PDF Versions of Fuel Cell Connection are posted at http://www.usfcc.com/resources/backissues.html

PLEASE NOTE: We are in the process of switching our newsletter distribution service to Listbox. The June issue of the Fuel Cell Connection will be distributed under the new service. Instructions for subscribing or unsubscribing using the new service will be included with your June newsletter. Thank you for your patience as we conduct the changeover.

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FUEL CELL CONNECTION - May 2007 Issue

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1. Draft EIS for FutureGen Project Issued for Public Comment
A Draft Environmental Impact Statement (EIS) for the Department of Energy's FutureGen Project has been released for public comment. The report provides information about the potential environmental impacts of the program, which seeks to develop a revolutionary coal gasification-based, near zero emissions power plant that co-produces electricity and hydrogen gas. Comments are due by July 16, 2007. DOE will also conduct public hearings near each of the four potential FutureGen sites.
http://www.fossil.energy.gov/news/techlines/2007/07044-FutureGen_Draft_EIS_Released.html

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2. New Analysis Repository Launched for Hydrogen and Fuel Cell Technologies
The Department of Energy's Hydrogen Program has launched a new Analysis Repository that provides access to a variety of analyses and analytical models relevant to assessing hydrogen and fuel cell issues. The Repository is freely accessible online. DOE invites submissions of additional hydrogen analysis projects or models for inclusion in the Repository.
http://www.hydrogen.energy.gov/analysis_repository/

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3. DOE SECA Program Teams Complete Phase I, Surpass Test Targets
Six teams working under DOE's Solid State Energy Conversion Alliance (SECA) program have surpassed Phase I test targets for their solid oxide fuel cell prototypes. Prototypes achieved an average efficiency of 38.5 percent, an average system availability of 97 percent, and projected system costs ranging from $724 to $775 per kilowatt.
http://www.fossil.energy.gov/news/techlines/2007/07039-SECA_Concludes_Phase_I.html

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4. PNNL Develops New Approach for Catalyst Identification
Researchers at the Pacific Northwest National Laboratory (PNNL) are using "global energy maps" of materials as a new way of predicting and identifying useful catalysts. With this approach, researchers discovered a new catalyst that is almost as active as the enzyme hydrogenase, which is currently the fastest known catalyst for producing hydrogen from water. The scientists will also use the maps to find new catalysts to enhance hydrogen storage.
http://www.ornl.gov/info/news/pulse/pulse_v235_07.htm

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5. DOE Publishes Report on Near-Term Markets for PEM Fuel Cells
The Department of Energy has published a new report entitled "Identification and Characterization of Near-Term Direct Hydrogen PEM Fuel Cell Markets," which focuses on using fuel cells for powering forklifts and providing backup power for telecommunications and emergency response radio towers.
http://www1.eere.energy.gov/hydrogenandfuelcells/news_detail.html?news_id=10798

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6. Fuel Cell Demonstrates Extended Operation on JP-8 Fuel

The Air Force Research Laboratory provided synthetic JP-8 fuel used in a solid oxide fuel cell that demonstrated 1300 hours of operation. The JP-8 Fischer-Tropsch fuel was produced as part of the Department of Defense Assured Fuels Initiative. The fuel cell, provided by Acumentrics, was used in combination with a separate reformer system built by InnovaTek.
http://www.acumentrics.com/28daa8ea-5e65-402d-ba93-f3864ca85571/press-releases-release-details.htm

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7. BNL Celebrates Opening of Center for Functional Nanomaterials
Brookhaven National Laboratory celebrated the opening of its Center for Functional Nanomaterials, funded by DOE's Office of Science. Nanostractured catalysts that improve the efficiency of fuel cells and manufacturing processes, as well as new electronic materials to improve solar energy conversion and storage devices, are among uses envisioned by scientists for the materials the center will develop.
http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=07-58

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8. DOE-Funded Hydrogen Energy Station Dedicated in California
A comprehensive hydrogen energy station was dedicated at Southern California Edison's Rosemead headquarters. The station, which features advanced and redundant safety systems, will operate under a five-year evaluation and demonstration program co-funded by the U.S. Department of Energy and Southern California Edison. Hydrogen produced on-site at the station will fuel a fleet of up to nine Hyundai fuel cell cars.
http://www.edison.com/pressroom/pr.asp?id=6724

