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

UNSUBSCRIBE using the link at the bottom of this email.
SUBSCRIBE at http://lb.bcentral.com/ex/manage/subscriberprefs?customerid=9927

~~~~~~

FUEL CELL CONNECTION - February 2007 Issue

~~~~~~

IN THIS ISSUE

* Business Opportunity for DOC Clean-Energy Technologies Trade Mission
* Continuing Resolution Increases DOE EERE FY2007 Budget
* California Funds $25 Million Alternative Fuels Incentive Program, Seeks Proposals
* Texas Governor Requests $300 Million for Emerging Technology Fund
* DOE, GM Extend Challenge X Competition for Advanced Vehicles

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

CONTENTS

Administration
About *Fuel Cell Connection*
Subscribe at http://lb.bcentral.com/ex/manage/subscriberprefs?customerid=9927

~~~~~~
News on U.S. Government Fuel Cell Programs
~~~~~~

---
1. Business Opportunity for DOC Clean-Energy Technologies Trade Mission
The U.S. Department of Commerce's International Trade Administration is offering businesses the opportunity to participate in a Clean-Energy Technologies Trade Mission to India and China during April 2007. U.S. companies participating in the Mission have the chance to make or increase sales in those markets. Participation in the Mission to both countries costs $4,900 per person. The application deadline is March 19, 2007.
http://www.export.gov/cleanenergymission/

---
2. Continuing Resolution Increases DOE EERE FY2007 Budget
Congress passed a Continuing Resolution (CR) for FY2007 budgetary appropriations that includes a $300 million increase for the Department of Energy's Energy Efficiency and Renewable Energy (EERE) Program, which received a total of $1.474 billion. DOE must report back to Congress within 30 days of the bill's enactment with a detailed spending plan for the additional funding. The bill also eliminates most of the congressionally-directed "earmarks," allowing DOE to decide how best to direct the money.
http://www.eere.energy.gov/news/news_detail.cfm/news_id=10580

---
3. DOE Releases FY2008 Budget Proposal
The Department of Energy released its proposed budget for FY2008, with nearly $480 million requested for hydrogen and fuel cell-related programs. Requests are as follows: the Hydrogen and PEM Fuel Cell Program (Office of Energy Efficiency and Renewable Energy), $213 million; Solid-State Energy Conversion Alliance (Office of Fossil Energy), $62 million; Basic Research (Office of Science), $59.5 million; Coal-to-Hydrogen (Office of Fossil Energy), $12.5 million; Hydrogen Production (Office of Nuclear Energy), $22.6 million; FutureGen (Office of Fossil Energy), $108 million. http://www.cfo.doe.gov/budget/index.htm

---
4. DOT Includes Hydrogen R&D in FY2008 Budget Request
The Department of Transportation FY2008 budget request includes $12 million for its Research and Innovative Technology Administration's (RITA) Research and Development program. The program will promote and advance innovative transportation technologies including hydrogen fuels. DOT has also requested $49 million for its Clean Fuels Grant Program, which provides financing for the purchase or lease of clean fuel buses, including fuel cell buses.
http://www.dot.gov/bib2008/2008budgetrequest.htm

---
5. President Bush Signs Executive Order on Efficiency, Renewable Energy
Federal agencies must cut their energy intensity by 30 percent, relative to their energy use in 2003, by 2015, thanks to Executive Order 13423, signed by President Bush. The order also calls for a reduction in petroleum use for federal vehicle fleets. Agencies that operate fleets of at least 20 vehicles must reduce their fleet's total consumption of petroleum products by 2 percent annually through 2015. http://www.whitehouse.gov/news/releases/2007/01/20070124-2.html

---

6. Scientists Discover Hopping Hydrogen Atoms
Scientists at the Pacific Northwest National Laboratory and the University of Texas at Austin have been observing the activity of hydrogen atoms after they split from a water molecule on the surface of the catalyst rutile titanium oxide. According to the researchers, the hydrogen atom "hops" across the oxygen atoms on the surface of the catalyst. The scientists hope that a greater understanding of the behavior of hydrogen could lead to technologies that generate hydrogen by using sunlight to split water. http://www.ornl.gov/info/news/pulse/pulse_v229_07.htm

---

7. DOE Sponsors Hydrogen Sensor Workshop
A DOE-sponsored Hydrogen Sensor Workshop is scheduled for Wednesday, April 4, 2007, in Washington, DC. The workshop will include technical briefings on hydrogen behavior, commercial hydrogen sensors, and draft standards/status of specifications related to hydrogen. There is no registration fee to attend the workshop, but pre-registration is required. Deadline for registration is March 16, 2007. http://www.lanl.gov/orgs/mpa/mpa11/sensor.html

~~~~~~~~~~~~~~~~~~~

RFP/Solicitation News

