Fuel Cell Technology Update – July 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.

LEGISLATION

Department of Energy Invests Over $85 Million in Energy Efficient Science and Technology. Secretary of Energy Spencer Abraham announced $85.7 million in research awards will be given to 18 organizations and five universities to perform research and development on cutting-edge energy efficiency and clean energy science and technology. Many of the projects will support development of technologies for use in vehicles and buildings and in the production, purification and storage of hydrogen. Other awards will support research for distributed power generation, industrial and building systems, transportation and stationary power applications.
http://www.energy.gov/HQPress/releases01/junpr/pr01105.htm

TRANSPORTATION APPLICATIONS

Toyota Unveils Two Fuel Cell Hybrid Vehicles. Toyota Motor Corp. has developed two fuel cell hybrid vehicles: a 63-seater bus and a five-seater passenger car. Toyota worked with Hino Motors, Ltd. to develop the two vehicles. Both the low-floor city bus, called the FCHV-BUS1, and the passenger car, the FCHV-4, carry high-pressure tanks of hydrogen to fuel the fuel cell engine. The car has been approved for road tests by the transport ministry.

Renault to Develop Fuel Cell Cars With Nissan and Peugeot. Nissan Motor Co. and Renault SA of France have decided to develop cars with a fuel cell that runs on gasoline. The companies will spend $714 million on the project and will market the fuel cell vehicles as early as 2005. Renault is also working with PSA Citroen to speed the development of a commercially viable fuel cell car by 2010. This endeavor is supported by the Fuel Cell Technology Network, which was established by the French Ministry of Education, Research, and Technology to foster the introduction of zero-emission cars.
http://biz.yahoo.com/apf/010604/nissan_renault.html

Santa Clara VTA Joins the California Fuel Cell Partnership To Aid Bus Demonstrations. The California Fuel Cell Partnership (CaFCP) announced the addition of the Santa Clara Valley Transit Authority (VTA) to assist with acquisition and testing of fuel cell electric buses. VTA will acquire several fuel cell buses to its fleet as part of the CaFCP’s goal to demonstrate up to 20 fuel cell buses by mid-2003.
http://www.fuelcellpartnership.org

Scania Introduces Fuel Cell Bus Concept. Scania has introduced a hydrogen fuel cell bus concept, funded partly by the European Union’s non-nuclear energy program. The concept bus will undergo
testing to assess the potential of the new technologies, to find methods to optimize energy usage, and to reduce noise and vibration.  http://www.hydrogen.org/News/gazette.html

Antarctic Team To Use Fuel Cell Vehicles.  A team of adventurers in Japan plan to cross Antarctica between November 2002 and January 2003 on fuel cell powered vehicles. The team, “Challenge Antarctica 21”, will consist of between three to six members and travel over 2,700 km over seven weeks.  http://www.japantoday.com/e/?content=news&cat=4&id=38489

Astris Energi’s Fuel Cell Golf Cart Successful.  Astris Energi’s alkaline powered fuel cell golf cart had its first successful demonstration in the United States. The same fuel cell "engine" is suitable for powering a wide range of similar small vehicles, including material and people movers everywhere. Astris also has completed and field-tested a somewhat larger alkaline system that can supply electricity, heat and hot water for individual homes, motor homes or boats.  http://www.astrisfuelcell.com/company.htm

STATIONARY POWER

LIPA to Grid-Connect 75 Fuel Cells for Demonstration Project.  The Long Island Power Authority (LIPA) will connect 75 fuel cells to its grid at its West Babylon substation this summer. The program is being funded through LIPA’s Clean Energy Initiative (CEI), a five-year, $170 million program that is designed to foster the development and application of clean energy technologies.  http://biz.yahoo.com/prnews/010626/nytu085.html

