

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

Subscribe at <http://www.usfcc.com/resources/subscribe.html>

PLEASE NOTE: Instructions for subscribing/unsubscribing using our list service can be found at the end of this newsletter.

~~~~~  
**FUEL CELL CONNECTION - August 2008 Issue**  
~~~~~

IN THIS ISSUE

- * New Material Radically Increases Ionic Conductivity
- * SBA Proposes Increases to SBIR Award Caps
- * Naval Surface Warfare Center Seeks Technical Assistance for Electrochemical Projects
- * DOE Announces \$15.3 Million for Hydrogen Vehicle Development Projects
- * Workshop to Review Regulatory Language for CA Alternative Fuel and Vehicle Program

~~~~~  
~~~~~  
CONTENTS

News on U.S. Government Fuel Cell Programs

1. New Material Radically Increases Ionic Conductivity
2. SECA SOFC Successful in Proof-of-Concept Testing
3. SBA Proposes Increases to SBIR Award Caps
4. Government Web Site Aids Permitting of Hydrogen Facilities
5. Hydrogen Road Tour Showcases Hydrogen, Fuel Cell Vehicles to Americans

RFP / Solicitation News

6. Naval Surface Warfare Center Seeks Technical Assistance for Electrochemical Projects
7. NIST SBIR Seeks to Close Gaps between Technologies and Marketplace
8. DOD SBIR/STTR Solicitations Include Fuel Cell, Hydrogen Topics
9. DOE Clean Coal Power Initiative Seeks Applications for Third Round of Funding

Contract / Funding Awards

10. DOE Announces \$15.3 Million for Hydrogen Vehicle Development Projects
11. DOE Awards \$1.6 Million for Study of Thermotogale Hydrogen Production
12. DOE Awards Fuel Cell Research Funds to Stark State College
13. Army CERDEC Funds Portable Fuel Cell Project

Legislative/Regulatory News

14. Workshop to Review Regulatory Language for CA Alternative Fuel and Vehicle Program
15. Rhode Island Law Increases Capacity of Generators Eligible for Net Metering

State Activities

16. Connecticut Siting Council Approves Fuel Cell for Cell Tower Backup Power

Industry News

17. 2nd China International Hydrogen & Fuel Cell Expo Scheduled

University Activities

18. Registration Open for Hydrogen Student Design Contest

19. University Fuel Cell Roundup

Administration

About *Fuel Cell Connection*

Subscribe at <http://www.usfcc.com/resources/subscribe.html>

News on U.S. Government Fuel Cell Programs

1. New Material Radically Increases Ionic Conductivity

Researchers with Oak Ridge National Laboratory (ORNL) have developed a “super-lattice” material that increases ionic conductivity near room temperature by a factor of almost 100 million. The material has the potential to greatly improve the conductivity of fuel cells, as well as allowing the fuel cells to operate at lower temperatures.

http://www.ornl.gov/info/press_releases/get_press_release.cfm?ReleaseNumber=mr20080731-02

2. SECA SOFC Successful in Proof-of-Concept Testing

A solid oxide fuel cell (SOFC) power system, featuring technologies developed under the U.S. Department of Energy (DOE) Solid State Energy Conversion Alliance (SECA) program, underwent successful proof-of-concept tests by the U.S. Navy’s Undersea Warfare Center Division. The system featured SOFC stacks manufactured by Delphi Corporation and included a specialized blower developed by R&D Dynamics. Both the stacks and blower were developed under the SECA program. The system met Navy targets for size, power output and efficiency.

http://www.fossil.energy.gov/news/techlines/2008/08032-Fuel_Cells_Pass_Navy_Test.html

3. SBA Proposes Increases to SBIR Award Caps

The U.S. Small Business Administration (SBA) has issued a notice of proposed amendments to its Policy Directive that would increase maximum levels for Small Business Innovation Research (SBIR) program awards. Current thresholds are \$100,000 for Phase I awards and \$750,000 for Phase II awards. The proposed levels would be increased to \$150,000 for Phase I awards and \$1,000,000 for Phase II awards. SBA is authorized to examine award thresholds once every five years. Comments on the proposed changes are due by September 15, 2008.

