

news from **FUEL CELLS 2000**

Fuel Cells 2000's Fuel Cell Technology Update – October 2013

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Headed to Columbus, Ohio for the Fuel Cell Seminar? If no, why not? If yes, come see my presentation on Tuesday (B2B23-2 - Fuel Cell Industry Status panel from 1:00-2:30 pm) or stop by our booth (#310) to say hello!

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President Obama Gets First Hand Look at Swedish Fuel Cell Progress.

While in Sweden early last month, President Barack Obama visited KTH, the Royal Institute of Technology in Stockholm and was briefed on several fuel cell products and research. The President was shown PowerCell's S1 fuel cell stack, myFC's Powertrekk fuel cell charger and a student-built test vehicle from the School of Chemical Science and Engineering at KTH.

<http://www.kth.se/en/aktuellt/nyheter/kth-forskarna-som-fick-traffa-barack-obama-1.411383>

<http://www.powercell.se/join-us/news/>

TRANSPORTATION APPLICATIONS

CALSTART Awarded FTA Funding for Fuel Cell Bus Projects.

CALSTART has received \$7.7 million from the Federal Transit Administration's (FTA) National Fuel Cell Bus Program for four fuel cell bus projects. They include \$4.2 million to develop and demonstrate a battery-dominant fuel cell bus based on a commercial hybrid platform for SunLine Transit Agency; \$2.7 million to build a next-generation fuel cell bus for Cleveland, Ohio; \$550,000 for fuel cell bus testing in Altoona, Pennsylvania; and funding to develop a best practices guide for transit agencies in hydrogen fueling and maintenance facilities.

http://calstart.org/News_and_Publications/CALSTART-in-the-news/CALSTART-Press-Releases/FTA-CALSTART-Award-To-Improve-Fuel-Cell-Buses.aspx

CTA Also Receives FTA Funding.

The Center for Transportation and the Environment (CTE) also received \$5.6 million from the FTA's National Fuel Cell Bus Program to manage several fuel cell bus projects around the country. The projects include \$3 million for a new fuel cell bus demonstration in New York and funding to manage the extension of existing projects in Alabama and California. In addition, CTE received around \$700,000 in funding to oversee various educational and outreach efforts including an international workshop and creating instructional guides for transit agencies.

http://www.cte.tv/pr/CTE_NFCBPAward2013.pdf

DOE Bus Webinar Presentations.

If you missed DOE's webinar on fuel cell buses last month, the presentations are now available. CTE presented a summary of worldwide fuel cell bus activities and the California Fuel Cell Partnership presented on its California Fuel Cell Bus Roadmap.

https://www1.eere.energy.gov/hydrogenandfuelcells/webinar_archives_2013.html#date091213

Ballard and Azure Firm Up Bus Plans.

Further to the MOU announced this past May, Ballard Power Systems has signed a multi-year definitive agreement to support Azure Hydrogen's fuel cell bus program for China. For the first phase of the program, Ballard has agreed to provide a license, associated equipment and Engineering Services to enable assembly of FCvelocity®-HD7 bus power modules by Azure in China. The expected value of this phase of the contract is approximately \$11 million.

<http://www.ballard.com/about-ballard/newsroom/news-releases/news09261301.aspx>

Proton Motor Unveils New Battery/Fuel Cell Commercial Vehicle.

Proton Motor Fuel Cell GmbH unveiled a battery and fuel cell operated electric commercial vehicle based on the battery-powered Newton vehicle built by Smith Electric Vehicles. Proton Motor integrated a HyRange 8 kW fuel cell system with the battery to increase range while able to power air conditioning and other additional equipment. The project was supported by funding from Germany's NIP (National Hydrogen and Fuel Cell Technology Innovation program).

http://www.protonpowersystems.com/fileadmin/pdf_dokumente/20130927_RNS_PPS_Newton_Press_Release_Sep_2013.pdf

Atsumitec Integrates Fuel Cell on Motorbike that Runs on Exhaust.

