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FUEL CELL CONNECTION - June 2008 Issue

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1. Portable Fuel Cell System Deployed for Limited Field Use by U.S. Army
The U.S. Army has deployed, for limited field use, the M-25 portable fuel cell developed by DuPont and SFC Smart Fuel Cell AG. The system, which features direct methanol fuel cell technology, is up to 80 percent lighter than conventional soldier power sources. In addition to powering a wide range of soldier equipment, including navigation equipment, the M-25 can provide remote area battery charging and power.
http://www2.dupont.com/Fuel_Cells/en_US/assets/downloads/article20080625.pdf

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2. NIST Research Could Lead to Lower Temperature Stationary Fuel Cells
Researchers from the National Institute of Standards and Technology (NIST), in collaboration with researchers from the University of Liverpool, have found a new material for SOFCs that could lead to lower temperatures in stationary fuel cells, increasing reliability and reducing operating costs. The researchers fabricated and tested a new oxygen ion electrolyte material that releases oxygen ions easily at temperatures lower than previously thought possible.
http://www.nist.gov/public_affairs/techbeat/tb2008_0624.htm#sofc

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3. ANL Releases New Version of GREET Model for Researchers
Argonne National Laboratory (ANL) has released the newest version of its ¡°Greenhouse gases, Regulated Emission and Energy use in Transportation¡± (GREET) model, which provides researchers with tools to evaluate and compare the environmental impacts of new transportation fuels and advanced vehicle technologies, including fuel cell and hydrogen technologies. One of the updates to the model is inclusion of a tube trailer delivery option for hydrogen gas to refueling stations. http://www.anl.gov/Media_Center/News/2008/news080508.html

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4. DOE Joins Chevy¡¯s Project Driveway, Will Test Fuel Cell Equinox
The U.S. Department of Energy (DOE) has received a Chevrolet Equinox fuel cell vehicle for its employees to test drive as part of ¡°Project Driveway,¡± in which the automaker is providing more than 100 of the vehicles to participants who will share ¡°real-world performance data.¡±
http://www.energy.gov/news/6283.htm

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5. Fueling Station Opens as Part of DOE Demonstration and Validation Project
Shell Hydrogen and General Motors have opened a hydrogen fueling station in Los Angeles as part of DOE¡¯s Hydrogen Vehicle and Infrastructure Demonstration and Validation Project. The station, located on Santa Monica Boulevard, will provide fuel for the Equinox fuel cell vehicles that are part of Chevrolet¡¯s Project Driveway Program.
http://media.gm.com/servlet/GatewayServlet?target=http://image.emerald.gm.com/gmnews/viewpressreldetail.do?domain=2&docid=46664

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6. DOE Announces Hydrogen Fuel Cell Model Car Challenge Winners

DOE announced a team of students from Treasure Valley Math and Science Center won the overall first place in the Hydrogen Fuel Cell Model Car Challenge, a hands-on contest during the 2008 National Science Bowl. The National Science Bowl is an annual competition designed to encourage high school and middle school students to pursue careers in math and science. http://www.scied.science.doe.gov/nmsb/pdfs/NMSSB%20Winners%20Release%20Final%206-22-08.pdf

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7. NETL Publishes Annual Report of Accomplishments, Cites Fuel Cell Progress
The National Energy Technology Laboratory (NETL) has published a report on programmatic accomplishments for 2007, including details on advances in the laboratory¡¯s fuel cell research. Progress cited includes successful modification of a metallic alloy to help achieve SOFC electrical interconnect requirements for lifetimes in excess of 40,000 hours. The Solid State Energy Conversion Alliance (SECA) program demonstrated an average fuel cell system efficiency of 38.5 percent, exceeding the 2007 program target of 35 percent. Details on additional fuel cell progress can be found in the full report, available online.
http://www.fossil.energy.gov/news/techlines/2008/08022-NETL_Showcases_Accomplishments.html

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RFP/Solicitation News

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8. Apply to Join Clean Energy and Environment Trade Mission to China and India
The U.S. Department of Commerce is offering the opportunity for participants to join a clean energy and environment markets trade mission to China and India in September 2008. Interested potential participants may learn more through an interactive webinar on July 8, 2008. The deadline to apply for the mission is July 21, 2008.
http://www1.eere.energy.gov/news/progress_alerts/progress_alert.asp?aid=269

