CHBC News: November 2008

1. Welcome New Members

Welcome new Individual Member Jerry Eatmon. We appreciate your support!

2. CHBC General Meeting on Infrastructure, December 11

We've heard many times the hold-up to the hydrogen economy is infrastructure. At CHBC's December 11 General Meeting, we'll address that issue. Presentations will spotlight infrastructure challenges and solutions. Confirmed speakers include AQMD, GM, Quantum Technologies, Southern California Edison, the U.S. military and others. The meeting will be held from 8 a.m. - 4 p.m. at South Coast Air Quality Management District in Diamond Bar. Reserve your spot now. Pre-registration prices are in effect.
Dec 11 Meeting: http://www.californiahydrogen.org/page.cfm?content=45&event_ID=77

3. Federal Tax Credits for Energy Efficiency

On October 3, 2008, President Bush signed into law the "Emergency Economic Stabilization Act of 2008" which included an extension of residential tax credits on fuel cell and solar energy systems. A consumer tax credit of up to 30% of the cost (up to $500 per 0.5 kW of capacity maximum) is available for installing qualified fuel cell and microturbine systems. The credits are available for systems placed in service from January 1, 2006 through December 31, 2016. In addition, tax credits are available to buyers of hybrid gasoline-

electric, diesel, battery-electric, alternative fuel, and fuel cell vehicles. The tax credit amount is based on a formula determined by vehicle weight, technology, and fuel economy compared to base year models.
Tax Credits: http://www.energystar.gov/index.cfm?c=products.pr_tax_credits

4. DOE Selects Hydrogen Storage Engineering Center of Excellence
The U.S. Dept. of Energy (DOE) announced the selection of the team for negotiation of cost-shared awards to participate in a new Hydrogen Storage Engineering Center of Excellence. The team will be led by Savannah River National Laboratory in South Carolina and consists of 10 partners including universities, industry and federal laboratories. Subject to availability of funding, DOE expects to provide up to $6 million in fiscal year 2009 for these projects. The Hydrogen Storage Engineering Center of Excellence is a virtual center that is anticipated to run for approximately 5 years. The selected teams will address engineering challenges associated with developing low-pressure, materials-based hydrogen storage systems that will enable fuel cell vehicles to meet customer expectations for driving range and performance.
Hydrogen Storage: http://www.fuelcelltoday.com/online/news/articles/2008-10/doe-savannah

5. Europeans Launch Fuel Cell and Hydrogen JTI in Brussels
Representatives of industry, the research community and European institutions launched the EUR 1 billion Fuel Cell and Hydrogen Joint Technology Initiative (JTI) at an event in Brussels, Belgium on October 14. Over the next six years, the Commission and industry will plough almost EUR 500 million each into the initiative, with the aim of accelerating the development of hydrogen and fuel cell technologies and bringing them to the market by 2020. It is estimated that the JTI's activities will reduce the time to market for these technologies by two to five years. The new JTI brings together over 60 private companies, including small and medium-sized enterprises and large multinationals, together with leading energy research groups from across Europe.
JTI: http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&SESSION=&RCN=29982

6. EU Clears French Aid to Hydrogen Project
A French government-aided project to develop hydrogen power for vehicles won European Union backing. The European Commission said it approved EUR 68 million ($92.7 million) of French state aid to Air Liquide and 17 other companies in the H2E venture. They are looking at innovations in the market for hydrogen energy, such as producing hydrogen from water and developing hydrogen fuel cells to power vehicles. "Market failures exist in every segment of the hydrogen energy chain -- production, storage and distribution -- where companies are reluctant to invest because of the high risks in a yet undeveloped market," the European Commission said in a statement. "When the market is unable to trigger R&D activity, well targeted state aid can create the right incentives," it added.
EU:
http://www.reuters.com/article/rbssIndustryMaterialsUtilitiesNews/idUSL83810520081008

7. Reuters Summit - Hydrogen Cities Seen Driving Fuel Cell Adoption
At the recent Reuters Global Environment Summit, California Air Resources Board Chairman Mary Nichols said a 4-year-old plan to build a Hydrogen Highway across the most populous U.S. state would likely end up being focused on concentrated areas."The model of the hydrogen highway might more accurately be termed as a hydrogen city, Nichols said at the Summit. "There could be some stations strung out along major highway routes, but at least in the very early stages the stations are going to more likely be in areas where people who use their cars for commuting and driving normally will be able to come back to a centralized

area to get fueled up."
Hydrogen Cities:
http://www.reuters.com/article/GlobalEnvironment08/idUSTRE4960UY20081007

