

news from **FUEL CELLS 2000**

Fuel Cells 2000's Fuel Cell Technology Update – December 2011

Fuel Cells 2000 is now the proud owner of the [Fuel Cells](#) group on LinkedIn, the largest industry group on the site with more than 3,600 members – join the discussions today! Also follow us on [Facebook](#) and [Twitter](#)! And if you like this newsletter, recommend it to a friend!

If you are a U.S. company interested in exhibiting at the 8th International Hydrogen and Fuel Cell Expo in Tokyo next year, contact me at jennifer@fuelcells.org to get the details on how to save money on booth cost by being part of the U.S. Pavilion. This is by far one of the largest trade shows for our industry. There are hundreds of exhibitors, plus concurrent shows - PV, PV Systems, Rechargeable Battery, Eco-house/Eco-building, Processing Technology and Smart Grid Expos – that attendees (and exhibitors) can check out (for free) as well. Conference organizers calculated around 90,000 attendees for the 2011 show. Last year was the first major U.S. Pavilion and it was a huge success - so don't miss out!

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TRANSPORTATION APPLICATIONS

Toyota Debuts New Fuel Cell Vehicle.

Toyota unveiled its latest fuel cell vehicle, the FCV-R Concept, at the Tokyo Motor Show. This new mid-sized sedan concept has an updated, “unique” design and can accommodate up to four passengers with plenty of luggage space. The fuel cell stack, consisting of a 70 megapascal (MPa) high-pressure hydrogen tank, has been improved to provide a range of approximately 700 km (430 miles) or more. <http://www.autoblog.com/photos/toyota-fcv-r-concept-tokyo-2011-photos/>

Ballard and Partners Deliver All-American Bus, Will Provide Fuel Cells for Additional Buses.

Ballard Power Systems and consortium partners BAE Systems and Eldorado National Inc., have deployed a “Buy America”-compliant fuel cell bus to SunLine Transit Agency. The bus was developed under the Federal Transit Administration's (FTA) National Fuel Cell Bus Program and was administered by CALSTART, with cost share funds provided by the consortium partners as well as the California Air Resources Board, the South Coast Air Quality Management District and SunLine Transit Agency. The Eldorado 40-foot transit bus uses a Ballard FC-velocity®-HD6 fuel cell module built in Lowell, Massachusetts, to provide primary power in combination with BAE Systems propulsion and power management systems. In other Ballard news, the company will also be providing fuel cell modules to power two new fuel cell hybrid buses, funded under FTA's “Transit Investments for Greenhouse Gas and Energy Reduction (TIGGER) Program”. Ballard will work again with BAE Systems and Eldorado National to deliver these buses to SunLine Transit Agency.

<http://www.ballard.com/about-ballard/newsroom/news-releases/news11141101.aspx>
<http://www.ballard.com/about-ballard/newsroom/news-releases/news11171101.aspx>

RMIT Researchers Develop Model Fuel Cell Truck.

RMIT University researchers have developed Australia's first hydrogen fuel cell truck, albeit a small-scale model. The model is an exact replica of the Scania Highline series and is operated by remote control to simulate the performance of a long-haul diesel truck, typically used between Melbourne and Sydney. <http://www.rmit.edu.au/browse;ID=f7s8ughufgmc1>

Proton Motor Receives Service Contract for Hydrogen Ferry.

Proton Motor Fuel Cell GmbH has been awarded a service contract from the Hamburg, Germany-based tourist ferry operator ATG Alster-Touristik GmbH (ATG). ATG operates the world's first hydrogen powered ferry boat, the 100-passenger "Alsterwasser" which has been operating on a daily basis since the beginning of the 2011 summer season without any technical problems. ATG has now signed a regular service contract for the hydrogen fuel cell system with Proton Motor.

[http://www.protonpowersystems.com/fileadmin/Dokumente_2011/PPS - ATG Contract - Final RNS - 24 11 2011.pdf](http://www.protonpowersystems.com/fileadmin/Dokumente_2011/PPS_-_ATG_Contract_-_Final_RNS_-_24_11_2011.pdf)

STATIONARY APPLICATIONS

CT Transit Awarded \$5.7 Million.