Fuel Cell Technologies Sells Power Systems to California.  Fuel Cell Technologies (FCT) has received a purchase order for the supply and installation of two 5 kW solid oxide fuel cell (SOFC) power systems. The first will be delivered to the Presidio Trust in San Francisco, and the second to the National Fuel Cell Research Center at the University of California at Irvine.  http://www.newswire.ca/releases/June2001/11/c3056.html

Greenvolt Prepares PAFC Plant for Delivery.  Greenvolt Power Corporation is preparing a 200 kW phosphoric acid fuel cell (PAFC) power plant for delivery next month. The 30-ton unit, fueled by natural gas, produces enough power to supply approximately 20 homes with electricity and heat on a daily, year-round basis.  http://www.greenvolt.com

Michelin to Use MCFC in Factory.  Michelin will use an MTU-manufactured molten carbonate fuel cell (MCFC) in its factory at Karlsruhe starting in the middle of 2002 to generate electricity and heat. The heat from the fuel cell can be used as steam to vulcanize the truck tires.

Connecticut School Could Receive Fuel Cell.  Local officials in South Windsor, Connecticut have asked for $2 million in state funds from the Connecticut Clean Energy Fund to install a fuel cell at its high school to provide emergency power in disaster situations.  Under the proposal, International Fuel Cells (IFC) would install and maintain the fuel cell for 10 years.

Milan Museum Dedicates Onsite Fuel Cell.  The Musei Nazional della Scienza e Tecnologia (Museum of Science and Technology) in Milan, Italy, dedicated the museum’s onsite ONSI fuel cell and the opening of its hydrogen exhibition.  The 250 kW fuel cell will provide electrical power and heat to the museum and is financed by the Italian Ministry for the Environment.  http://www.museoscienza.org
FuelCell Energy and Marubeni Sign Alliance Agreement. FuelCell Energy and Marubeni Corporation have entered into a comprehensive strategic alliance agreement that is targeted to generate at least 45 MW in Direct FuelCell® (DFC) power plant orders in the Asian market. Upon signing the agreement, Marubeni will order 3 MW of DFC power plants in addition to the 1.25 MW currently on order. [http://www.ercc.com/#]

PORTABLE POWER

DCH Unveils Higher-Power Portable Fuel Cell Platform, Receives Funding for Fuel Cell Installation. DCH Technology demonstrated its third-generation of higher power portable fuel cells. The new fuel cell platform stands less than 2 feet high with less than a 2.5 square-foot footprint, yet delivered a continuous 1 kW of power, with peak power reaching nearly 2 kW. Unocal, Inc. is funding the installation of a 3 kW DCH fuel cell power system, which will be used by the Texas Natural Resource Conservation Commission (TNRCC) to power air-quality monitoring equipment at the Port of Houston. [http://www.dcht.com/press_releases/press_release.asp?release=208&caller=news]

Manhattan Scientifics to Begin Fuel Cell Manufacturing. Manhattan Scientifics has completed a one-year “productization” effort and is now seeking to build a pilot production line, leading to volume manufacturing of its NovArs fuel cells. The NovArs fuel cell is capable of providing power for personal transportation, portable electronics, power tools, emergency home generators, home and outdoor maintenance appliances, portable defense electronics and portable power systems for home and recreation. [http://www.mhtx.com]

Hydrogenics Awarded Contract for Chemical Hydride Generators. Hydrogenics Corporation has been awarded a contract from the Department of National Defense (DND) Canada to develop a portable power generator for delivery in late 2001. The generator will be fueled by Hydrogenic’s chemical hydride system, which will provide both storage and generation of hydrogen fuel. [http://www.corporate IR.net/ireye/ir_site.zhtml?ticker=hgy.to&script=411&layout=7&item_id=179916]

FUELS/REFORMERS/STORAGE

GM and General Hydrogen Join Forces. General Motors (GM) and General Hydrogen announced a new 25-year collaboration to accelerate the spread of a hydrogen infrastructure and to speed the introduction of fuel cell vehicles into markets in North America, Europe and emerging economies. The strategic alliance will focus on several key areas, including hydrogen storage, fuel cell vehicle refueling, energy services, advanced materials, power electronics, and electric power production. [http://www.gm.com/company/gmability/environment/products/fuel_cells/genh_061301.html]

