

news from **FUEL CELLS 2000**

Fuel Cell Technology Update – July 5, 2006

To: Reporters, editors and investors following business, energy, automotive and technology news.
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TRANSPORTATION APPLICATIONS

Penn State to Receive Hydrogen Vehicles.

Penn State University will soon have a mixed fleet of vehicles to refuel at its hydrogen station. By the end of the summer, Penn State expects to have a transit bus and a University maintenance van operating on a hydrogen/natural gas blend along with a fuel cell car operating on pure hydrogen. Residents will be able to ride the bus, #85 on the Loop and Link routes, and observe the van and car which will all be marked for identification.

<http://www.psu.edu/ur/2006/hydrogendemo.html>

STATIONARY APPLICATIONS

FuelCell Energy Sells Unit to NTT Facilities.

FuelCell Energy, Inc., through its Asian distributor Marubeni Corporation, has sold one of its 250-kW Direct FuelCell® (DFC®) power plants to NTT Facilities. The fuel cell will be incorporated into an electric supply system providing reliable base load power to a university, a welfare institution, a high school and a water purification plant in Sendai City, in northeastern Japan. Sendai City's DFC power plant is part of a 940-kW high quality electric power system consisting of the fuel cell unit, a solar power system and a gas engine co-generation system. The high efficiency DFC power plants will be used by the end users to provide firm base load power and the surplus heat from the fuel cell unit will be used for domestic hot water.

<http://www.fce.com>

IdaTech Installs Fuel Cell for London Biennials.

IdaTech, in collaboration with the London Hydrogen Partnership (LHP) and Chetwoods Associates, has installed an integrated fuel cell system to provide a daily power load of eight kilowatts to a naturally-powered kinetic structure for a 28-day period during the London Biennials. The lighted structure, standing over seven meters tall, is installed in Islington, London, and is fully powered by a combination the IdaTech PEM fuel cell system, a photovoltaic (PV) array and a battery bank.

<http://www.idatech.com/media/news.html?article=81>

Cellkraft to Install Fuel Cell in Antarctic Science Station.

Cellkraft has received an order from the Australian Antarctic Division for a complete fuel cell system to provide 230 volts of AC power to a scientific station close to the Mawson base on Antarctica. The system will be delivered in the end of September 2006.

http://www.cellkraft.se/nyheter/en_main.shtm

Ansaldo Fuel Cell Begins Operation in Milan.

Ansaldo Fuel has three prototype plants using an advanced, patented Molten Carbonate Fuel Cell (MCFC) stack with the newest plant just beginning operation in Milan, Italy. The hydrogen power plants can use any kind of hydrogen and carbon monoxide based fuel including ethanol, diesel, natural gas and pure hydrogen, and because of the innovative design can easily switch between fuels.

http://finmeccanicainc.typepad.com/finmeccanica_inc_news/2006/05/ansaldo_fuel_ce.html

Ballard Delivers First Prototypes of Next Generation Fuel Cell.

Ballard has delivered the first prototypes of its next generation fuel cell, the Mark 1030 V3, for the residential cogeneration market to EBARA BALLARD Corporation (Ballard's Japan-based joint venture with the EBARA Corporation). The prototypes are for integration and testing in 1-kW residential cogeneration systems. The Mark 1030 V3 fuel cell has been designed in alignment with the 2008 Japanese government targets of 40,000 hours operation, equivalent to a system lifetime of 10 years in the home and features increased reliability and lifetime, with significantly less weight and volume.

http://www.ballard.com/be_informed/about_ballard/news/2006/06/07/V3%20Release

NYIT Donates Solar-Powered Fuel Cell Home to Marine Academy.

New York Institute of Technology's (NYIT) 2005 Solar Decathlon team donated "America's First Solar-Hydrogen Home" to the U.S. Merchant Marine Academy (USMMA) at Kings Point, N.Y. USMMA was NYIT's sole academic partner during the international competition that is sponsored by the U.S. Department of Energy. The solar-hydrogen fuel cell home, now permanently located on the USMMA campus, is now officially open for tours and will serve as a renewable energy research and educational center for the academy's Alternative Power Program (APP), which was founded in 2004.

NIST Develops New Performance Rating System for Residential Fuel Cells.

The National Institute of Standards and Technology has developed a new performance rating system for residential fuel cells, which can help prospective buyers assess the economic value of fuel cell technologies. The rating will provide the annual electrical energy produced, fuel consumed, thermal energy for domestic water heating and space heating delivered, and water used by the residential fuel cell system. Researchers expect to present their test methodology and performance rating procedures to standards organizations this summer.

http://www.bfrl.nist.gov/863/heat_transfer_group/pubs/NIST_IR_7131.pdf

PORTABLE/BACKUP POWER

Voller Energy Unveils New Battery Charger.