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9. DOE Names New Deputy Assistant Secretaries
The Department of Energy announced David E. Rodgers will become the first Deputy Assistant Secretary for Energy Efficiency and Steven G. Chalk will become the Deputy Assistant Secretary for Renewable Energy. Chalk previously managed the President's Hydrogen Fuel Initiative and the Solar America Initiative.
http://www1.eere.energy.gov/news/progress_alerts/progress_alert.asp?aid=231

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RFP/Solicitation News

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10. DOE Seeks Information for New Hydrogen Storage Center of Excellence
The Department of Energy issued a Request for Information regarding a new Hydrogen Storage Center of Excellence (CoE) to complement and coordinate with the existing three materials-based Centers of Excellence. The focus of the new CoE will be on system and component development for on-board hydrogen storage systems. Information gathered through the RFI may be used to develop a future Funding Opportunity Announcement. Responses to the RFI are due June 15, 2007. http://e-center.doe.gov/iips/faopor.nsf/8373d2fc6d83b666852564520079 63f5/d7fb0a999eaccdf2852572c900739db3?OpenDocument

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11. DOE Announces Intent to Issue New Round of Clean Coal Demonstrations
The Department of Energy intends to issue a Funding Opportunity Announcement (FOA) for a new round of demonstrations through its Clean Coal Power Initiative. DOE is interested in demonstrating advanced technologies capable of producing electricity in any combination with heat, hydrogen, chemicals or other useful by-products. A draft FOA is expected to be published on or about June 25, 2007, followed by a comment period of approximately 31 days. Interested

parties are invited to register to receive notification of the release of the Draft and Final versions of the FOA.
http://www.fossil.energy.gov/programs/powersystems/cleancoal/ccpi/ccpi_rd3_noi2.pdf

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12. DOE Issues RFI for Hydrogen and Fuel Cell Early Markets
The Department of Energy has issued a Request for Information (RFI) regarding early market activities to facilitate commercialization of hydrogen and fuel cell technologies. The results of the RFI may be used to develop a Funding Opportunity Announcement to address the topic. Information is also sought on fuel cell performance testing and community partnerships. No contracts will be awarded on the basis of this RFI. Deadline for responses is June 30, 2007.
https://e-center.doe.gov/iips/faopor.nsf/8373d2fc6d83b66685256452007963f5/60bee4bacaa2e83a852572c9005653f0?OpenDocument

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Contract / Funding Awards
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13. DOE Science Office Awards $11.2 Million for Hydrogen Research
The Department of Energy's Office of Science has awarded $11.2 million to 13 projects that will focus on fundamental science in support of hydrogen technologies. "Novel Materials for Hydrogen Storage" and "Nanoscale Catalysts" are the two priority technical areas addressed by the projects. http://www.energy.gov/news/5064.htm

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14. National Center for Manufacturing Sciences Announces Project Funding, Advancements
Protonex Technology Corporation has received a second contract, worth $400,000, from the National Center for Manufacturing Sciences (NCMS) for a program to increase the manufacturability of the company's fuel cell stacks. Funding from an earlier contract helped Protonex to optimize its fuel cell stack technology to reduce parts count, manufacturing cycle time and overall costs. NCMS provided additional funding to Millennium Cell for work on lowering the cost and improving the durability of its fuel cell cartridges.
http://www.ncms.org/publications/PR/2007-2-20DOEProjectUpdate.htm
http://www.millenniumcell.com
http://www.protonex.com

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15. EPA SBIR Awards Phase II Funding for Fuel Cell APU Project
The Environmental Protection Agency has awarded $224,996 to Altex Technologies Corporation for a quiet, reliable and compact fuel cell based auxiliary power unit (APU) for trucks. The Phase II award was made through EPA's 2007 Small Business Innovation Research solicitation.
http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/8381/report/0