Japanese company Atsumitec Co Ltd. has integrated a solid oxide fuel cell (SOFC) and a thermoelectric conversion element to utilize the exhaust from a motorbike. The exhaust is harnessed and the hydrogen is used to power the fuel cell which then can power the onboard systems of the bike. The company is planning to perfect and increase production of the system by 2015 and go to market in 2017.

<http://www.geek.com/science/motorbike-generates-200w-of-power-from-its-own-exhaust-fumes-1569379/>

STATIONARY APPLICATIONS

FuelCell Energy Joins with NRG Energy.

FuelCell Energy entered into a co-marketing agreement with NRG Energy for the marketing and sales of FuelCell Energy fuel cell power plants to NRG's customer base. The companies will be offering financing through a power purchase agreement whereby NRG will purchase and own the power plant and sell the electricity and heat to the end-user or the customer can purchase the power plant. The agreement also includes the option of NRG Energy purchasing and owning fuel cell power plants for its own portfolio and selling the power to the electric grid. FuelCell Energy is expected to install, operate and maintain each power plant owned or sold by NRG.

<http://fcel.client.shareholder.com/releasedetail.cfm?ReleaseID=788838>

GEI Global Energy Signs LOI for 100 MW Power Plant.

GEI Global Energy Corporation, the new company created from Suja Minerals acquiring Global Energy Innovations (GEI), entered into a Letter Of Intent (LOI) with Owl Eco Group, a private developer, to build a 100 MW Power Plant in the natural gas shale fields of Western Pennsylvania. The project will be comprised of 1,000 individual 100 kW natural gas-fueled high temperature PEM fuel cells.

<http://www.marketwatch.com/story/gei-global-energy-corp-enters-loi-to-build-the-worlds-largest-fuel-cell-power-plant-with-an-estimated-gross-dollar-value-estimated-at-470-million-in-revenue-and-94-million-in-profit-2013-09-23-8173234>

ClearEdge Fleet Hits a Million Hours.

Earlier this month, ClearEdge Power's PureCell® Model 400 system fleet reached a million hours of field operation – a major milestone! Here's to many, many more.

http://www.clearedgepower.com/downloads/media/18/PR_090413_Million_Hours_Milestone.pdf

PORTABLE/BACKUP POWER

Acta Signs New Contract for Philippines, New Partnership in China.

Acta S.p.A. has signed a contract with a second major mobile telecommunications company for a trial of its fuel cell back-up power system at a telecom base station in the Philippines. This new trial is in partnership with Lead Core Technology Systems Inc. Acta also signed a distribution partnership with

Shanghai Sunwise Energy Systems Co. Ltd. for the distribution of electrolyzers and back-up power systems in China.

<http://www.sentpressrelease.com/email/attachment/download?hash=594a9b5870f18a1a66c5096fa24d1d6ab6ef000952e38bbe99a7488b0d840de5>

MICRO FUEL CELLS

Lilliputian Systems' Nectar Wins Tech Award.

Lilliputian Systems' Nectar Mobile Power System was named the winner of Massachusetts Technology Leadership Council's (MassTLC) 2013 Innovative Technology of the Year: Mobile Award.

<http://www.nectarpower.com/media/nectar-mobile-power-system-wins-2013-innovative-technology-of-the-year-mobile-award-at-the-mass-technology-leadership-council-annual-awards-gala/>

MILITARY APPLICATIONS

GM and TARDEC Expand Collaboration.

General Motors (GM) and the U.S. Army Tank Automotive Research, Development & Engineering Center (TARDEC) are expanding their fuel cell and hydrogen collaboration via a new Cooperative Research and Development Agreement. Under the agreement, GM and TARDEC will jointly test new hydrogen fuel cell-related materials and designs to evaluate their performance and durability before assembling them into full scale fuel cell propulsion systems. The project is expected to continue for up to five years.

http://media.gm.com/content/media/us/en/gm/news_detail.html/content/Pages/news/us/en/2013/Sep/0930-fuel-cell.html?utm_source=twitterfeed&utm_medium=twitter

UltraCell Unveils GENiii.