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9. DOE Announces $130 Million Fuel Cell Funding Opportunity
DOE issued a Funding Opportunity Announcement (FOA) for $130 million over three years to advance fuel cells for automotive, stationary and portable power applications. DOE is also seeking proposals for projects to demonstrate fuel cells in distributed energy systems. Up to 50 awards are anticipated under this solicitation. Funding for the solicitation is subject to Congressional appropriations. Deadline for proposals is August 27, 2008.
http://www.energy.gov/news/6283.htm

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Contract / Funding Awards

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10. Acumentrics Receives $15.6 Million in Phase II Funding from DOE EERE Office
The DOE Office of Energy Efficiency and Renewable Energy (EERE) has awarded a $15.6 million Phase II funding grant to Acumentrics for continued development of tubular SOFC technology and to double the size of the systems to 10 kW. Phase I of the work was funded through DOE¡¯s SECA Program. http://www.acumentrics.com/7e683b31-136b-4e00-8ed7-14974bcdb463/press-releases-release-details.htm

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11. NYPA Selects UTC Power to Provide Fuel Cells for World Trade Center Site

The New York Power Authority (NYPA) has selected UTC Power to provide twelve fuel cells, totaling 4.8 MW of power, for the Freedom Tower and three other towers under construction at the World Trade Center site in New York City. The site towers will utilize fuel cells as part of efforts to achieve LEED (Leadership in Energy and Environmental Design) Gold certification from the U.S. Green Building Council.
http://www.utcpower.com/fs/com/bin/fs_com_Page/0,11491,0278,00.html

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12. Nine Projects Receive $6.7 Million in SECA Core Technology Program Funds
DOE has selected nine projects for the SECA Core Technology Program portfolio. Projects in the Core Technology Program address important technical issues for scaling up and integrating SOFCs into advanced centralized power plants. The total amount of DOE funding awarded was approximately $6.7 million, with individual awards ranging in size from $300,000 to $2.8 million.
http://www.fossil.energy.gov/news/techlines/2008/08016-SECA_Projects_Awarded.html

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13. DOE Selects Two Projects for SECA Program Portfolio
DOE selected projects led by UTC Power and Rolls-Royce Fuel Cell Systems for inclusion in the SECA Program portfolio. The projects will focus on research, development and demonstration of SOFC technologies for power generation. The UTC Project is in partnership with Delphi Corporation and the Rolls-Royce Fuel Cell Systems project will include work at Ohio¡¯s Stark State College Fuel Cell Prototyping Center.
http://www.fossil.energy.gov/news/techlines/2008/08017-SECA_Projects_Selected.html

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14. DARPA Selects Contractors for Vulture Unmanned Aerial System Program
The Defense Advanced Research Projects Agency (DARPA) has selected Aurora Flight Sciences, Boeing and Lockheed Martin as contractors for phase one of the agency¡¯s Vulture program to design and develop an unmanned aerial system. Boeing has selected Versa Power Systems to work with its team, which will look at fuel cells as an option for the unmanned, long-endurance system. http://www.darpa.mil/body/news/2008/vulture.pdf
http://www.versa-power.com/news/Boeing_Selects_Versa_Power_For_Vulture_6-3-2006.pdf

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15. 17 College Teams Selected by DOE and GM for EcoCAR Challenge
DOE and General Motors have selected 17 college teams to participate in EcoCAR: The NeXt Challenge, in which students will design and build advanced vehicle propulsion solutions. Teams will be encouraged to explore fuel cells, plug-in hybrid, full-function electric and other advanced technologies. Each team will receive a Saturn VUE production vehicle, components, seed money, mentoring, evaluation and support for the three-year program.
http://media.gm.com/servlet/GatewayServlet?target=http://image.emerald.gm.com/gmnews/viewpressreldetail.do?domain=2&docid=45950

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Legislative/Regulatory News

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16. Alabama Authorizes Interconnection of Distributed Energy Up to 100 kW
Alabama Governor Bob Riley enacted the Alternative and Renewable Energy Act, which permits for interconnection of small distributed generators up to 100 kW. Technologies covered by the act include renewably-produced hydrogen as well as municipal solid waste.
http://alisondb.legislature.state.al.us/acas/ACTIONViewFrame.asp?TYPE=Instrument&INST=HB234&DOCPATH=searchableinstruments/2008RS/Printfiles/&PHYDOCPATH=//alisondb/acas/searchableinstruments/2008RS/PrintFiles/&DOCNAMES=HB234-int.pdf,HB234-eng.pdf ,

