**Fuel Cell Technology Update – February 1, 2001**

*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**

**DaimlerChrysler to Invest EUR1 Billion in Fuel Cells.** DaimlerChrysler plans to invest over EUR1 billion in fuel cell technology by 2004 and deliver its first hydrogen fuel cell vehicle, the Mercedes-Benz Sprinter, to Germany’s Hermes Versand Service this year. DaimlerChrysler’s development of fuel cell technology has created more than 1,000 jobs in Germany. [www.daimlerchrysler.com](http://www.daimlerchrysler.com)

**Sao Paolo Sets Fuel Cell Bus Targets.** Brazil’s Sao Paolo metropolitan area (SPMA) has introduced a program to demonstrate the capabilities of fuel cell technology in urban buses in the SPMA. The project aims to demonstrate the feasibility of fuel cells buses, reduce costs, establish protocols and eventually introduce 200 fuel cell buses in Sao Paolo.


**GM, Toyota Agree on Fuels for FCVs, Will Collaborate with ExxonMobil.** General Motors and Toyota have reached an agreement regarding fuels for fuel cell vehicles, with hydrogen in the long-term, and a clean hydrocarbon fuel in the short-to-medium-term as the primary candidates for study. The two companies will merge their fuel cell fuels-related research with ExxonMobil. [http://www.generalmotors.com/cgi-bin/pr_display.pl?1918](http://www.generalmotors.com/cgi-bin/pr_display.pl?1918)

**STATIONARY POWER**

**FuelCell Energy Signs with King County for Digester Fuel Cell Project.** FuelCell Energy and King County, Washington, have signed an agreement to install a Direct FuelCell® power plant using municipal wastewater digester gas as the fuel. The 1 MW power plant will be installed and operated at the County’s South Wastewater Treatment Facility in Renton, Washington. Total value of the contract is $18.8 million and operations are expected to commence during the third quarter of 2002. [http://www.fuelcellenergy.com/site/investor/press/releases/2001/01_25_01.html](http://www.fuelcellenergy.com/site/investor/press/releases/2001/01_25_01.html)
Siemens’ 100kW SOFC System Completes Testing. A Siemens Westinghouse Power Corporation 100 kW SOFC unit has accumulated 16,612 hours of operation in Westervoort, the Netherlands. According to researchers, when the unit was finally shut down, it was providing 110 kW of electric power into the local grid with an electrical efficiency of more than 46% and showed no signs of diminishing performance. Based on this unit’s success, larger SOFCs are being tested and a 220kW SOFC-microturbine “hybrid” system is starting up at the University of California-Irvine and a 1-megawatt system is being planned for Fort Meade, Maryland. [http://www.fe.doe.gov/techline/tl_fuelcell_netherlands.html]

H Power Residential Fuel Cells to be Demonstrated on Long Island. Long Island Power Authority has signed an agreement to become the first U.S. state utility to test a residential fuel cell system using H Power fuel cell stacks. The residential systems, integrated by NBG Technologies, will provide 4.5 kW of power and will demonstrate grid connectability. [http://www.hpower.com/NEWSnbgannounce.html]


Mohegan Tribe Authorizes Fuel Cell Purchase. The Mohegan Tribe of Connecticut’s Tribal Council recently authorized the purchase of two fuel cells. The overall efficiency of the installation is estimated to be around 90-95 percent; both low and high temperature hot water and total electricity output will be utilized. [www.eren.doe.gov]

EVI, ARC Reach Agreement in Principle for DMFC Technology. Energy Ventures Inc. (EVI) and the Alberta Research Council (ARC) have reached agreement in principle on a joint development program to create commercial prototypes of EVI’s proprietary Direct Methanol Fuel Cell (DMFC) technology. ARC will invest up to $3 million over a three-year period in EVI’s Calgary facility. [http://www.intertechusa.com/E-News/Energy/01/news12.htm]

