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1. CHBC Meeting at Honda Now Feb 1

Join us Friday, February 1, 2008 for the first of four excellent meetings in the coming year. We're kicking off the series at one of the most popular meeting locales in CHBC history -- American Honda Motor Corp. in Torrance. Honda's recent announcements at the LA Auto Show are generating a great deal of interest among drivers in SoCal (see next story for details). Please note the date has been changed from January 18 due to a conflict with the Detroit Auto Show. Watch your email for meeting details. Please also mark the following additional dates for CHBC General Meetings in 2008: May 16, September 12 (Northern CA), and December 5, locations to be announced.

[Jan 18](http://www.californiahydrogen.org/page.cfm?content=45&event_ID=74): http://www.californiahydrogen.org/page.cfm?content=45&event_ID=74

2. Honda Debuts All-New FCX Clarity Advanced Fuel Cell Vehicle

Honda unveiled the FCX Clarity fuel cell vehicle at the Los Angeles Auto Show. The FCX Clarity is a next-generation, zero-emissions, hydrogen-powered fuel cell vehicle based on the entirely-new Honda V Flow fuel cell platform, and powered by the highly compact, efficient and powerful Honda V Flow fuel cell stack. Featuring tremendous improvements to driving range, power, weight and efficiency - and boasting a low-slung, dynamic and sophisticated appearance, previously unachievable in a fuel cell vehicle - the FCX Clarity

marks the significant progress Honda continues to make in advancing the real-world performance and appeal of the hydrogen-powered fuel cell car. American Honda plans to lease the FCX Clarity to a limited number of retail consumers in Southern California with the first deliveries taking place in summer 2008.

[Honda FCX Clarity](http://www.hondanews.com/categories/865/releases/4345): <http://www.hondanews.com/categories/865/releases/4345>

3. Send Your Comments on H2 to ARB ASAP!

The Economic and Technology Advancement Advisory Committee (ETAAC) has issued a draft report, "Economic and Technology Advancements for California Climate Solutions." Comments are due by September 13. It is extremely important that hydrogen industry members express their support for hydrogen asap. Please send your comments to: Steve Church, Research Division, California Air Resources Board, P.O Box 2815, Sacramento, CA 95812, schurch@arb.ca.gov. Please click the link below to review the draft report.

[Draft Report](http://www.arb.ca.gov/cc/etaac/etaac.htm): <http://www.arb.ca.gov/cc/etaac/etaac.htm>

4. Ballard and Plug Power: Fuel Cell Products Reduce Greenhouse Gas Emissions

Ballard Power Systems Inc. and Plug Power Inc. have been evaluating the potential impact of hydrogen fuel cell technology on greenhouse gas (GHG) emission reductions. The analysis focused on fuel cell applications most likely to achieve near-term commercialization, specifically residential cogeneration, distributed generation, backup power systems, materials handling and public transit buses. Results show that global GHG reductions through the year 2025 from these applications could be in the range of 31 to 116 million metric tons, depending on assumptions made regarding production of hydrogen. Running this data through the U.S. Climate Technology Cooperative Gateway Greenhouse Gas Equivalencies Calculator (www.usctcgateway.gov/tool/) shows that by 2025, this level of GHG reductions equates to the removal of 1.4 to 5.6 million cars from the world's roads in that year.

[FC Analysis](http://phx.corporate-ir.net/phoenix.zhtml?c=76046&p=irol-newsArticle&ID=1078822&highlight=): <http://phx.corporate-ir.net/phoenix.zhtml?c=76046&p=irol-newsArticle&ID=1078822&highlight=>

[Report Summary](http://www.plugpower.com/news/documents/GHG%20FINAL.pdf): <http://www.plugpower.com/news/documents/GHG%20FINAL.pdf>

5. State's Tree to be Lit by Fuel Cell Once Again

In keeping with the Gov. Arnold Schwarzenegger's commitment to reduce California's carbon footprint, the State of California's 55-foot white fir Christmas tree will be powered by a fuel cell for the second year in a row. Also again this year, ultra-low-wattage LED lights will be used, saving 95 percent of the energy that would be consumed by incandescent bulbs. The annual tree-lighting ceremony will take place on December 4th with Gov. Schwarzenegger and First Lady Maria Shriver.