8. Symposium On Car Of Future Provides Electric Moment
For a group of automakers, industry insiders and entrepreneurs, a Consumer Reports symposium on the "Car of the Future" provided a truly electric moment. Whether it was a plug-in hybrid from Ford, a fuel-cell-powered SUV from General Motors or an older Volkswagen and DeLorean converted to battery operation, all of the discussion ended in the same place: electric-powered motors. The differences focused on how the electricity reaches the wheels. As one person said at the Sept. 26 symposium at Consumer Reports' East Haddam test center, "The motors don't really care where the electrons are flowing from." The dominant source of discussion was hydrogen-powered fuel cell technology, as shown by the Chevrolet Equinox and Nissan X-Trail sport utilities and the Honda FCX Clarity sedan.
Cars of Future: http://www.courant.com/business/hc-futurecars1005.artoct05,0,2960821.story

9. First Orange County Man to Lease Honda's Hydrogen Fuel-Cell Car
Newport Beach construction company owner Jim Salomon got the keys to his FCX Clarity recently, the first in Orange County and the third in Southern California to receive the hydrogen fuel-cell vehicles. After he drove it off the lot, his first stop was a UC Irvine hydrogen refueling station. "The pick-up on this car is quicker than some of my gas powered vehicles," said Salomon, 51, who is a car collector. "Very smooth performance." Salomon will fill up at UC Irvine when he's in town, and keep close track of the roughly 16 hydrogen refueling sites in the region, when he leaves the county. "I intend to really use a lot of the stations," Salomon said. "I'm going to have to drive this to work: Los Angeles, San Bernardino; there's a station in Riverside. I'll really be putting it through its paces."
Honda: http://www.ocregister.com/articles/hydrogen-car-honda-2196530-salomon-gas

10. Mazda's Hydrogen Future
Mazda has confirmed that it will put its hydrogen-powered rotary engine into mass production. James Muir, Mazda Europe's CEO, said that the company "will do the hydrogen rotary engine, but it won't be in production for at least five years." The company is already running 30 hydrogen-powered RX-8s capable of 200km range in conjunction with a Norwegian company, HyNor, as part of its development tests. Mazda plans to lease about 30 units of the vehicle in Norway under the HyNor initiative from fiscal 2009. The next generation of Mazda's RX-7 sportscar is likely to be the first model to get the new tech. Though not confirmed for production yet, the project's key targets of light weight, performance and eco-credentials make a radical new RX-7 the ideal flagship for the new hydrogen technology.
Mazda: http://www.autocar.co.uk/News/NewsArticle/Mazda-Concepts/235308/
Norway: http://www.japancorp.net/Article.Asp?Art_ID=20334

11. GM Chevrolet Equinox Hydrogen Car Debuts in China
The Chevrolet Equinox hydrogen fuel cell car was displayed in Beijing on October 21, kicking off the China tour of GM's hydrogen-powered vehicle. In the coming two years, General Motors will introduce several Chevrolet Equinox hydrogen-fuel cell cars to China. First they will set off in Beijing for a 2009 promotional tour in the country, to demonstrate GM's cutting-edge technologies of clean energy vehicles and appeal to the general public for more support for eco-friendly energy development. The Chevrolet Equinox to be displayed across China can run 320 km on the power generated by the hydrogen energy. It can reach 100

km/h in 12 second from a zero speed.
Equinox: http://www.theautochannel.com/news/2008/10/22/190109.html

12. Birmingham U Revs up Fleet of Hydrogen Cars
A fleet of five hydrogen powered cars have been unveiled at the University of Birmingham. Designed and built by Microcab, the cars are being used in a study by the university's School of Chemical Engineering to find out more about the viability of hydrogen in transport. Researchers will learn about their efficiency, performance and how they can be adapted to make hydrogen an attractive and cost effective option as a future fuel. The cars can travel up to 100 miles on a full tank of hydrogen and reach speeds of up to 50 miles per hour.
Birmingham: http://www.greenbang.com/5336/birmingham-university-buys-fleet-of-hydrogen-powered-cars/

