

news from **FUEL CELLS 2000**

Fuel Cell Technology Update – November 1, 2006

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.

The US Fuel Cell Council is developing guidance material for airport professionals in evaluating the suitability of fuel cells for carriage onboard passenger aircraft in accordance with the International Civil Aviation Organization (ICAO - www.icao.int) Technical Instructions, Part 8. Fuel Cell developers, original equipment manufacturers (OEMs), and others who would like their products added to this list should contact Robert Wichert at wichert@fuelcells.com. Fuel Cell Industry efforts to provide guidance to airline professionals regarding fuel cell systems approved for carry-on use have progressed through discussions with the International Air Transport Association (IATA - www.iata.org). A similar guidance document is planned for ICAO, Screeners and Security personnel. Drafts are being prepared and will be provided for review and use prior to December 2006.

TRANSPORTATION APPLICATIONS

FTA Awards \$49 Million in Grants for Hydrogen Fuel Cell Bus Development.

The Federal Transit Authority announced \$49 million in federal grants for projects to explore new ways to successfully commercialize hydrogen fuel cell buses. Three nonprofit organizations from around the country were competitively selected: the Center for Transportation and the Environment in Atlanta, the Northeast Advanced Vehicle Consortium in Boston and Weststart/CALSTART of Pasadena, California. http://www.fta.dot.gov/news/news_events_5830.html

Honda Introduces Next Generation FCX.

In September, Honda unveiled its next-generation FCX Concept fuel cell vehicle. The FCX Concept features a newly developed compact, high-efficiency Honda fuel cell stack as well as a low-floor, low-riding, short-nose body. Limited marketing of a totally new fuel cell vehicle based on this concept model is set to begin in 2008 in Japan and the U.S. <http://world.honda.com/news/2006/4060925FCXConcept/>

Veloform Demonstrates Fuel Cell Bike.

Veloform demonstrated its City Cruiser II, a 3-wheel electric bicycle powered by fuel cells. The CityCruiser II uses the commercially available EFOY fuel cells manufactured by SFC Smart Fuel Cell AG. http://www.efoy.de/index.php?option=com_content&task=view&id=892&Itemid=177&lang=en

Medis Enters Agreement with IAI, Signs MOU with Two Russian Groups.

Medis Technologies has entered an agreement with Israel Aircraft Industries (IAI) to develop a fuel cell to power unmanned air vehicle systems. Medis will develop and demonstrate a fuel cell capable of passing functionality tests and weight restrictions, which will then be supplied to IAI. IAI will provide up to \$1.9 million to develop the system. Medis has also entered into a Memorandum of Understanding (MOU) with two Russian business groups, ASPECT and Tenzor MA, defining programs for the purchase of Medis 24/7 Power Packs and ultimately production of Medis fuel cell products in Russia.

<http://www.medisel.com/news.php?op=a&id=45>

<http://www.medisel.com/news.php?op=a&id=44>

Ballard to Supply 2,900 Fuel Cells to General Hydrogen.

Ballard Power Systems has signed an agreement with General Hydrogen Corporation valued at approximately US\$22 million to supply 2,900 Mark 9 SSL™ fuel cells. Under the agreement, Ballard expects to ship fuel cells ranging in size from 4 to 20 kilowatts, in 2007 and 2008.

http://www.ballard.com/be_an_investor/news/2006/10/10/General%20Hydrogen%20ESA

Proton Awarded \$1.25 Million from MDA.

Proton Energy Systems has been awarded a \$1.25 million follow-on contract from the U.S. Missile Defense Agency (MDA). The Small Business Innovative Research (SBIR) Phase III contract calls for continued development of regenerative fuel cell technology for high altitude airships. The research project is part of a Department of Defense initiative to develop a lighter-than-air, high-altitude airship Advanced Concept Technology Demonstration (ACTD), prototype that is unmanned, untethered, gas-filled, solar-powered airship and can fly at 70,000 ft.

http://www.protonenergy.com/company/news.html?news_id=17740&year=2006&month=10

ECD Receives \$1.8 Million for Tow Tractor.

Energy Conversion Devices, Inc. has received a contract to develop and demonstrate a hydrogen-powered airport tow tractor and to further develop its advanced Ovonic metal hydride fuel cell technology for the US Army's Tank Automotive Research, Development and Engineering Center (TARDEC) via its National Automotive Center (NAC). The contract has a total value of approximately \$1.8 million.

http://www.ovonics.com/ne_eed_ovonics_press_releases_more.cfm?pressrelease_id=381

STATIONARY APPLICATIONS

Home is Where the Hydrogen Is.