[State Tree](http://gov.ca.gov/index.php?/blog/issue/rosario-marin-txt-blog-xmas-tree/): <http://gov.ca.gov/index.php?/blog/issue/rosario-marin-txt-blog-xmas-tree/>

6. Walt Disney Company Will Test Chevrolet Equinox Fuel Cell Vehicles in California

In a partnership announced recently involving two of the world's most powerful brands, Chevrolet and the Walt Disney Co., Disney will participate in Chevrolet's Project Driveway, the world's largest fuel cell vehicle test. Beginning in January, Disney will take delivery of 10 zero-gas, zero-emission Chevrolet Equinox Fuel Cell vehicles and use them to shuttle Disney employees, celebrity talent and others within Disney-owned facilities in Southern California. The partnership opens the door to possible future activities between Chevrolet and Disney. In addition, the relationship will help build awareness of the sustainability of environmentally friendly technologies.

[Disney](http://www.trucktrend.com/features/news/2007/163_news071114_walt_disney_to_test_chevrolet_equinox_fuel_cell_vehicles/index.html):

http://www.trucktrend.com/features/news/2007/163_news071114_walt_disney_to_test_chevrolet_equinox_fuel_cell_vehicles/index.html

7. Ballard Agrees To Sell Automotive Fuel Cell Assets; Will Concentrate On Commercial Markets

Ballard Power Systems announced it has agreed to sell the company's automotive fuel cell assets to Daimler AG and Ford Motor Co. Payment for these assets will consist of all 34.3 million Ballard shares held by Daimler and Ford. These shares will then be cancelled. Ballard expects to record an estimated gain on the transaction of \$95-to-\$105 million. "This transaction will enable Ballard to concentrate on growth in fuel cell applications which provide clean energy solutions in commercial markets," said John Sheridan, Ballard's President and CEO. "It also lowers Ballard's risk profile by addressing the realities of the high cost and long timeline for automotive fuel cell commercialization. At the same time, a new private company will be established and will be positioned for success in automotive fuel cell technology over the longer term, with management and funding provided by Daimler and Ford."

[Ballard](http://phx.corporate-ir.net/phoenix.zhtml?c=76046&p=irol-newsArticle&ID=1074510&highlight=): <http://phx.corporate-ir.net/phoenix.zhtml?c=76046&p=irol-newsArticle&ID=1074510&highlight=>

8. Fairbanks-to-Vancouver Along the Alaska Highway: Toyota FCV Logs 2300 Miles in Seven Days

Toyota Motor Sales U.S.A., Inc., revealed a significant achievement in its ongoing hydrogen-hybrid fuel cell development program. A recent 2,300 mile trek in a Toyota Fuel Cell Hybrid Vehicle from Fairbanks, Alaska to Vancouver, British Columbia along the Alaska-Canadian highway confirmed substantial progress in reliability and durability, cold-weather operation and extended range capability of Toyota's hybrid fuel cell system. One of the key reasons why engineers chose the route is that Canada allows mobile re-fueling of high-pressure hydrogen vehicles along its public highways. Without a network of hydrogen fueling stations every 300 miles, mobile refueling was a necessity. Linde provided the rolling supply of hydrogen, while Powertech Labs supplied a self-contained re-fueling station.

[Toyota](http://www.earthtimes.org/articles/show/news_press_release,224249.shtml): http://www.earthtimes.org/articles/show/news_press_release,224249.shtml

9. Mazda to Supply 30 Hydrogen RX-8s to Norwegian Hydrogen Project

Mazda Motor Corp. and HyNor (Hydrogen Road of Norway) have signed an MOU to collaborate in the development of hydrogen fuel and hydrogen vehicles. HyNor intends to purchase a total of 30 rotary-engined Mazda RX-8 Hydrogen RE vehicles starting in summer 2008. HyNor is a Norwegian joint industry initiative to implement a demonstration of hydrogen energy infrastructure along a route of 580 km from Oslo to Stavanger. The project comprises all steps required to develop a "hydrogen society" adapted to local conditions. The joint project is planning for various means of transport -- buses, taxis and private cars - - and varying types of transport systems: urban, inter-city, regional and even long-distance national transport. A similar hydrogen infrastructure project is under way in Sweden under the banner Hydrogen Sweden.

