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1. GM, BMW Featured at October 25 CHBC General Meeting

Alan Weaverstat, Director of Environmental and Energy Staff, General Motors, keynotes the California Hydrogen Business Council's October 25 General Meeting. Other highlights include presentations by Andreas Klugescheid, Corporate Communications Manager for Alternative Fuels, BMW, and S. David Freeman, who will be selling autographed copies of his new book. Please click the link below for the full agenda and event registration. Thanks to South Coast Air Quality Management District, Diamond Bar, for hosting our meeting!

[Oct 25 Meeting](http://www.californiahydrogen.org/page.cfm?content=45&event_ID=69): http://www.californiahydrogen.org/page.cfm?content=45&event_ID=69

2. Air Quality Officials Reach Agreement on Emissions Reductions

California state and regional air quality officials have announced an historic agreement to reduce pollution from diesel trucks, commuter trains, construction equipment and the ports to meet a federal health-based clean air deadline in 2015. The California Air Resources Board and South Coast Air Quality Management District, along with leaders of the Southern California Association of Governments (SCAG), have reached agreement on measures to reduce 76 tons per day of oxides of nitrogen (NOx), a building block to fine particulate pollution. The reductions are essential to meet the federal government's 2015 deadline for achieving the health-based standard for fine particulates, known as PM2.5.

[ARB - AQMD](http://www.arb.ca.gov/lispub/rss/displaypost.php?pno=722): <http://www.arb.ca.gov/lispub/rss/displaypost.php?pno=722>

3. DOE to Invest up to \$1.48M in New H2 and Fuel Cell Analysis Projects

The U.S. Department of Energy (DOE) will provide up to \$1.5 million over two years (fiscal years 2007-2008) for three new hydrogen and fuel cell analysis projects. Two projects will examine the environmental effects of hydrogen use in transportation and stationary

applications, focusing on the impacts of various hydrogen production pathways and use on the oxidative capacity of the atmosphere, long-term stability of the ozone layer, and climatic changes. These projects, subject to negotiations of scope and funding, support a recommendation to DOE from the recent National Research Council (NRC) report, Review of the Research Program of the FreedomCAR and Fuel Partnership, to identify and examine possible long-term ecological and environmental effects of the large-scale use and production of hydrogen from various sources.

[DOE](http://www.hydrogen.energy.gov/news_analysis.html): http://www.hydrogen.energy.gov/news_analysis.html

4. GM Unveils Latest Fuel Cell Technology

General Motors (GM) recently launched its latest fuel cell vehicle at the Frankfurt Motor Show. The company has unveiled the HydroGen4 car, which is a European version of its Chevrolet Equinox Fuel Cell and is equipped with a fuel cell stack containing 440 series-connected cells. GM believes that the new vehicle represents a significant improvement on its previous fuel cell models and will soon be involved in a new test to see if the vehicles can provide a viable alternative for motorists to diesel or petrol vehicles. The HydroGen4 has an electronically-limited top speed of 160 kilometres per hour and is capable of going from zero to 100 kilometres per hour in 12 seconds.

[GM](http://www.platinum.matthey.com/media_room/1190214014.html): http://www.platinum.matthey.com/media_room/1190214014.html

5. Fiat and GM Put FCV Fleets on Show

Centro Ricerche Fiat (CRF) has presented three Nuvera fuel cell-powered Panda cars to the municipality of Mantova as part of 'Zero Regio,' an EU-funded project aimed at developing and demonstrating zero emission road transport systems in normal daily use in Mantova, Italy, and Frankfurt, Germany. The three hydrogen Pandas were presented alongside an ENI multi-fuel refilling station, offering pressurized hydrogen at 350 bar. The results obtained by the Zero Regio project will contribute to the objective of the European Commission of replacing 5% of motor fuel in road transport by hydrogen by the year 2020. In the U.S., visitors to Manhattan's ECOFEST 2007 will witness the first of a fleet of fuel-cell Chevrolet Equinox SUVs that will soon be driving across metropolitan New York. Drivers will participate in what is billed as the world's biggest fuel-cell test, involving more than 100 Chevrolet Equinox Fuel Cell SUVs. The two-year pilot will begin in the New York metropolitan area at the beginning of 2008.

[Fiat - GM](http://www.autoindustry.co.uk/news/24-09-07_5): http://www.autoindustry.co.uk/news/24-09-07_5

6. Coming Soon! Hithane Vehicles on Indian Roads

A two-year project that will enable light commercial vehicles, cars and auto rickshaws to run on a blend of hydrogen and CNG was recently launched in India. The goal of the project is to determine the optimal mix of hydrogen and CNG (called hithane) by experimenting with up to 30 per cent hydrogen mixed into CNG. At the end of the 24 month project, detailed recommendations will be made. Three LCVs, one car, one utility vehicle and two- and three-wheelers will be developed and tested with different blends of hithane to arrive at an optimum blend. This would enable existing vehicle fleets to be suitably modified for using hithane instead of pure CNG.

