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FUEL CELL CONNECTION - May 2008 Issue

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**News on U.S. Government Fuel Cell Programs**  
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1. ANL Researchers Examine Algae for Hydrogen Production

Researchers at Argonne National Laboratory (ANL) are examining some varieties of algae that could supply hydrogen. Some algae varieties contain the enzyme hydrogenase, which can create small amounts of hydrogen gas. The ANL researchers are trying to find a way to introduce the enzyme into the photosynthesis process, in order to generate large amounts of hydrogen gas.

http://www.anl.gov/Media_Center/News/2008/news080401.html

2. Analysis of New Class of Materials Points to Hydrogen Storage Potential

An analysis by a scientist at the National Institute of Standards and Technology (NIST) has shed light on the structure of a new class of materials with high potential for hydrogen storage. The analysis found that "the mobility of small ions in the mixed amide-hydride system greatly improves hydrogen storage properties," according to Hui Wu, author of the analysis and a research associate at the NIST Center for Neutron Research. The structure of the material allows for hydrogen transfer at lower temperatures, without creating much ammonia.

http://www.nist.gov/public_affairs/techbeat/tb2008_0513.htm#hydrogen

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**RFP/Solicitation News**  
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3. California ARB to Fund Hydrogen Station Construction

California's Air Resources Board (ARB) announced the availability of \$7.7 million to aid the construction of hydrogen fueling stations in the Los Angeles, Sacramento, San Diego, and San Francisco areas, in order to advance the state's Hydrogen Highway Initiative. Deadline for proposals is June 13, 2008.

http://www.cscr.dgs.ca.gov/cscr/contract_ads/display/contract_ad_detail.asp

4. Appalachian Regional Commission Announces Energy Grants

The Appalachian Regional Commission (ARC) announced the second round of a grant competition for renewable energy and energy efficiency projects to revitalize the economies of Appalachian communities. ARC expects to award 8-10 grants of up to \$75,000 each. The proposal deadline is June 30, 2008.

<http://www.depweb.state.pa.us/news/cwp/view.asp?Q=536539&A=3>

5. Funding Opportunity for CHP, Fuel Alternatives to Natural Gas

The U.S. Department of Energy (DOE) has issued a "Fuel/Feedstock Flexibility and Combined Heat and Power" funding opportunity that seeks to increase use of combined heat and power (CHP) as well as fuel alternatives to natural gas. Fuel cells are included in the solicitation's list of technologies of interest. Approximately \$4 million is available for awards in FY2008, and an additional \$6 million is expected to be available for future awards. Individual project awards will range in size from \$500,000 to \$2 million. Applications are due July 14, 2008.

<http://e-center.doe.gov/iips/faopor.nsf/1be0f2271893ba198525644b006bc0be/5ca0558c91e6398785257449006a2b8a?OpenDocument>

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**Contract / Funding Awards**  
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6. \$3.65 Million Awarded by Army for Portable Military Fuel Cell Project

The U.S. Army Research Office (ARO) has awarded a \$3.65 million contract to Protonex Technology Corporation for development of the next generation of its Pulse M250 portable military power system, which is based on fuel cell technology. The goal of the project is to develop a portable power system for military applications including field battery recharging and auxiliary power. <http://www.protonex.com>

7. Greater Columbia Fuel Cell Challenge Phase II Awards Announced

The University of South Carolina Columbia Fuel Cell Collaborative announced the recipients of the Greater Columbia Fuel Cell Challenge Phase II Awards. Four proposals were selected for a total investment of more than \$1 million. Projects include beta testing of a portable fuel cell power generator and market testing of a fuel cell device charger.

http://www.schydrogen.org/mar_08_news.html#mar31

8. DOE Authorizes Additional Funding for Optimization of Portable Fuel Cell

DOE has authorized an additional \$325,000 for a program with MTI MicroFuel Cells to develop manufacturing techniques and optimize the Mobion® fuel cell technology platform.

<http://www.mtimicrofuelcells.com/news/article.asp?id=329>

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**Legislative/Regulatory News**  
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9. New Law Requires DOE to Establish Advanced Energy Tech Transfer Centers

President George Bush signed into law the Consolidated Natural Resources Act of 2008, which includes an amendment to the Energy Policy Act of 2005 requiring that DOE make grants to establish a network of Advanced Energy Technology Transfer Centers. Grants will be for an initial period of five years. The law specifies "the term 'advanced energy technologies' means all methods and technologies that promote energy efficiency and conservation, including distributed generation technologies, and life-cycle analysis of energy use." A summary of the provisions in the act has been posted on the web site of the Senate Committee on Energy & Natural Resources.

http://energy.senate.gov/public/index.cfm?FuseAction=IssueItems.View&IssueItem_ID=13f5081b-a538-4ec9-884d-9b0b8cb4383e

10. DOT Allows Fuel Cell Systems and Fuel Cartridges in Passenger Carry-On Baggage

The U.S. Department of Transportation (DOT) has issued a final rule permitting certain fuel cell systems and fuel cartridges specifically designed for portable electronic devices to be transported in carry-on baggage on board passenger airplanes. Airlines may voluntarily comply with this rule as early as May 30, 2008, while the official effective date of the rule is October 1, 2008.