The first solar-hydrogen residence in North America is up and running in Hopewell, New Jersey. The system uses Sharp photovoltaic solar panels to produce electricity that powers a Proton Energy Systems electrolyzer. The electrolyzer produces hydrogen that is stored and when needed, used in a Plug Power GenCore® fuel cell.

<http://abcnews.go.com/WNT/story?id=2592352>

Milk Does a Fuel Cell Good, FCE Sells Fuel Cell to Resort.

FuelCell Energy will supply a 750-kW Direct FuelCell® power plant that will run on a renewable supply of fuel from dairy-processing waste. The fuel cell will generate electricity to power a municipal wastewater treatment plant serving California's San Joaquin Valley region. FuelCell Energy also sold a 750-kW Direct FuelCell® power plant to a premier hospitality and entertainment resort, making it FuelCell Energy's third hotel and lodging site in California. The fuel cell will provide base load power around the clock for hotel operations, and will transform the plant's heat byproduct into hot water for the guests, adding to the system's overall operating efficiency.

<http://www.fce.com>

NASA to Commission Eight Plug Power Units.

Glenn Research Center in Cleveland, Ohio, will commission eight Plug Power GenSys® systems. The units will provide grid-connected power for portions of the lab facility for aerospace research and development. Projects carried out within the facility include testing of materials, coatings, seals and airfoils for space vehicles, as well as advanced technology development to improve aviation safety.

<http://www.plugpower.com>

GE Delivers SOFC.

GE Global Research has successfully developed and delivered a 6-kW prototype of a solid oxide fuel cell (SOFC) system to the U.S Department of Energy (DOE)/National Energy Technology Laboratory (NETL) for testing as part of a multi-year research program under the Department's Solid State Energy Conversion Alliance (SECA) Coal-Based Systems program.

http://www.ge.com/research/grc_7_1_15.html

PORTABLE/BACKUP POWER

IST Holdings Orders More Backup Systems from Plug Power.

IST Holdings (PTY) Ltd. (IST), a Plug Power distributor headquartered in Pretoria, South Africa, has issued a follow-on purchase order for 120 of the Company's GenCore® backup fuel cell systems. to be installed at more than 30 cell phone site locations throughout South Africa. During the 6-month field trial, the fuel cell responded to 121 power failures at a wireless base station.

<http://www.plugpower.com>

Plug Power Signs Agreement with Russian Company.

Plug Power has signed a Strategic Partner Agreement (SPA) with the national innovation company New Energy Projects (NIC NEP) to collaborate on technology and market development efforts in Russia.

<http://www.plugpower.com>

ReliOn Receives CE Approval for Fuel Cell Products.

ReliOn has received CE approval for its T-1000™ and T-2000™ fuel cell solutions. ReliOn's hydrogen fuel cell products provide backup power between 600 Watts and 12 kilowatts to communications applications.

<http://www.relion-inc.com/news.asp#18>

Millennium Cell to Develop Fuel Cartridges for Air Force.

Millennium Cell Inc. has received a delivery order from the Air Force Research Laboratory (AFRL) to develop the next generation of sodium borohydride-based fuel cartridge technology to address higher energy density targets for future power sources. The delivery order, if fully utilized by the military, provides for up to \$4.0 million in purchases of technology and products over its five year life.

<http://www.millenniumcell.com/fw/main/default.asp?DocID=92&reqid=918025>

FUELS/REFORMERS/STORAGE

New York State Launches Project to Demonstrate Hydrogen from Hydropower.

Governor George E. Pataki today announced plans for one of the world's largest hydrogen demonstration projects, a \$21 million initiative to harness hydropower to produce clean-burning, carbon-free gas to fuel nonpolluting hydrogen vehicles. The initiative, which will be undertaken in Western New York, is expected to spur development of a new industry for creating high-tech jobs for the region.

<http://www.ny.gov/governor/press/06/1004061.html>

Ford and BP Open Hydrogen Fueling Station in Michigan.

