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[HOME](#) [MEETINGS](#) [NEWS ROOM](#) [MEMBERSHIP](#) [WHO WE ARE](#) [CONTACT US](#) [LINKS](#)

News Room

[Current Newsletter](#)

[Newsletter Archives](#)

[Media Releases](#)

[Book Reviews](#)

CHBC - Report - February 2010

February 24, 2010

- 1 [Early Registration Ends Monday! "Hydrogen: The Next Step for Infrastructure and Fuels," Thursday, March 4, 2010](#)
- 2 [CALSTART WORKSHOP: Zero Emission and Low Carbon Buses, State of Technologies and Fuels, and Current Challenges.](#)
- 3 [NHA has Posted Slides and Broadcast for: The German Model - Creating the Future Hydrogen Vehicles and Fueling Infrastructure](#)
- 4 [NHA announces Congressional Briefing: Solving the Market's Dilemmas-Energy Infrastructure for Fuel Cell Electric Vehicles](#)
- 5 [NHA's Hydrogen Conference & Expo Coming to Long Beach, May 3 – 6, 2010](#)
- 6 [NHA Education Foundation's Annual H2 Student Design Contest is Now Underway](#)
- 7 [Honda's Home Garage Gadget: Here's Your Solar Hydrogen Fueling Station](#)
- 8 [Honda's FC Sport - No-Holds-Barred Supercar](#)
- 9 [Honda CB 750 Mega Block Hydrogen Motorcycle](#)
- 10 [Hydrogenics Announces Share Consolidation](#)
- 11 [Intelligent Energy - Green Black Cabs on the Road in Time for the Olympics](#)
- 12 [Ballard & ISE - Video of Canada's Hydrogen Fuel Cell Olympic Shuttle](#)
- 13 [Ballard Reports 2009 Achievements and Provides 2010 Outlook](#)
- 14 [NREL Evaluates Fuel Cell Technologies in Early Market Applications](#)
- 15 [NREL Publication: CTRANSIT Fuel Cell Transit Bus: Third Evaluation Report](#)
- 16 [Bloom Energy Unveils Its 'Bloom Box' Fuel Cell](#)
- 17 [Phone Companies Developing Fuel Cells, Too!](#)
- 18 [Largest Hydrogen Test Facility Opened by NIST](#)
- 19 [Walmart Using Hydrogen Fuel Cell Forklifts in Western Canada](#)
- 20 [South Wales in the UK to Have Hydrogen Highway on the M4](#)
- 21 [General Motors - Newest Fuel Cell Stack Reduced in Size, Complexity](#)
- 22 [Port of LA's Fleet is Expected to be 85% Clean Truck Compliant by Spring, a Whopping 20 Months Early!](#)
- 23 [Toyota Executive Sees Limits to Electric Cars](#)
- 24 [ECotality of San Diego Teams up with Arizona Public Service for First Hydrogen Powered Bus](#)
- 25 [President Obama Honors ECotality/eTec in State Of The Union Address](#)

1 [Early Registration Ends Monday! CHBC's General Meeting on "Hydrogen: The Next Step for Infrastructure and Fuels," Thursday, March 4, 2010.](#) The meeting will be held at the SCAQMD in Diamond Bar, California. It starts promptly at 9:00 A.M. and concludes at 4:30 P.M. Come early to network! [Click here to register and receive an early meeting discount!](#) [Click here for the Final Agenda.](#)

2 [CALSTART-ONE-DAY WORKSHOP: Zero Emission and Low Carbon Buses, State of Technologies and Fuels, and Current Challenges, Wednesday, April 21, 2010.](#)

CALSTART has partnered with the Southern California Gas Company to present this one day workshop on the latest technologies and clean fuels available for zero emissions and low carbon buses. What is the status of these technologies and fuels? What are the technical and market challenges to full commercialization? What are the next steps needed to move them forward? These are the key questions to be addressed at this workshop. For more, click

on [workshop](#).