[Hithane](http://sify.com/finance/fullstory.php?id=14529975): <http://sify.com/finance/fullstory.php?id=14529975>

7. Ballard-Powered Buses on BC Roads in 2009

Ballard Power Systems announced recently that BC Transit has selected Ballard fuel cells to power up to 20 fuel cell buses in a fleet that will roll onto British Columbia roads by the end of 2009. The delivery is divided into two phases: phase one is for delivery of one bus for evaluation in 2008; phase two is for delivery of up to 19 buses in 2009. The contract has a potential value of up to US\$14.7M for Ballard. The buses are intended to be showcased in

the Resort Municipality of Whistler during the 2010 Olympic and Paralympic Winter Games, and then be integrated into the BC Transit fleet. BC Transit is to purchase the buses, with assistance from the Province of British Columbia and the Government of Canada.

[Ballard](http://www.ballard.com/be_informed/about_ballard/news/2007/08/03/BC_Transit): http://www.ballard.com/be_informed/about_ballard/news/2007/08/03/BC_Transit

8. Hydrogen Bus Trials Near Completion in Western Australia

Western Australia's Planning and Infrastructure Minister, Alannah MacTiernan, says the operational phase of Perth's hydrogen fuel cell bus trial was completed as scheduled in early September. MacTiernan says the buses prevented more than 300 tonnes of greenhouse gas emissions since the trial started in 2004. "The three hydrogen fuel cell buses in the Transperth fleet, operated by Path Transit, have covered more than 260,000 km and carried more than 330,000 passengers during that time," she said. She says Western Australia will continue to benefit from the trial with ongoing participation in the HyFLEET Clean Urban Transport Europe (CUTE) program and collaboration with international automotive development companies and energy policy developers for a hydrogen based transport system in the future.

[W Australia](http://www.busnews.com.au/index.cfm?storyid=32626&cp=displaystory): <http://www.busnews.com.au/index.cfm?storyid=32626&cp=displaystory>

9. Hydrogen Powered Bus is Showcased at Grove Symposium

A state-of-the-art eco mini bus made in Wales was unveiled to an audience from across the globe at the recent Grove Fuel Cell Symposium in London. The 16-seater vehicle designed by experts at the University of Glamorgan near Pontypridd is powered by hydrogen. It is hoped the project will put Wales on the map as a leader in developing environmentally-friendly technologies. After being shown at the Grove Symposium, the bus will be used to transport students between the campuses at the university.

[Mini Bus](http://news.bbc.co.uk/1/hi/wales/south_east/7010958.stm): http://news.bbc.co.uk/1/hi/wales/south_east/7010958.stm

10. New NREL Publications on Fuel Cell Buses

The National Renewable Energy Laboratory (NREL) has recently published two reports on fuel cell buses in the U.S. The first reviews past and present fuel cell bus technology development and demonstration. It encompasses results from the U.S. Department of Energy/NREL fuel cell bus evaluations as well as plans for the U.S. Federal Transit Administration's National Fuel Cell Bus Program. The primary focus is on descriptive comparisons of fuel cell transit bus operation and on industry's need to continue successful implementations of these advanced technologies. The second report evaluates hydrogen and fuel cell buses in service at SunLine Transit Agency in Thousand Palms, CA. It provides an update to the previous report (Feb 2007) and includes results and experience through June 2007.

[NREL Report](http://www.nrel.gov/hydrogen/pdfs/41967.pdf): <http://www.nrel.gov/hydrogen/pdfs/41967.pdf>

[SunLine](http://www.nrel.gov/hydrogen/pdfs/42080.pdf): <http://www.nrel.gov/hydrogen/pdfs/42080.pdf>

11. Air Products and HyGear Sign Contract

Air Products announced it has signed a co-operation agreement with HyGear B.V., a Dutch company based in Arnhem. This agreement includes the sales and marketing of HyGear's mini-steam methane reforming technology (5-10 Nm³/h) into various application areas including hydrogen fueling stations. Large scale steam methane reforming of natural gas is the most common method of producing commercial bulk hydrogen in use today. HyGear's hydrogen generators produce hydrogen from a natural gas stream in a clean and efficient process using a proprietary reactor technology. It will be used for the first time under the agreement between Air Products and HyGear at a fueling station in Toulouse, France by the end of 2007.