Ford and BP opened a hydrogen fueling station in Taylor, Michigan, which will fuel a fleet of Ford Focus fuel cell vehicles being used by the city as official vehicles. Ford also announced it would begin deliveries of hydrogen-powered buses in late-2006.

http://media.ford.com/newsroom/release_display.cfm?release=24585

Proton and Shell to Install Station in New York City.

Proton Energy Systems Inc. has signed a contract with Shell Hydrogen LLC to install a hydrogen fueling system in the New York City metropolitan area. As the prime contractor to Shell for this installation, Proton will be responsible for project design, equipment procurement, site preparation, and installation and commissioning. Air Products will be a major subcontractor on the project and supply the compression, storage and dispensing equipment.

http://www.protonenergy.com/company/news.html?news_id=17742&year=2006&month=10

Millennium Cell to Supply Fuel Canisters to South Carolina.

Millennium Cell Inc. has agreed to supply up to 250 Hydrogen on Demand® fuel canisters for delivery in mid-2007 to South Carolina as part of the Greater Columbia Fuel Cell Challenge. The canisters will provide the hydrogen fuel for Jadoo's line of N-Gen Fuel Cell Power Units and XRT Extended Runtime Accessories targeted for use with emergency responders, Homeland Security and other "off-grid" power support applications in Columbia, South Carolina.

<http://www.millenniumcell.com/fw/main/default.asp?DocID=92&reqid=922681>

Linde Opens Hydrogen Center in Germany.

Linde has opened a EUR3 million Hydrogen Center in Germany that has a hydrogen fueling station as well as a testing and training center. The refueling station will supply hydrogen fuel to a current test fleet of hydrogen cars and buses and the Center will also be used to showcase technology.

<http://www.linde.com/international/web/linde/like35lindecom.nsf/0/BB18326F0DC99ED2C1257211005F07E2>

FUEL CELL COMPONENTS

DMFCC Extends Contract with One Korean Company, Enters Contract with Another.

Direct Methanol Fuel Cell Corporation (DMFCC), a subsidiary of VIASPACE, has signed an amended cartridge design and certified manufacturer agreement with Elentec Co., Ltd. of Korea. Elentec is already a cartridge manufacturing partner of DMFCC, and the amendment extends the agreement until 2011. DMFCC has also signed a cartridge design and certified manufacturer agreement with another Korean company, Hyun Won Inc.

http://www.viaspace.com/press_content.asp?id=1084

http://www.viaspace.com/press_content.asp?id=1085

Phil-Lu Receives New Patent.

Phil-Lu Inc. has just received a new fuel cell patent that introduces low cost fuel cells on the technological scene. The fuel cell parts are injection molded plastic, common electrical connections are external, and connect by means of simple attachment. The membrane is coated with selenium compounds in place of platinum. The fuel cell can be made in any shape or form to fit any space.

<http://www.philluinc.com>

REPORTS/MARKET STUDIES

Large Stationary Applications.

Fuel Cell Today has released a new market survey, Large Stationary Applications 2006.

<http://www.fuelcelltoday.com/FuelCellToday/IndustryInformation/IndustryInformationExternal/IndustryInformationDisplayArticle/0,1588,1130,00.html>

MISCELLANEOUS

DOE Announces \$100 Million for R&D Projects.

DOE is providing \$100 million for 25 hydrogen research and development projects. The cost of the projects will total approximately \$127 million, with the additional \$27 million covered by the applicants. The new projects will focus on fuel cell membranes; water transport within the stack; advanced cathode catalysts and supports; cell hardware; innovative fuel cell concepts; the effects of impurities on fuel cell performance and durability; and fuel cell demonstration projects to build international and intergovernmental partnerships. States with organizations that have received awards include Alabama, California, Connecticut, Illinois, Massachusetts, Minnesota, New Mexico, New York, Ohio, Pennsylvania, South Carolina, Tennessee, and Washington.

<http://www.energy.gov/news/4401.htm>

Pennsylvania Investing in Fuel Cells.

Governor Edward G. Rendell announced Pennsylvania is investing \$6.4 million in 16 clean energy projects, including \$250,000 to HydroGen to install a two-megawatt fuel cell at U.S. Steel's Mon Valley facility, fueling it using surplus hydrogen-rich gas from coke oven operations and \$391,548 to Kuchera Defense Systems Inc. to establish a Center for Excellence for Advanced Energy Systems Manufacturing, focusing on fuel cell manufacturing.

