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**FUEL CELL CONNECTION – November 2003 Issue**  
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IN THIS ISSUE

- * DOE Launches Hydrogen and Fuel Cell Education Effort
- * University Coal Research Solicitation Features Hydrogen, Fuel Cell Topics
- * Stuart Energy Receives Contract from SCAQMD
- * Michigan to Get Hydrogen Technology Park, Alternative Energy Microgrid
- * Fuel Cell Bus Initiative Launched

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**CONTENTS**

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

1. DOE Launches Hydrogen and Fuel Cell Education Effort
2. Genome Researchers Developing Biological Strategies for Hydrogen Production
3. ORNL Develops Corrosion-Resistant Metallic Bipolar Plates for Fuel Cells
4. 15 Countries Sign International Partnership for the Hydrogen Economy
5. Awards Presented to Federal, State Fuel Cell Leaders
6. FEMP Energy Saver Award Goes to Fuel Cell-Powered Facility

**New Government Publications Posted**

7. DOE HFC&IT Office Annual Merit Review Presentations Online
8. DOE HFC&IT Office Annual Progress Report Available
9. NETL Posts Fuel Cell Research Targets
10. TRB Publication Notes Fuel Cell Role in Mitigating Climate Change

**RFP / Solicitation News**

11. University Coal Research Solicitation Features Hydrogen, Fuel Cell Topics
12. DOT Solicitation Seeks Alternative Fuel, Advanced Vehicle Technology Research
13. Alternate Energy Sources Sought by Naval Surface Warfare Center Carderock Division

**Contract / Funding Awards**

14. Stuart Energy Receives Contract from SCAQMD
15. DOE Awards \$2.25 Million for Cornell Fuel Cell Institute

**State Activities**

16. Hawaii PUC to Examine DG Benefits
17. Michigan to Get Hydrogen Technology Park, Alternative Energy Microgrid

**University Activities**

18. Kettering University Fuel Cell News
19. Caltech Develops Solid Acid Fuel Cell
20. Additional University Fuel Cell News

**Industry Headlines**

21. Hydrogenics Commercializes 10-kW Power Module
22. Voller Launches Sales of VE100 Portable Fuel Cell System

- 23. Fuel Cell Organizations Sign Collaboration Agreement
- 24. Fuel Cell Bus Initiative Launched
- 25. Anuvu Announces Sales of Fuel Cell Pick-up Truck

**Administration**

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News on U.S. Government Fuel Cell Programs
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*1. DOE Launches Hydrogen and Fuel Cell Education Effort*

The U.S. Department of Energy (DOE) has launched an effort to educate students of all ages about the basic concepts and principles of hydrogen and fuel cell technologies. The announcement was made at Thurgood Marshall Academy Public Charter High School in Washington, DC.

[http://www.energy.gov/engine/content.do?PUBLIC\\_ID=14363&BT\\_CODE=PR\\_PRESSRELEASE  
S&TT\\_CODE=PRESSRELEASE](http://www.energy.gov/engine/content.do?PUBLIC_ID=14363&BT_CODE=PR_PRESSRELEASE&S&TT_CODE=PRESSRELEASE)

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*2. Genome Researchers Developing Biological Strategies for Hydrogen Production*

Researchers in DOE's Genomes to Life Program have achieved significant advances in piecing together DNA strands of a phage, which is a virus of bacteria. This advancement, according to DOE Secretary Spencer Abraham, is a major step on the path to developing microbes for hydrogen generation or carbon sequestration.

[http://www.energy.gov/engine/content.do?PUBLIC\\_ID=14450&BT\\_CODE=PR\\_PRESSRELEASE  
S&TT\\_CODE=PRESSRELEASE](http://www.energy.gov/engine/content.do?PUBLIC_ID=14450&BT_CODE=PR_PRESSRELEASE&S&TT_CODE=PRESSRELEASE)

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*3. ORNL Develops Corrosion-Resistant Metallic Bipolar Plates for Fuel Cells*

Scientists at Oak Ridge National Laboratory have developed low-cost, corrosion-resistant metallic bipolar plates for PEM fuel cells. The new family of nickel-chrome alloys developed will reduce the size and weight of fuel cell stacks, increasing the power density.