CT Transit was awarded \$5,702,298 to install a stationary fuel cell at its New Haven Division Bus Maintenance Facility. The grant was awarded through the FTA's TIGGER program.

<http://www.hartfordbusiness.com/news21502.html>

FuelCell Energy Making Great Strides in Korea.

FuelCell Energy, Inc. has shipped 2.8 megawatts (MW) of fuel cell kits to POSCO Power, its partner in Korea. This is the start of a 70 MW order. In other FuelCell Energy/Korea news, the world's largest fuel cell park is now operating in Daegu City, South Korea. The 11.2 MW fuel cell park includes four of FuelCell Energy's 2.8 MW DFC3000 Direct FuelCell® (DFC®) power plants. The electricity generated by this facility is sold to the electric grid with the excess heat being provided to a neighboring water treatment facility.

<http://fcel.client.shareholder.com/releasedetail.cfm?ReleaseID=622236>

<http://fcel.client.shareholder.com/releasedetail.cfm?ReleaseID=623842>

Red Lion Energy Center to Include More than 130 Bloom Energy Fuel Cells.

Hill International has received a contract from Diamond State Generation Partners LLC, a related company of Bloom Energy Corporation, to provide construction management services in connection with the development of the Red Lion Energy Center in New Castle County, Delaware. The Red Lion Energy Center will be a fuel cell-powered, grid-tied, base-loaded generating station, using natural gas for fuel. The Center will include 135 Bloom Energy fuel cell units, grouped in clusters, as well as a natural gas regulating station, well, deionized water plant, water storage, administration and control building, and storm water management systems.

<http://ir.hillintl.com/releasedetail.cfm?ReleaseID=627065>

CFCL Receives Order for 105 Fuel Cells.

Ceramic Fuel Cells Limited has received a new order from E.ON UK for 105 fuel cell systems. This is in addition to a previous order for 41 fuel cells under the European Union Fuel Cell and Hydrogen Joint Undertaking's Joint Technology Initiative (JTI) fuel cell demonstration program.

http://www.cfcl.com.au/Assets/Files/20111128-JTI_and_E.ON_order.pdf

ClearEdge Adds Two New Products.

ClearEdge Power has added two new product lines to the company portfolio, the ClearEdge Plus suite of products and ClearEdge CP for critical power requirements. The ClearEdge Plus is modular and flexible protected load system that is designed to provide continuous power to a range of commercial applications. ClearEdge CP is a triple redundant base load system designed for customers that require mission critical power for their data and telecommunication needs.

<http://www.clearedgepower.com/news/clearedge-power-expands-portfolio-continuous-onsite-power-systems>

PORTABLE/BACKUP POWER

IdaTech Fuel Cell Providing Cell Site Power During UN Conference.

IdaTech's ElectraGen® ME fuel cell system is providing power to a Base Transceiver Site (BTS) that is supplying cellular phone coverage during the United Nations Climate Change Conference (COP 17) in Durban, South Africa. The conference runs until December 9th.

<http://www.idatech.com>

Proton Motor Sells First Two Fuel Cells.

Proton Motor Fuel Cell GmbH has sold its first two fuel cell units to customers in Germany and Italy. The 19-inch rack mounted fuel cell system can produce up to 5 kW of electricity and fits into an industrial housing cabinet.

[http://www.protonpowersystems.com/fileadmin/Dokumente_2011/PPS - First commercial sales - FINAL_RNS_Clean.pdf](http://www.protonpowersystems.com/fileadmin/Dokumente_2011/PPS_-_First_commercial_sales_-_FINAL_RNS_Clean.pdf)

ReliOn Fuel Cells Power Through Hurricane Irene.

ReliOn reports that one of its customers in the affected area during Hurricane Irene had fifty-six cell towers with fuel cells installed for backup power. Forty-five of those sites experienced grid power outages in excess of six hours during the storm and the forty-five ReliOn fuel cell systems successfully provided power to the communications equipment for a cumulative outage time of 725 hours. Average duration per site was 16 hours, with the maximum single outage duration being 50 hours. ReliOn also gives credit to its bulk hydrogen refueling provider, Air Products, for helping to keep these sites operational.

