

news from **FUEL CELLS 2000**

Fuel Cell Technology Update – February 1, 2005

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

Honda Leases Two Vehicles to Las Vegas.

The city of Las Vegas will lease two Honda FCX fuel cell vehicles for a period of two years at a cost of \$500 per vehicle per month. The FCX fuel cell vehicles will be refueled at a city-owned and operated hydrogen station. The two Honda vehicles are the only fuel cell-powered vehicles in service in the state of Nevada, increasing Honda's total number of vehicles operating in the United States to 14.

<http://world.honda.com/news/2005/4050203.html>

Nissan Develops In-House Fuel Cell Stack and Hydrogen Storage System.

Nissan Motor Co., Ltd. has designed and developed its first in-house fuel cell stack, as well as a new high-pressure hydrogen storage system. The new technologies significantly improve the performance required of fuel cell vehicles, including acceleration and driving range. Nissan will begin in-vehicle testing of the new fuel cell stack to further improve its overall performance and reliability. The storage system has been certified by the High Pressure Gas Safety Institute of Japan (KHK) as a 70 MPa high-pressure hydrogen storage cylinder and is made of an inner aluminum liner and an outer shell of several wound layers of a high-strength, high-elasticity carbon fiber.

<http://www.nissan-global.com/EN/STORY/0,1299,S19-CH181-LO3-TI1321-CI979-IFY-MC109,00.html>

GM and Hydrogenics Demonstrate Fuel Cell Forklift.

General Motors of Canada Limited and Hydrogenics Corporation demonstrated a hydrogen fuel cell-powered forklift and a Hydrogenics HyLYZER hydrogen refueling station. Hydrogenics is leading a consortium of partners to develop and demonstrate fuel cell-powered forklifts. This project is being partially funded with a \$1.45 million contribution from Sustainable Development Technology Canada (SDTC).

http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=154338

Ballard Achieves Progress in Three Key Areas.

Ballard Power Systems announced significant progress in three areas crucial to the commercialization of automotive fuel cell stack technology— freeze start capability, durability and cost reduction – without compromising performance. Ballard scientists and engineers have demonstrated a stack design that can start repeatedly from -20° C (-4°F) and operate for more than 2,000 hours at a substantially reduced cost with no performance tradeoff. Ballard demonstrated its achievements on a 10-cell demonstration fuel cell stack, reducing the amount of platinum by 30%, and subjecting the stack to start-ups from -20° C, all without compromising performance. Ballard engineers employed a drive cycle testing protocol that simulated real world driving, similar to tests used by auto manufacturers today. The protocol included starts, stops, rapid acceleration and deceleration, much harsher than steady state testing.

http://www.ballard.com/resources/news_releases/04_Technology%20Hat%20Trick.pdf

STATIONARY POWER

IdaTech Begins Installation at Foothills Environmental Learning Center.

IdaTech, a subsidiary of IDACORP, began the installation of a 5-kilowatt fuel cell at the Foothills Environmental Learning Center in Boise, Idaho. Idaho Power and Boise-based Intermountain Gas

Company jointly donated the advanced technology generation resource. The unit will be fueled by natural gas. IDACORP provided half of the funds required for the purchase and installation of the fuel cell and provided a power line extension to the center. Intermountain Gas Company funded the other half of the purchase and installation costs as well as installing a natural gas line to the project.

http://www.idahopower.com/newsroom/pressreleases/20050131_1.htm

FuelCell Energy and Alliance Power Form Joint Venture, Sign Agreement with Starwood Hotels.

FuelCell Energy, Inc. and Alliance Power have formed a joint venture, Alliance Star Energy LLC, which has entered into a Master Energy Services Agreement (MESA) with Starwood Hotels & Resorts Worldwide, Inc. The MESA provides the framework for fuel cell power plant projects for Starwood's hotels and will streamline the process for business opportunities between Starwood and Alliance Star Energy. Initial focus will be in California, but the MESA is open to all of Starwood's hotels and resort properties. The first project under this MESA is to provide one megawatt of fuel cell power to the Sheraton San Diego Hotel & Marina, the fourth hotel employing FuelCell Energy's Direct FuelCell® (DFC®) technology. Four 250-kilowatt DFC power plants will supply base load electricity for the 1,044-room hotel. The heat byproduct will be used for the hotel's Lagoon Pool. Delivery is expected in late 2005.

http://www.corporate-ir.net/ireye/ir_site.shtml?ticker=FCEL&script=412&layout=6&item_id=675682

PORTABLE/BACKUP POWER

NTT Develops Prototype Micro Polymer Electrolyte Fuel Cell.