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17. Texas Expands Energy Efficiency Rule to Include CHP Up to 10 MW
The Public Utility Commission of Texas has expanded an energy efficiency rule that was in the state¡¯s omnibus bill last year, to include combined heat and power (CHP) technologies smaller than 10 MW. The rule seeks to not only promote energy efficiency, but to also avoid a power crisis by providing reductions in demand.
http://www.eere.energy.gov/state_energy_program/project_brief_detail.cfm/pb_id=1293

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State Activities
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18. Hawaii Legislature Authorizes $8.7 Million for State Renewable Hydrogen Program
In its FY 2008-09 supplemental budget, Hawaii¡¯s legislature approved $8.7 million for the Hawaii Renewable Hydrogen Program. Text of the budget specifies that a report on the program should be provided ¡°to the legislature no later than twenty days prior to the convening of the 2009 regular session.¡± http://www.capitol.hawaii.gov/session2008/bills/HB2500_CD1_.htm

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Industry News
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19. Honda Announces Clarity Fuel Cell Vehicle Business Plan
Honda Motors announced it plans to deliver about 200 FCX Clarity fuel cell vehicles to customers in the first three years of production, beginning in July 2008. The vehicles, which run on hydrogen, will be available for a 3-year lease period and will be targeted at consumers in Southern California. http://corporate.honda.com/press/article.aspx?id=4587

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University Activities
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20. University Fuel Cell Roundup
(summaries contributed by Kathy Haq, Dir. of Outreach and Communications, National Fuel Cell Research Center, UC Irvine, khaq@nfcrc.uci.edu)

Case Western Reserve University and its research partners at The Ohio State University, Kent State University, Ohio University, the University of Toledo and Wright State University were awarded nearly $40 million by the state¡¯s Third Frontier Commission through its new Ohio Research Scholars Program.
[21-May] http://blog.case.edu/case-news/2008/05/21/thirdfrontier

Hamburg University of Applied Sciences is one of the partners behind this summer¡¯s planned launch of the world¡¯s first hydrogen-fueled, fuel cell-powered ferry ¨D part of the European Union¡¯s Zemships or Zero Emission Ships project. The 100-passenger ferry will operate on Lake Alster in the center of Hamburg and serve as the prototype for hydrogen-powered ocean-going vessels.
http://www.zemships.eu/en/project/introduction/index.php

A team of researchers from the Technical University of Berlin and the Fraunhofer Institute for Reliability and Microintegration IZM, also in Berlin, have developed a fuel cell that weighs only 30

grams and has an output of 12 watts. The high power density of 400 watts per kilogram has so far only been achieved in considerably larger systems weighing several hundred grams. The fuel cell is light enough to power a 20-centimeter helicopter that will be used to locate victims trapped in fallen buildings, monitor traffic, or investigate tracts of land that have been contaminated by chemical accidents.
http://www.fraunhofer.de/EN/press/pi/2008/06/ResearchNews062008Topic4.jsp

Researchers from the chemistry department at Case Western Reserve University and Toyota Central R&D Laboratories from Nagakute, Japan, have developed a theory to advance fuel cell and corrosion prevention technologies. Ryosuke Jinnouchi from Toyota and Alfred B. Anderson, professor of chemistry from Case Western Reserve, report their findings in the *Journal of Physical Chemistry C* article, " Aqueous and Surface Redox Potentials from Self-Consistently Determined Gibbs Energies. "
[05-June] http://blog.case.edu/case-news/2008/06/05/fuelcell

The University of Glamorgan in Wales this month unveiled a carbon-free minibus powered by three different green technologies ¨C the first of its kind in Europe. The minibus, which will be commercially available in the near future, benefits from three types of power delivery: hydrogen fuel cell, lead acid battery technology and ultra-capacitators. The project manager is Jonathan Williams, a senior lecturer at the university.
[05-June] http://news.glam.ac.uk/news/en/2008/jun/05/clean-green-tribrid-minibus-first-europe/

Sergei Markov, assistant professor of biology at Austin Peay State University in Tennessee, has developed a prototype bioreactor that uses the purple bacterium *Rubrivivax gelatinosus* to produce enough hydrogen to power a small motor. He recently presented a paper, titled ¡°Hydrogen production by purple nonsulfur bacterium in a bioreactor,¡± at the 108th General Meeting of the American Society for Microbiology, which was held in Boston.
[13-June] http://www.apsu.edu/inneraction/releases/show_news.asp?id=3670