3 NHA has Posted the Presentation Slides and Broadcast for: The German Model – Creating the Future Hydrogen Vehicles and Fueling Infrastructure

In September of 2009, the German Ministry of Transport announced a Memorandum of Understanding with several leading auto manufacturers and energy industry partners—a plan to facilitate deployment of a nationwide hydrogen supply infrastructure and vehicle rollout for Germany. This webinar explored the details of this historic agreement and analyze the implications for the U.S. [Presentation Slides & Broadcast](#)



4 NHA announces a Congressional Briefing: Solving the Market's Dilemmas-Energy Infrastructure for Fuel Cell Electric Vehicles

March 5, 2010, 10 am - 11:30 am, Senate Dirksen Office Building, Room 628

As Zero Emission Vehicles approach commercialization, energy supply infrastructure needs to be built in tandem if large stranded asset costs are to be avoided. Deploying hydrogen fuel cell, electric drive hybrid vehicles will require considerable investment in fueling equipment to realize their full potential to eliminate oil consumption and emissions, while creating many new jobs... Devising solutions is a significant economic challenge. The importance of these factors was anticipated in the Energy Policy Act of 2005, Energy Independence and Security Act of 2007, and the American Reinvestment and Recovery Act of 2009. Various federal and state budgets since the mid-1990s have funded considerable research, development and demonstration. Industry and governments have invested more than \$8B in RD&D, and markets are within reach.

California and 14 other states are implementing plans to require ZEVs soon. GM, Toyota, Honda, Daimler, Ford, Hyundai/KIA, and Nissan-Renault have all announced commercial rollouts. This briefing will explore the relative costs and technical challenges facing energy supplies for light duty ZEVs, and look towards their extensive deployment as cost-effective solutions evolve. There will be preliminary remarks from several Members of Congress. We expect a lively discussion.

5 NHA's Hydrogen Conference & Expo Coming to Long Beach, May 3 – 6, 2010

The National Hydrogen Association (NHA) will hold the 21st annual NHA Hydrogen Conference & Expo this year in Long Beach, CA, from May 3 – 6, 2010 at the Long Beach Convention Center.

The NHA Hydrogen Conference & Expo, themed "green energy, green jobs, green planet," is the largest hydrogen conference in the U.S. and the longest running annual hydrogen energy conference in the world.

"We are delighted to be back in Long Beach, California," said Jeff Serfass, president of the NHA. "California is a major center for the development of hydrogen and renewable energy technologies, not only in the U.S., but also in the world. This will be the perfect venue to highlight the latest achievements of the industry and announce plans for what progress will come next."

The event focuses on breakthroughs, progress on commercialization and networking among the brightest minds and business leaders in the industry. Based on 2009 participation, the 2010 event is expected to attract more than 1,500 attendees and feature more than 150 expert speakers. The exhibition will feature about 100 exhibitors showcasing the latest developments in fuel cells, hydrogen energy technology, and applications such as fuel cell powered vehicles, refueling infrastructure and many other hydrogen using or generating technologies. [Conference information](#).

6 NHA Education Foundation's Annual H2 Student Design Contest is Now Underway

Established in 2004 by the Hydrogen Education Foundation, the Contest show cases the talents of students in many disciplines, including engineering, architecture, marketing, and entrepreneurship. This year marks the 5th edition of the Hydrogen Student Design Contest. [Design Contest](#)

7 Honda's Home Garage Gadget: Here's Your Solar Hydrogen Fueling Station

Honda has started operation of a next generation solar hydrogen station prototype. This home fueling system is designed to refuel fuel cell electric vehicles.

Here's the way it works: The single unit fits in a garage and produces enough hydrogen in an 8-hour overnight fill for a daily commute in a fuel cell vehicle.

Honda said it simplified the previous hydrogen station, which required an electrolyzer and compressor to create high pressure hydrogen. The latest version ditches the compressor completely. By eliminating the compressor, Honda's solar hydrogen station is 25 percent more efficient than the old one.

