

news from **FUEL CELLS 2000**

Fuel Cell Technology Update – June 1, 2005

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

DaimlerChrysler Delivers Three Fuel Cell Vehicles to California.

DaimlerChrysler has delivered F-Cell fuel cell vehicles to the California Air Resources Board (CARB), the California Department of General Services (CDGS) and the California Energy Commission (CEC). These government agencies will use the F-Cells in daily use to provide further knowledge on their operational capabilities.

<http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/05-26-2005/0003692048&EDATE=>

Hydrogenics to Manufacture Regenerative Fuel Cell System for U.S. Army.

Hydrogenics Corporation has signed a contract to manufacture a self-contained regenerative fuel cell power system that will be used to provide auxiliary power for a U.S. Army Stryker Light Armored Vehicle (LAV). The regenerative power system, an integrated configuration of Hydrogenics' proprietary proton exchange membrane (PEM) fuel cell and electrolyzer technologies, is designed specifically to extend the silent watch capabilities of the Stryker LAV.

http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=164367

Kettering University and MTA Partner on Fuel Cell Bus.

Kettering University and the Mass Transit Authority (MTA) of Flint, Michigan, are working together to bring a 40-foot hybrid electric fuel cell passenger bus, a 15-passenger hybrid electric van and a hydrogen refueling station to the Kettering campus. MTA has committed to providing \$50,000 in annual funding for a period of three years to help support Kettering's Hybrid Energy Systems (HES) research program and will provide the university with access to its hybrid vehicle fleet.

<http://kettering.edu/news/storyDetail.asp?storynum=4>

STATIONARY POWER

Acumentrics Installs SOFC Unit at Cuyahoga Valley National Park.

Acumentrics Corporation has installed and commissioned a 5-kW solid oxide fuel cell (SOFC) system in the Cuyahoga Valley National Park near Cleveland, Ohio. This is the nineteenth SOFC unit to be shipped by Acumentrics as part of its beta field-testing program. The project is sponsored by the U. S. Department of Defense, the National Park Service, the Electric Power Research Institute (EPRI) and First Energy, the local electric utility in the Cuyahoga area.

<http://www.acumentrics.com>

FCT Ships Fuel Cell System to Memphis Botanic Garden.

Fuel Cell Technologies, Ltd. (FCT) has shipped a 5-kW SOFC combined heat and power (CHP) system to the Memphis Botanic Garden. The installation is being funded by Gas Technology Institute's (GTI) Distributed Generation Mutual Fund (DGMF) members. The fuel cell will be used to supply heat and electrical power, provide domestic hot water and maintain the tropical environment required in the Conservatory greenhouse.

<http://www.fct.ca/index.php?pressid=46>

FuelCell Energy Sells DFC to SUNY-ESF.

FuelCell Energy, Inc. has sold a 250-kilowatt Direct FuelCell® (DFC®) power plant to generate onsite electricity and provide residual heat for domestic hot water and heating at the State University of New York's College of Environmental Science and Forestry (SUNY-ESF), in Syracuse. The fuel cell is expected to provide about 5 percent of the campus's power.

<http://www.fce.com>

FuelCell Energy's DFC to be Part of Eco-Community.

One of FuelCell Energy's 250-kilowatt Direct FuelCell® (DFC®) power plants, sold by its Asian distributor Marubeni Corporation, will supply power as part of the electric grid servicing a school, a hospital, apartment buildings and city hall in a planned, renewable energy community on the western coast of Japan. The 250-kilowatt DFC plant will efficiently convert waste from a food processing plant into high quality electricity. Heat energy produced by the power plant also will be used to warm water flowing into the food waste digestion process, thus increasing overall system efficiency.

<http://www.fce.com>

UTC Fuel Cell Keeps Running During Moscow Blackout.

Russia suffered a blackout last week, but its leading oil and gas pipeline engineering company, Orgenergogaz, never lost power at one of its facilities due to its UTC Fuel Cells PureCell™ 200 system.

<http://www.utcfuelcells.com/utcpower/news/archive/2005-05-31.shtm>

UTC Reaches One Billion Hour Landmark.

UTC Power has accumulated more than one billion kilowatt-hours of energy with its PureCell™ 200 power plant solution, setting a new industry standard. This is enough energy to power more than 91,000 U.S. homes for one year. The sites have achieved an average electric efficiency of 38 percent, and when using exhaust heat recovery, the total efficiency reaches levels exceeding 80 percent.

<http://www.utcfuelcells.com/utcpower/news/archive/2005-05-24.shtm>

Ballard Signs \$30 Million MOU with EBARA.

Ballard Power Systems signed a Memorandum of Understanding (MOU) with Japanese partner EBARA Corporation (EBARA) and their jointly-owned company, EBARA BALLARD Corporation, to provide funding for the next generation of cogeneration fuel cell stack and system technology. The transaction will provide Ballard approximately US\$30 million in cash, through development funding and equity contributions.

http://www.ballard.com/resources/news_releases/09_EBC%20MOU.pdf

Powerco and CFCL to Begin Field Trials.