UltraCell has released the GENiii XX55 portable reformed methanol fuel cell (RMFC) system. In addition to the fuel cell, the complete system includes modular packaging for man portable "on-the-go" operation and a micro manager that can operate multiple devices concurrently. The XX55 can operate with a range of field refillable fuel cartridges and comes with a targeted lifetime of 2,500 hours.

http://www.ultracell-llc.com/assets/UltraCell_BT-press-release-XX55%209-18-2013.pdf

FUELS/REFORMERS/STORAGE

Bill to Continue Hydrogen Station Funding Signed in California.

California Governor Brown recently signed a slew of bills to support California's electric vehicle market. This included AB 8 that extends the Alternative and Renewable Fuel and Vehicle Technology Program, which includes \$20 million annually to build at least 100 hydrogen stations in the state, until 2024.

<http://gov.ca.gov/home.php>

H₂ Mobility Announces Major Funding Initiative.

As part of the "H₂ Mobility" initiative, partners Air Liquide, Daimler, Linde, OMV, Shell and Total announced a specific action plan for the construction of a nationwide hydrogen refueling network for fuel cell-powered electric vehicles. The companies plan to invest more than \$473 million to increase the number of fueling stations to 400 by 2023, with 100 stations to be opened in the next four years.

http://www.the-linde-group.com/en/news_and_media/press_releases/news_20130930.html

Linde Fueling Furiously.

Linde North America has reached more than a half million hydrogen fills. Linde's hydrogen fueling stations are fueling a range of vehicles – forklifts, cars and buses – in the U.S.

http://www.lindeus.com/en/news_and_media/press_releases/2013-10-01rnanews.html

German Power-to-Gas Facility Comes Online.

Hydrogenics and E.ON inaugurated commercial operations of its Power-to-Gas (P2G) facility in Falkenhagen, Germany. The plant uses wind power and Hydrogenics' equipment to electrolyze water into hydrogen, which is then injected into the existing regional natural gas transmission system. The

hydrogen, as part of the natural gas mix, can be used in a variety of applications including space heating, industrial processes, mobility, and power generation.

<http://www.hydrogenics.com/about-the-company/news-updates/2013/08/29/e.on-and-swissgas-begin-commercial-operations-at-power-to-gas-facility-in-germany-using-hydrogenics-technology>

ITM Makes First Electrolyzer Sale in U.S.

ITM Power's U.S. company, ITM Power Inc., has received a purchase order from Hydrogen Frontier, Inc. (HFI) to supply a rapid response electrolyzer unit to be integrated into Hyundai's hydrogen energy and fueling station at its Technical Center facility in Chino, California. The station will be capable of generating 100kg/day of hydrogen with the ability to dispense at both 350 and 700bar.

<http://www.itm-power.com/news-item/first-refuelling-station-sale-in-the-us/>

Linde Group Develops New Hydrogen Storage Technology.

The Linde Group has developed a new storage technology that works at a higher pressure of 500 bar (7,250 psi) and uses new, lighter storage materials to more than double the amount of compressed gaseous hydrogen (CGH₂) that can be transported in a single truck load. Linde has opened a 500-bar fuelling station at one of its facilities in Leuna, Germany. A single trailer can transport over 1,100 kilograms of hydrogen gas and can be filled and emptied in less than 60 minutes.

http://www.the-linde-group.com/en/news_and_media/press_releases/news_20130925.html

LLNL to Demonstrate Wastewater Technology.

Lawrence Livermore National Laboratory (LLNL) researchers are partnering with Florida-based Chemergy Inc. to demonstrate a bioenergy technology that converts wastewater treatment plant byproducts into hydrogen gas to use in fuel cells. The \$1.75 million project, funded jointly by the California Energy Commission and Chemergy, and sponsored by the Bay Area Biosolids to Energy (BAB2E) Coalition, will demonstrate an integrated system on a limited industrial scale at the Delta Diablo Sanitation District (DDSD) facility in Antioch, California. Other partners in the project are the U.S. Department of Energy (DOE) Fuel Cell Technologies Office and the U.S. Department of Defense (DoD) Construction Engineering Research Laboratory (CERL).