Among other key details:

- Honda's solar hydrogen station is compatible with smart grids;
 - Users could refill the vehicle without storing hydrogen;
 - The station could export power to the grid when not in use;
 - The station is powered by a 48-panel 6.0KW solar array;
 - The home system is designed to complement so-called "fast fill" hydrogen stations, which fuel up in 5 minutes.
- Honda is betting on hydrogen cars and fueling is the biggest hangup. With a combination of overnight home systems and fast fill public stations a network of hydrogen fueling areas could be created. What are your thoughts on hydrogen vehicles. Can the infrastructure be put in place and would you buy a home fueling system? [More info](#)

8 Honda's FC Sport - No-Holds-Barred Supercar

The FC Sport can be summed up like this: Imagine beating your best lap time while hearing nothing but the tires rubbing the tarmac and the quiet buzz of the high-torque electric motors. Picture a true no-holds-barred supercar with all the speed, handling and sleek looks of today's fastest sports cars, yet without the noise, heat, vibration and emissions of the internal-combustion engine. [Click here for more and cool pics](#).

9 Honda CB 750 Mega Block Hydrogen Motorcycle

Designed by Igor Chak, here's a futuristic motorcycle concept that adds a tinge of modern to the famous 1970s-80s Honda CB series. An eco-ride that definitely knows how to grab attention. [Click here for more information](#).

10 Hydrogenics Announces Share Consolidation

Mississauga, Ontario, Canada - Feb 8, 2010 - Hydrogenics Corporation, a leading developer and manufacturer of hydrogen generation and fuel cell products, today announced that it will implement a share consolidation of its issued and outstanding common shares in order to comply with the Minimum Bid Price Rule of the Nasdaq Global Market ("NASDAQ"). The consolidation will be effective as of March 12, 2010, and will be implemented with a ratio of one post-consolidation share for every 25 pre-consolidation shares.

"With an interest in preserving the liquidity for our investors that is offered by the NASDAQ Global Market, we wanted to

11 Intelligent Energy - Green Black Cabs on the Road in Time for the Olympics

Hydrogen fuel cell taxis will be on London's roads in time for the 2012 Olympic games, the consortium behind the fleet has confirmed.

The fuel cell powered vehicles will include batteries to allow them to operate as hybrid vehicles for a day without refueling. Drivers of the iconic TX4 black cabs will be able to refuel in a few minutes using hydrogen depots situated around central London.

Intelligent Energy, the leader of the consortium, says that the new cabs will be capable of achieving speeds of up to 75 miles per hour and faster acceleration than standard taxis, despite being emission-free. They will be able to operate in temperatures as low as -20°C. [Intelligent Energy - Green Black Cabs](#)

12 Ballard & ISE - Video of Canada's Hydrogen Fuel Cell Olympic Shuttle

Ballard Power Systems of Burnaby, British Columbia, developed the fuel cells for the bus fleet.. [Video](#)

13 Ballard Reports 2009 Achievements and Provides 2010 Outlook

Ballard Power Systems announced its 2009 achievements for the year ended December 31, 2009 and provided an outlook for 2010. All amounts are in U.S. dollars, unless otherwise noted.

[Click here for Key 2009 Achievements](#)

14 NREL Evaluates Fuel Cell Technologies in Early Market Applications

Last April, the U.S. Department of Energy (DOE) announced an impressive \$114.3 million in funding—\$41.9 million from the American Recovery and Reinvestment Act and \$72.4 million from industry—for the rapid deployment of approximately 1,000 fuel cell systems. Many of these systems are now operating in backup power, combined heat and power, and material handling (i.e. forklift) applications across the United States... Accelerating the use of fuel cell technologies in these early market applications supports commercialization and helps build a domestic manufacturing and supplier base. It also expands the growth of the green job market, with new opportunities in manufacturing, fuel cell maintenance and support systems, and hydrogen production. [For complete article, click here.](#)