[Mazda](http://www.autoindustry.co.uk/news/07-11-07_25): http://www.autoindustry.co.uk/news/07-11-07_25

10. Chilling Masterpiece - BMW H2R Project

A new exhibit by Icelandic artist Olafur Eliasson at the San Francisco Museum of Modern Art gives patrons the chills. Housed inside a giant walk-in freezer at -10C is an artistically modified hydrogen-powered BMW H2R. The installation, titled "Your Mobile Expectations: BMW H2R Project," features the car stripped down to the frame, tires and steering wheel, lit from within and coated with ice. A translucent steel skin and reflective stainless steel tiles complete the transformation. The project took 30 days to complete and employs more than 1,000 litres of water, specially ionized to remove air bubbles. The installation is a collaboration between BMW and Eliasson, the 16th artist given the opportunity by the car company since 1975. The museum expects 120,000 visitors to view the exhibit. Free

blankets at the door.

[BMW Sculpture](http://autos.canada.com/news/story.html?id=24536ae2-e14c-4999-b572-f2d73de3ea68): <http://autos.canada.com/news/story.html?id=24536ae2-e14c-4999-b572-f2d73de3ea68>

11. India's Tata Gets in Ex-Pats for Hydrogen Car

Tata Motors is planning to launch the world's cleanest vehicle by 2008. The Tatas have formed a team to work closely with Indian Space Research Organisation (ISRO) to develop cars that will run on hydrogen. Clive Hickman, head of research and development at Tata Motors, is spearheading the project. Hickman, who joined the Tatas from UK-based automotive design consultancy major Radico, has been working on ideas related to alternative fuels like hydrogen, ethanol and bio-diesel. Engineers from the European Technology Centre of Tata Motors and Indian engineers are collaborating on the project. For the new car, while ISRO will develop the technology, which includes storage and handling of fuels, the Tatas will undertake manufacturing.

[Tata](http://www.hindustantimes.com/StoryPage/StoryPage.aspx?id=3638dd86-4e0f-4c02-8459-738140e673ae&&Headline=Tatas+get+in+expats+for+hydrogen+car): <http://www.hindustantimes.com/StoryPage/StoryPage.aspx?id=3638dd86-4e0f-4c02-8459-738140e673ae&&Headline=Tatas+get+in+expats+for+hydrogen+car>

12. ISE Corp. to Supply Hydrogen Bus Fleet to Transport for London

ISE Corp. announced in November that Transport for London (TfL) has signed a prime contract with ISE for the supply of 10 hydrogen-powered buses for delivery to TfL by 2010. All 10 of the hydrogen-powered buses will be built utilizing ISE's proven ThunderVolt(TM) series hybrid drive system technology, five of which will be hydrogen hybrid fuel cell buses and the other five will be hydrogen hybrid internal combustion engine (HHICE(TM)) buses. Mayor of London, Ken Livingstone, confirmed that the 10 new hydrogen-powered buses are part of the Mayor's plan to have up to 70 hydrogen vehicles in operation in London by 2010, as set out in the London Hydrogen Partnership's Transport Action Plan. With these clean vehicles, London will become the first city in Europe to operate a fleet of hydrogen fuel cell and HHICE(TM) buses.

[ISE Buses](http://www.earthtimes.org/articles/show/news_press_release,226382.shtml): http://www.earthtimes.org/articles/show/news_press_release,226382.shtml

13. Hydrogenics Receives US\$1.7 Million Order for Three Fuel Cell Hybrid MidiBuses

Hydrogenics Corp., a leading designer and manufacturer of hydrogen and fuel cell systems, announced that it has received a US \$1.7M order for the delivery of three Fuel Cell Hybrid MidiBuses to the upcoming 2008 International Exposition, EXPOAGUA Zaragoza 2008 to be held next summer in the City of Zaragoza, Spain. The buses will be used to shuttle EXPO visitors attending this international event focused on the theme of Water and Sustainable Development. Hydrogenics' Germany-based team will integrate a standard HyPM(TM) fuel cell power module as part of a hybrid power system into a Tecnobus Gulliver all-electric Midibus power-train. This order for three Midibuses follows the success of delivering three earlier Midibuses on the same OEM platform to Dusseldorf and Rome.

[Hydrogenics](http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=278786): http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=278786

14. UT Austin, GTI Put First Hydrogen Fuel Cell Bus on the Road in Texas

The University of Texas at Austin (UT) and Gas Technology Institute (GTI) have introduced a joint technology program that features the first hydrogen fuel cell bus to be licensed and operated in Texas. In this program, the UT Center for Electromechanics and GTI will operate and evaluate a 22-foot shuttle bus powered by a hybrid electric drivetrain that combines energy provided by both advanced battery electronics and a 20 kW hydrogen fuel cell. The fuel cell hybrid system is expected to give the bus a range of up to 200 miles, three to four times farther than with batteries alone. Ebus Inc. designed the bus which has full highway capability and features such as regenerative braking that make it exceptionally fuel-

efficient. The partners have also begun installation of the first permanent hydrogen fueling station in Texas at the J.J. Pickle Research Center in Austin.

