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**FUEL CELL CONNECTION – November 2004 Issue**  
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## Administration

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

### 1. NETL Researchers Patent Reciprocating Compression Reformer for Fuel Cells

Researchers at the National Energy Technology Laboratory have patented a Reciprocating Compression Reformer (RCR), which can provide power to a high-temperature fuel cell-powered device while the fuel cell is warming up. The RCR uses a reciprocating device to reform compressed hydrocarbon fuel and an oxidant into a hydrogen-rich synthesis gas.

[http://www.ornl.gov/info/news/pulse/pulse\\_v171\\_04.htm](http://www.ornl.gov/info/news/pulse/pulse_v171_04.htm)

### 2. Army Unveils Fuel Cell Off-Road Vehicle

The U.S. Army Tank-Automotive Research, Development and Engineering Center's National Automotive Center (NAC) unveiled a fuel cell off-road vehicle developed by Quantum Fuel Systems, called the Quantum Aggressor. The vehicle uses a 10-kW fuel cell coupled with an energy storage module, and can reach speeds of 80 miles per hour.

[http://www.qtw.com/press\\_releases/pr\\_oct\\_25\\_2004.shtml](http://www.qtw.com/press_releases/pr_oct_25_2004.shtml)

### 3. Army to Receive IdaTech Fuel Cell for Battery Charging

IdaTech has unveiled a scalable 100-W to 500-W portable fuel cell system prototype that will be delivered to the U.S. Army for use as a field battery charger. The fuel cell system, including reformer and hydrogen purification module, is about the size of a large lunch box.

<http://www.idatech.com/media/news.html?article=67>

### 4. Methane to Markets Partnership Launched

Thirteen countries are joining the United States for the Methane to Markets Partnership, which aims to advance international cooperation on the recovery and use of methane as a clean energy source. The United States will commit up to \$53 million over the next five years to facilitate the development and implementation of methane projects in developing countries and countries with economies in transition. The U.S. Environmental Protection Agency will play a lead role in the Partnership.

<http://yosemite.epa.gov/opa/admpress.nsf/b1ab9f485b098972852562e7004dc686/7a9a36b36ff3a84b85256f4e006d47d8!OpenDocument>

## New Government Publications Posted

### 5. Report on Nuclear Energy Research Initiative Hydrogen Projects

The Department of Energy has published the 2003 Annual Report on the Nuclear Energy Research Initiative, which includes updates on projects under the Nuclear Hydrogen Initiative. Project titles include "Nuclear-Energy-Assisted Plasma Technology for Producing Hydrogen" and "Hydrogen Production Plant Using the Modular Helium Reactor."

<http://neri.ne.doe.gov/2003AnnualReport/neri2003annualreport.pdf>

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**RFP/Solicitation News**  
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*6. SECA Core Technology Program Solicitation Issued, Pre-Applications Due Soon*

DOE's Solid State Energy Conversion Alliance has issued a solicitation for proposals under its Core Technology Program. There are six sub-areas in the Materials Area of Interest, including Materials for SOFC Cathode/Interconnect Interface, Innovative Sealing Concepts, and Infiltration of Active Elements into SOFC Electrode Structures. Under the Fuel Processing Area of Interest, there are three sub-areas, including Fuel Reforming Technology for Logistic Fuel Applications. DOE anticipates that Phase I awards under this solicitation will be in the \$125,000 range. An estimated \$1.1 million is available for this solicitation. Pre-applications are required and are due by December 1, 2004. If favorably reviewed, pre-applicants will be invited to submit a full application by January 18, 2005.

<https://e-center.doe.gov/iips/faopor.nsf/UNID/97BF6D3689CA335685256F48006B9BB4?OpenDocument>

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*7. Fuel Cell Technical Topic Included in DOE HBCU/OMI Solicitation*

"Fuel Cells" is a technical topic under the new Fossil Energy Historically Black Colleges and Universities and Other Minority Institutions (HBCU/OMI) Program solicitation. An estimated \$950,000 is available for projects under this solicitation. About seven awards of \$20,000 to \$200,000 are expected. Deadline for proposals is January 10, 2005.

<https://e-center.doe.gov/iips/faopor.nsf/UNID/1471DB687FC9E52685256F4300568FD7?OpenDocument>

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*8. Energy Efficiency, Renewable Energy on Tribal Lands*

Approximately \$1.0 million is available for awards under the new solicitation "First Steps Toward Developing Renewable Energy and Energy Efficiency on Tribal Lands." Projects to be funded include energy efficiency applications for buildings, and renewable energy for off-grid power uses. Applications are due January 20, 2005.