An international research team, led by Professor Rajeev Ahuja of Sweden¡¯s Uppsala University, has demonstrated an atomistic mechanism of hydrogen release in magnesium nanoparticles ¨D a potential hydrogen storage material. The team¡¯s findings have been published in the online edition of *Proceedings of the National Academy of Science* (PNAS).
[16-June] http://www.uu.se/news/news_item.php?typ=pm&id=245&latin1=1

The College of Engineering and Science at Clemson University has received a $1.1 million gift from alumnus Samuel Deal and his wife, Patricia. The gift is earmarked for alternative energy research, including projects like those overseen by Stephen Creager, professor and department chairman in chemistry, who is developing new materials for PEM hydrogen fuel cells and electrochemical energy-storage devices, such as rechargeable lithium ion batteries.
[16-June] http://www.clemson.edu/newsroom/articles/top-stories/samdealgift2.php5

Ken Reifsnider, a University of South Carolina professor of mechanical engineering, has been named director of the university¡¯s Future Fuels Center, effective July 1. The center will serve as an umbrella for all of the university¡¯s energy research programs. Reifsnider also directs the Solid-Oxide Fuel Cell Program, which will become a Center of Economic Excellence when matching funds are in place.
[17-June] http://uscnews.sc.edu/2008/06172008-RSRC207.html

A fuel cell-powered robot developed at the University of Bristol is designed to fuel itself by eating flies. The EcoBot can digest a dead bluebottle fly in one of its eight microbial fuel cells. Each of the microbial fuel cells is filled with a sewage slurry of bacteria that extract and metabolize a sugar compound in the fly's exoskeleton, generating energy that is turned into electricity. ¡°The idea is that it could go places we don't or can't go and send back information,¡± says Ioannis Ieropoulos of the EcoBot team. In endurance tests, eight flies fueled the EcoBot for 12 days, but the bot only moved for a few seconds every 14 minutes. (22-June, *The Sunday Telegraph*)

http://www.telegraph.co.uk/arts/main.jhtml?xml=/arts/2008/06/22/sv_sixrobots.xml

Biom¨¦thodes, a French biotechnology company in Evry, has signed an exclusive and worldwide option-to-license agreement with Virginia Tech Intellectual Properties Inc. (VTIP) for multiple technologies for converting biomass to bioethanol and biohydrogen. VTIP was formed in 1985 to identify, legally protect, and market intellectual properties resulting from research at Virginia Tech and to provide service to the university in matters dealing with intellectual property. The process for transformation of biomass into hydrogen will be developed in France and will be validated through a biohydrogen fuel cell prototype and small-scale model car.
[24-June] http://www.vtnews.vt.edu/story.php?relyear=2008&itemno=419

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Press releases and story ideas may be forwarded to Bernadette Geyer, editor, for consideration at fuelcellconnection @ yahoo.com.

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About *Fuel Cell Connection*
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The Sponsors

US Fuel Cell Council -- The US Fuel Cell Council is the business association for anyone seeking to foster the commercialization of fuel cells in the United States. Our membership includes producers of all types of fuel cells, as well as major suppliers and customers. The Council is member driven, with eight active Working Groups focusing on: Codes & Standards; Transportation; Power Generation; Portable Power; Stack Materials and Components; Sustainability; Government Affairs; and Education & Marketing. The Council provides its members with an opportunity to develop policies and directions for the fuel cell industry, and also gives every member the chance to benefit from one-on-one interaction with colleagues and opinion leaders important to the industry. Members also have access to exclusive data, studies, reports and analyses prepared by the Council, and access to the "Members Only" section of its web site. (http://www.usfcc.com/)

National Fuel Cell Research Center -- The mission of the NFCRC is to promote and support the genesis of a fuel cell industry by providing technological leadership within a vigorous program of research, development and demonstration. By serving as a locus for academic talent of the highest caliber and a non-profit site for the objective evaluation and improvement of industrial products, NFCRC's goal is to become a focal point for advancing fuel cell technology. By supporting industrial research and development, creating partnerships with State and Federal agencies, including the U.S. Department of Energy (DOE) and California Energy Commission (CEC), and overcoming key technical obstacles to fuel cell utilization, the NFCRC can become an invaluable technological incubator for the fuel cell industry. (http://www.nfcrc.uci.edu/)

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