[Texas](http://www.utexas.edu/news/2007/11/05/electromechanics/): <http://www.utexas.edu/news/2007/11/05/electromechanics/>

15. Air Products' Technology Inside Shell's New York Hydrogen Fueling Station

Air Products' hydrogen storage, compression and vehicle dispensing technology was formally placed into service at a hydrogen fueling station as Shell Hydrogen LLC, part of Royal Dutch Shell plc, cut the ribbon on its new location in White Plains, NY recently. The White Plains station includes Distributed Energy Systems Corp.'s FuelGen(R) onsite hydrogen generation system, which will provide hydrogen via Air Products' hydrogen fueling technology, to fuel Westchester and New York Metropolitan area residents' automobiles participating in a novel fuel cell vehicle testing program. The Shell station at the White Plains Public Works Depot is a commercial fueling station with access for fuel cell vehicle testing program participants.

[APCI - Shell H2](#):

<http://money.cnn.com/news/newsfeeds/articles/prnewswire/NETU05220112007-1.htm>

16. Shanghai Builds First Hydrogen Fueling Station; UNDP to Invest in Fuel Cell Buses

Shanghai Municipality's first hydrogen fueling station started operation on November 16, local media reported. The fueling station is located in Shanghai's Anting International Motown region. Shanghai currently has only a few fuel cell buses under trial operation, but it plans to put three to six fuel cell buses on the streets at the end of 2008 or the beginning of 2009. The effort is part of the second phase of the United Nations Development Program (UNDP) project to commercialize fuel cell buses in China. The first phase of the project began in 2002; three fuel cell buses manufactured by Daimler Chrysler started running in Beijing last June. For Shanghai, hydrogen hybrid buses will be used, since such buses are expected to have better possibilities for commercialization.

[Shanghai](#): <http://www.resourceinvestor.com/pebble.asp?relid=38036>

17. ExxonMobil Onboard with Hydrogen for Lift Trucks

ExxonMobil and a group of technology partners are collaborating to develop an on-vehicle hydrogen production system for fuel cell-powered lift trucks. The plan is to convert liquid fuels -- gasoline, diesel, ethanol or biodiesel -- to hydrogen onboard the truck where it will then be used in a fuel cell powertrain. ExxonMobil, QuestAir Technologies, and Ben Gurion University have already developed the individual components of the fueling system with passenger vehicles in mind. A fourth partner, Plug Power, will now work with them to adapt the components for use in lift trucks. Plug Power executives expect development to take at least three years. Most of today's hydrogen-powered lift trucks are fueled by compressed hydrogen. Generating the hydrogen from conventional fuels onboard the truck makes hydrogen fuel cells an option in markets where hydrogen delivery is not available.

[ExxonMobil](#): <http://www.mmh.com/article/CA6504609.html>

18. Dr. Alan Lloyd Honored by Asthma & Allergy Foundation

Alan C. Lloyd, PhD, former Secretary of the California Environmental Protection Agency, current president of the International Council on Clean Transportation (ICCT), and a longtime friend to the hydrogen industry, was honored on Tuesday, November 27 at the Breath of Life Ball, a fundraiser presented by the California Chapter of the Asthma & Allergy Foundation of America. Dr. Lloyd was acknowledged for "significant technical leadership in California's air pollution reduction goals and successfully implementing ICCT goals to improve the environmental performance and efficiency of cars, trucks, buses and transportation systems in order to protect and improve public health." (Editor's Note: We

wish to add our congratulations to Dr. Lloyd on this honor.)

[Dr. Lloyd](http://www.aafasocal.com/gala.php): <http://www.aafasocal.com/gala.php>

19. ISE Corp. to Join Clinton Climate Initiative

Former President Bill Clinton recently announced that the Clinton Climate Initiative (CCI) had reached agreement with a group of companies, including ISE Corp., to provide substantive price reductions for volume purchases of energy efficient and clean energy products, including hybrid transportation products. CCI will promote the hybrid transportation products of these companies for the purposes of making series hybrid propulsion systems for heavy-duty trucks and buses available for purchase at volume discounts by the Large Cities Climate Leadership Group (C40), a group of 40 of the world's largest cities working to fight climate change, and members of the U.S. Conference of Mayors. The major objective is to amass large volume orders to bring down the cost of advanced technologies and greatly increase adoption of these environmentally beneficial technologies.