**FUELS/REFORMERS/STORAGE**

Stuart Energy Receives Order for TTR Hydrogen Generator, Receives Additional Order for Packed Generator. Stuart Energy Systems has received an order for an Electrolyser TTR unit, from BOC Gases. The unit has a capacity of 1350 standard cubic feet per hour of hydrogen. Stuart also received another order from Vaisala Oyj, of Finland, for two additional hydrogen generators to be added to existing production schedules. To date, Vaisala has placed orders for 14 units. [http://www.stuartenergy.com/News/HTML%20Press%20Releases/ttrorder.asp][http://www.newswire.ca/releases/January2001/05/c7367.html]

Teledyne Technologies to Deliver Hydrogen Supply System to SunLine. Teledyne Technologies’ Energy Systems business unit has agreed to provide a Titan HPTM series hydrogen gas supply system for SunLine Transit Agency. The supply system will provide hydrogen for SunLine’s fuel cell powered buses. [http://www.investquest.com/iq/t/tdy/ne/news/tdybuses.htm]

IMPCO Awarded Patent for Gaseous Fuel Injector Technology. IMPCO Technologies has been awarded a patent for its innovative fuel injector technology, designed for use with hydrogen, compressed natural gas and propane gases for both fuel cell and alternative fuel vehicle markets. [www.impco.ws]
Methanex Acquires ICI’s Methanol Business. Methanex Corporation has completed the acquisition of ICI’s methanol business in Europe for approximately US$14 million. The business, which is located primarily in the United Kingdom, includes sales contracts, a loading terminal, terminal leases and pipelines to customers. Methanex also acquired ICI’s methanol inventory for US$8 million.  
http://www.methanex.com/investorcentre/newsreleases/ne071.pdf

Energy From the Sea Floor Could Power Fuel Cells. According to a report in Environmental Science and Technology, fuel cells powered by energy from the sea floor could indefinitely supply electricity to instruments used to monitor ocean currents and water temperatures. The researchers found that the electrical potential of sediment on the sea floor differs from the electrical potential of the surrounding salt water and that difference creates power for fuel cells.
http://www.eurekalert.org/releases/acs-ef010901.html

PORTABLE POWER

Manhattan Scientifics, Electrolux and Lunar Design to Develop Fuel Cell Powered Vacuum Cleaner. Electrolux is working with Manhattan Scientifics and Lunar Design to develop a fuel cell powered vacuum cleaner. The hydrogen fuel cell system will provide 1 kW of power and is expected to be integrated into a prototype vacuum in early 2001. The appliance will free the user of electric cords and A/C wall plugs while providing full power cleaning performance.
http://www.mhtx.com/media_center/pressrelease30.htm

Mechanical Technology Launches Micro Fuel Cell Initiative. Mechanical Technology Inc. has announced the launch of its efforts to develop and commercialize micro fuel cells. Mechanical Technology has entered into an agreement to license direct methanol fuel cell (DMFC) technology from Los Alamos National Laboratory, which gives access to important core DMFC technology that will be used to develop the micro fuel cells for cell phones and other portable devices.

FUEL CELL COMPONENTS

Ballard and Victrex to Manufacture Ionomers. Ballard Power Systems and Victrex plc have entered into an exclusive agreement to develop and manufacture ionomers (proton conductive polymers) for use in membranes for Ballard fuel cells. Ballard and Victrex will develop the manufacturing processes for Ballard’s proprietary ionomer and collaborate on the development of Victrex’s proprietary ionomer. http://www.ballard.com/viewpressrelease.asp?sPrID=200

Sensor Products Introduces Pressurex Pressure Points. Sensor Products introduces Pressurex Pressure Points®, a tactile force indicating films. These Pressure Points aid 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. http://www.sensorprod.com

REPORTS/MARKET STUDIES
Japanese Study Urges Increased Use of Fuel Cells. Japan’s Agency of Natural Resources and Energy formed a study group that reported on fuel cells. The report urged private industry to throw its full support behind the development of fuel cell technology and generation by 2010. By 2020, said the group, there should be five million fuel cell-powered vehicles in Japan.

