**news from**

**FUEL CELLS 2000**

Fuel Cell Technology Update – November 1, 2003

*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 APPLICATIONS**

**Four New Cars to be Introduced at the Tokyo Motor Show.**
At the 37th Tokyo Motor Show, four new fuel cell concept cars will be introduced. Honda Kiwami, with a fuel cell system whose hydrogen storage tank is located in the center of the vehicle, enabling the body height to be lowered to 1.25 meters; the Nissan Effis, a city commuter car that combines Nissan’s newly developed Super Motor and Compact Lithium-ion battery with a fuel cell stack; the Jeep Treo, a three-passenger fuel cell car which utilizes drive-by-wire technology; and the Suzuki Mobile Terrace, a six-passenger van which also uses drive-by-wire technology.


**DaimlerChrysler to Provide F-Cell Cars to Tokyo Gas, Bridgestone.**
DaimlerChrysler Japan Co., Ltd. will provide Tokyo Gas Co., Ltd. and Bridgestone Corp. each with one F-Cell car to use for 36 months (temporarily returned for two months each year). A vehicle is scheduled to be delivered to Tokyo Gas in November.

[http://www.tokyo-gas.co.jp/Press_e/20031016-1e.pdf](http://www.tokyo-gas.co.jp/Press_e/20031016-1e.pdf)

**Nuvera and FIAT Demonstrate Two Cars.**
Nuvera Fuel Cells’ automotive fuel cell stack technology was integrated into 2 vehicles by Centro Ricerche Fiat (CRF) and demonstrated by FIAT Auto in Milan, Italy. The advanced concept cars included a prototype of the FIAT Seicento employing a 40-kW Nuvera fuel cell stack, as well as a prototype of FIAT’s next-generation fuel cell vehicle, the Panda Hydrogen, which featured an advanced Nuvera Andromeda™ fuel cell stack concept.


**Hydrogenics to Develop Fuel Cell-Powered Forklifts.**
Sustainable Development Technology Canada (SDTC) has approved Hydrogenics Corporation's proposal to lead a consortium of technology and end-user partners to develop, demonstrate and pre-commercialize fuel cell-powered forklifts. The project involves outfitting two Class-1 forklifts with 10-kW fuel cell propulsion systems and metal hydride hydrogen storage systems; developing refueling capabilities; gathering market research; and demonstrating the forklifts to industrial end users. Consortium members include Deere & Company, FedEx Canada, General Motors of Canada,
HERA Hydrogen Storage Systems, NACCO Materials Handling Group and the City of Toronto.

Quantum Awarded Army Contract.
Quantum Fuel System Technologies Worldwide, Inc. has been awarded a contract by the U.S. Army TARDEC-NAC (National Automotive Center) to develop and demonstrate a high performance, hydrogen fuel cell powered light-duty, special operations vehicle. Quantum will develop a chassis and body, integrate the fuel cell power module, design the electric drive system, design the hydrogen fuel storage and delivery system, and develop the operational and maintenance documentation.

Fuel Cell Water Taxi Now Afloat.
A hydrogen-fueled public water taxi, powered by an Anuvu Power-X fuel cell/battery electric hybrid engine, was demonstrated for attendees at the World Maritime Technology Exposition in San Francisco, California. The 18-passenger boat is funded by California's Center for the Commercial Deployment of Transportation Technologies, with Seaworthy Systems, Duffy Electric Boat and Millennium Cell involved as project partners.
http://www.anuvu.com/bayboat.html

STATIONARY POWER

Honda Develops Home Energy Station.
Honda R&D Co., Ltd. has installed an experimental Home Energy Station (HES) that generates hydrogen from natural gas for use in fuel cell vehicles while supplying electricity and hot water to the home. The new HES system, jointly developed with Plug Power Inc., is located on the grounds of Honda R&D America in Torrance, California, and will undergo experiments in hydrogen production, storage and fueling, as part of ongoing research into hydrogen energy sources.
http://biz.yahoo.com/prnews/031002/lath029_1.html

FuelCell Energy, Inc. and its U.S. distribution partner, PPL Energy Plus have installed a Direct FuelCell® (DFC®) power plant at the Sheraton Parsippany Hotel in Parsippany, New Jersey. The DFC300A power plant provides about 25 percent of the hotel's electricity and hot water. Caterpillar, Inc. and FuelCell Energy, Inc. installed a 250-kW DFC300A power plant at the Caterpillar Technical Center near Peoria, Illinois. The power plant, which will be connected to the Peoria area energy grid, is expected to supply electricity to more than 250 average American homes.
http://biz.yahoo.com/prnews/031015/phw028_1.html