<http://www.relion-inc.com/news.asp#39>

Ballard Signs MOU with Delta Power Solutions.

Ballard Power Systems has signed a Memorandum of Understanding (MOU) with Delta Power Solutions (India) Pvt. Ltd., expanding the range of clean energy applications they will focus on under an existing fuel cell system collaboration agreement for the India telecommunications market. Under the new MOU, the collaboration agreement has been expanded to encompass utilization of fuel cell-powered backup power systems in additional India market applications, including commercial uninterruptible power supply (UPS) systems for data centers, industrial power solutions and distributed power generation.

<http://www.ballard.com/about-ballard/newsroom/news-releases/news1111101.aspx>

Documentary Filmmakers Using Fuel Cell for Camera Equipment.

UPS Systems has supplied a Mobixane fuel cell system to documentary makers Renegade Pictures to supply portable power for its 3D camera equipment, which it is using to film a new Sky TV series about Woburn Safari Park. The Mobixane fuel cell can generate up to 2.5-kW of power and is being supplied for use as a free-standing or mobile unit so that the production crew can easily transport the unit between locations. The system is supplied with enough hydrogen storage to run at peak load for up to eight hours.

<http://www.upssystems.co.uk/blog/2011/11/18/ups-systems-supplies-fuel-cell-to-film-crew-at-woburn-safari-park/>

MICRO FUEL CELLS

MILITARY APPLICATIONS

Fuel Cell Commissioned at Military Base.

The United States Army's Aberdeen Proving Ground in Maryland recently commissioned a new fuel cell system which will supply the facility with emergency backup power. This is the first of 18 fuel cells to be installed and operated at military bases across the country under an interagency partnership between the Department of Energy (DOE) and the Department of Defense (DOD). Aberdeen Proving Ground will also install three 5-kW fuel cells to provide critical back up power to its Range Control and Coordination Building, and an 8-kW fuel cell to provide backup power to the Snow Emergency building. LOGANEnergy will install and maintain the fuel cells, which were manufactured by ReliOn and IdaTech.

http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=17899

FUELS/REFORMERS/STORAGE

New Hydrogen Station Opens in Norway.

A new 70MPa hydrogen refueling station from H2 Logic opened in Gaustad, Oslo. The station will supply hydrogen for fuel cell vehicles from Daimler and Hyundai as part of the €20 million "H2MOVES Scandinavia demonstration" project.

http://www.h2logic.com/com/news/PR_H2mS_111121.pdf

Hydrogen Part of New Green Fuels Depot in Illinois.

The City of Naperville, Illinois, opened its new "Green Fuels Depot" gasifier facility, located at the City's Springbrook Waste Facility and will convert City wood chips from yard waste into three fuels: electricity, hydrogen, and ethanol, for the City's fleet and other municipal uses.

<http://www.government-fleet.com/News/Story/2011/11/Naperville-Opens-Facility-That-Converts-Yard-Waste-to-Fuel-for-Fleet.aspx?prestitial=1>

Plug Power Joins with Axane to Fuel European Fuel Cell Forklifts.

Plug Power Inc. is joining forces with Axane, an Air Liquide subsidiary, to create a joint venture in order to meet growing demand for GenDrive[®] fuel cell products across the European material handling market. Under the proposed joint venture, Plug Power will contribute a license to certain intellectual property rights for the initial European project territory and Axane will provide installments of cash over a period of five years. The companies are currently working together on GenDrive systems and hydrogen infrastructure deployments at Walmart and Coca-Cola facilities.

http://www.plugpower.com/news/pressreleases/11-11-09/PLUG_POWER_ANNOUNCES_JOINT_VENTURE_WITH_AIR_LIQUIDE_TO_MEET_GROWING_EUROPEAN_FUEL_CELL_DEMAND.aspx

Hydrogenics to Deliver Electrolyzer for Swiss Hydrogen Station.

Hydrogenics Corporation will deliver one HySTAT[™]60 electrolyzer to Carbagas, a fully owned subsidiary of the Air Liquide group. The electrolyzer is expected to be delivered to Brugg, Switzerland at the beginning of 2012. The hydrogen fueling station, delivering green hydrogen at 350bar, will be based at the PostAuto bus garage in Brugg and will be used to operate five Citaro FuelCELL buses.