15 NREL Publication: CTTRANSIT Fuel Cell Transit Bus: Third Evaluation Report

The National Renewable Energy Laboratory (NREL) has recently published a third report on its evaluation of a fuel cell bus in service at CTTRANSIT in Hartford, Connecticut. This report provides an update to the previous reports (October 2008, May 2009) and is focused on results from December 2008 through October 2009. To download the document, go to: <http://www.nrel.gov/hydrogen/pdfs/47334-1.pdf> for the evaluation results and <http://www.nrel.gov/hydrogen/pdfs/47334-2.pdf> for the Appendices. NREL's Technology Validation team evaluates fuel cell buses for the U.S. Department of Energy and the U.S. Department of Transportation's Federal Transit Administration. All NREL Technology Validation publications (including other applications such as light-duty FCVs) are also available on the NREL site. [Click here.](#)

16 Bloom Energy Unveils Its 'Bloom Box' Fuel Cell

Bloom Energy, a Sunnyvale startup that has been working for years on a fuel cell that would allow homes and businesses to generate their own electricity, officially unveiled its so-called Bloom Box at a highly orchestrated media event Wednesday morning.

Tech journalists joined Gov. Arnold Schwarzenegger, Bloom cofounder and CEO K.R. Sridhar, venture capitalist John Doerr and former Secretary of State Colin Powell at eBay's San Jose headquarters to learn how Bloom, which has raised about \$400 million from investors, plans to mass produce its solid oxide fuel cells.

Google, FedEx and Wal-Mart are among the companies beta-testing the technology; several Bloom Boxes are in use on the eBay campus.

EBay started using five Bloom Energy Servers in July. They produce electricity to power space for 2,000 to 3,000 employees and shaved \$100,000 off eBay's power bill, says Amy Skoczlas Cole, director of eBay's Green Team. EBay uses natural gas in the boxes but will switch to methane gas from an Oklahoma landfill this spring...

"What has to be proven by any fuel cell manufacturer is that their technology can operate reliably for years, ideally 10 years, with the 'four nines' — 99.99 percent reliability, or very little outages," said Scott Samuelsen, director of the National Fuel Cell Research Center at the University of California-Irvine and a professor of mechanical, aerospace, and environmental engineering. "At this point, Bloom has excellent potential, but they have yet to demonstrate that they've met the bars of reliability." [For the complete story, click here.](#)

17 Phone Companies Developing Fuel Cells, Too!

With all the attention on fuel cell startup Bloom Energy, one might think that Bloom invented the fuel cell. But many industries, in particular phone companies, have been developing and using the technology for awhile as backup power for cellular base stations. In a testimony before the Senate Committee on Commerce, Science and Transportation on February 23, 2010 Sprint CEO, Dan Hesse explained how Sprint has been using 250 hydrogen fuel cells at cell sites, "in an effort to produce green backup power during commercial power outages," and plans to install more. [For complete story, click here.](#) For written testimony of Mr. Hesse before the Senate Committee on Commerce, Science & Transportation, Subcommittee on Communications, Technology and the Internet [click here.](#)

18 Largest Hydrogen Test Facility Opened by NIST

The National Institute of Standards and Technology (NIST) Boulder Labs in Colorado recently opened the largest hydrogen test facility in the U. S. for evaluating how component parts of the hydrogen production, distribution and refueling infrastructure will react to H2 gas. For more information about the goal of making hydrogen delivery as safe as possible, [click NIST.](#)

19 Walmart Using Hydrogen Fuel Cell Forklifts in Western Canada

With the 2010 Vancouver Winter Olympics in full swing and hydrogen fuel cell buses and Chevy Equinox FCVs carrying people to-and-fro plus the British Columbia Hydrogen Highway system in full use, there has been another development for Western Canada...in Balzac, Alberta, just outside Calgary, Walmart has decided to spend \$115 million to build a green and sustainable refrigerated distribution center.

By using wind, solar and hydrogen power the facility will be 60-percent more energy efficient than other comparable facilities. Hydrogen fuel cells will replace lead-acid batteries on forklifts and pallet trucks, which mean longer

operational times, quick refueling and no hassle in recharging or swapping out batteries.

The new green facility will provide 800 new construction jobs for the area and 600 additional jobs for employees once the facility has been built. Walmart was so impressed with the hydrogen forklift demo back in 2007, they are now integrating them into their green sustainability plans going forward. Leave it to Walmart to know a good value when they see it. For the complete article, [click here](#).