IdaTech Receives DOE Award.
IdaTech has been awarded a $9.6 million development program by the U.S. Department of Energy (DOE) for the development of a 50-kW proton exchange membrane (PEM) fuel cell system suitable for providing grid-independent energy sources for large facilities, such as hotel systems, office buildings, prisons, and hospitals. IdaTech’s partners for the program include Hydrogenics Corporation, Sempra Energy, Puget Sound Energy, Marriott International and the California Hotel and Lodging Association. Three 50-kW systems will be field-tested, one each with Sempra Utilities, Puget Sound Energy and Marriott International.

http://www.idatech.com/media/news.html?article=54

Coalmine Fuel Cell Dedicated.
FuelCell Energy Inc. dedicated its Direct FuelCell® (DFC®) power plant, operating on coalmine methane gas, at a ceremony at the AEP Ohio Coal LLC Rose Valley Site in Hopedale, Ohio. The purpose of the project, which is co-funded by the U.S. Department of Energy’s National Energy Technology Laboratory, is to demonstrate the feasibility and advantages of methane from coalmines to generate electricity cleanly and efficiently.

http://energyinfosource.com/dg/news.cfm?id=20341

Marubeni Sites Fuel Cell in Japan.
The Marubeni Corporation and FuelCell Energy, Inc. have sited a Direct FuelCell® (DFC®) power plant at Japan Petroleum Exploration Co., Ltd. (JAPEX) facilities near Nagaoka City. Marubeni will supply a 250-kilowatt DFC300A power plant to JAPEX’s Katakai natural gas gathering station located in the fourth quarter of 2003. The DFC unit will operate on the natural gas being produced from the field, and will provide electricity for JAPEX’s natural gas processing facilities on the site.

http://www.fce.com

PORTABLE/BACKUP POWER

MTI and Harris Strengthen Agreement for Micro Fuel Cells for Military.
MTI MicroFuel Cells, Inc. and Harris Corporation have built upon an earlier agreement and will advance the joint development of micro fuel cell systems for portable military communications equipment. Under an agreement entered into in November 2002, MTI Micro developed direct methanol micro fuel cell (DMFC) system power-pack prototypes for use with Harris' tactical handheld radios. Under the new agreement, Harris will purchase next-generation DMFC system prototypes from MTI Micro.

http://www.mechtech.com/newsandevents/article.cfm?A_ID=14105

MGE and Ballard Begin UPS Field Trials.
MGE UPS Systems, Inc. and Ballard Power Systems officially launched field trials for MGE's Evolution Uninterruptible Power Supply (UPS) powered by Ballard's Nexa® RM Series fuel cell modules. The event included a series of live demonstrations for reporters and customers in New York City beginning with a simulated blackout on the 21st floor of a midtown high-rise. During the "blackout," the 3KVA Evolution UPS provided power to a rack of computer networking equipment and a large plasma screen
display while Ballard's AirGen™ portable fuel cell generator kept a small refrigerator, lighting and other small electronics operating for the duration of the hour-plus presentation.
http://biz.yahoo.com/bw/031014/145470_1.html

**FUELS/REFORMERS/STORAGE**

**Canada to Join International Hydrogen Partnership.**
The Department of Energy (DOE) and Natural Resources Canada (NRCan) issued a joint statement announcing Canada's intention to join the International Partnership for the Hydrogen Economy. The International Partnership supports the deployment of hydrogen energy technologies, establishing collaborative efforts in hydrogen production, storage, transport, and end-use technologies; common codes and standards for hydrogen fuel utilization; and the sharing of information necessary to develop hydrogen fueling infrastructure.
http://www.nrcan-rncan.gc.ca/media/newsreleases/2003/200383_e.htm

**Hydrogen Fueling Station Opens in Luxemburg.**
The first hydrogen refueling station in Luxemburg recently opened at the main bus depot. The Shell Hydrogen station will supply fuel to three DaimlerChrysler Citaro fuel cell buses as part of the Clean Urban Transport for Europe (CUTE) Project, a European Union initiative to demonstrate the feasibility of an innovative, highly energy efficient, clean urban public transport system.
http://www.shell.com/home/Framework?siteId=hydrogen-en

**QuestAir Installs HyQuestor System in Tokyo.**
QuestAir Technologies, Inc. installed a HyQuestor hydrogen purification system as part of the Senju Hydrogen Station located in Arakawa-ku, Tokyo. In the station, the HyQuestor system purifies hydrogen reformed from liquefied petroleum gas (LPG). The purified hydrogen will be used to fuel a number of fuel cell vehicles participating in the Japan Hydrogen & Fuel Cell Demonstration Project, including a Toyota FCHV fuel cell car operated by Tokyo Gas.

**Stuart Energy, Statkraft and EHN Join on Renewable Hydrogen.**
Stuart Energy Systems Corporation, Statkraft SF and Corporación Energía Hidroeólica de Navarra S.A. (EHN), have signed a joint cooperation agreement to establish a framework to assess, demonstrate and develop advanced renewable energy based hydrogen production and distribution solutions. Both Statkraft and EHN have each purchased a Stuart Energy HES hydrogen generation module and are actively evaluating sites to demonstrate transportation and power applications of wind generated hydrogen.