[http://www.ornl.gov/info/press\\_releases/story\\_tips.cfm](http://www.ornl.gov/info/press_releases/story_tips.cfm)

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*4. 15 Countries Sign International Partnership for the Hydrogen Economy*

DOE Secretary Spencer Abraham, along with Ministers representing fourteen nations and the European Commission, signed an agreement formally establishing the International Partnership for the Hydrogen Economy. Signatory countries agree to coordinate hydrogen research and hydrogen technology development and deployment.

[http://www.energy.gov/engine/content.do?PUBLIC\\_ID=14481&BT\\_CODE=PR\\_PRESSRELEASE  
S&TT\\_CODE=PRESSRELEASE](http://www.energy.gov/engine/content.do?PUBLIC_ID=14481&BT_CODE=PR_PRESSRELEASE&S&TT_CODE=PRESSRELEASE)

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*5. Awards Presented to Federal, State Fuel Cell Leaders*

The US Fuel Cell Council presented its inaugural Pathfinder Award to four individuals during a reception at the Fuel Cell Seminar. Recipients of the award, which will be given annually to leaders from outside the industry, were: Steve Chalk, Manager, DOE Office of Hydrogen, Fuel Cells and Infrastructure Technologies; JoAnn Milliken, Hydrogen Storage Team Leader at DOE; Mark Williams, Fuel Cell Product Manager, DOE National Energy Technology Laboratory; and Alan Lloyd, Chairman, California Air Resources Board. In a separate ceremony, National Energy

Technology Laboratory Associate Director Joseph P. Strakey received an award from the American Society of Materials International, for his leadership and guidance of the Solid State Energy Conversion Alliance (SECA). Contact kevin.moore@en.netl.doe.gov for more information.

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*6. FEMP Energy Saver Award Goes to Fuel Cell-Powered Facility*

The U.S. Army's Watervliet Arsenal in New York received a 2003 Federal Energy Saver Award from the Federal Energy Management Program for its project, which installed ten PEM fuel cells at the arsenal. The fuel cells are expected to save the site 37.5 megawatt-hours per year.

[http://www.eere.energy.gov/femp/newsevents/pdf/fall2003\\_focus.pdf](http://www.eere.energy.gov/femp/newsevents/pdf/fall2003_focus.pdf)

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New Government Publications Posted
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*7. DOE HFC&IT Office Annual Merit Review Presentations Online*

Presentations from the 2003 Annual Merit Review of the DOE Hydrogen, Fuel Cells & Infrastructure Technologies Program are now available online.

[http://www.eere.energy.gov/hydrogenandfuelcells/2003\\_merit\\_review.html](http://www.eere.energy.gov/hydrogenandfuelcells/2003_merit_review.html)

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*8. DOE HFC&IT Office Annual Progress Report Available*

The 2003 Annual Progress Report of the DOE Hydrogen, Fuel Cells & Infrastructure Technologies Program is now available.

[http://www.eere.energy.gov/hydrogenandfuelcells/annual\\_report03.html](http://www.eere.energy.gov/hydrogenandfuelcells/annual_report03.html)

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*9. NETL Posts Fuel Cell Research Targets*

The National Energy Technology Laboratory has posted a fact sheet featuring DOE's fuel cell research targets. The fact sheet includes a chart showing the air emissions reductions achieved by fuel cell use, and a chart of the cost savings to consumers from fuel cell technologies.

<http://www.netl.doe.gov/publications/factsheets/policy/policy009.pdf>

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*10. TRB Publication Notes Fuel Cell Role in Mitigating Climate Change*

The Transportation Research Board's new report, "Travel Matters – Mitigating Climate Change with Sustainable Surface Transportation," says that even if hydrogen is generated from natural gas, "the extremely high efficiency of the hydrogen fuel thus produced is such that lower GHG (greenhouse gas) emissions per mile of travel can be attained."

[http://gulliver.trb.org/news/blurp\\_detail.asp?id=2071](http://gulliver.trb.org/news/blurp_detail.asp?id=2071)

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RFP/Solicitation News
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*11. University Coal Research Solicitation Features Hydrogen, Fuel Cell Topics*

DOE's University Coal Research program has released a solicitation for projects to enhance the long-term use of coal, including projects on hydrogen storage, high-temperature fuel cells, and solid oxide fuel cell sealing systems. Approximately \$3 million is available for projects under this solicitation. Proposals are due by December 4, 2003.