<https://www.llnl.gov/news/newsreleases/2013/Sep/NR-13-09-03.html#.Uji0Yn-c7aM>

Handling Hydrogen? There's an App for That!

DOE launched a new app to more easily provide best practices and procedures for safely handling and using hydrogen to power fuel cells. Developed by the Pacific Northwest National Laboratory, the app, Hydrogen Tools, incorporates a variety of resources and web-based content focusing on the safe use and handling of hydrogen for those involved in designing, approving, or using hydrogen fuel cell systems and facilities.

http://apps1.eere.energy.gov/news/progress_alerts.cfm/pa_id=927

MATERIALS/COMPONENTS/TESTING

DOE Opens New Fuel Cell Center.

DOE opened a one-of-its-kind national secure data center dedicated to the independent analysis of advanced hydrogen and fuel cell technologies at its Energy Systems Integration Facility (ESIF) located at the National Renewable Energy Laboratory (NREL) in Golden, Colorado. The National Fuel Cell Technology Evaluation Center (NFCTEC) allows industry, academia, and government organizations to submit and review data gathered from projects to advance cost-effective fuel cell technology.

http://apps1.eere.energy.gov/news/progress_alerts.cfm/pa_id=926

MSU Professor Wins NSF Award.

Jason D. Nicholas, an assistant professor in the Department of Chemical Engineering and Materials Science at Michigan State University, has received a National Science Foundation CAREER award. Funding from this five-year, \$400,000 grant will support Nicholas's research to reduce operating temperatures, improve performance, lower costs and extend the operational lifetime of solid oxide fuel cells.

<http://www.egr.msu.edu/news/2013/09/19/jason-nicholas-wins-nsf-career-award>

Tiger Optics Offering Gas Analyzers.

Tiger Optics is manufacturing a range of trace gas analyzers based on cavity ring-down spectroscopy that are proven for fuel cell hydrogen purity analysis applications, providing NIST-traceable, calibration-free, and maintenance-free measurement of key impurities, including water vapour, ammonia, formaldehyde, oxygen, methane, carbon dioxide, and carbon monoxide.

http://tigeroptics.com/TA/photo/view.php?gal=users:site,cms,files&s=orig&f=LAB_1_Fuel_Cell_H2.pdf

REPORTS/MARKET STUDIES

Fuel Cell Industry Review 2013.

Fuel Cell Today has published the Fuel Cell Industry Review 2013, which forecasts shipments in 2013 reaching 66,800 units worldwide, growing by 46% compared with 2012. The report can be downloaded for free here – http://www.fuelcelltoday.com/media/1889744/fct_review_2013.pdf.

UK Vehicle Roadmap.

The UK government released “Driving the future today – a strategy for ultra low emission vehicles in the UK.”

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/236811/ultra-low-emission-vehicle-strategy-summary.pdf

REQUESTS FOR PROPOSALS/FUNDING OPPORTUNITES

SoCalGas Launches New Fund that Includes Fuel Cells.

Southern California Gas Company (SoCalGas) has established a \$1 million innovation fund with the Los Angeles Cleantech Incubator (LACI) to speed the development of clean technologies. The fund will help identify and bring to market potential clean technology solutions in three key areas: fuel cells, renewable natural gas and distributed natural gas products such as liquid transportation fuels and other chemicals.

<http://sempra.mediaroom.com/index.php?s=19080&item=136866>

MISCELLANEOUS

LG Fuel Cell Systems Receives \$5.1 Million from DOE.

In Ohio, Stark State College’s LG Fuel Cell Systems Inc. (LGFCS) has been awarded a \$5.1 million grant DOE to advance its solid oxide fuel cell technology. Specifically, the grant will be used to further develop the LGFCS laboratory and to improve the affordability and reliability of its fuel cells.