[APCI, HyGear:](#)

<http://money.cnn.com/news/newsfeeds/articles/prnewswire/NETU10204092007-1.htm>

12. Linde Spends 60M EUR on Hydrogen Liquifier

Linde AG said it spent about 60M EUR on a new hydrogen liquifier at its site in Leuna, Germany, to tap into growing demand for gas to power cars and trucks. The investment will pay off as "hydrogen is becoming increasingly used as fuel for road traffic vehicles," Linde executive-board member Aldo Belloni said in the statement. The facility, which was put into service in September, can produce as much as 5 tons of liquified hydrogen (LH2) per day, more than Linde's existing LH2 plant in Ingolstadt, Germany.

[Linde:](http://www.forbes.com/afxnews/limited/feeds/afx/2007/09/07/afx4092347.html) <http://www.forbes.com/afxnews/limited/feeds/afx/2007/09/07/afx4092347.html>

13. Hydrogen Fueling Station Comes to Seoul

In September, a hydrogen fueling station opened at Yonsei University, Seoul, Korea. Several others are also likely to be put into operation in Seoul on a trial basis by the year's end, though South Korea is in its nascent stage compared with countries such as the United States, Japan and the European Union. Experts and industry sources hope that the new filling stations will provide a new momentum for leading local carmakers including Hyundai Motor and researchers that are developing cars designed to run on hydrogen fuel cells.

[Korea:](http://www.koreatimes.co.kr/www/news/nation/2007/09/123_9427.html) http://www.koreatimes.co.kr/www/news/nation/2007/09/123_9427.html

14. Niche Focus Hoists Hydrogenics

Instead of waiting for the hydrogen economy to arrive under the hood of a fleet of automobiles, Canadian fuel cell manufacturer Hydrogenics Corp. is tackling niche markets where the technology is already competitive. By designing its fuel cells for specific markets such as forklift trucks and backup power supplies for computer rooms, the company has managed to generate a substantial revenue stream. Hydrogenics' fuel cells provide power to forklift trucks at a comparable cost to batteries and diesel motors, but without the emissions or need for recharging. Hydrogen-based backup power units have similar benefits in computer rooms or cellphone towers.

[Hydrogenics:](#)

<http://www.theglobeandmail.com/servlet/story/LAC.20070926.REEDGE26/TPStory/Business>

15. Hydrogen Tech Company Introduces Hydrogen Bike

The world's most populous country has now produced a hydrogen-powered bicycle. Shanghai Pearl Hydrogen Power Source Technology unveiled the environmentally-clean, hydrogen fuel-cell bike at an international fair in Shanghai recently. The bike is similar to a conventional electric bicycle except for two hydrogen gas bottles and a small fuel cell. The big advantage is that the gas bottles can be refilled or exchanged quite quickly compared with several hours to recharge a battery-powered bike. The gas bottles and fuel cell are also lighter than comparable battery packs. So far the just-completed bike has shown it can complete a trip of about 100km at about 25 kmh.

[H2Bike:](http://www.news.com.au/heraldsun/story/0,21985,22395601-664,00.html) <http://www.news.com.au/heraldsun/story/0,21985,22395601-664,00.html>

16. Ballard, Plug Power to Receive \$3.5M in DOD Funding

Ballard Power Systems Inc. and Plug Power, Inc. have been awarded \$3.5 million by the U.S. Department of Defense (DoD) to collaborate on the next phase of fuel cell systems development to support the DoD's Continuity of Operations initiative. The two firms have worked together since early 2006 on backup power applications that target the U.S. DoD and Department of Homeland Security and other government agencies. The companies will continue to work collaboratively on a modular and scaleable fuel cell system for use in telecommunication and other mission-critical backup applications. Prototype system trials

are expected to be deployed in 2008 with both government and commercial customers.

[Ballard - Plug:](#)

http://www.ballard.com/be_informed/about_ballard/news/2007/09/25/COOP2

17. Stationary Fuel-Cell Makers Expanding

Two companies that make stationary fuel cells each plan to boost production levels in the coming months, signaling growing demand for the alternative power source. Speaking at a recent investor conference, FuelCell Energy Inc. President and Chief Executive Dan Brdar said the company expects to more than double output by the end of the year. HydroGen Corp. President and CEO Joshua Tosteson said his company expects to boost production at an existing plant and plans to build a new, larger facility to keep up with demand. "We're on an extremely fast manufacturing ramp," Tosteson said. Both alternative-fuel companies make fuel-cell modules which generate electricity to power buildings using hydrogen.

[Stationary Power:](#) <http://www.forbes.com/feeds/ap/2007/09/07/ap4094248.html>

18. Engineered Eggshells to Help Make Hydrogen Fuel

Engineers at Ohio State University have found a way to turn discarded chicken eggshells into an alternative energy resource. The patented process uses eggshells to soak up carbon dioxide from a reaction that produces hydrogen fuel. It also includes a unique method for peeling the collagen-containing membrane from the inside of the shells, so that the collagen can be used commercially. Calcium carbonate -- a key ingredient in the eggshells -- captures 78 percent of carbon dioxide by weight. That means, given equal amounts of carbon dioxide and eggshell, the eggshell would absorb 78 percent of the carbon dioxide. That makes it the most effective carbon dioxide absorber ever tested.