20 South Wales in the UK to Have Hydrogen Highway on the M4

On the west of the United Kingdom, fuel cell vehicles may one day travel down the M4 Hydrogen Highway. This will be part of a larger renewable fueling infrastructure that is being built for alternative fuel cars in the area.

Wales has been designated a Low Carbon Economic Area (LCEA) for hydrogen fuel. The ministers of Wales say the M4 will become the UK's longest hydrogen highway system when built. For more, [click here](#).

21 General Motors Reduces Size, Complexity of Newest Fuel Cell Stack

The Chevrolet Equinox mid-size crossovers that are the centerpieces of General Motor's Project Driveway long ago (September 2009) passed a million miles of emission-free operation... General Motors has now released the newest iteration of its evolving hydrogen fuel cell 'engine', this one packing even a greater wallop of electric power, but significantly smaller in size, as well as weight and the amount of precious platinum in its catalyst. Called by GM its "second generation" fuel cell, it is half the size of the Project Driveway stack and weighs 282 lbs (130kg). Just as significant, the number of parts has been cut nearly in half and the amount of platinum reduced from 80g to just 30g. For the complete story, [click here](#).

22 Port of Los Angeles Fleet is Expected to be 85% Clean Truck Compliant by this Spring, a Whopping 20 Months Early!

Expanding its commitment to bringing cutting-edge, zero-emission solutions to port operations, the Port of Los Angeles is entering into negotiations with Los Angeles-based Vision Industries for the purchase and evaluation of Vision's hydrogen fuel cell hybrid-electric trucks. The heavy-duty big-rigs will be tested to evaluate their suitability for short and medium distance cargo-hauling (or drayage) operations, and other similar applications... Martin Schuermann, President and Chief Executive Officer of Vision Industries said, "These vehicles are 30 percent to 40 percent less expensive to operate than diesel trucks. We expect a strong market demand once these trucks are in the hands of California medium and heavy duty equipment operators."

As the leading seaport in North America in terms of shipping container volume and cargo value, the Port generates 919,000 regional jobs and \$39.1 billion in annual wages and tax revenues. A proprietary department of the City of Los Angeles, the Port is self-supporting and does not receive taxpayer dollars. For complete story, [click here](#).

23 Toyota Executive Sees Limits to Electric Cars

Although Toyota is the world leader in producing fuel-efficient hybrid cars, and it has plans to introduce a plug-in hybrid and a battery-powered city car, the company has been outspoken about the limitations of some green-vehicle technologies. It's been particularly vocal about the drawbacks of plug-in hybrids.

Asked if the world's vehicles would ever be exclusively electric, Mr. Saga said, "In my personal view, I think we will never abandon the internal-combustion engine." He did envision a possible future for fuel-cell vehicles and internal-combustion cars that burn hydrogen, however. [For the complete story, click here](#).

24 ECotality of San Diego Teams up with Arizona Public Service (APS) for First Hydrogen Powered Bus

Arizona's first hydrogen powered bus is on the move in Arizona. The ECObus is powered by a fuel cell that runs on pure hydrogen. ECotality has teamed up with Arizona Public Service (APS) company to bring the ECObus to the state of Arizona with the objective of educating the public on the use of renewable energies. The ECObus is a mobile classroom powered by hydrogen fuel cell technology and has zero emissions. It is soon to be powered by ECotality's innovative Hydrogen technology. [For the complete story, click here](#).

25 President Obama Honors ECotality/eTec in State Of The Union Address

In his recent State of the Union address, President Barack Obama honored Arizona-based ECotality, Inc., a leader in clean electric transportation and storage technologies, and its wholly-owned subsidiary, eTec, with a reference to the companies and to the vital role they play in job growth and in renewing the national economy... Jonathan R. Read, CEO of ECotality said, "The President's acknowledgement of our company is a strong vote of confidence for the transformative work we are doing, and a tribute to all our employees who have participated in making us a cutting-edge force in this emerging electric-vehicle industry." [For more, click here](#).