Innovative Technology Deployment Program Review. A report has been released that evaluates the first ten years of the Department of Energy’s (DOE) environmental technology deployment efforts as conducted by the Office of Science and Technology (OST) within the Office of Environmental Management (EM). “Approaches to Improve Innovative Technology Deployment at the U.S. Department of Energy: Lessons Learned and Recommendations for a Path Forward,” can be viewed at www.pacific-rim.org/pub/approaches.pdf.

21st Century Truck Technology Roadmap. The 21st Century Truck Program has released a “technology roadmap: for developing commercially viable technologies,” including fuel cells, to increase energy efficiency, reduce pollution and improve safety in the nation’s trucking industry. The roadmap can be downloaded at www.osti.gov/hvt/21stcenturytruck.pdf.

http://www.ott.doe.gov/pdfs/Fuelcell_CIDI.pdf
http://www.ott.doe.gov/presentations.html

Guide to Doing Business with DOE’s National Laboratories. The Laboratory Coordinating Council of the U.S. Department of Energy (DOE) has prepared a guide, “Doing Business with the Laboratories of the Laboratory Coordinating Council” that aims to help potential users take advantage of DOE’s expertise offered by its laboratories and facilities. The guide is available online through the DOE Office of Industrial Technologies.
http://www.oit.doe.gov/LCC/doing_business.shtml

MISCELLANEOUS

NREL Establishes Center for Distributed Power. The National Renewable Energy Laboratory (NREL) has established a new “Distributed Energy Resources Center” to conduct research and provide information needed to efficiently develop additional power supplies from small, decentralized generating units. Research on fuel cells and microturbines will fall under the “Hydrogen and Natural Gas Systems” section of the center.

EVI Forms Fuel Cell and Battery Divisions. Energy Ventures Inc. (EVI) has reorganized into two divisions, and will operate a battery division and a fuel cell division. EVI plans to open a new fuel cell facility later this year to complete the first commercial DMFC prototype.

PTC Receives $1.2 Million Order from XCELLSIS. PTC has received a $1.2 million order from XCELLSIS for its Pro/ENGINEER software solutions. Pro/ENGINEER is a 3D mechanical design suite that will help XCELLSIS developers and design engineers reach their goals more quickly.
Gu to Oversee Fuel Cell Development for GreenVolt. GreenVolt Power has appointed Jeric Gu to supervise the company’s in-house alkaline fuel cell development efforts. GreenVolt hopes to introduce a 1.3kW alkaline fuel cell later this year and has acquired a 10,000 square-foot production facility.

SEC Launches Website. The Sustainable Energy Coalition has launched a new web site – www.sustainableenergy.org. The site features information on clean energy technologies and about the Coalition's advocacy in such areas, including fuel cells and hydrogen technologies.

Graftech Joins U.S. Fuel Cell Council. UCAR International subsidiary, Graftech, Inc. recently joined the U.S. Fuel Cell Council as an executive member. The council consists of nearly 70 members and has five working groups. Graftech develops and manufactures flexible graphite for gasket and sealing applications in the manufacture of flow field plates for PEM fuel cells. www.ucar.com

REQUESTS FOR PROPOSALS

Oxygen for Underwater Vehicle Fuel Cells. The U.S. Department of Defense has issued its FY 2001 Small Business Technology Transfer Research (STTR) program solicitation, and will begin accepting proposals on March 1, 2001. Develop and demonstrate an oxygen storage and generation system capable of providing oxygen to a fuel cell power source for an underwater vehicle. The oxygen system must be safe, readily recharge or replenished, compatible with operation on surface ships and submarines, and capable of providing sufficient oxygen to operate a fuel cell over a broad power range. http://services.sciencewise.com/content/index.cfm?objectId=4024


Innovative Technologies for Conversion of Biomass to Fuels. The Office of Fuels Development of the U.S. Department of Energy (DOE) Office of Energy Efficiency is soliciting applications to support innovative technologies that will increase the efficiency and/or lower the cost of converting biomass to transportation fuels and chemicals. http://services.sciencewise.com/content/index_pfp.com