<http://www.fedgrants.gov/Applicants/DOE/PAM/HQ/DE-PS36-04GO94004/Grant.html>

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**Contract / Funding Awards**  
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*9. DOE Selects IdaTech for Off-Road Fuel Cell Vehicle Program*

The Department of Energy has selected IdaTech for a \$1.4 million award to conduct a three-year program of fuel cell system research and development targeting off-road vehicle applications.

<http://www.idatech.com/media/news.html?article=68>

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*10. Army RDECOM Awards Funding to MTI MicroFuel Cells*

The U.S. Army Research, Development and Engineering Command (RDECOM) will award \$250,000 over the next ten months to MTI MicroFuel Cells for contracts to demonstrate energy density advantages and to quantify potential logistical advantages of the company's direct methanol micro fuel cells.

<http://www.mtimicrofuelcells.com/news/article.asp?id=183>

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*11. NASA Buys Hydrogenics Fuel Cell Stack for Testing*

NASA Glenn Research Center purchased a 5-kW hydrogen/oxygen PEM fuel cell stack from Hydrogenics, for use in an experimental closed cycle regenerative fuel cell. The stack testing will be conducted as part of NASA's research program to understand how a regenerative fuel cell will operate in future aerospace applications.

[http://www.hydrogenics.com/ir\\_newsdetail.asp?RELEASEID=148245](http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=148245)

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*12. Ohio Awards \$3.5 Million in Fuel Cell Program Funding*

The Third Frontier Fuel Cell Program awarded nearly \$3.5 million in funding to five Ohio companies to support the growth of the state's fuel cell industry.

<http://www.odod.state.oh.us.newsroom/releases/1108.asp>

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**State Activities**  
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*13. New York State PSC Votes to Expand Interconnection Standards*

The New York State Public Service Commission voted to expand uniform electricity interconnection standards in the state to facilitate the installation of on-site power generators of up to 2 megawatts in size.

[http://www3.dps.state.ny.us/pscweb/WebFileRoom.nsf/Web/B99E7811FEFC2B6585256F480063586D/\\$File/pr04081.pdf?OpenElement](http://www3.dps.state.ny.us/pscweb/WebFileRoom.nsf/Web/B99E7811FEFC2B6585256F480063586D/$File/pr04081.pdf?OpenElement)

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**Legislation / Regulations**  
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*14. DOT Grants Transport Exemption to Jadoo for Metal Hydride Storage System*

The U.S. Department of Transportation granted Jadoo Power Systems an exemption for the transport, via air cargo, of Jadoo's storage system containing hydrogen absorbed in metal hydride. [http://www.webtrident.com/jadoo/pdfs/PR\\_jadoo\\_DOT.pdf](http://www.webtrident.com/jadoo/pdfs/PR_jadoo_DOT.pdf)

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**Industry Headlines**  
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*15. Fuel Cells 2000 Publishes Directory for Fuel Cell Industry*

Fuel Cells 2000, an educational project of the Breakthrough Technologies Institute, has published the 8th edition of its Fuel Cell Directory, containing over 1000 listings of companies and organizations in the fuel cell industry. <http://www.fuelcells.org/directoryorderform.pdf>

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*16. Plug Power, Honda Announce Operation of 2<sup>nd</sup> Generation Home Energy Station*

Plug Power and Honda announced they have begun experimental operation of the second-generation Home Energy Station (HES II), which is a home refueling unit that provides hydrogen from natural gas for vehicle refueling, heat for domestic hot water use and electricity for the home. [http://world.honda.com/news/2004/4041116\\_b.html](http://world.honda.com/news/2004/4041116_b.html)

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*17. Merit Develops Direct Borohydride Fuel Cell for Notebook PCs*

Materials and Energy Research Institute Tokyo Ltd. (Merit) has developed a 20-Watt direct borohydride fuel cell (DBFC), which it believes it will be able to sell for notebook PCs as early as 2006 at a price of \$90.00. Instead of methanol fuel, the DBFC uses a solution of sodium borohydride. [http://www.infoworld.com/article/04/10/28/HNfuelcellontheway\\_1.html](http://www.infoworld.com/article/04/10/28/HNfuelcellontheway_1.html)

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*18. Honda Leases FCX Fuel Cell Vehicles to New York*

American Honda leased two 2005 Honda FCX fuel cell vehicles to the state of New York. The state will lease the vehicles for a period of two years, with delivery of the first vehicle expected to take place in December 2004.

[http://world.honda.com/news/2004/4041116\\_a.html](http://world.honda.com/news/2004/4041116_a.html)

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**University Activities**  
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*19. Kettering University Purchases Technologies for Fuel Cell Center*

Kettering University's Center for Fuel Cell Systems and Powertrain Integration has purchased fuel cell test stands and has contracted with Stuart Energy to supply the hydrogen fuel. Kettering has also selected BEI Associates to design the new Center. A new cooperative education program between Kettering and Ford Sustainable Mobility Technologies will give students the chance to work with real-world fuel cell vehicle engineering issues.