<http://edocket.access.gpo.gov/2008/E8-18914.htm>

4. Government Web Site Aids Permitting of Hydrogen Facilities

DOE has established a new Permitting Hydrogen Facilities web site that features databases of model codes applicable to telecommunication facility use of fuel cells, as well as to hydrogen fueling stations. The site is designed to assist local permitting officials, project developers and others who wish to site hydrogen facilities.

http://www.hydrogen.energy.gov/news_permitting.html

5. Hydrogen Road Tour Showcases Hydrogen, Fuel Cell Vehicles to Americans

The U.S. Departments of Transportation and Energy (DOT and DOE) helped sponsor the Hydrogen Road Tour, a two-week road trip that showcased hydrogen and fuel cell vehicles across the United States. Nine auto manufacturers, the California Fuel Cell Partnership and the National Hydrogen Association were also sponsors of the trip, which made 31 stops in 18 states.

<http://www.dot.gov/affairs/dot11108.htm>

~~~~~  
**RFP/Solicitation News**  
~~~~~

6. Naval Surface Warfare Center Seeks Technical Assistance for Electrochemical Projects

The Naval Surface Warfare Center has issued a solicitation for Electrochemical Laboratory Support. The selected contractor would provide "technical and practical expertise to support the characterization, construction, test and evaluation of electrochemical power sources," including PEMFCs, SOFCs, batteries and capacitors. One award with a ceiling of \$100,000 is expected for this solicitation. Deadline for responses is September 2, 2008.

https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=8bd248ad922d4f3335a8e5ce6327441f&_cview=1

7. NIST SBIR Seeks to Close Gaps between Technologies and Marketplace

The Department of Commerce National Institute of Standards and Technology (NIST) is soliciting input from small businesses to help close gaps that are inhibiting the entrance of NIST-developed technologies into the marketplace. Businesses are asked to look at NIST technologies and patents and to offer research suggestions in advance of an SBIR solicitation expected to be released in November 2008. The deadline for private sector suggestions to the solicitation is September 15, 2008. http://tsapps.nist.gov/ts_sbir/public%20announcement1.pdf

8. DOD SBIR/STTR Solicitations Include Fuel Cell, Hydrogen Topics

The Department of Defense Small Business Innovation Research/Technology Transfer (SBIR/STTR) solicitations include several fuel cell and hydrogen-related topics, including Efficient Chemical Storage of Hydrogen in a Liquid, and Contaminant Resistant High Power Density Fuel Cells for Military Application. Phase I awards are typically \$70,000 to \$100,000 over a six-to-nine month period. The deadline for proposals is September 24, 2008.

<http://www.acq.osd.mil/osbp/sbir/solicitations/sbir083/index.htm>

9. DOE Clean Coal Power Initiative Seeks Applications for Third Round of Funding

DOE has issued a Funding Opportunity Announcement (FOA) for Round 3 of the Clean Coal Power Initiative (CCPI), which supports development of technologies to generate electricity and hydrogen using coal, while capturing carbon emissions. One of the requirements of the FOA is that projects must produce electricity as at least 50 percent of the gross energy output. DOE anticipates that a total of \$340 million will be available for awards under this announcement, depending on Congressional appropriations. The deadline for applications is January 15, 2009.

http://www.fossil.energy.gov/news/techlines/2008/08033-CCPI_Round_3_Begins.html

~~~~~  
**Contract / Funding Awards**  
~~~~~

10. DOE Announces \$15.3 Million for Hydrogen Vehicle Development Projects

DOE selected ten cost-shared hydrogen storage research and development projects to receive up to \$15.3 million over five years as part of the President's Hydrogen Fuel Initiative. Projects include the design of multi-component metal hydride-based mixtures for hydrogen storage and development of processes for regenerating spent chemical hydrogen carriers. The total government share of the awards is subject to future Congressional appropriations.