~~~~~~~~~~~~~~~~~~~

---

8. California Funds $25 Million Alternative Fuels Incentive Program, Seeks Proposals
California's Air Resources Board (ARB) has provided $25 million for an Alternative Fuels Incentive Program (AFIP), which supports a number of recent state policy directives that call for increased use and production of alternative fuels as well as reduced dependence on petroleum-based fuels. $2 million is available for Transit Bus Projects, including zero-emissions bus technology such as hydrogen fuel cells. $1.5 million is available for grants under the Alternative Fuel Vehicle Incentive Program, which supports purchases of electric, fuel cell, plug-in hybrid and alternative fuel vehicles in the state. $500,000 is available to programs within California that work to increase public acceptance and knowledge of alternative fuel vehicles. Deadline for proposals under all categories is March 12, 2007.
http://www.arb.ca.gov/fuels/altfuels/incentives/incentives.htm

---

9. Navy Issues Solid Hydrogen Storage BAA
The Naval Surface Warfare Center, Crane Division and the Defense Logistics Agency have issued a Broad Agency Announcement for projects to identify novel materials and processes that can provide potential breakthroughs in solid hydrogen storage for DOD vehicle applications. A total of $1.5 million is available under this BAA, with individual project awards expected to be between $300,000 and $400,000. A pre-proposal conference will be held March 8, 2007, in Arlington, Virginia. Proposals are due by March 22, 2007.
http://www.fbo.gov/spg/DON/NAVSEA/N00164/N0016407R6967/SynopsisR.html

---

10. INL Seeks Collaborators on Hydrogen Generation via Steam Electrolysis
The Idaho National Laboratory (INL) is soliciting interest from potential collaborators on a project to generate hydrogen using high temperature electrolysis of steam. Participating companies will be expected to provide solid oxide cells as an in-kind contribution or at a nominal cost to the INL for the test period. The solicitation notes "It is unlikely that any (or a significant amount of) DOE funding will be available" for participants in this research. Deadline for submissions of interest is March 31, 2007. http://www.fbo.gov/spg/DOE/INEEL/ID/07%2D06/Synopsis.html

---

11. DOT SBIR Includes Hybrid Rail Propulsion Topic

The Department of Transportation released its Small Business Innovation Research (SBIR) solicitation, which includes a "Hybrid Propulsion for Rail Locomotives" topic under the agency's Federal Transit Administration. Eligible technologies include hydraulic energy storage systems or electric drives and batteries. Approximately 19 Phase I awards, up to $100,000 each, are anticipated. While proposals are due May 1, 2007, potential proposers must register on the website by April 17, 2007. http://www.volpe.dot.gov/sbir/sol07/index.html

~~~~~~~~~~~~~~~~~~~~~

Contract / Funding Awards

~~~~~~~~~~~~~~~~~~~~~

---

12. OSU Awarded $1.6 Million for Hydrogen-from-Coal Project

Ohio State University has been awarded $1.6 million from the Department of Energy for a project to generate hydrogen from coal. The project will use a chemical looping process that separates hydrogen, carbon dioxide and chlorides, as well as sulfur, while preventing the carbon dioxide from being emitted into the atmosphere.
http://media.www.thelantern.com/media/storage/paper333/news/2007/01/18/Campus/Hydrogen.Research.Wins.Award-2653142.shtml?sourcedomain=www.thelantern.com&MIIHost=media.collegepublisher.com

---

13. Teledyne Receives Award under NASA Contract for PEM Fuel Cell System

Teledyne Energy Systems received an option award under its existing NASA PEM Fuel Cell Development Contract. The $1.5 million contract option is for the construction and testing of a 300-watt PEM fuel cell system designed to optimize the water management system and other components developed in earlier contract options.
http://www.investquest.com/iq/t/tdy/ne/news/tdy012907.htm

---

14. DOD Extends NuVant Contract for Portable Methanol Fuel Cell Research

The Department of Defense has awarded a contract extension to NuVant Systems for their Direct Methanol Fuel Cell Lifetime Improvement Program, raising the value of the contract to $2.61 million.
http://home.businesswire.com/portal/site/home/?epi_menuItemID=989a6827590d7dda9cdf6023a0908a0c&epi_menuID=c791260db682611740b28e347a808a0c&epi_baseMenuID=384979e8cc48c441ef0130f5c6908a0c&ndmViewId=news_view&newsLang=en&div=973078938&newsId=20070207006261