<http://www.ahs.dep.state.pa.us/newsreleases/default.asp?ID=4258&varQueryType=Detail>

NextEnergy Announces Alternative Energy Lab Competition.

NextEnergy is running an Alternative Energy Lab Competition where inspired approaches to clean/renewable energy, advanced energy efficiency products, and alternative/smart power systems can

compete for a "start-up" award package valued at \$100,000. The winner will receive a \$25,000 cash infusion plus lab space, consulting from NextEnergy technical experts, grant assistance, marketing exposure, and legal, accounting and public relations services worth another \$75,000.

<http://www.nextenergy.org/nextenergycenter/LabCompetition.asp>

Nuvera Awarded \$5 Million for Water Management Research.

Nuvera Fuel Cells, Inc. has been awarded a \$5 million grant from the U.S. Department of Energy (DOE) to investigate Proton Exchange Membrane (PEM) fuel cell water management. This four-year project will begin in DOE Fiscal Year 2007. Water transport is a key design characteristic in a PEM fuel cell affecting its performance and life cycle cost. Nuvera's unique metallic bipolar plate design and patented open flow field construction are key facets of water transportation within the fuel cell, offering an innovative alternative to the traditional design.

http://www.nuvera.com/news/press_release.php?ID=22

Rolls-Royce Launches US Subsidiary.

Rolls-Royce has launched a subsidiary, Rolls-Royce Fuel Cell Systems (US) Inc., in the United States and announced a partnership with Ohio-based American Electric Power (AEP). Effective immediately, Rolls-Royce Fuel Cell Systems (US) Inc. will operate its business on the campus of the Stark State College of Technology in Canton, Ohio, in the Fuel Cell Prototyping Center constructed earlier this year.

http://www.rolls-royce.com/media/showPR.jsp?PR_ID=40393

RIT Receives Federal Funding for Fuel Cell Lab, To Improve Automotive Fuel Cells.

Rochester Institute of Technology (RIT) in New York has recently secured \$1.35 million in federal funding for a fuel cell research lab. RIT also has been awarded \$2.7 million from the U.S. Department of Energy to explore improving automotive fuel cell performance. Using advanced diagnostic methods and fuel cells with visual access, researchers will seek to enhance automotive fuel cell performance by exploring water transport and accumulation, leading to the development of methods to minimize water accumulation and freeze damage that result in degraded performance and material durability.

<http://www.rit.edu/%7E930www/News/viewstory.php3?id=2073>

<http://www.rit.edu/~930www/webnews/viewstory.php3?id=2089>

CSIRO to Launch Hydrogen Research Cluster.

The Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia's national science agency, is launching a new AUS\$10.6 million (\$8.03 million) research cluster looking into a sustainable hydrogen economy. CSIRO will open the cluster in Newcastle, New South Wales; it will include 12 universities and publicly funded research agencies, bringing together Australian experts in hydrogen generation, solid-state storage and fuel cell technology.

<http://www.csiro.au/csiro/content/standard/ps2ea...html>

FuelCon Moves to Institute of Fuel Cell Innovation.

FuelCon Systems has moved to the National Research Council (NRC) – Institute of Fuel Cell Innovation in Vancouver. This new CAN\$20 million facility also houses academic research and is home to Vancouver's Fuel Cell Vehicle program and British Columbia's Hydrogen Highway.

<http://www.fuelcon.com/en/news/index.html>

CONFERENCES

For a complete list of conferences, please go to <http://www.fuelcells.org/news/conf.html>

GenerationFC 2006.

GenerationFC 2006: Shaping the Southern Fuel Cell Economy will be held December 4-6, 2006, in Atlanta, Georgia. For conference details, please visit <http://www.sfcc.tv/genfc.html>. I am on the agenda in case that is added incentive.

2nd Fuel Cells Durability & Performance.

The 2nd Fuel Cells Durability & Performance conference will be held December 6-8, 2006, at the Wyndham Resort & Conference Center in Miami Beach, Florida. For conference details, please visit <http://www.knowledgefoundation.com/>.

FC Expo 2007.

The 3rd International Hydrogen and Fuel Cell Expo will take place February 7-9, 2007, at Tokyo Big Sight in Tokyo, Japan. For details, please visit <http://www.fcexpo.jp/english/>.

H207.

The H207 exhibition and conference will be held in Aberdeen, Scotland, on May 23-24, 2007. For information, please go to <http://www.h207.com/>.

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.