<http://www.energy.gov/news/6480.htm>

11. DOE Awards \$1.6 Million for Study of Thermotogale Hydrogen Production
DOE has awarded \$1.6 million to a North Carolina State University engineer, Dr. Robert Kelly, who will work with colleagues from the University of Connecticut and the University of Nebraska-Lincoln to study how thermotogale bacteria consume sugars and produce hydrogen with high efficiency. The research could impact future hydrogen production methods.
<http://news.ncsu.edu/news/2008/07/116mkellyhydrogen.php>

12. DOE Awards Fuel Cell Research Funds to Stark State College
DOE has awarded \$787,200 to Stark State College for research on solid oxide and PEM fuel cells. The College has a Fuel Cell Prototyping Center, and offers both a fuel cell technology track and scholarship as part of the mechanical engineering technology program.
http://brown.senate.gov/newsroom/press_releases/release/?id=910B94B0-DC94-4686-A704-F76070CCC8ED

13. Army CERDEC Funds Portable Fuel Cell Project
The U.S. Army Communications-Electronics Research, Development, and Engineering Center (CERDEC) awarded a contract to Ensign-Bickford Aerospace & Defense (EBA&D) for development of a 100-Watt portable power supply for military applications. EBA&D awarded a \$301,000 subcontract to Protonex Technology Corporation to co-develop the fuel cell power source that will be joined with a fueling subsystem developed by EBA&D.
http://www.protonex.com/downloads/press-releases/8-11-08_Ensign-Bickford_FINAL.pdf

~~~~~  
**Legislative/Regulatory News**  
~~~~~

14. Workshop to Review Regulatory Language for CA Alternative Fuel and Vehicle Program
The California Energy Commission Transportation Committee will conduct a workshop on September 9, 2008, to review regulatory language for the Alternative and Renewable Fuel and Vehicle Technology Program. Presentations and audio will be broadcast via the Energy Commission's WebEx web conferencing system for the benefit of those who cannot attend the meeting in Sacramento, California. Topics to be discussed at the meeting include draft regulation language related to Sustainability Goals, as well as Fuel and Vehicle Technology Definitions. Written comments after the workshop are due September 19, 2008.
<http://www.energy.ca.gov/ab118/documents/index.html>

15. Rhode Island Law Increases Capacity of Generators Eligible for Net Metering
Rhode Island has enacted a law that increases the maximum allowable size to 1.65 MW for distributed energy technologies eligible for net metering. The previous maximum capacity eligible for net metering was 1 MW. The maximum capacity for cities and towns has been increased to 2.25 MW for systems the town develops but does not own, or 3.5 MW if the town owns the system. <http://www.rilin.state.ri.us/BillText08/HouseText08/H7809Aaa.pdf>

~~~~~  
**State Activities**  
~~~~~  

16. *Connecticut Siting Council Approves Fuel Cell for Cell Tower Backup Power*

The Connecticut Siting Council has approved a 5-kW Plug Power GenCore® fuel cell as a viable source of backup power for a T-Mobile cell tower on Connecticut State property at the University of Connecticut campus. Connecticut is the only state that requires approval by a Siting Council for tower site applications. <http://www.b2i.us/View.asp?b=604&ID=56427&l=204573>

~~~~~  
**Industry News**  
~~~~~

17. *2nd China International Hydrogen & Fuel Cell Expo Scheduled*

The 2nd China International Hydrogen & Fuel Cell Expo is scheduled for 18-20 November 2008, in Shanghai. <http://www.hfce.cn/index.asp>

~~~~~  
**University Activities**  
~~~~~

18. *Registration Open for Hydrogen Student Design Contest*

The Hydrogen Education Foundation has announced the theme of the 2008-2009 Hydrogen Student Design Contest: *A Green Building with Hydrogen*, and has begun accepting registrations. The contest is open to teams of graduate and undergraduate students who will be tasked with the design of a green dormitory using a hydrogen system for electricity supply. Winning teams will be eligible for up to \$5,000 in funding to travel to present their designs to energy industry leaders. Further information, including a registration deadline, is expected to be posted soon.

<http://www.hydrogencontest.org/>

19. *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)

Space Daily reported July 28 that researchers in the Unit of Functional Bionanomaterials at the University of Birmingham have combined the efforts of two kinds of bacteria to produce hydrogen in a bioreactor, with the product from one providing food for the other. According to an article in the August issue of *Microbiology Today*, this technology has an added bonus: leftover enzymes can be used to scavenge precious metals from spent automotive catalysts to help make fuel cells that convert hydrogen into energy.

http://www.socgenmicrobiol.org.uk/pubs/micro_today/pdf/080802.pdf

Inspired by the photosynthesis performed by plants, researchers at the Massachusetts Institute of Technology announced July 31 that they have developed an unprecedented process that will allow the sun's energy to be used to split water into hydrogen and oxygen gases. Later, the oxygen and hydrogen could be recombined inside a fuel cell.