<http://www.epa.gov/fedrgstr/EPA-IMPACT/2008/April/Day-30/i9203.htm>

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Ohio Governor Ted Strickland signed into law a bill requiring that the state's utilities use renewable or advanced energy for 25% of their electricity supply by 2025, starting at 0.5% by the end of 2009. The bill also stipulates that renewable energy make up at least half of the requirement, and that utilities must implement demand-side management programs to reduce peak demand by 1% starting in 2009, with further reductions required each year until 2018.

MTI MicroFuel Cells debuted a prototype of an “embedded” micro fuel cell designed for use in handheld GPS devices. The fuel cell prototype provides nearly 60 hours of continuous power. The prototype device includes a USB interface, which allows it to also be used to recharge mobile phones, digital cameras, and other handheld electronic devices.

Two Washington, DC, area drivers will each test drive a Chevrolet Equinox fuel cell vehicle as part of General Motors' Project Driveway. The goal of Project Driveway is to give more than 100 Chevrolet Equinox vehicles to a variety of drivers for real-world testing.

On April 1, U.S. Patent No. 7,351,488 was issued to the University of California in Oakland for structures and fabrication techniques for solid-state electrochemical devices such as solid oxide fuel cells (SOFCs). The inventors are Steven J. Visco of Berkeley, Calif.; Craig P. Jacobson of El Cerrito, Calif.; and Lutgard C. DeJonghe of Lafayette, Calif. According to the abstract filed with the U.S. Patent & Trademark Office, "porous substrates and associated structures for solid-state electrochemical devices ... are low-cost, mechanically strong and highly electronically conductive. Some preferred structures have a thin layer of an electrocatalytically active material coating a porous high-strength alloy support to form a porous SOFC fuel electrode. Electrode/electrolyte structures can be formed by co-firing or constrained sintering processes."

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&r=1&f=G&l=50&s1=7,351,488.PN.&OS=PN/7,351,488&RS=PN/7,351,488 .

The Connecticut Global Fuel Cell Center, a unit of the University of Connecticut's School of Engineering, has established an accelerated testing facility for fuel cell-based backup power systems. <http://www.ctfuelcell.uconn.edu/cgfcctestupsfacility.php>

Yi-Han Su, a student at Taipei First Girls High School in Taiwan, was one of three high school students to take top honors in the 2008 Intel International Science and Engineering Fair, a program of Society for Science & the Public. For her project, Su developed a process to improve the activity of a catalyst, resulting in an improved process for generating hydrogen. The competition, held in May in Atlanta, Ga., involved more than 1,500 students from 51 countries. The top honorees each received an Intel Foundation Young Scientist Award and a \$50,000 college scholarship.

<http://www.intel.com/education/isef/2008winners.htm?iid=scimath+ISEFwinners>

Researchers in the University of Warwick's Department of Chemistry have found a way of producing carbon nanotubes in which they instantly form a highly sensitive ready made electric circuit. The new ultra-microelectrodes open up interesting possibilities for catalysis in fuel cells, according to the researchers. Their research has just been published in a paper titled "Single-Walled Carbon Nanotube Network Ultramicroelectrodes" by University of Warwick researchers Ioana Dumitrescu, Professor Julie Macpherson, Professor Patrick Unwin, and Neil Wilson in *Analytical Chemistry*, 2008, 10.1021/ac702518g.
http://www2.warwick.ac.uk/newsandevents/pressreleases/nanotube_production_leaps/

A team composed of Harvard students and alumni was among the winners of the World Bank's Lighting Africa 2008 Development Marketplace competition, held May 6-8 in Accra, Ghana. The

team's innovation, microbial fuel cell-based lighting systems suitable for Sub-Saharan Africa, netted the group a \$200,000 prize.

http://www.seas.harvard.edu/newsandevents/pressreleases/051408_light.html

A team of students from Lake Roosevelt High School in Coulee Dam, Wash., on May 10 won the grand prize at the first Imagine Tomorrow competition held at Washington State University (WSU). The students - Catherine Kerns, Elizabeth Owens and Peter Rise - each won a cash prize of \$5,000 for their project on Customizable Hydrogen Production. The team built a wind belt, solar panels, a hydropower collection system and a hydrogen fuel cell that powered a small motor. Ralph Rise and Lee Argent were advisers on the project; their school will receive \$5,000 for its academic programs. The team was assisted by Steven Dent, a WSU graduate student in engineering who works with high school students as part of a National Science Foundation grant. <http://wsunews.wsu.edu/pages/publications.asp?Action=Detail&PublicationID=12248&TypeID=1>

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

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**About Fuel Cell Connection**  
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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>)