**Dynetek Delivers Storage System to Mitsubishi.**
Dynetek Industries Ltd. has delivered an on-board hydrogen fuel storage system to Mitsubishi Motor Corporation for use in its MITSUBISHI FCV test vehicle. Dynetek is providing the fuel storage solution using its certified 350 bar (5000 psi) hydrogen fuel storage system. The storage system has been certified in Japan to Reijikiun Betlan-9 standard with approval by KHK and in Germany under TUV. The vehicle is on display at the head office of Mitsubishi Motors Corporation. 
http://www.dynetek.com/thankyou.html

NHA and DOE Sponsor Hydrogen Design Contest. 
The National Hydrogen Association (NHA) and the Department of Energy (DOE) announced the "1st Annual University Student Hydrogen Design Contest." Teams of graduate and undergraduate students enrolled in North American colleges and universities during the 2003 to 2004 academic year are eligible to compete in the contest. Registration and design statements will be due by December 15, with a final entry deadline set for March 1, 2004. 
http://www.hydrogenconference.org/contest.asp

FUEL CELL COMPONENTS

GrafTech Awarded Two Cash Grants for Components. 
GrafTech International Ltd.’s subsidiary, Advanced Energy Technology (AET), was awarded two cash grants totaling $1.4 million from the State of Ohio to support fuel cell development programs. These awards are part of Ohio Governor Bob Taft's Third Frontier Program to foster the growth of fuel cell technology. Approximately $800,000 will be used in a program to develop high volume manufacturing processes for proton exchange membrane (PEM) fuel cell flow field plates. The second program, under which AET will receive approximately $600,000, will develop a rapid, cost effective fuel cell testing system. This program will be instrumental in accelerating improvements in the design and affordability of fuel cell components. 

IRTT Develops New Metal PEM Power Stack. 
Farmingdale State University of New York’s Institute for Research and Technology Transfer (IRTT) has developed new lightweight, low-cost, non-corrosive metal bipolar plates with excellent manufacturability and high electrical and thermal conductivity.

REPORTS/MARKET STUDIES

Fuel Cell Investment Impacts Jobs. 
Increasing fuel cell investment will not only impact energy security and air quality, it could yield nearly 200,000 new jobs in the next 20 years, according to a new study from Breakthrough Technologies Institute. The study, "Fuel Cells at the Crossroads: Attitudes Regarding the Investment Climate for the U.S. Fuel Cell Industry and a Projection of Industry Job Creation Potential," estimates that total employment in the U.S. fuel cell industry in 2002 was approximately 4,500 to 5,500 and could climb to as many as 189,000 by 2021 in direct and indirect job growth as demand grows.
PricewaterhouseCoopers has published a new North American fuel cell report that focuses on the 2002 year-over-year financial information of the 16 publicly-traded companies based in the US and Canada that are engaged in the areas of fuel cell production, system integration and related fuelling infrastructure. Copies of the survey can be found at http://www.pwc.com/extweb/ncsurvres.nsf/docid/0156308D26DD0F3E85256DA9005897C2.

Battery & Fuel Cell Materials.
Battery & Fuel Cell Materials, a new study by The Freedonia Group, analyzes the U.S. market for materials used in the production of batteries and fuel cells by application (primary batteries, secondary batteries and fuel cells), function (battery containers, electrodes, electrolytes, separators, etc.) and material (carbon/graphite, chemicals, metals, polymers and other).

Participate in Industry Survey.
Provide your opinions on the direction the hybrid and electric vehicle industry will take in the year 2004. The results will be compiled and presented in an upcoming special report in the pages of Hybrid & Electric Vehicle Progress.
http://www.altfuels.com/evpsurvey.php

MISCELLANEOUS

www.fuelcells.org Updates Spanish Site, Adds Portuguese Version.
Fuel Cells 2000, the leading non-aligned source for fuel cell information, has recently updated the Spanish version of its award-winning website, www.fuelcells.org, and has also added a Portuguese version.

HERA Purchases Ergenics.
HERA, Hydrogen Storage Systems Inc. has purchased the hydrogen business of New Jersey-based Ergenics, Inc.

JHFC, FCCJ Offer English Sites.
The Japan Hydrogen & Fuel Cell Demonstration Project and the Fuel Cell Commercialization Conference of Japan both now include English versions on their websites.
http://www.jhfc.jp/e/index.html
http://fccj.jp/page12/p12-1.html

CONFERENCES
E-world Energy & Water.

2nd Fuel Cell Investment Summit.

Hannover Fair 2004.
The Hannover Fair takes place April 19-24, 2004, in Hannover Germany. Join more than 100 Exhibitors and Forum participants from all over the world presenting their latest H2/FC developments and products. Visit http://www.fair-pr.com/ or contact arno@fair-pr.com for more information. Click on www.virtual-fair.com to visit the virtual exhibits.

15th Annual Hydrogen Conference.


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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.