Nippon Telegraph and Telephone Corporation (NTT) has developed a prototype micro polymer electrolyte fuel cell (PEFC) that uses hydrogen gas as a fuel and is small enough to directly fit inside of a mobile phone. According to NTT, under tests using a production-model mobile phone, the prototype PEFC successfully powered start-up and signal reception transmission.

<http://www.ntt.co.jp>

Battelle and UDI Demonstrate Fuel Cell APU.

Battelle and United Defense Industries, Inc. have teamed to develop and demonstrate a prototype fuel cell auxiliary power unit (APU) on a Bradley Fighting Vehicle. The fuel cell technology was developed at Battelle's laboratories with funding support from the U.S. Army's Tank Automotive Research, Development and Engineering Center (TARDEC) and its National Automotive Center, and integrated by United Defense at its Ground Systems Division facility.

<http://www.battelle.org/news/05/02-16-05BradleyFuelCell.stm>

FUELS/REFORMERS/STORAGE

ChevronTexaco, Hyundai and UTC Open New Hydrogen Station in California.

ChevronTexaco Technology Ventures LLC, a subsidiary of ChevronTexaco Corp., unveiled its first hydrogen energy station today at the Hyundai-Kia America Technical Center in California. The project is part of the U.S. Department of Energy (DOE) Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Program. The hydrogen energy station located in Chino, California is part of a five-year DOE cost-sharing program designed to demonstrate safe, practical hydrogen technologies in real-world settings. ChevronTexaco is leading the project in collaboration with Hyundai Motor Co. and UTC Fuel Cells. QuestAir Technologies supplied an H-3200 hydrogen purifier to purify hydrogen generated from natural gas.

http://www.chevrontexaco.com/news/press/2005/2005-02-18_1.asp

Mazda Receives Approval for Hydrogen Station in Japan.

Mazda Motor Corporation received approval from government authorities for a filling station to store and supply fuel for ongoing hydrogen vehicle research and development. The new "Hydrogen Station" officially began operating in early February 2005 and is located near Mazda's global headquarters in Hiroshima. It is the first hydrogen filling station in the Chugoku region of western Japan.

<http://www.mazda.com/publicity/release/200502/0216e.html>

CaFCP Develops New Tool for Sampling Quality of Hydrogen Fuel at Station Dispensers.

The California Fuel Cell Partnership (CaFCP) has developed a new tool to help facilitate the demonstration and development of hydrogen fuel systems to support fuel cell vehicles. The new device, called the Hydrogen Quality Sampling Adapter (HQSA) is unique because it provides, for the first time, a means of collecting hydrogen samples at a fuel dispenser nozzle. With the new device, sampling can be conducted at the nozzle to identify possible contamination of the fuel that might occur after it has left the storage vessel.

http://www.caftp.org/news_releases-05/2005_02_09_HQSA.htm

BOC Invests in HERA.

HERA Hydrogen Storage Systems Inc. (HERA) announced a significant demonstration of support in its technology with the addition of BOC as a new shareholder in the company. HERA is a leading developer of solutions based on its proprietary hydride technology for automotive, transportation and hydrogen distribution applications including hydrogen storage.

<http://www.herahydrogen.com/en/doc/p2005-02-07.html>

Ztek to Showcase Hydrogen Projects at Hydrogen Expo.

Ztek Corporation will be showcasing its current hydrogen demonstration projects at the Hydrogen Expo™ USA from March 29 to April 1, 2005 in Washington, DC. Ztek is partnered with Pacific Gas & Electric Company to develop a hydrogen station near San Francisco International Airport that will feature Ztek's "High Performance Steam Reformer" (HPSR) and support the hydrogen needs of the California Fuel Cell Partnership's vehicle fleet.

<http://www.hydrogenexpo.com/pres.htm>

FUEL CELL COMPONENTS

Pdc Machines Compressor Meets European Regulations.

Pdc Machines is the first company in the United States to manufacture diaphragm compressors in accordance with European CE, ATEX and PED regulations. These compressors will play an important role in helping Europe achieve their goals of developing widespread alternative renewable energy sources leading to a cleaner environment. As part of the European CUTE project, one compressor is operating in Madrid Spain and another is destined for Stockholm Sweden, both for refueling demonstration buses with hydrogen.

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

REPORTS/MARKET STUDIES

Hydrogen Infrastructure.

A new study from ABI Research determines that the automotive fuel cell industry must invest about US\$2 billion in creating a hydrogen infrastructure by 2012 if market expectations are to be met.

