

news from **FUEL CELLS 2000**

Fuel Cell Technology Update – March 2, 2001

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

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TRANSPORTATION APPLICATIONS

Mazda to Test-Run Methanol Reformer Fuel Cell Car. Mazda Motor Corp. plans to start test-runs of its “Premacy FC-EV” car powered by a methanol-reformer fuel cell system and an electric motor in Japan. Mazda aims to start marketing fuel cell cars around 2005, after making alterations to the vehicles based on the results of the test drives.

<http://www.e.mazda.co.jp/Publicity/Public/200102/0213e.html>

Honda to Demonstrate 3rd Generation Fuel Cell Vehicle. Honda has introduced FCX-V3, its third generation fuel cell vehicle, which features a Honda-designed fuel cell stack running on gaseous hydrogen stored on-board the vehicle. The vehicle also features an ultra capacitor and has a startup time of about 10 seconds. The FCX-V3 will join the fleet of vehicles participating in the California Fuel Cell Partnership’s demonstration program.

<http://www.honda2001.com/news/press.html?y=2001&r=509>

Renault and Iveco to Road Test Fuel Cell Bus. Renault V.I. and Iveco plan to begin road testing a 60 kW hydrogen fuel cell bus in the Northern Italian city of Torino in June of 2001. The project is dually financed by the private and public sectors, and depending on results, might lead to the purchase of more zero-emission vehicles during the latter half of the decade.

<http://38.144.115.20/eyeforenergy/index.asp?news=10641&nli=energy>

DCH to Introduce Fuel Cell Water Taxi. DCH Technology has announced that it will introduce a fuel cell powered water taxi in conjunction with the National Hydrogen Association’s Annual Meeting and Exposition in Washington, DC this month. DCH also will formally launch its Center For Hydrogen Safety, which will provide consulting and training services worldwide.

http://www.dcht.com/press_releases/press_release.asp?release=199&caller=news

BMW and Delphi Unveil Vehicle With Fuel Cell APU. BMW and Delphi Automotive unveiled their first development vehicle featuring a solid oxide fuel cell auxiliary power unit (APU). The APU provides sufficient energy for existing mechanically-driven sub-systems, such as the air conditioning and water pumps. The APU could also be used to run devices while the vehicle is idle.

<http://www.delphiauto.com/index.cfm?location=2541>

Ecostar to Provide Motor Systems to XCELLSIS. Ecostar Electric Powertrain and Power Conversion Systems has been selected to provide motor systems to XCELLSIS for use in Ford Motor Company and DaimlerChrysler’s fuel cell powered vehicles. Ecostar will be responsible for the overall system design

and manufacturing of the motor systems and has selected UQM Technologies to provide the electric motor.

Ecocats Ltd – New Boat Building Enterprise. Ecocats Ltd is a new boat building and design enterprise, with ongoing research and development to produce environment friendly marine transport. Production is scheduled to start in the Spring of 2001. The vessels are intended for use in environmentally sensitive areas, or where new legislation will dictate the use of zero emission vessels.
<http://nrglink.com/pressreleases/pr012601ecocats.html>

STATIONARY POWER

EBARA BALLARD Unveils Engineering Prototype. EBARA BALLARD unveiled an engineering prototype 1-kW PEM fuel cell stationary generator for the Japanese residential market. The natural gas-fueled cogeneration unit is the product of a collaboration involving EBARA BALLARD, Ballard Generation Systems, EBARA Corporation and Tokyo Gas.
<http://www.ballard.com/viewpressrelease.asp?sPrID=206>

NBG Technologies and LIPA to Install Residential Fuel Cell. NBG Technologies has signed a contract with the Long Island Power Authority (LIPA) to install, demonstrate and evaluate a PEM residential cogeneration fuel cell system developed by H Power. The 4.5 kW fuel cell system will be installed at a site on Long Island.

DOE Adds Honeywell Hybrid Fuel Cell to R&D Program. The U.S. Department of Energy's National Energy Technology Laboratory has selected Honeywell International to begin the first stages of development for a new type of planar solid oxide fuel cell system that will be combined with a microturbine to increase system efficiency. For the initial development effort, Honeywell will test three 5-kilowatt planar SOFCs connected to a turbocharger.
http://www.fetc.doe.gov/publications/press/2001/tl_honeywell1.html

Youth Center to House Fuel Cell. A new, experimental fuel cell will be installed to provide a portion of the electric power to the new Harkins House Juvenile Shelter in Hillsboro, Oregon. Washington County, Portland General Electric and Northwest Natural Gas are jointly funding the project.
http://www.kgw.com/kgwnews/oregonwash_story.html?StoryID=14060