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16. South Carolina Funds Hydrogen Fuel Cell Fork Lift Demonstration
South Carolina-based SC Launch! has given $14,000 each to four companies for a demonstration project to deploy and operate two fuel cell-powered fork lifts at warehouse facilities throughout the state. The funding represents a portion of a total award of $84,000 that will underwrite all hydrogen fueling and infrastructure costs for six South Carolina companies to participate in the demonstration project for the Greater Columbia Fuel Cell Challenge.
http://media.prnewswire.com/en/jsp/latest.jsp;jsessionid=A0BA433A539DF2D0DBFB18B8EBB108C2.tomcat1?resourceid=3463020&access=EH

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17. Air Force Awards Funding for Enhanced Fuel Cell Fuel Cartridge Design
The U.S. Air Force has awarded a contract to Millennium Cell for a project to extend the capabilities and performance of its Hydrogen on Demand® fuel cartridges for soldier power systems using fuel cell technology. The new design of the cartridges is projected to enable energy densities of over 850 Wh/kg for the fuel cell system, which is five times better than the BA-5590 battery currently used by the military.
http://www.millenniumcell.com/fw/main/default.asp?DocID=92&reqid=995152

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State Activities

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18. North Dakota Legislature Enacts Renewable Energy Plan, Technology Initiatives
The North Dakota legislature has enacted a $42 million renewable energy plan among other initiatives to provide funding and tax credits for alternative energy and other technologies. The renewable energy plan includes funding for programs that support the 25 x 25 Initiative, which calls for 25 percent of the nation's energy to come from renewable resources by the year 2025. The legislature also enacted a bill providing $20 million to the state's Centers of Excellence Program for R&D in agriculture, renewable energy, advanced manufacturing and business technology. http://governor.state.nd.us/media/news-releases/2007/04/070426.html

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19. Maryland Raises Net Metering Limits
A new Maryland state law has raised the maximum capacity of individual net-metered systems in the state to 2 megawatts for renewable-energy generators. Additionally, the law increases the limit on aggregate capacity of all net-metered systems to 1,500 MW from the previous limit of 34.7 MW. http://www.irecusa.org/uploads/media/May_2007_Interconnection_Newsletter.pdf

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20. Governors Association Publishes Report on State Actions Promoting Alternative Energy
The National Governors Association Center for Best Practices has published a report titled "Recent State Actions Promoting Alternative Energy." The report identifies best practices in promoting, administering, financing, and implementing clean energy policies, including renewable portfolio standards, financing mechanisms for advanced energy programs, and renewable fuels standards. http://www1.eere.energy.gov/news/progress_alerts/progress_alert.asp?aid=235

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Industry Headlines

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21. Chevy Sequel FCV Drives 300 Miles on One Tank of Hydrogen
General Motors announced its Chevy Sequel fuel cell vehicle became "the first electrically-driven fuel cell vehicle to achieve 300 miles on one tank of hydrogen." The hydrogen for the vehicle was produced using hydropower at Niagara Falls in New York.
http://media.gm.com/servlet/GatewayServlet?target=http://image.emerald.gm.com/gmnews/viewpressreldetail.do?domain=2&docid=36273

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22. Shell Hydrogen, Virent Energy to Manufacture Hydrogen Using Biomass

Shell Hydrogen LLC and Virent Energy Systems announced a five-year joint development agreement to manufacture hydrogen using biomass such as renewable glycerol and sugar-based feedstocks. The agreement will further develop and commercialize Virent's BioForming™ technology platform for hydrogen production.
http://www.virent.com/press/Virent%20Shell%20Release%20052407.pdf

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University Activities
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23. 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)

Princeton University reports that a new type of hydrogen fuel cell promising 100 percent efficiency has emerged from the senior thesis research of Claire Woo '06 and her adviser, chemical engineering professor Jay Benziger. To operate efficiently, current fuel cells need complex systems to control humidity and recover and recycle fuel. Benziger and Woo — now a graduate student at the University of California, Berkeley — simplified the old system, eliminating an additional humidifying system that had preceded the reaction chamber. Additionally, they removed recovery and recycling systems.
http://www.dailyprincetonian.com/archives/2007/05/07/news/18412.shtml