<http://web.mit.edu/newsoffice/2008/oxygen-0731.html>

Quintessence Holdings Inc. announced July 31 that its wholly owned subsidiary, Terminus Energy Corp., has entered into a \$1.2 million agreement with the Missouri University of Science and Technology for the development of Generation Two (G2) solid oxide fuel cell distributed generation technology. <http://quintessencehd.ir.stockpr.com/news/detail/41>

A team of researchers from Australia's Monash University designed and tested an air-electrode, where a fine layer — just 0.4 of a micron thick, or about 100 times thinner than a human hair — of highly conductive plastic is deposited on a breathable fabric. The conductive plastic acts as both the fuel cell electrode and catalyst. The breakthrough, published Aug. 1 in the journal *Science*, revolves around the design of an electrically generated fuel cell in which a specially coated form of popular high-tech outdoor and sporting clothing material Gore-Tex is the key component. <http://www.monash.edu.au/news/newsline/story/1310>

The University of Virginia (UV) announced Aug. 5 that a team of UV researchers is taking two approaches to removing the need to use hydrogen as the predominant fuel for fuel cells. One half of the project will apply new nano-scale structures to try and create a new type of "solar cell" that will gather the energy of sunlight to electrochemically split water into its molecular components of oxygen and hydrogen. The other half of the research will use similar nano-scale structures to bypass hydrogen and create a new type of fuel cell that can transform renewable biofuels like biodiesel directly into electricity. <http://www.virginia.edu/uvatoday/newsRelease.php?id=5975>

ZBB Energy Corp. announced Aug. 6 that it has entered into a sales distribution agreement with New Age Energy, Inc. of Mount Laurel, N.J., and will partner with New Age to initially supply its ZESS 50™ regenerative fuel cell for the new Zero Net Energy visitors center at Rutgers University. <http://www.zbbenergy.com/pdf/060708.pdf>

England's Technology Strategy Board and the Engineering and Physical Sciences Research Council (EPSRC) announced Aug. 7 that they will jointly invest more than £10 million (about \$18.6 million) in 16 innovative research and development projects into materials technologies to help meet the country's energy challenges. One of the projects is designed to provide new homogeneous and novel cathode catalyst materials for liquid regenerating non-platinum proton exchange membrane fuel cells. The research team includes ACAL Energy Ltd., Newcastle University, Thomas Swan and Co. Ltd, and the University of Liverpool. <http://www.innovateuk.org/content/news/investment-in-new-materials-technologies-to-help-m.ashx>

The Nikkei Weekly reported Aug. 11 that Nippon Steel Corp. has developed technology to produce hydrogen from garbage, which would help municipalities lower home and office waste disposal costs by about 20 percent. At its Yawata Works in Kitakyushu, Fukuoka Prefecture, the steelmaker built test incinerators that can process 20 metric tons of garbage a day. The research was conducted jointly with Kyoto University and the University of Kitakyushu, with support from Japan's Ministry of Economy, Trade and Industry. The city of Kitakyushu supplied garbage for the study.

The *Billings Gazette* reported Aug. 15 that eight fuel cells "have been quietly churning out electricity since November with little fanfare" at Montana State University's Billings campus. The fuel cells are part of the Montana Palladium Research Initiative, which is testing four platinum and four palladium fuel cells manufactured by Plug Power of Latham, N.Y. The \$1.6 million collaboration includes the university, the U.S. Department of Energy, Montana-Dakota Utilities, Plug Power and the Stillwater Mining Co. <http://billingsgazette.net/articles/2008/08/15/news/local/24-fuelcells.txt>

Missouri celebrated the opening of its first hydrogen fueling station on Aug. 19 at a ribbon-cutting ceremony at Missouri University of Science and Technology in Rolla. The event coincided with the Hydrogen Road Tour, a coast-to-coast tour of hydrogen vehicles sponsored by the U.S. Department of Transportation. <http://news.mst.edu/news/2008/hydrogenday08.html>

~~~~~  
**Administration**  
~~~~~

Press releases and story ideas may be forwarded to Bernadette Geyer, editor, for consideration at [fuelcellconnection @ yahoo.com](mailto:fuelcellconnection@yahoo.com).

Subscribe at <http://www.usfcc.com/resources/subscribe.html>

~~~~~

## **About *Fuel Cell Connection***

~~~~~

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/>)

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>)