FUELS/REFORMERS/STORAGE

Ballard and Millennium Cell Test Hydrogen System. Millennium Cell has completed a successful test of its Hydrogen on Demand® system at a Ballard Power Systems facility in Vancouver, British Columbia. The technology generates hydrogen or electricity through a process that involves water and sodium borohydride. <http://www.millenniumcell.com/press-room/news/BallardJtMilestone.htm>

Stuart Energy Partners With BC Hydro, Awarded Patent. Stuart Energy Systems and BC Hydro have signed a Memorandum of Understanding (MOU) to jointly develop a hydrogen infrastructure demonstration project. The planned project will demonstrate the benefits of compressed hydrogen as a vehicle fuel, and water electrolysis as the preferred technology for generating that hydrogen. Stuart Energy was awarded a patent that covers improvement in separator/membrane design and assembly, which allows for low cost automated manufacturing of Stuart's proprietary water electrolysis cells.
www.stuartenergy.com
<http://www.newswire.ca/releases/February2001/23/c6273.html>

An Activity of the Breakthrough Technologies Institute
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<http://www.fuelcells.org>

Hydrogen Storage Venture Unveiled. Shell Hydrogen, Hydro-Québec (HQ) and Gesellschaft für Elektrometallurgie (GfE) have announced plans to establish a joint venture for developing, manufacturing and marketing hydrogen storage products. The partners are convinced that metal hydrides will provide the best means of safely and reliably storing hydrogen.

<http://www.newswire.ca/releases/February2001/05/c0463.html>

Dynetek Receives Contract from Major European Bus Manufacturer. Dynetek Industries has entered into a contract with MAN Technologie AG for 200 lightweight fuel storage cylinders to be used in MAN's natural gas transit buses throughout Germany. Dynetek also supplied hydrogen fuel storage for two of MAN's hydrogen bus projects.

<http://www.newswire.ca/releases/February2001/08/c1654.html>

PES Receives Hydrogen Production Patents. Proton Energy Systems (PES) has received two additional patents which will enable the company to produce, purify and compress low-cost hydrogen for industrial, fuel and energy storage applications. www.protonenergy.com

PORTABLE POWER

IdaTech and Atwood Announce Fuel Cell Alliance. IdaTech has formed an agreement with Atwood Mobile Products for the development of a portable fuel cell system for recreational vehicle (RV) applications. The companies intend to design a system, including related power control equipment, to provide electrical power for the many devices in RVs.

<http://www.idatech.com/media/news.html?article=27>

Medis and Sagem SA to Jointly Develop Fuel Cell Technology. Medis Technologies has entered into a Cooperation Agreement with Sagem, SA to jointly develop a product to power cell phones and other portable electronic devices. Sagem SA will manufacture the devices and use Medis' advanced direct liquid methanol fuel cell technology. The companies' goal is to have a product ready to market by the end of 2002. http://biz.yahoo.com/prnews/010205/ny_medis_t.html

FUEL CELL COMPONENTS

Scribner Introduces Test System. Scribner Associates has introduced a 5 kW fuel cell stack test system which will be used by Teledyne Energy Systems to help the company develop and qualify their new PEM technology. The new system is able to measure the internal impedance of an operating fuel cell or stack while under full load requirements. www.scribner.com

Agile Systems Introduces Digital Fuel Cell Controls. Agile Systems has introduced a series of scaleable digital power and control electronics for stationary fuel cell applications. The controls will suit changing requirements and have programmable parameters to ensure the intellectual property of each fuel cell manufacturer is protected. www.agile-systems.com

GreenVolt to Use ZEV for Supercapacitor Test. GreenVolt Power Corporation will begin testing of its alkaline fuel cell supercapacitor power system in a custom-designed, four-door zero-emission vehicle (ZEV). The supercapacitor enhances the fuel cell power delivery when accelerating or hill climbing and enables a 20 percent reduction in weight through the removal of all power circuit batteries, representing a weight savings of about 500 pounds.

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Sensor Products Introduces Tactile Sensor. Sensor Products introduced the Topaq® Pressure Analysis System. Topaq aids in ensuring accurate interfacial spacing and membrane placement in a fuel cell stack. By equalizing the contact pressure across the whole fuel cell surface, voltaic action is maximized so that the cell can achieve real output close to design output. www.sensorprod.com

SMP Receives Patent for Manufacturing Methods. Superior MicroPowders (SMP) has received a patent for manufacturing methods used to make platinum-based fuel cell electrocatalysts. The manufacturing techniques can help fuel cell producers keep costs down since it requires less platinum. www.smpl.com

REPORTS/MARKET STUDIES

ABI Examines Mobil Power Demands. Allied Business Intelligence, in the new report, “Wireless Power Systems: Powering the Next Generation of Wireless Devices,” predicts that the advent of mobile Internet devices will require the development of new power supplies. Existing devices are discussed, as well as the potential for development of portable fuel cells. www.alliedworld.com