[ISE Corp.](http://www.isecorp.com/ise_news/ise_press_releases/nov-14-2007-CCI-clinton-climate-initiative.php): http://www.isecorp.com/ise_news/ise_press_releases/nov-14-2007-CCI-clinton-climate-initiative.php

20. QuantumSphere Earns Patent and Award

QuantumSphere, Inc., a leading manufacturer of nano metals and alloys for applications in renewable energy, portable power, defense, electronics and other markets, recently announced it was awarded U.S. Patent No. 7,282,167 for its QSI-Nano(TM) Gas Phase Condensation process, a manufacturing method for the production of advanced nanomaterials. In addition, QuantumSphere received The Small Times 2007 Best of Small Tech Nanomaterial of the Year Award for QSI-Nano Manganese. This award winning catalyst material will be used in the cathode of new zinc-air primary (disposable) batteries to increase longevity and power output by more than 320%, thereby enabling new portable power and electronic applications. QuantumSphere is CHBC's newest Silver member.

[QSI Patent](http://www.qsinano.com/news/releases/2007_09_07.php): http://www.qsinano.com/news/releases/2007_09_07.php

[Award](http://www.qsinano.com/news/newsletters/2007_11/f0_smalltech_release.pdf): http://www.qsinano.com/news/newsletters/2007_11/f0_smalltech_release.pdf

21. NFCRC Joins CaFCP

The California Fuel Cell Partnership (CaFCP) recently announced that the National Fuel Cell Research Center at the University of California, Irvine has joined CaFCP as its newest member, making the NFCRC the 32nd addition to the public-private partnership. The NFCRC was dedicated at UC Irvine in 1998 by the U.S. Department of Energy and the California Energy Commission. Its principal goal is to accelerate the development and deployment of fuel cell technology as a form of energy efficient and environmentally sensitive power generation. The NFCRC has Toyota Highlander fuel cell fleet vehicles and operates a 700 bar hydrogen fueling station, the first in California. (Editor's Note: We gratefully acknowledge the student volunteers from NFCRC who help at our General Meetings!)

[NFCRC](http://www.nfcrc.uci.edu/2/ABOUTUS/IntheNews/index.aspx): <http://www.nfcrc.uci.edu/2/ABOUTUS/IntheNews/index.aspx>

22. ...and Voila! Hydrogen Fuel

Using ingredients that could be obtained from a salad bar, and adding some electricity producing microbes, Penn State University researchers have developed a method that yields up to 91 percent hydrogen -- the most efficient yet for the type of system they used. In certain configurations of the device, nearly all of the hydrogen contained in the molecules of source material converted to useable hydrogen gas, an efficiency that could eventually open the door to bacterial hydrogen production on a larger scale. "Efficient and sustainable hydrogen production is possible from any type of biodegradable organic matter," they said in a recently published report.

[Penn State](http://www.usnews.com/articles/science/2007/11/19/arugula-a-little-vinaigrette-and-voila-hydrogen-fuel.html): <http://www.usnews.com/articles/science/2007/11/19/arugula-a-little-vinaigrette-and-voila-hydrogen-fuel.html>

23. What's Next -- Green Biz

Americans consume tens of billions of eggs each year. Disposal of cracked shells can be an issue for food processors, which pay up to \$40 a ton to bury them in landfills. Now researchers say the shells could help make hydrogen. Eggshells consist mainly of calcium carbonate, which can be converted into a form of lime. This material comes into play in the final step in a series of reactions that chemically transform coal into a mix of gases, including high levels of hydrogen and CO₂. The eggshell material is one of the most efficient CO₂ absorbers ever tested, says Liang-Shih Fan, a chemical engineering professor at Ohio State University, who did the research with two students. When the coal gas mix reacts with steam, the converted eggshells can be used to filter CO₂, leaving behind mostly hydrogen.

[Egg Shells](#):

http://www.businessweek.com/magazine/content/07_46/c4058076.htm?chan=search

24. 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.

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

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

25. Board of Directors

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Catherine Rips, Editor/Publisher

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