[Eggshells:](#) <http://www.sciencedaily.com/releases/2007/09/070926113832.htm>

19. The Hydrogen Age

CHBC friends and supporters Geoff Holland and James Provenzano have co-authored "The Hydrogen Age," now available at Amazon.com and BN.com. The book is dedicated to the late great Robert Zweig, one of the earliest advocates of hydrogen for its health benefits. Terry Tamminen, author and environmental advisor to Gov. Schwarzenegger, wrote the foreword.

[H2 Age:](#) http://www.amazon.com/Hydrogen-Age-Geoffrey-Holland/dp/158685786X/ref=pd_bbs_sr_1/103-6936315-4139817?ie=UTF8&s=books&qid=1190695435&sr=8-1

20. CA Fuel Cell Partnership So Cal Events Oct 4-7

The California Fuel Cell Partnership is hosting Ride & Drives at the Orange County Auto Show and Coronado Speed Festival October 4 and October 6-7 respectively. During the events the California Fuel Cell Partnership will offer: Test drives of fuel cell vehicles made by DaimlerChrysler, Ford, General Motors, Honda, Hyundai, Nissan, Toyota and Volkswagen; opportunities to see and learn how to refuel with hydrogen; demonstrations about how fuel cells work; and discussions with the engineers who work on this technology.

[CaFCP:](#) <http://www.cafcp.org/events.html>

21. US-Mexico Border Energy Forum XIV, San Diego, Oct 18-19

A vibrant and growing economy consistent with a clean and healthy environment for both sides of the border has been the vision shared by Border Energy Forum participants and organizers since the first forum was held in El Paso in 1994. On October 18-19, 2007, California will be the ninth of the 10 border states to host this event. The conference is supported by the California Energy Commission, the California Center for Sustainable

Energy, San Diego State University, and many other state and local hosts.
[Energy Forum](http://www.borderenergyforum.org): <http://www.borderenergyforum.org>

22. CHBC Announces 2008 Meeting Schedule

California Hydrogen Business Council will hold quarterly meetings in 2008 on the following dates. January 11, May 16, September 12 (Northern CA), and December 5. Please mark your calendars accordingly! More information will be released soon.

[Meetings](http://www.californiahydrogen.org/page.cfm?content=16): <http://www.californiahydrogen.org/page.cfm?content=16>

23. Send Us Your News!

We welcome important news from our members for inclusion on our website and in next month's report. In addition to being distributed to CHBC's list of over 2200 industry members, our newsletters are forwarded to thousands more through the Canadian Hydrogen Association and FuelCellMarkets.com. Please send to: info@californiahydrogen.org. Thank you for helping build a great organization.

[Fuel Cell Markets](http://www.fuelcellmarkets.com): <http://www.fuelcellmarkets.com>

[Clean Fleet Report](http://www.cleanfleetreport.com): <http://www.cleanfleetreport.com>

24. Membership Pays!

Platinum membership, \$5,000 per year, includes your logo on each page of the CHBC website for one year, your firm credited as sponsor of two General Meetings, and two free registrations at each CHBC meeting for 12 months. Gold membership, \$2,500, includes your firm credited as a sponsor of one General Meeting during the year and one free registration to each CHBC General meeting for one year. Thanks to Gold Members Boeing Corp and Hydrogenics for their support! Silver membership is the buy of the century at \$1,000; Individual membership is \$200. Please see

<http://www.californiahydrogen.org/page.cfm?content=12> for full details. To inquire about membership, contact Managing Director Catherine Rips, info@californiahydrogen.org.

[Gold Members](http://www.californiahydrogen.org/page.cfm?content=61): <http://www.californiahydrogen.org/page.cfm?content=61>

[Silver Members](http://www.californiahydrogen.org/page.cfm?content=33): <http://www.californiahydrogen.org/page.cfm?content=33>

25. Board of Directors

President - Henry Wedaa; Vice President - Paul Scott, ScD; Managing Director - Catherine Rips; Secretary - Josh Mauzey; Treasurer - Jerald Cole; Membership Chairman - Mark Abramowitz; Fleets Chair - John Addison; Program Chairman - Henry Wedaa; Director at Large - Larry Watkins; Director at Large - John Williams, PE; Director at Large - Allan Bedwell; Director at Large - Fred Silver; Ex-officio Government Liaison - Analisa Bevan. To contact the board, please email: info@californiahydrogen.org.

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John Addison, Contributing Editor
Catherine Rips, Editor/Publisher

California Hydrogen Business Council
760-341-2924
www.CaliforniaHydrogen.org