Powerco and Ceramic Fuel Cells Ltd (CFCL) have selected Industrial Research Limited (IRL) to conduct the field trials of CFCL's fuel cell powered micro-CHP (small combined heat and power) units in New Zealand. The first trial unit will be based at IRL's facility in Wellington.

http://www.powerco.co.nz/News/Latest/third_party_joins_trans_tasman_power_deal.htm

PORTABLE/BACKUP POWER

Antig Demonstrates Prototype Laptop Fuel Cell.

Antig Technology Company, Ltd. recently demonstrated its prototype 12-Watt DMFC fuel cell integrated into a notebook personal computer during the CeBit trade show held earlier this month in Hannover, Germany. The company also demonstrated a prototype fuel cell charger for mobile phones during the event.

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

British Company Announces Breakthrough in Fuel Cell Technology.

CMR Fuel Cells has achieved a technology breakthrough that will allow OEMs and manufacturers to integrate cost effective, long running and energy efficient fuel cell solutions into a wide range of consumer electronic products. CMR technology reduces the size of fuel cell stack by a factor of ten which eliminates up to 90% of the volume and, as the reactants are mixed, the membrane they pass through

can be much thinner, lighter and cheaper. Through the elimination of most of the expensive platinum catalyst and polymer membrane materials, the cost of a fuel cell stack is also reduced by up to 80%.
http://www.cmrfuelcells.com/article_default_view.fcm?articleid=8502&subsite=6322

Medis Enters Deal with Celestica.

Medis Technologies, Ltd.'s wholly owned subsidiary, More Energy, Ltd., has signed a design and engineering agreement with Celestica, for Medis Technologies' fuel cell Power Pack products. Under the terms of the agreement, Celestica's Automated Manufacturing Services division will commence the design of a semi-automated production line to produce the Power Packs.

Plug Power and FDT Enter Agreement.

Plug Power Inc. announced an agreement with FDT Associates Ltd. (FDT), under which FDT will market, distribute, sell and service Plug Power's GenCore backup power products to the telecommunication industry throughout the United Kingdom. For the past 14 months, Plug Power has been providing backup power to a remote cell tower in Elgin, Scotland, in collaboration with FDT and their customer Orange. The system has provided more than 2,750 hours of backup power to the site since installation.
<http://www.plugpower.com/news/press.cfm>

FUELS/REFORMERS/STORAGE

DOE Announces \$64 Million in Hydrogen R&D Projects.

The U.S. Department of Energy (DOE) announced the selection of 70 hydrogen research and development projects that will receive \$64 million in funding from the DOE Office of Science over the next three years. The projects will tackle five main research areas: materials for hydrogen storage; membranes for fuel cells and for separating hydrogen from other gases and purifying it; nanoscale catalysts for hydrogen production, storage, and use; production of hydrogen from solar energy; and hydrogen production processes that mimic or make use of biological processes that generate hydrogen.
http://www.energy.gov/engine/content.do?PUBLIC_ID=17971&BT_CODE=PR_PRESSRELEASES&TT_CODE=PRESSRELEASE

DOE and USDA to Produce Hydrogen from Biomass.

DOE and the U.S. Department of Agriculture (USDA) have signed a Memorandum of Understanding (MOU) aimed at developing more cost-effective ways to produce hydrogen from biomass resources. Under the MOU, DOE and USDA experts will meet regularly to share information on technologies and activities of mutual interest related to reducing the cost of chemically converting biomass to hydrogen.
http://www.energy.gov/engine/content.do?PUBLIC_ID=17972&BT_CODE=PR_PRESSRELEASES&TT_CODE=PRESSRELEASE

Proton Energy Signs Agreements with Praxair, Airgas.

Praxair, Inc. has signed an agreement with Proton Energy Systems, Inc. to become the exclusive distributor in Canada and a U.S. distributor for Proton's advanced on-site hydrogen generation systems for the electric utilities industry and other applications. Separately, Airgas has announced a three-year agreement for its regional companies to market and distribute Proton Energy Systems' proprietary HOGEN® on-site hydrogen generation systems to customers in the United States.
http://www.protonenergy.com/company/news.html?news_id=17518&year=2005&month=5
http://www.protonenergy.com/company/news.html?news_id=17517&year=2005&month=5

HERA Licenses Patents from McGill.

HERA, Hydrogen Storage Systems Inc. has become exclusive licensee of a substantial intellectual property portfolio developed by McGill University in the field of advanced hydride materials for hydrogen storage.
<http://www.herahydrogen.com/en/doc/p2005-05-02.html>

P+E Receives Navy SBIR Award.