Shell Hydrogen and International Fuel Cells Establish HydrogenSource LLC. Shell Hydrogen U.S. and International Fuel Cells (IFC) have formed HydrogenSource LLC to develop, manufacture and sell fuel processors and hydrogen generation systems for fuel cell applications. HydrogenSource LLC will design the fuel processing systems for commercial, residential and transportation fuel cell power plants, as well as distributed hydrogen fueling applications for retail or commercial filling locations. [http://biz.yahoo.com/prnews/010619/nytu087.html]

QUANTUM Demonstrates 10,000 psi Hydrogen Storage Technology, Partners with GM and DOE. QUANTUM Technologies has demonstrated an all-composite hydrogen storage tank that stores hydrogen at 10,000 psi, which holds 80% more fuel than at the normal 5,000 psi, and increases the range of fuel cell mobile applications. QUANTUM partnered with General Motors (GM) for the
development of hydrogen storage devices that could make future fuel cell electric vehicles competitive with today’s gasoline vehicles in terms of range. QUANTUM is also designing and developing a hydrogen storage and handling system for a Department of Energy (DOE) hydrogen bus test platform. The purpose of the program is to demonstrate the feasibility of the use of compressed hydrogen gas as a transportation fuel in vehicles operating under real-world conditions.


**Scandinavia to Focus on Hydrogen Technology.** Three leading Scandinavian companies plan to work together to develop hydrogen fuel technology as an alternative to fossil fuel production. Norway-based Statkraft, Sweden-based Sydkraft and Swedish-Swiss ABB will begin the joint development of a hydrogen fuel project. [http://www.sydkraft.se](http://www.sydkraft.se)

**Wangtec Introduces New Reformer.** Wangtec Inc. has developed a flexible, multi-fuel thermo-electric reformer for producing hydrogen gas from light hydrocarbons, including renewable fuels. Methanol has been successfully reformed at a conversion efficiency of nearly 100 percent.

**Scientists Develop Low Current Plasma Reformer.** Researchers at the Massachusetts Institute of Technology (MIT) have developed a low current plasma reformer that features rapid startup, a metallic catalyst and a counterflow heat exchanger. These “plasmatrons” are electrical devices that utilize the finite conductivity of gases at elevated temperatures to create small regions within the gas stream that have high electron temperatures. The researchers reported power conversion efficiencies exceeding 70 percent with an electrical energy input of less than three percent of the heating value of the feedstock fuel. [http://www.mit.edu](http://www.mit.edu)

**IOS Wins Contract for Hydrogen Leak Detection, Demonstrates Technology With Boeing.** Intelligent Optical Systems (IOS) has received a $600,000 contract from NASA’s Stennis Space Center to continue its development of a fiber optic hydrogen leak detection system for space launch vehicles. IOS is also working with the Boeing Company and has successfully demonstrated a new technology that could increase the safety of hydrogen-powered automobiles. The system is able to detect gaseous hydrogen and relay the information to analyzers through fiber-optic cables at the speed of light. [http://ens.lycos.com/e-wire/June01/15June0103.html](http://ens.lycos.com/e-wire/June01/15June0103.html)

**FUEL CELL COMPONENTS**

**Avista Labs Signs Supply Agreement with Maxwell Technologies.** Avista Labs has selected Maxwell Technologies to provide PowerCache® ultracapacitors to optimize performance and reduce the cost of its modular fuel cell systems. The companies have signed a multi-year supply agreement and are exploring areas of mutual interest for a broader strategic relationship. [http://www.avistacorp.com](http://www.avistacorp.com)