[http://www.fossil.energy.gov/news/techlines/03/tl\\_03ucrsolicitation.html](http://www.fossil.energy.gov/news/techlines/03/tl_03ucrsolicitation.html)

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*12. DOT Solicitation Seeks Alternative Fuel, Advanced Vehicle Technology Research*  
Under its Climate Change and Environmental Forecasting solicitation, the Department of Transportation Research and Special Programs Administration is seeking projects researching or evaluating ways to mitigate greenhouse gases in the transportation sector. One of the three research topic areas is Increasing Energy Efficiency and Reducing Greenhouse Gas Emissions, which could include "identification of challenges to the introduction of advanced vehicle technologies, such as fuel cells" and "increasing consumer acceptance of new technologies." DOT anticipates awarding no more than \$355,000 to three to six projects under the solicitation. Deadline for white papers is December 15, 2003.  
<http://www.eps.gov/spg/DOT/RSPA/RSPAHQ/DTRS56-04-BAA-0001/SynopsisP.html>

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*13. Alternate Energy Sources Sought by Naval Surface Warfare Center Carderock Division*  
The Naval Surface Warfare Center Carderock Division's Machinery Research and Engineering Directorate is interested in white papers for projects that offer potential for advancement and improvements of Naval machinery operations. Topics include fuel cells and other alternative energy and power sources for ships, submarines and watercraft. White papers are being accepted through March 6, 2004.  
<http://www.eps.gov/spg/DON/NAVSEA/N00167/N0016703BAA01/SynopsisR.html>

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Contract / Funding Awards
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*14. Stuart Energy Receives Contract from SCAQMD*  
South Coast Air Quality Management District has contracted with Stuart Energy for a Hydrogen Energy Station with both vehicle fueling and power generation capabilities. The station is expected to be delivered to SCAQMD's headquarters in early 2004.  
[http://www.stuartenergy.com/media\\_center/press\\_releases/press\\_nov17.html](http://www.stuartenergy.com/media_center/press_releases/press_nov17.html)

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*15. DOE Awards \$2.25 Million for Cornell Fuel Cell Institute*  
DOE has awarded Cornell University \$2.25 million over three years to establish the Cornell Fuel Cell Institute. <http://www.news.cornell.edu/releases/Nov03/Fuelcell.institute.deb.html>

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State Activities
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*16. Hawaii PUC to Examine DG Benefits*  
The Hawaii Public Utilities Commission has opened two formal proceedings to examine the potential benefits and effects of distributed generation technologies. The PUC will also develop a competitive bidding process to acquire or build new electric generating capacity in Hawaii.  
[http://www.eere.energy.gov/distributedpower/news/1103\\_hawaii.html](http://www.eere.energy.gov/distributedpower/news/1103_hawaii.html)

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*17. Michigan to Get Hydrogen Technology Park, Alternative Energy Microgrid*  
DTE Energy is partnering with DOE, the state of Michigan and the city of Southfield to develop, build and operate a Hydrogen Technology Park that will create hydrogen gas from tap water for use in fuel cell generators and to refuel fuel cell vehicles. DTE Energy also signed a \$5.4 million

contract with NextEnergy to develop, construct, operate and maintain a Microgrid project – featuring fuel cells, miniturbines, solar and other technologies – in Detroit.

<http://www.dteenergy.com/pressRoom/pressReleases/hydrogenPowerPark2.html>

<http://www.dteenergy.com/pressRoom/pressReleases/DTechNextEnergy.html>

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University Activities
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*18. Kettering University Fuel Cell News*

Researchers at Kettering University have discovered a new method for producing nanotubes, which may be used to store hydrogen. U.S. Army Tank-Automotive Armaments Command is providing \$100,000 in funding to Kettering for testing of a fuel cell/battery hybrid utility vehicle. Kettering has received a \$100,000 grant from Next Energy for development of a competency-based curriculum in alternative energy technology. In July 2003, Kettering received \$500,000 from the state of Michigan for fuel cell research. <http://fuelcells.kettering.edu>

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*19. Caltech Develops Solid Acid Fuel Cell*

Researchers at California Institute of Technology are developing high-conductivity solid acid electrolytes for fuel cells, which would enable operating temperatures over 100°C. A challenge of the solid acid electrolyte is its solubility in water, which must be addressed.