Power+Energy, Inc. (P+E) has been awarded a new Phase I SBIR contract by the Navy entitled "Hydrogen Separation from a Logistic-Fuel Reformate Stream." Under this contract P+E will investigate

alternatives for developing a Palladium alloy membrane hydrogen separator which can reliably process a reformat feed stream containing from 100 to 400 parts per million of sulfur.

http://www.purehydrogen.com/site_2002/news_documents/press_release_05_05_2005.html

Toyota Develops High-Pressure Hydrogen Tanks.

Toyota Motor Corporation has developed 35MPa and 70MPa high-pressure hydrogen tanks for use in fuel cell vehicles. The new Toyota high-pressure hydrogen tanks employ an anti-leak liner made of high strength nylon resin with superior hydrogen permeation-prevention performance. The tanks also feature an all-composite structure concealed by a carbon fiber exterior, making them light and extremely strong.

FUEL CELL COMPONENTS

DuPont Unveils New MEA.

DuPont Fuel Cells unveiled its latest technology, DuPont Gen IV, for a new generation of Membrane Electrode Assemblies (MEA) components enabling direct methanol fuel cells with improved overall power performance and longer run-times. DuPont Gen IV MEA technology requires significantly less catalyst loading compared with the previous generation, while still delivering approximately a 20 percent increase in power density and well over two times improvement in durability and reliability leading to more cost-effective fuel cell systems.

http://www.dupont.com/fuelcells/pdf/pressrel_05232005.pdf

Argonne to Receive \$3 Million for Catalyst Research.

Argonne National Laboratory will receive \$3 million over three years for basic science studies that may lead to improved catalysts for hydrogen fuel cells. The funding, from the U.S. Department of Energy's Office of Basic Energy Sciences, will be used to study the molecular basis of catalysis, with a particular interest in the oxygen reduction reaction in fuel cells.

http://www.anl.gov/Media_Center/News/2005/news050526.html

Quantachrome Introduces New Water Sorption Analyzer.

Quantachrome Instruments has unveiled their latest Hydrosorb model. The Hydrosorb-HT water sorption analyzer features an analysis temperature range of 12 to 85°C.

http://www.quantachrome.com/whatsnew/listings/whatsnew_03.28.2005.htm

REQUESTS FOR PROPOSALS

CCEF Announces Funding for New Demonstration Program.

The Connecticut Clean Energy Fund (CCEF) announced funding for a new program opportunity that will support the demonstration of innovative technologies or technology applications in the clean energy sector. The Operational Demonstration Program will provide funding opportunities of up to \$750,000 per project for companies with near-commercial clean energy technologies that are seeking to establish product viability and a track record of performance for their technology in a relevant operational environment. Total available funding under this program opportunity is \$4 million and applications will be accepted on a rolling basis.

<http://www.ctcleanenergy.com/news/81.php>

MISCELLANEOUS

Ohio Governor Extends Fuel Cell Initiative for Three Years.

Ohio Governor Bob Taft announced a three-year extension of the Ohio Fuel Cell Initiative, a \$103 million program that aims to position Ohio as a national leader in the growing fuel cell industry and help spur economic growth and job creation in Ohio. To date, more than \$38 million in Fuel Cell Initiative funds has been awarded to fuel cell projects across the state. The Initiative is an integral part of the Third Frontier Project, a \$1.1 billion job creation program designed to create jobs and bring new products to market.

<http://www.governor.ohio.gov/releases/051105FuelCell.htm>

EMTEC Develops Ohio Fuel Cell Database.

The Edison Materials Technology Center (EMTEC) has developed and released a new searchable online database of Ohio organizations, contacts, products and services that contribute to the emerging fuel cell supply chain.

<http://www.emtec.org/MySql4/DatabaseIndex.htm>

Microcell Receives Entrepreneurship Award.

Microcell was presented with the Crystal Flame Award for Entrepreneurship at the 2005 FuelCellSouth Conference. Nominated for this award by members of the southeast fuel cell industry, Microcell was chosen by a panel of industry analysts, researchers and capital investors based on key criteria centered on innovation and potential market impact.

<http://www.microcellcorp.com/news.html#>

CONFERENCES

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

Lucerne FUEL CELL FORUM 2005.

Two international fuel cell conferences, Fuel Cells for a Sustainable World and the 3rd European Polymer Electrolyte Fuel Cell Forum, will be held July 4–8, 2005, at the Kultur- und Kongresszentrum Luzern in Luzern, Switzerland. For registration information, please visit <http://www.efcf.com/>.

Grove Fuel Cell Symposium.

Review the latest technological advances and developments in fuel cell applications across all market sectors at the Ninth Grove Fuel Cell Symposium – October 4-6, 2005, in London, United Kingdom.

Over 50 expert presentations are supplemented by a major exhibition and fuel cell demonstration area. Book your delegate place and free exhibition tickets now at www.grovefuelcell.com.

Middle East and Hydrogen Technology.

Middle East and Hydrogen Technology: Opportunities and Challenges will take place in Dubai, United Arab Emirates, from December 6-7, 2005. For more information, please visit <http://www.me-fuelcells.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.