"Hydrogen Infrastructure" evaluates the production and distribution pathways that will be essential for any major fuel cell vehicle introduction, and reviews potential fuel sources for hydrogen generation.

http://www.abiresearch.com/products/market_research/Hydrogen_Infrastructure

US Fuel Cell Patent Directory.

Research and Markets has released the "U.S. Fuel Cell Patent Directory - a complete guide of U.S Fuel Cell Patents from 1976-2004" which lists over 3,500 patent listings.

<http://www.researchandmarkets.com/reports/c13124/>

REQUESTS FOR PROPOSALS

LIPA Issues RFP for Fuel Cell Power Plant.

The Long Island Power Authority (LIPA) plans to support the construction of the world's largest fuel cell power facility at its West Babylon substation. LIPA has requested proposals for a 10-megawatt fuel cell power plant, which it intends to bring online by July 1, 2006. LIPA proposes to enter into a 20-year power purchase agreement with the winning bidders, who will own and operate the facility. Proposals are due by April 25th.

<http://www.lipower.org/newscenter/pr/2005/feb1.fuelcell.html>

MISCELLANEOUS

Nuvera and UHDENORA Working Together on Fuel Cell System.

Nuvera Fuel Cells, Inc. and UHDENORA SpA will work together to develop a modular fuel cell system designed to increase the eco-efficiency of chlor alkali plants. The new fuel cell system will use excess hydrogen, produced as a by-product during manufacturing processes, to generate pollution-free, efficient power. According to the agreement, Nuvera and UHDENORA will engage in a three-phase joint initiative aimed at developing a rugged base-load system capable of reducing a plant's power consumption by approximately 20 percent. The new system will be capable of converting the available hydrogen into DC current, delivering high-efficiency electricity without pollution. The system is also being designed to integrate safely and reliably with chlor alkali electrolyzers, avoiding any interference with ongoing plant production. The companies plan to begin initial testing of the fuel cell system by May 2005.

http://www.nuvera.com/news/press_release.php?ID=2

BCIT to Introduce Hydrogen and Fuel Cell Evening Courses.

Beginning on April 5, British Columbia Institute of Technology's Centre for Energy Systems Applications (CESA) will introduce a series of three part-time studies evening courses on fuel cells and hydrogen technology. Starting from basic concepts, the courses will introduce participants to existing and potential applications of fuel cells, production and storage of hydrogen, and the science and engineering principles of fuel cells and hydrogen systems.

<http://www.bcit.ca/>

IdaTech Opens German Office.

IdaTech has opened its first European office in Herten, state of North Rhine Westphalia, Germany under the name IDATECH Fuel Cells GmbH.

<http://www.idatech.com/media/news.html?article=69>

Fideris Opens Office in Switzerland.

Fideris, Inc. has opened a new office in Zurich, Switzerland under the name Fideris Test Solutions that will serve the company's Europe, Middle East and Asia customers.

<http://www.fideris.com/DesktopDefault.aspx?tabid=2592>

CONFERENCES

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

Hydrogen Expo USA 2005.

Hydrogen Expo USA 2005 is being held in conjunction with the National Hydrogen Association's Annual Conference from March 29-April 1, 2005, at the Marriott Wardman Park in Washington, DC. For more information, please go to <http://www.hydrogenexpo.com/>.

Hannover Fair '05.

The International Hydrogen + Fuel Cells Group Exhibit, Hannover Fair '05, will be held April 11-15, 2005, in Hannover, Germany. More information is available at: <http://www.fair-pr.com/> or by email arno@fair-pr.com.

Hydrogen and Fuel Cells on Their Way to Commercialization.

Hydrogen and Fuel Cells on Their Way to Commercialization will be held April 12, 2005, at the Hannover Fair in Hannover, Germany. More information is available at

<http://www.fair-pr.com/hm05/conference/index.php>.

Small Fuel Cells.

The 7th Annual Small Fuel Cells (sm) 2005 - Small Fuel Cells for Portable Applications will be held April 27-29, 2005, at the Loews L'Enfant Plaza Hotel in Washington, DC. For more information, please visit <http://www.knowledgefoundation.com>.

Fuel Cell 2005.

Fuel Cell 2005 will be held June 7-8, 2005, at the Hyatt Regency Minneapolis in Minneapolis, MN. For conference details, please go to http://www.fuelcell-magazine.com/fc_conf_index.htm.

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 Lucerne, Switzerland. For registration information, please visit <http://www.efcf.com/>.

European Fuel Cell Conference.

The First European Fuel Cell Technology and Applications Conference will be held December 14-16, 2005, in Rome, Italy. For more information, please go to <http://www.asmeconferences.org/efc05/>.

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.