[http://www.csem.caltech.edu/teaching/haile\\_s.html](http://www.csem.caltech.edu/teaching/haile_s.html)

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*20. Additional University Fuel Cell News*

(contributed by Jacob Brouwer, PhD, National Fuel Cell Research Center/UC-Irvine) Several universities received Phase II awards in September 2003 to advance solid oxide fuel cell technology in support of DOE's Solid State Energy Conversion Alliance (SECA) program. These universities include: Texas A&M, College Station; University of Florida, Gainesville; University of Washington, Seattle; University of Pittsburgh; Virginia Polytechnic Institute and State University, Blacksburg; Georgia Tech Research Corporation, Atlanta; and University of Illinois, Chicago. These universities will be conducting Phase II SECA research on power converters, SOFC materials, modeling tools, and manufacturing techniques in contracts totaling more than \$3.6 million.

In June 2003, the University of Notre Dame received a \$1.6 million award from the Army Communications and Electronics Command to develop novel materials and processes suitable for use in hydrogen fuel cells. In September 2003, Georgetown University announced its continued support and development of the "Intermodal Fuel Cell Bus Maintenance & Training Facility" with funding from the Federal Transit Authority. University of California-Riverside Professor Yushan Yan is working in a collaboration with Pacific Fuel Cell Corporation to develop carbon nanotube-based electrodes for PEMFCs. In August, University of Illinois-Champaign announced its collaboration with Renew Power to develop tiny formic acid fuel cells for use in laptop computers, cell phones and personal digital assistants.

The University of South Carolina (USC) is leading a National Science Foundation (NSF) Industry/University Cooperative Research Center for Fuel Cells. In October, USC officials announced the participation of 14 industry participants in the NSF Center. With \$9.5 million in support from DOE, the University of Delaware will work with Dupont and Ion Power to advance PEMFC economics through membrane research and catalyst recycling projects.

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Industry Headlines

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### 21. Hydrogenics Commercializes 10-kW Power Module

Hydrogenics has standardized the commercial design of its 10-kW HyPM fuel cell power module, which will enable the company to manufacture the unit in greater numbers at lower cost.

<http://www.hydrogenics.com/ir/NewsReleaseDetail-1.asp?RELEASEID=121578>

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### 22. Voller Launches Sales of VE100 Portable Fuel Cell System

Voller Energy launched sales of its VE100 portable fuel cell power system, the Voller Energy Portapack, which is available for sale through Fuel Cell Today.

<http://www.voller-energy.com/ve/press.htm#>

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### 23. Fuel Cell Organizations Sign Collaboration Agreement

The world's leading fuel cell organizations signed an agreement that will initiate collaboration on information sharing, education, regulation and technical exchange. The U.S. Fuel Cell Council, Fuel Cell Commercialization Conference of Japan, Fuel Cells Canada, World Fuel Cell Council and Fuel Cell Europe collectively represent more than 300 businesses, research institutions and others interested in fuel cells and hydrogen.

[http://www.usfcc.com/MOU\\_Signed.pdf](http://www.usfcc.com/MOU_Signed.pdf)

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### 24. Fuel Cell Bus Initiative Launched

WestStart-CALSTART is coordinating the National Fuel Cell Bus Technology Initiative (NFCBTI), a 6-year, \$150-million effort supported by a broad-based industry coalition that includes AC Transit, Ballard Power Systems, Boeing, ECD Ovonic, Hydrogenics, Quantum Technologies, Sunline Transit, and Texaco Ovonic Hydrogen Systems. The NFCBTI is seeking funding via the reauthorization of the federal transportation bill, known as TEA-21.

[http://www.calstart.org/info/specialannouncementsfyi/coalition\\_of\\_industry\\_leaders\\_launches\\_national\\_fuel\\_cell\\_bus\\_initiative.php](http://www.calstart.org/info/specialannouncementsfyi/coalition_of_industry_leaders_launches_national_fuel_cell_bus_initiative.php)

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### 25. Anuvu Announces Sales of Fuel Cell Pick-up Truck

Anuvu announced it is now selling a hydrogen fuel cell pickup truck as part of its Clean Urban Vehicle (CUV™) line. The truck is a Nissan Frontier that runs on two Anuvu Power-X™ 6-kW PEM fuel cells. <http://www.anuvu.com/trucknews.html>

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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

U.S. Fuel Cell Council -- The U.S. 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>