Micropower. *Micropower*, a new study from The Freedonia Group, predicts that advanced micropower products demand will grow 20 percent annually through the year 2005 to \$6.1 billion. The report claims that at the advanced end of the micropower business, three primary technologies are vying for leadership position: microturbines, fuel cells and photovoltaics. www.freedoniagroup.com

MISCELLANEOUS

DuPont Forms Fuel Cell Business. DuPont has formed a fuel cell business unit, intending to become the leading supplier of materials and components to the PEM fuel cell market. DuPont believes the fuel cell market will reach \$10 billion by the year 2010. <http://www.dupont.com/corp/whats-new/releases/01/010208.html>

Avista Becomes Majority Owner of H2fuel. Avista Labs has formed a new company, H2fuel, LLC, to develop and commercialize a new technology for manufacturing hydrogen for fuel cells. Avista owns 70 percent of H2fuel and United Fuels Technologies owns the remaining interest.

NKK Obtains Right to Market Fuel Cells. NKK Corp. has obtained the rights from Siemens Westinghouse Power Corp. to market the company’s solid oxide fuel cells in Japan and the rest of Asia.

Cosworth Minerals to Acquire Palcan Fuel Cell Company. Cosworth Minerals has entered into an agreement with Palcan Fuel Cell Company to purchase all of the issued and outstanding shares of Palcan. Palcan is involved with the development, manufacturing and licensing of PEM fuel cell technologies and products, as well as the design and development of metal-hydride hydrogen storage technology and products.

IMPCO Starts Quantum Technologies, Quantum Chosen as Supplier. IMPCO Technologies has formed Quantum Technologies to focus on enabling technologies for alternative propulsion and energy in emerging global markets. Hydrogen and CNG handling and storage system technologies will be provided by Quantum Technologies to fuel cell manufacturers. Quantum Technologies’ hydrogen storage system

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and hydrogen fuel injectors have been selected by Carroll Shelby and James Heffel who will attempt to break the world land speed record for hydrogen internal combustion engines.

<http://www.impcoweb.com>

Guardian Technologies To Buy Vairex Corp. Guardian Technologies will acquire Vairex Corporation, a developer of advanced gas management systems for stationary and automotive fuel cells. The companies will work to commercialize an advanced product concept known as the Reactant Manager™. The product is designed to integrate air and gas compressors with fuel processors, sub controllers and other related components to create a packaged system that delivers precisely metered hydrogen and oxygen to the fuel cell stack on demand.

<http://www.individual.com/frames/story.shtml?story=b0228100.103&level3=486&date=20010301>

REQUESTS FOR PROPOSALS

DEP Offers Over \$7 Million in Alternative Fuels Grants. Pennsylvania's Department of Environmental Protection (DEP) is offering more than \$7 million to school districts, local governments, corporations, nonprofits and residents for projects promoting the use of alternative fuels, including hydrogen, natural gas and methanol. Grants will cover up to 30 percent of the applicant's eligible costs. <http://www.dep.state.pa.us/update/default.asp?ID=1082>

Engineering Fellowships Available. The U.S. Department of Energy's (DOE) Graduate Automotive Technology Education (GATE) program has selected ten universities as Centers of Automotive Research in five technology areas. Each Center is receiving money for fellowships to help develop advanced technologies critical to the design and production of future automobiles. Students interested in applying for the fellowships may contact Christine McGhee at cmcghee@anl.gov to find out about Center locations.

CONFERENCES/CALL FOR PAPERS

Fuel Cell Technology Forum. IEEE Wenatchee Section and the U.S. Department of Energy present "A Fuel Cell Technology Forum: Networking Users, Suppliers and Manufacturers for Clean Energy Marketing Alternatives," April 12, 2001 at the Wenatchee Convention Center in Wenatchee, Washington. For details, contact Matthew Davis at matthew.davis@ieee.org.

Affordable Comfort Conference 2001. The Affordable Comfort Conference: "Home Performance Strategies, the Main Event," will be April 30 – May 5, 2001 at the Four Points Sheraton in Milwaukee, Wisconsin. For more information, go to www.affordablecomfort.org.

AEI Fuel Cell Transportation Technology Summit. Automotive Engineering International (AEI) is sponsoring the Fuel Cell Transportation Technology Summit, June 11, 2001, at the Hyatt Hotel in San Jose, California. For more information, contact Sandra Gadzia at gadzia@sae.org.

Energy Economy 2001. Energy Economy 2001 will be held September 10-12, 2001 at the Westin Galleria Hotel in Houston, Texas. For more information, please email Nancy Aloway at nancya@pennwell.com.

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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.

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