Voller Energy Group PLC has introduced a fuel cell automatic battery charger, the Fuel Cell ABC™, designed to charge a variety of batteries. The Fuel Cell ABC™ can simultaneously charge an iPod®, a laptop (via the standard wall outlet socket) and mobile phone (via the standard cigar lighter outlet).

[http://www.voller-](http://www.voller-energy.com/downloads/Fuel%20Cell%20ABC%20press%20release%2029%20June%202006.pdf)

[energy.com/downloads/Fuel%20Cell%20ABC%20press%20release%2029%20June%202006.pdf](http://www.voller-energy.com/downloads/Fuel%20Cell%20ABC%20press%20release%2029%20June%202006.pdf)

HELBIO, Tropical Introduce New Portable Fuel Cell Power System.

HELBIO S.A. Hydrogen & Energy Production Systems and Tropical S.A. have unveiled a new portable fuel cell power system designed for such off-grid applications as leisure activities and remote applications. The new HT 1000 is capable of producing 0.5 to 1.5 kilowatts of power and can be configured to operate in combined heat and power mode to produce hot water. The HT 1000 is expected to be commercially available early next year.

http://www.helbio.com/Press%20Release/Press_Release_HT1000_EN.pdf

Neah Power Systems Extends Agreement with Novellus, Signs Agreement with Danfoss.

Neah Power Systems, Inc. has renewed and extended their Collaboration Agreement with Novellus Systems, Inc. to develop technology related to the application of catalyst and conductive films to porous silicon structures to be used as fuel cell electrodes. Neah also signed an agreement with Denmark's Danfoss Group Global regarding services within the field of fluid control and disposable fluid cartridge technology for portable fuel cells. As part of the agreement, Neah and Danfoss are collaborating on the use of technical concepts developed by Danfoss relating to the behavior of fluids at the microscale level used in Neah's silicon-based fuel cell technology.

<http://www.neahpower.com/pressreleases/38/neh-power-and-novellus-systems-renew-collaboration-agreement>

Antig to Commercialize Fuel Cell by End of 2006.

Antig Technology plans to commercialize its direct methanol fuel cell (DMFC) technology later this year. The company will formally announce its first DMFC product in the third quarter with shipments planned to start in the fourth quarter of 2006. The first product will be a 16W standalone power charger that can be used for recharging batteries of handheld devices, such as MP3 players, mobile phones, GPS receivers, PDAs and portable multimedia players.

<http://www.antig.com/english/index.asp>

UltraCell Receives Army Contract.

UltraCell Corporation has received a contract award from the U.S. Army Communications-Electronics Research, Development, and Engineering Center's (CERDEC) Army Power Division to accelerate development of the XX25™, a 25-watt reformed methanol fuel cell, for use as a soldier power device.

http://www.ultracellpower.com/assets/pdf/UltraCell_CERDEC_Award%20060506.pdf

FUELS/REFORMERS/STORAGE

DOE Appoints Members of Hydrogen Technical Advisory Committee.

The Department of Energy has appointed 25 members of a new Hydrogen Technical Advisory Committee, which will advise DOE Secretary Samuel Bodman on issues related to the development of hydrogen and fuel cell technologies. The committee will give recommendations to the Secretary regarding DOE's programs, plans and activities, as well as safety, economic and environmental issues related to hydrogen.

<http://www.energy.gov/news/3758.htm>

Shell Hydrogen Working on Largest Hydrogen Public Fleet.

Shell Hydrogen B.V., in partnership with Connexion Holding N.V. and MAN Truck & Bus Company N.V., is working towards creating the world's largest hydrogen-fuelled public transport operation in Rotterdam, The Netherlands. The project aims to have the largest hydrogen bus fleet operational in a single region before the end of the decade. In a Memorandum of Understanding (MOU), Shell Hydrogen and its partners agreed to conduct an in-depth economic and technical study of the project and to seek additional stakeholders, before making a possible investment decision in 2007. Under the proposed scheme more than 20 hydrogen internal combustions engine buses manufactured by the bus builder MAN Nutzfahrzeuge and its subsidiary NEOMAN Bus, will be operated by Connexion, one of the main Dutch public transport companies. Buses will be fuelled from a Shell combined gasoline-hydrogen service station - the first in the Netherlands. The station is expected to be built and the buses operational by 2009.

http://www.shell.com/home/Framework?siteId=media-en&FC2=/media-en/html/iwgen/news_and_library/press_releases/2006/zzz_lhn.html&FC3=/media-en/html/iwgen/news_and_library/press_releases/2006/hydrogen_mediarelease_29062006.html

Hydrogenics Receives Order from BOC for Hydrogen Generator.

