyle=>

## **MISCELLANEOUS**

### **EPA Joins California Fuel Cell Partnership.**

United States Environmental Protection Agency (US EPA), through its Office of Transportation and Air Quality, has joined the California Fuel Cell Partnership, a public-private venture to demonstrate and promote fuel cell vehicles as a technology both environmentally safe and commercially viable. EPA's National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan will soon be a state-of-the-art testing center for fuel cell vehicles and components.

[http://www.cafcp.org/releases/2002\\_7\\_12\\_epa\\_joins\\_cafcp.html](http://www.cafcp.org/releases/2002_7_12_epa_joins_cafcp.html)

## **REQUESTS FOR PROPOSALS**

### **Carbon Conversion Fuel Cell Technology.**

Lawrence Livermore National Laboratory is seeking partnerships with industry to develop and commercialize Direct Carbon Conversion Fuel Cells. LLNL

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scientists have developed a configuration for a carbon/air fuel cell that consumes particles of carbon and oxygen in a molten salt electrolyte and produces electric power at practical rates at an efficiency of 80% based on the heat of combustion of carbon. Companies interested in this solicitation should provide a written statement of interest and a description of corporate capabilities relevant to commercializing the technology.

<http://www.eps.gov/spg/DOE/LLNL/LL/Reference-Number-FBO02-016-303/Synopsis.html>

#### **Fuel Cell APUs.**

DOE's Office of Heavy Vehicle Technologies is seeking applications for research and development for truck Essential Power Systems (EPS), including the topic of fuel cell auxiliary power systems. Approximately \$2.5 to \$5.0 million is expected to be available for this program over a four-year period.

<http://doe->

[iips.pr.doe.gov/iips/busopor.nsf/e6458ce53c05cf038525645200788ab8/ac3a812a6a87574885256bf40053dc81?OpenDocument](http://iips.pr.doe.gov/iips/busopor.nsf/e6458ce53c05cf038525645200788ab8/ac3a812a6a87574885256bf40053dc81?OpenDocument)

#### **Army CECOM Issues Fuel Cell BAA.**

The U.S. Army's Communications-Electronics Command (CECOM) has issued a Fuel Cell Broad Agency Announcement seeking white papers followed by proposals for basic and applied research, development and demonstration of "lightweight, robust fuel cell power sources, associated technology and associated components for use in various applications ranging from less than one watt to several kilowatts." Proposals will be accepted through November 14, 2004.

<http://www.eps.gov/servlet/Documents/R/186087/143609>

### **CONFERENCES/CALL FOR PAPERS**

#### **SAE Seminar.**

SAE Seminars presents "Automotive Fuel Cell Systems" on August 5-7, 2002, in Troy, Michigan. For registration information, go to

<http://www.sae.org/contedu/fuelcell.pdf>

#### **CFDRC Fuel Cell Multiphysics Course.**

An Industry-Specific Multiphysics Course on Fuel Cells will be held August 13-14, 2002, in Huntsville, Alabama. For course registration and information, go to

[http://www.cfdr.com/datab/news/seminar/multi\\_course/fuel\\_cell/index.htm](http://www.cfdr.com/datab/news/seminar/multi_course/fuel_cell/index.htm).

#### **Fuel Cells for Portable Applications.**

Fuel Cells for Portable Applications will be September 5-6, 2002, at the Back Bay Hilton in Boston, Massachusetts. For more information, go to

[www.eyeforfuelcells.com](http://www.eyeforfuelcells.com).

**Early Markets for Stationary Fuel Cells.**

The 2<sup>nd</sup> Annual Early Markets for Stationary Fuel Cells will be held at the Radisson Hotel Boston in Boston, Massachusetts from September 30 – October 1, 2002. For registration details, please visit

[http://www.srinstitute.com/part\\_iter\\_site\\_page.cfm?iteration\\_id=438](http://www.srinstitute.com/part_iter_site_page.cfm?iteration_id=438)

**Ohio Fuel Cell Symposium.**

The 2<sup>nd</sup> Annual Ohio Fuel Cell Symposium will be October 4, 2002, at the Professional Education and Conference Center at Kent State University, in Canton, Ohio. For more information, email [mdodge@cesnet.org](mailto:mdodge@cesnet.org).

**Clean Energy Policy Forum.**

The Clean Energy Policy Forum will be December 4, 2002, at the Omni Austin Hotel in Austin, Texas. For details, check out

<http://www.goodcompanyassociates.com/subj/forum.php>.

**Clean Heavy Duty Vehicles.**

Clean Heavy Duty Vehicles for the 21st Century will be February 19-21, 2003, at the Tempe Mission Palms Hotel in Tempe, Arizona. For information, go to

[www.calstart.org](http://www.calstart.org).

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*Fuel cells generate electricity without combustion by harnessing the energy created when hydrogen and oxygen are chemically combined. Fuel Cells 2000 is an independent, nonprofit activity dedicated to the commercialization of fuel cell technologies.*