Carnegie Mellon University's David S. Sholl is working to identify new materials that would help make hydrogen more stable and cost-efficient than fossil fuels. Increased concern about global warming and a need to conserve natural fuel sources prompted Carnegie Mellon researchers to find new, lightweight, low-cost hydrogen-storage materials. "We are currently studying the use of metal hydrides, such as alanates and borohydrides, to find materials that could ultimately improve the efficiency of hydrogen cars and curb pollution," said Sholl, a professor of chemical engineering. [10-May-2007, *Space Daily*]

A student team from Ohio State's College of Engineering will try to set a new land speed record this summer with the Buckeye Bullet 2, the first fuel cell streamliner designed for land speed racing. Using two Ballard Power Systems fuel cell stacks, the team hopes to reach a speed of 350 mph in the E-III Class competition at Speedweek 2007, scheduled for Aug. 11-17 at Bonneville Salt Flats in Utah.
http://buckeyebullet.blogspot.com/2007/05/ohio-state-student-team-builds-fuel.html

Thomas H. Epps III, assistant professor of chemical engineering at the University of Delaware, is the recipient of a prestigious Faculty Early Career Development Award from the National Science Foundation. The five-year, $460,000 grant will support Epps' research and education program on block copolymers. These self-assembling, nanoscale materials are formed by combining two or more distinct polymer chains. They are advancing the development of next-generation high-performance materials, from more efficient fuel cells to chemical-resistant, yet breathable clothing. http://www.udel.edu/PR/UDaily/2007/apr/nsf041307.html

Jerry Woodall, a distinguished professor of electrical and computer engineering at Purdue University, has developed a method that uses an aluminum alloy to extract hydrogen from water for running fuel cells or internal combustion engines, and the technique could be used to replace gasoline. The method makes it unnecessary to store or transport hydrogen, two major challenges in creating a hydrogen economy.
http://www.uns.purdue.edu/x/2007a/070515WoodallHydrogen.html

The Ohio State Controlling Board recently approved a grant of nearly $500,000 to allow the University of Dayton to assess a 25-watt fuel cell developed by UltraCell Corp., a California-based company that hopes to sell the device for portable applications. The board also approved $1 million for the university and UltraCell to develop a manufacturing plant, and a $1 million technology development grant for UltraCell. The state has also approved tax credits for the company. [15-May-2007, *Dayton Daily News* (Ohio)]

The Richard Stockton College of New Jersey won a first-place prize in the National Wildlife Federation's first Chill Out contest, which seeks to advance and celebrate the innovators of global warming solutions on college and university campuses all across the country. Seven winners were announced in April. Stockton boasts the world's largest closed-loop geothermal heating and cooling system, solar PV arrays, and a 200-kW fuel cell. The fuel cell was installed in 2002 and provides 10 percent of the total energy for the campus. The fuel cell is centrally located on campus and is covered in explanatory diagrams, making it a teaching tool for students, faculty, staff and other professionals. http://www.nwf.org/campusEcology/ChillOutContest.cfm

Ynhi Thai, a sophomore chemical engineering major at the University of Alabama, is one of three UA students to win the prestigious and highly competitive National Oceanic and Atmospheric Administration Ernest F. Hollings Undergraduate Scholarship for 2007-2008. Thai is an undergraduate research assistant working with Alan Lane, professor of chemical engineering, on polymer electrolyte membrane fuel cells.
http://uanews.ua.edu/anews2007/may07/hollings051807.htm

Virginia Gov. Timothy M. Kaine has announced that Virginia Tech will seek partnerships with the research and development community in India to support Corning Incorporated in the development of clean, sustainable energy solutions. The initial phase of the collaboration will focus on fuel cell research to be jointly conducted by scientists at Virginia Tech, in India and at Corning.
http://www.governor.virginia.gov/MediaRelations/NewsReleases/viewRelease.cfm?id=389

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Administration
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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 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/)

National Energy Technology Laboratory -- The National Energy Technology Laboratory is federally owned and operated. Its mission is *"We Solve National Energy and Environmental Problems."* NETL performs, procures, and partners in technical research, development, and demonstration to advance technology into the commercial marketplace, thereby benefiting the environment, contributing to U.S. employment, and advancing the position of U.S. industries in the global market. (http://www.netl.doe.gov)