---

15. DOE Awards Funding to Universities for Nuclear Hydrogen Initiative Projects

The Department of Energy has awarded $5.7 million to nine universities for research grants under the Nuclear Energy Research Initiative, including two hydrogen projects. The University of California-Los Angeles and the University of Wisconsin-Madison each received funding for projects under the Nuclear Hydrogen Initiative. Award amounts are still being negotiated.
http://www.ne.doe.gov/newsroom/2007PRs/nePR020207.html

~~~~~~~~~~~~~~~

State Activities

~~~~~~~~~~~~~~~

---

16. Texas Governor Requests $300 Million for Emerging Technology Fund

In his FY2008-09 budget proposal, Texas Governor Rick Perry is requesting $300 million to "recapitalize" the state's Emerging Technology Fund, which provides loans and grants to commercialization projects and research centers in key technology areas, such as energy and defense. The funding would represent an expansion of the program, which was established in 2005 with $200 million in funding but received no additional funding in 2006.
http://www.governor.state.tx.us/divisions/ecodev/etf/

---

17. Pennsylvania Governor Unveils Energy Independence Strategy
Pennsylvania Governor Ed Rendell released his Energy Independence Strategy, which seeks to save consumers $10 billion over ten years. The Strategy includes efforts to attract clean energy companies to the state, provide venture capital for "cutting edge energy firms," and support clean energy projects. An $850 million Energy Independence Fund will be used to support the strategy.
http://www.state.pa.us/papower/cwp/view.asp?A=11&Q=459791

~~~~~~~~~~~~~~~
Industry Headlines
~~~~~~~~~~~~~~~

---

18. Microcell Delivers First Automotive Fuel Cell Core
Microcel Corporation delivered its first 1-kW fuel cell core for automotive applications based on a novel microfiber architecture, which results in compact PEM fuel cells for automotive applications. The modular cores can be used to construct larger units 50-100 kW in size. The company also announced plans to open an 80,000 sq. ft. fuel cell manufacturing plant in Eastern North Carolina.
http://www.microcellcorp.com/1kW.html

---

19. Hydrogen 500™ Race Set for 2009
The Hydrogen Electric Racing Federation (HERF) unveiled plans for the Hydrogen 500™, a competition for hydrogen electric fuel cell-powered vehicles, scheduled for May 2009. HERF has issued a set of specifications for vehicles participating in the new racing series.
http://media.prnewswire.com/en/jsp/latest.jsp;jsessionid=11231C57020A7BD92342C064589BFE30.tomcat1?resourceid=3395833&access=EH

~~~~~~~~~~~~~~~~~~~~
University Activities
~~~~~~~~~~~~~~~~~~~~

---

20. DOE, GM Extend Challenge X Competition for Advanced Vehicles
The Department of Energy and General Motors announced they are extending the Challenge X program by an additional year, into 2008. The program brings together engineering students from 17 North American universities to reengineer a Chevrolet Equinox crossover SUV, using advanced propulsion technologies such as fuel cells and alternative fuels. The additional year will give students the ability to focus on customer acceptability and over-the-road reliability and durability of their advanced propulsion systems.
http://media.gm.com/servlet/GatewayServlet?target=http://image.emerald.gm.com/gmnews/viewpressreldetail.do?domain=2&docid=33036

---

21. Texas State Technical College Institutes Fuel Cell Curriculum
Texas State Technical College now has the Fuel Cell Curriculum Project, which qualifies graduates for entry-level positions at fuel cell companies. Graduates of the curriculum receive an

Associates of Applied Science Degree and the project has signed agreements that will create a pathway for students to segue into a four-year program.
http://www.eere.energy.gov/state_energy_program/project_brief_detail.cfm/pb_id=1092

---

22. 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)

Kenneth Reifsnider has been selected to head the University of South Carolina's solid oxide fuel cell research initiative. Reifsnider had been at the University of Connecticut where he was director of the Connecticut Global Fuel Cell Center. He will begin work at USC this summer and also will serve as Educational Foundation University professor and a professor of mechanical engineering. "When I visited the University of South Carolina, I was impressed by the leadership team, particularly their vision and dedication to fostering a research environment that leads to results and meeting society's needs. I share that dream," said Reifsnider, a member of the National Academy of Engineering. Reifsnider has bachelor's degrees in mathematics and engineering, a master's degree in mechanics and a doctoral degree in metallurgy and solids mechanics. In 2002, he joined the University of Connecticut as holder of the Pratt & Whitney Chair of Design and Durability. He was a deputy director of the National Science Foundation's Center for High Performance Polymeric Adhesives and Composites from 1992 to 2000. [4-Jan-2007, *The Associated Press* State and Local Wire]