Hydrogenics Corporation has received an order from BOC for a HySTAT™ -A hydrogen generation plant for use at a BOC facility in Waiuku, North Island, New Zealand. The order, expected to be delivered in late 2006, is valued at approximately \$1.1 million. This is the initial order received under a global supply agreement recently entered into with BOC. A portion of the hydrogen produced by this plant will be used to supply a nearby steel mill with hydrogen required during the annealing, or strengthening process. The remaining hydrogen will be compressed and delivered by tube trailer to other BOC customers in the area.

http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=201083

QuantumSphere Launches Hydrogen Research Initiative.

QuantumSphere has launched a major research initiative to provide breakthrough capabilities in hydrogen generation by incorporating water electrolysis. QuantumSphere's water electrolysis processes alleviate the dependence on platinum, deliver 80% cheaper electrodes with increased surface area and activity while reducing the electrical potential that resists the water splitting process.

http://www.qsinano.com/news/releases/2006_06_08.php

Researchers Produce Diamonds as well as Hydrogen.

Researchers at Penn State University, exploring a way to store hydrogen in carbon-based materials, inadvertently stumbled upon a method that combines production and storage and produces nanocrystalline diamonds as a by-product.

<http://www.psu.edu/ur/2006/hydrogendiamonds.html>

FUEL CELL COMPONENTS

VIASPACE Receives Order for Humidity Instruments.

VIASPACE has received an order for five of its new laser-based instruments to measure the humidity level in hydrogen fuel cells from Fuel Cell Technologies, Inc., a supplier of fuel cell test systems based in Albuquerque, New Mexico.

http://www.viaspace.com/press_content.asp?id=1072

REPORTS/MARKET STUDIES

Fuel Cells - Global Strategic Business Report.

Research and Markets has released *Fuel Cells - Global Strategic Business Report* which analyzes the worldwide markets for fuel cells and provides separate analytics for the US, Canada, Japan, Europe, and Rest of World. Annual forecasts are provided for each region for the period of 2000 through 2010. The report profiles 161 companies.

<http://www.researchandmarkets.com/reports/c/3e11d1/6ffe/>

MISCELLANEOUS

E-Vision Forms New Company.

Belgian alkaline fuel cell (AFC) developer and producer E-Vision announced the formation of International Energy Systems (Intensys), a new company that will take over all E-Vision activities and proceed with the commercialization of AFC technology. Intensys expects to be capable of producing six-kilowatt turnkey fuel cell generators with micro-CHP capability for use in a variety of stationary power and semi-mobile applications.

CONFERENCES

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

USFCC 6th Annual Congressional Fuel Cell Expo.

The U.S. Fuel Cell Council's 6th Annual Fuel Cell Congressional Expo will be held in the Cannon House Office Building in Washington, DC. on July 20, 2006. Fuel Cells 2000 will be there, as well as a fuel cell vehicle, lots of fuel cell developers, hydrogen suppliers and technology. Come by and say hello.

<http://www.usfcc.com>

Materials Issues in Hydrogen Production and Storage.

The International Symposium on Materials Issues in Hydrogen Production and Storage will be held August 20-25, 2006, at the University of California, Santa Barbara. Visit the following link for detailed program information - <http://www.icmr.ucsb.edu/programs/HydrogenSymposium.html/>.

Battery & Fuel Cell Technology for Portable Devices.

Battery & Fuel Cell Technology for Portable Devices: Improving Power Management, Packaging Techniques, Product Design and Examining Future Market Impact will be held September 26-28, 2006, at the AMA Conference Center in Chicago, Illinois. Book now and receive a discount of up to 500 dollars before July 28th by clicking here <http://iqpcs1.digitopia.net/NA-10623-001/FC2> or calling (800) 882-8684.

Renewables to Hydrogen Forum.

The National Hydrogen Association's Renewables to Hydrogen Forum will take place Oct. 4-5, 2006, at the Marriott Pyramid North Hotel in Albuquerque, New Mexico. Information can be found at

<http://www.hydrogenassociation.org/renewablesForum/>.

2006 Fuel Cell Seminar.

The 2006 Fuel Cell Seminar will be held November 13-17, at the Hawaii Convention Center in Honolulu, Hawaii. For conference information, please go to <http://www.fuelcellseminar.com/index.asp>.

Energy Security – Fuel for the Future.

Energy Security – Fuel for the Future will take place November 15-16, 2006, at the Grange Holborn Hotel, in London, England. For details, go to <http://www.smi-online.co.uk/events/overview.asp?is=5&ref=2447>.

MEFH-2006.

The Roadmap for Fuel Cells and Hydrogen Generation in the Middle East (MEFH-2006) will take place at the Moevenpick Hotel, in Manama, Bahrain, on December 5-6, 2006. For conference details, visit <http://www.me-fuelcells.com>.

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/>.

Hannover Messe 2007.

The 13th Group Exhibit Hydrogen + Fuel Cells at HANNOVER MESSE 2007 will be held April 16-20, 2007, in Hannover, Germany. For conference information, please go to <http://www.fair-pr.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.