<http://fuelcells.kettering.edu/pdf-newsletters/2004-10-Oct-Newsletter.pdf>

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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](mailto:khaq@nfcrc.uci.edu))

Dr. Ibrahim Dincer, a professor at the University of Ontario Institute of Technology, has received one of Ontario's highest research honors for his work involving fuel cell technology for automobiles. Dincer is the first UOIT faculty member to receive a Premier's Research Excellence Award, a distinction that brings with it \$100,000 in research funding from the province and \$50,000 in matching funds from the university. The Premier's Research Excellence Award was developed in 1998 to help Ontario's best researchers attract exceptional graduate students, postdoctoral fellows and research associates to their research teams. The program also aims to promote innovation among the finest researchers in the province. (20-Oct-2004, *Canada NewsWire*)

Scientists at the universities of Newcastle-upon-Tyne and Liverpool have found a new, safe way of storing and releasing hydrogen to produce energy. The breakthrough, which involves injecting the gas at high pressure into tiny pores, could pave the way to environmentally friendly hydrogen-powered vehicles. Hydrogen is injected at high pressure into the tiny pores in specially designed materials that act as a "sponge" for the gas. Pressure within the material is then reduced, allowing the hydrogen to remain safely in place without the risk of an explosion. Heat can be applied to release the hydrogen from the porous material when it is needed. (20-Oct-2004, *Wellington Weekly News*)

The Schatz Energy Research Center at Humboldt State University has created a test station to allow it to build more efficient and durable fuel cells. Schatz engineers designed and built the testing station with a \$500,000 grant from the U.S. Department of Energy's Office of Science. The

center has a \$200,000 contract to build a similar fuel cell test station for Kettering University in Michigan. The lab is also involved, along with the University of California, Berkeley's Lawrence Hall of Science, with developing a curriculum related to hydrogen for high school physics and chemistry teachers. (2-Nov-2004, *Eureka Times-Standard*)

Using core patented technology developed by scientists at the University of Pennsylvania, Franklin Fuel Cells Inc. has developed a unique solid oxide fuel cell technology that can operate directly on hydrocarbon fuels as well as hydrogen without fuel pre-treatment – processing or reforming – to generate power. Additional supportive technology was developed at The Gas Research Institute in Chicago, Illinois. (9-Nov-2004, *Business Wire*)

A \$2 million hydrogen technology environmental chamber (HTEC) was put into operation at the National Research Council of Canada's Institute for Fuel Cell Innovation on the University of British Columbia campus in Vancouver, BC this month. The only public facility of its kind, it will allow companies and researchers to test and evaluate hydrogen vehicles and stationary power systems. Funding was provided by NRC, Western Economic Diversification Canada, and Fuel Cells Canada. In-kind support was provided by Public Works and Government Services Canada. (5-Nov-2004, *Canadian Corporate Newswire*)

The University of South Carolina's new "green" dorm, boasting solar-heated water and electricity from a hydrogen fuel cell, opened this semester. School officials hope to have the structure certified by the U.S. Green Building Council, which sets standards for green buildings. Interest in energy-saving buildings is growing, but the University of South Carolina knows of only two schools that have received certification from the council for their residence halls. Carnegie Mellon University in Pittsburgh has a \$12.5 million residence hall that houses 255 students, and Duke University renovated a residence hall into a green dorm. South Carolina's dorm cost roughly \$40 million. (5-Nov-2004, *The Associated Press State and Local Wire*)

One of the hydrogen fueling stations planned for Canada's Hydrogen Highway will be located at the National Research Council (NRC) of Canada's Institute for Fuel Cell Innovation at the University of British Columbia in Vancouver. BOC, the global gas and technology company, will work with the NRC and Natural Resources Canada (NRCan) to jointly fund and build the station. The first users of the station will be the Vancouver Fuel Cell Vehicle Program, a cooperative venture with NRCan, NRC the B.C. Government, Ford Motor Company and Fuel Cells Canada aimed at accelerating Canada's fuel cell and hydrogen industry. (8-Nov-2004, *Octane Week*)

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**Administration**  
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Press releases and story ideas may be forwarded to Bernadette Geyer, editor, for consideration at [bernie@usfcc.com](mailto:bernie@usfcc.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.

[\(http://www.usfcc.com/\)](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.

[\(http://www.nfcrc.uci.edu/\)](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.

[\(http://www.netl.doe.gov/\)](http://www.netl.doe.gov/)