<http://www.brown.senate.gov/newsroom/press/release/sen-brown-announces-more-than-5-million-energy-department-grant-to-stark-countys-lg-fuel-cell-systems>

Heliocentris Signs Supply Agreement with Cummins Power.

Heliocentris has signed a five-year international supply agreement with Cummins Power to supply its innovative Energy Management Systems for Cummins to integrate and offer under the Cummins brand. Under the agreement, Cummins and Heliocentris will leverage their respective technologies in power generation, hybrid energy solutions and telecommunication network management to release the next generation of integrated hybrid energy systems from Cummins.

<http://www.heliocentris.com/unser-unternehmen/presse/pressemitteilungen/news-details/article/heliocentris-und-cummins-unterzeichnen-strategische-liefervereinbarung.html>

Intelligent Energy Moves up In Tech Track 100 list.

Intelligent Energy has shot up 28 places in this year’s Sunday Times Hiscox Tech Track 100, ranking 27th among the fastest growing private technology media and telecoms companies in the UK.

<http://www.intelligent-energy.com/about-us/media-room/news/company-news/2013/09/16/intelligent-energy-powers-up-to-27th-among-britains-100-fastest-growing-technology-firms>

Protonex Chosen Top 100 Engineering Companies by Inc.

The Inc. 500/5000 magazine ranked Protonex Technology NO. 62 in the Top 100 Engineering Companies and 4299 overall with a 57% sales growth rate over the last 3 years on its seventh annual Inc. 5000.

<http://www.protonex.com/press-releases/protonex-technology-recognized-in-the-2013-inc-5000-list>

CONFERENCES

For a complete list of conferences, please go to <http://www.fuelcells.org/newsroom/conferences/>.

Facing challenges for Fuel Cell CHP in the EU.

“Facing challenges for Fuel Cell CHP in the EU” will be held Thursday, October 17, 2013, at the Steigenberger Airport Hotel in Amsterdam, Netherlands. For more information, go to <http://www.fuelcellnetwork.eu/>.

Fuel Cell Seminar.

The 2013 Fuel Cell Seminar & Energy Expo will be held October 21-24, 2013, in Columbus, Ohio. For conference information, please go to <http://www.fuelcellseminar.com>.

Supply Chain Exchange.

During the Fuel Cell Seminar, the Ohio Fuel Cell Coalition (OFCC) will host a Supply Chain Exchange event on Wednesday, October 23, 2013, from 3:30-6:00 pm. Space is very limited, so if you are interested in participating, please contact Pat Valente at Pat.Valente@fuelcellcorridor.com or (614)-542-7308.

5th North American Strategic Infrastructure Leadership Forum.

The 5th North American Strategic Infrastructure Leadership Forum will be held October 29-31, 2013, at the Mayflower Renaissance Hotel., in Washington, DC. For registration information, please visit <http://www.cg-la.com/forums/north-america-forum/register-now>.

Total Energy USA.

Total Energy USA will be held November 19-21, 2013, at the George R. Brown Convention Center in Houston, Texas. For more details, please visit <http://totalenergyusa.com/>. If you use the discount registration code FC2000, you will receive \$100 off the full conference registration price.

EFC13.

The European Fuel Cell Technology & Applications Piero Lunghi Conference (EFC13) will be held December 11-13, 2013, in Rome, Italy. For details, please go to <http://www.europeanfuelcell.it/>.

EHEC 2014.

The European Hydrogen Energy Conference 2014 will be held March 12-14, 2014, in Seville, Spain. The deadline for submitting an abstract has been extended to October 20, 2013. For more information, please go to <http://www.ehec.info/>.

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Fuel cells generate electricity without combustion by harnessing the energy released when hydrogen and oxygen are chemically combined. Fuel Cells 2000 is an independent, nonprofit activity dedicated to the commercialization of fuel cell technologies.