The Inventions and Innovations Program. The Office of Industrial Technologies (OIT) is funding a grant program entitled the Inventions and Innovations (I&I) program. The goals of the I&I Program are to improve energy efficiency through the promotion of innovative ideas and inventions that have a significant potential future commercial market to develop and promote the adoption of cost-effective renewable energy and energy efficiency technologies within the building, industrial, transportation, and utility sectors for the benefit of economic competitiveness, energy security, and environmental quality of the nation. http://services.sciencewise.com/content/index.cfm?objectId=3613

The Development of Proton Exchange Membrane Fuel Cells. NASA Glenn Research Center (GRC) is hereby soliciting information for potential sources for the development of Proton Exchange Membrane Fuel Cell (PEMFC) power plant technology as a source of primary power for future 2nd generation Reusable Launch Vehicles (RLVs). The envisioned fuel cell power plant will provide 15

http://www.newswire.ca/releases/January2001/22/c0943.html
kW of nominal power and consist of several fuel cell stacks integrated with various ancillary components for reactant supply, water management, thermal management, electronic control, and health monitoring. [http://services.sciencewise.com/content/index.cfm?objectid=4036]

**Supporting Science and Enabling Technologies for Clean Fuels.** The National Energy Technology Laboratory (NETL) is seeking proposals for cost-shared research and development projects that will lead to advanced clean fuels that: (1) are derived from a diverse mix of secure energy resources; (2) enable mobile (ground, air, and marine) and stationary systems (e.g., home heating and industrial boilers) to comply with increasingly stringent Federal, state, and local emissions standards; (3) are compatible with existing liquid and/or designed in concert with future fuels infrastructures; (4) satisfy commercial and military requirements; (5) enable the efficiency of the transportation fleet to be more than doubled, and (6) are cost competitive with conventional fuels. [http://services.sciencewise.com/content/index.cfm?objectid=4094]

**Industries of the Future, Emerging Technology Deployment.** The National Energy Technology Laboratory (NETL), on behalf of the Office of Industrial Technologies (OIT) in the U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy, to solicit the submission of proposals for implementation of technologies to reduce energy consumption, enhance economic competitiveness, and reduce environmental impacts, specifically in the Industries of the Future (IOF) industrial sectors. [http://services.sciencewise.com/content/index.cfm?objectid=3611]

**The National Industrial Competitiveness through Energy, Environment, and Economics Program.** The Office of Industrial Technologies (OIT) is funding a competitive grant program entitled the National Industrial Competitiveness Through Energy, Environment, and Economics (NICE3) Program. The goal of the NICE3 Program is to advance U.S. competitiveness through commercial demonstration of energy efficient and clean production manufacturing and industrial technologies in industry. This is accomplished by providing cost-shared, financial assistance to state and industry partnerships. [http://services.sciencewise.com/content/index.cfm?objectid=3612]

**CONFERENCES/CALL FOR PAPERS**


**Distributed Generation and On-Site Power.** The Distributed Generation and On-Site Power conference will be held at the Riverside Hilton in New Orleans, Louisiana, March 21-23, 2001. For more information, visit [www.dist-gen.com](http://www.dist-gen.com).


**Heavy-Duty Vehicle Emissions.** The On-Road Heavy-Duty Vehicle Emissions Conference takes place March 26-27, 2001, in Windsor, Ontario, Canada. For details, please email [hdv.conference@ec.gc.ca](mailto:hdv.conference@ec.gc.ca).


SAE Congress and Exhibition. The SAE Automotive and Transportation Technology Congress and Exhibition will be in Barcelona, Spain, October 1-4, 2001. Go to www.attce.com for information.


5th New Crops Symposium. “New Crops and New Uses: Strength in Diversity”, the 5th New Crops Symposium, will be at the OMNI Hotel at CNN Center in Atlanta, Georgia, November 10-13, 2001. For more information, go to www.aaic.org.

- ### -

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.