Taiwan's Mingdao University introduced its fourth generation hydrogen-powered vehicle, the MHV-4, as a "zero noise, zero pollution, lightweight model," according to United Evening News. The hydrogen-powered car runs up to 30 kilometers an hour by simply adding water, according to its Taiwan-based creators. The car has a new appearance and a new power system, and utilizes a fuel cell battery-operated engine that can produce up to 5 kilowatts, according to Chang Chi-lung, director of the university's energy center. In the future, the Mingdao team plans to increase battery power so the cars can reach speeds similar to those of gas-guzzling cars, said Chang. According to the university, the biggest difference between the latest model and previous models is the addition of a computerized information system that allows the driver not only to know the vehicle's current conditions but also to record them. Ministry of Economic Affairs statistics show that the national demand for petroleum between January and October 2006 was more than 35 million kiloliters, and 95 percent of this was imported. State-run Chinese Petroleum Corporation and Taiwan Power Company (Taipower) are currently developing hydrogen energy technology. [11-Jan-2007, *Financial Times Information*]

In a breakthrough that could make fuel cells practical for such small machines as lawnmowers and chainsaws, researchers at Princeton University have developed a new mechanism to efficiently control hydrogen fuel cell power. Many standard fuel cell designs use electronics to control power output, but such designs require complex systems to manage humidity and fuel recovery and recycling systems to achieve acceptable efficiency. The new process controls the hydrogen feed to match the required power output, just as one controls the feed of gasoline into an internal combustion engine. The system functions as a closed system that uses the waste water to regulate the size of the reaction chamber, the site where the gases combine to form water, heat and electricity. National Science Foundation awardee Jay Benziger of Princeton University developed the new technique with his student Claire Woo, a recipient of an NSF Research Experiences for Undergraduates award and now a doctoral candidate at the University of California, Berkeley. Woo and Benziger published their findings in the February 2007 *Chemical Engineering Science*, now available online. The researchers believe the first applications for their technology will be in smaller engines. Fuel cells are currently inefficient on such scales due to the need for fuel recycling and excess hydrogen in standard designs. The researchers' new design is closed, so 100 percent of the fuel is used and there is no need for a costly fuel recycling system. "The system is ideal for small internal combustion engines that lack emissions controls and are highly polluting," said Benziger. "There is also no need for an extensive hydrogen distribution

system for these small motors; the hydrogen could be supplied in returnable tanks such as the propane tanks used for gas grills." Benziger's next goal is to connect several of the new fuel cells together to increase power, a system that could potentially compete with cells now being tested in the automotive industry. [22-Jan-2007, National Science Foundation via *States News Service*]

Researchers have synthesized a new class of aluminum-hydrogen compounds with a unique chemistry that could lead to the development of more powerful solid rocket fuel and may also, in time, be useful for hydrogen-powered vehicles or other energy applications. An article about this research, led by scientists at the Johns Hopkins and Virginia Commonwealth universities, is published in the Jan. 19 issue of the journal *Science.* The team includes scientists at University of Konstanz and University of Karlsruhe, both in Germany. Through combined theoretical and experimental study, the team created this new class of aluminum/hydrogen molecules (called "hydrides") that are relatively stable and are similar in structure to boranes, which are composed of boron and hydrogen atoms. This relative stability may hold the key to the compound's possible future uses in rocket fuel, said team co-leader Kit Bowen, the E. Emmet Reid Professor in the departments of Chemistry and Materials Science at Johns Hopkins. "It's always tough to predict how things will play out in the future, but our research finding is interesting enough for me to be willing to say that this synthesis may have the potential for some possibly very useful future applications, including the development of solid rocket fuel with more thrust," Bowen said. [22-Jan-2007, *Space Daily*]

Four University of California, Davis transportation experts briefed U.S. Congress members on the status of clean car and truck fuels and technologies on Jan. 23. The researchers — Daniel Sperling, Joan Ogden, Tom Turrentine and Anthony Eggert — are part of a new research initiative at UC Davis called Sustainable Transportation Energy Pathways within the Institute of Transportation Studies. The briefing, which was hosted by U.S. Representative Mike Thompson (D-MT), addressed the future of automotive technologies and fuels that may dramatically reduce petroleum consumption and emission of greenhouse gases. According to Eggert, a graduate student in transportation technology and policy, the group spent the afternoon informing Congress about alternative fuels, such as biofuels and hydrogen, hybrid-electric technologies and fuel cell vehicles. [26-Jan-2007, *University Wire*]

~~~~~~~~~~~~
Administration
~~~~~~~~~~~~

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

Subscribe at http://lb.bcentral.com/ex/manage/subscriberprefs?customerid=9927

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
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)