**Ballard Invests $5 Million in Graftech.** Ballard Power Systems will invest $5 million in Graftech, an Ohio-based manufacturer of graphite-based components for fuel cells. A development agreement for materials and components used in proton exchange membrane (PEM) fuel cells will last until 2011, with a supply agreement running until 2015. [http://www.vancouversun.com/newsite/business/010607/5124009.html](http://www.vancouversun.com/newsite/business/010607/5124009.html)

**Sanguine to Partner with VCU to Study PFCs in Fuel Cell Technology.** Sanguine Corporation is partnering with Virginia Commonwealth University (VCU) to study the use of perfluorocarbons...
(PFCs), such as its product, PHER-O2, in fuel cell technology. The need to increase the efficiency of the cell by increasing the amount of oxygen supplied to the catalyst, may indicate the increased use of PFCs in the future.

**ASC Releases PM-125.** American Superconductor Corporation (ASC) announced the release of its 125 kW PowerModule (PM-125). This modular electronic switch is designed to replace conventional power converters, inverters and related auxiliary power components. The device is programmable for power switching, modulation and control for fuel cells.  

**Planet Polymer Announces Fuel Cell Development Pact with Stimsonite.** Planet Polymer Technologies has entered into a Joint Development Agreement with Stimsonite Corp., a subsidiary of Avery Dennison Corp., for the development of feedstock materials and fabrication techniques to produce porous conductive electrodes.

**REPORTS/MARKET STUDIES**

**Automotive Fuel Cell Study.** Roland Berger Strategy Consultants has released a new study, “The State of the Overall Fuel Cell Industry and the Challenges for the Automotive Fuel Cells,” which identifies 12 commercialization challenges that loom over the automotive fuel cell industry. The most difficult among the 12 challenges are low-cost infrastructure, range and power density. Other challenges include cost reduction, component integration complexity and safety issues.  
[http://www.rolandberger.com](http://www.rolandberger.com)

**Japanese Companies Examine Fuel Cell Markets.** Many oil companies in Japan are looking to future fuel cell markets in order to end years of poor profits and little growth. The oil companies are optimistic that the nation’s fuel cell market will grow to $66.7 billion within two decades.  
[http://www.planetark.org/dailynewsstory.cfm?newsid=11105](http://www.planetark.org/dailynewsstory.cfm?newsid=11105)

**MISCELLANEOUS**

**Johnson Matthey Plans Construction of Factory.** Johnson Matthey is planning the construction of a factory in Wiltshire, England to make parts for electric motors using fuel cell technology.  
[http://www.matthey.com](http://www.matthey.com)

**Trimol, Aluminum Power Open Fuel Cell R&D Center.** Trimol Group has joined with Aluminum Power to open an international fuel cell research and development center for the continued development of its aluminum-air fuel cell technology for use in portable consumer electronics. The new center is located in Toronto, Canada and will feature a prototype assembly facility and a laboratory.  
[http://ens.lycos.com/e-wire/June01/19June0105.html](http://ens.lycos.com/e-wire/June01/19June0105.html)

**Quantum Opens Two Detroit Facilities.** Quantum Technologies has opened two Detroit facilities to focus on the commercialization of advanced fuel system technologies for alternative clean emission fuels such as natural gas, propane and hydrogen.  
[http://www.qtww.com](http://www.qtww.com)

**REQUESTS FOR PROPOSALS**

**Xcel Energy Will Accept Renewable Energy Proposals.** Xcel Energy will invite proposals for
An Activity of the Breakthrough Technologies Institute
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http://www.fuelcells.org

renewable energy projects to be funded through its Renewable Development Fund. Funding for the projects will be available in three categories: commercial technology, experimental technology and research and development.  http://www.xcelenergy.com

CONFERENCES


VIII Biennial Conference on Transportation, Energy and Environmental Policy. “Managing Transitions in the Transportation Sector: How Fast and How Far?” the Biennial Conference on Transportation, Energy and Environmental Policy, will be held September 11-14, 2001, at the Asilomar Conference Center in Monterey, California. For information, email itsconference@ucdavis.edu.


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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.