<http://www.marketwatch.com/story/hydrogenics-awarded-swiss-hydrogen-fueling-station-equipment-order-by-air-liquide-2011-11-25>

MATERIALS/COMPONENTS/TESTING

Ballard Material Products Offering New GDL Components.

Ballard Materials Products is now offering its new gas diffusion layer components, the *AvCarb*[®] carbon papers MGL190 and MGL370. The new *AvCarb*[®] carbon papers are highly uniform and can be used interchangeably with other industry standard carbon papers as gas diffusion layers. The gas diffusion layer (GDL) is a core component of a fuel cell, enabling transport of gases, liquids and electricity within the cell and plays an important role in fuel cell performance and cost.

http://www.ballard.com/files/PDF/Material_Products/AvCarb_MGL_190_370_Spec_Sheet.pdf

ITM Completes Collaboration Project on Alkaline Membrane Materials.

ITM Power announced the outcome of a recently completed three-year collaboration project based on the development of the Company's unique suite of alkaline membrane materials. The project, co-funded by the Technology Strategy Board, focused on the realization of electrolyzer cost reduction through advances in materials technology and system simplification. The key advancement within the project was a new alkaline solid polymer membrane. This material, together with the low cost catalysts and injection molded components developed, offer a prototype stack costing 43% of its proton exchange membrane (PEM) counterpart.

<http://www.itm-power.com/news/82/HydroGen+Results.html>

REPORTS/MARKET STUDIES

Fuel Cells for APU Applications.

Pike Research has released "Fuel Cells for Auxiliary Power Unit Applications" which analyzes the market potential for fuel cells as APUs in marine, trucking, aviation, and RV markets.

<http://www.pikeresearch.com/research/fuel-cells-for-auxiliary-power-unit-applications>

REQUESTS FOR PROPOSALS

Check out the [Fuel Cell RFPs](#) blog for more opportunities.

Improved Hydrogen Barrier Coating for Metal.

NineSigma is seeking proposals for hydrogen barrier coatings with excellent adhesion to metal and high durability, for diaphragm seal pressure gages made of thin metal sheet that are used in plants where hydrogen gas is handled.

http://www.ninesigma.com/viewrequest.aspx?request=67767&utm_source=Email&utm_medium=email&utm_campaign=67767

MISCELLANEOUS

WATT Fuel Cell Corporation Selected for Funding Program.

The WATT Fuel Cell Corporation, a developer of solid oxide fuel cell (SOFC) systems, has been selected under the Western New York Regional Economic Development Council Excelsior Jobs Program tax credits as a priority project. The company will receive capital funding and tax credits to move into a new facility.

http://www.buffalorising.com/2011/11/regional-economic-development-council-announces-excelsior-jobs-program-priority-projects.html#SlideFrame_0

CONFERENCES

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

Fuel Cells and Telecom Webinar.

Free webinar "Fuel Cells and Telecom - Reports from the Field" will be held Wednesday, December 7, 2011, from 12:00 pm – 1:15 pm EST. Register at <https://www2.gotomeeting.com/register/394224298>.

Piero Lunghi Conference and Exhibition.

The 4th Edition of the European Fuel Cell Technology & Applications Piero Lunghi Conference and Exhibition takes place at the Fontana di Trevi Conference Center in Rome, Italy, December 14-16, 2011. For conference details, please visit <http://www.europeanfuelcell.it/>.

FC Expo 2012.

The 8th International Hydrogen and Fuel Cell Expo (FC Expo 2012) will take place February 29 – March 2, 2012, at Tokyo Big Sight in Tokyo, Japan. For more information, please visit <http://www.fcexpo.jp/en>. If you represent a U.S. company and are interested in participating in the U.S. Pavilion (a great discount!), please email Jennifer Gangi at jennifer@fuelcells.org.

WHEC 2012.

The World Hydrogen Energy Conference 2012 will be held June 3-7, 2012, at the Toronto Sheraton Center in Toronto, Ontario, Canada. For details, please go to <http://www.whec2012.com>.

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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.