13. Air Products Commissions Hydrogen Fueling Stations and Buses
Air Products has been part of many hydrogen fueling station dedication ceremonies around the world, but a recent event held at its headquarters campus was a special one. In front of an enthusiastic crowd of employees, elected officials, invited guests and media, Air Products officially commissioned its new hydrogen fueling station and two hydrogen-powered buses as part of a Hydrogen Education Initiative. The Hydrogen Education Initiative, funded largely by the Federal Transit Administration (FTA), will be managed by the Da Vinci Science Center of Allentown, PA. The program is to promote energy independence, a cleaner environment, and educate the public on the benefits of, and advancements in, developing a hydrogen economy.
Air Products:
http://www.airproducts.com/PressRoom/CompanyNews/Archived/2008/06Oct2008.htm

14. New Material Could Speed Development Of Hydrogen Powered Vehicles
Researchers in Greece report design of a new material that almost meets the U.S. Dept. of Energy (DOE) 2010 goals for hydrogen storage and could help eliminate a key roadblock to practical hydrogen-powered vehicles. Researchers long have sought ways of using carbon nanotubes (CNTs) to store hydrogen in fuel cell vehicles. In the new study, the researchers used computer modeling to design a unique hydrogen-storage structure consisting of parallel graphene sheets -- layers of carbon just one atom thick -- stabilized by vertical columns of CNTs, plus lithium ions to enhance the materials' storage capacity. The scientists' calculations show they could theoretically store up to 41 grams of hydrogen per liter, almost matching the DOE's target (45 grams of hydrogen per liter) for transportation applications.
Greece: http://www.sciencedaily.com/releases/2008/10/081006170531.htm

15. Hydrogenics to Provide Fuel Cells to CommScope for Back-Up Power
Hydrogenics Corp. recently announced that it will deliver Fuel Cell Power Modules along with Hydrogenics power conditioning and controller modules, to CommScope, Inc. to provide extended run and environmentally friendly backup power systems to leading telecom carriers worldwide. The CommScope family of products is being expanded under Andrew Wireless Solutions to address the unique requirements of wireless and wireline operators around the world. The Hydrogenics HyPM fuel cell modules will be embedded as part of Andrews' EcoPower Integrated Fuel Cell Solution. Using hydrogen fuel cells lowers operating costs, increases reliability, and extends runtime duration, while reducing maintenance cost, minimizing environmental impact, and reducing the total cost of ownership.
Hydrogenics: http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=342775

16. U.S. Army Awards Research Grant to QuantumSphere
QuantumSphere, Inc. recently announced that it has been awarded a grant by the U.S. Army for the development of advanced fuel cell technology that improves efficiency, integration and portability and reduces costs for portable power applications. In the first, nine-month phase of the project, the company will be awarded $120,000 to investigate the synthesis and electrochemistry of bifunctional anodes, high temperature electrolyte membranes and low-cost cathode catalysts for a 5W fuel cell. If successful, QuantumSphere will move to the second phase of the project, a two-year $750,000 effort to develop a 200W methanol reforming fuel cell in a smaller, lighter form factor to power portable electronic devices in the Army's Future Force Warrior program.
QuantumSphere: http://www.qsinano.com/news/releases/2008_10_14.php

17. Trulite Awarded Naval Development Contract for Hydrogen Generation System
Trulite, Inc., announced that the company has been awarded a $531,000 naval development contract to develop a high energy density hydrogen generation system that can provide up to 500 watts of power in a compact, portable unit. Trulite has been awarded this contract to develop a system for the Navy that allows for substantial power capacity in a small package, with hydrogen storage capabilities greater than 2000 watt-hours per kilogram. The focus of the development will be for power needs that span across a wide set of military applications including: small vehicles, autonomous robots, remote telecommunications, backup power, battery chargers, medical evacuations, mobile command, and numerous others.
Trulite: http://freshnews.com/news/defense-west/article_46257.html

18. Proton Energy Systems' Fuel Cells to Power U.S. Army
Proton Energy Systems won from the U.S. Army's Engineer Research and Development Center (ERDC) a $2.62 million contract to develop a Regenerative Fuel Cell System for "Silent Camp" operation. ERDC-Construction Engineering Research Laboratory is investigating a "Silent Camp," where traditional power production is integrated with quiet, environmentally sound advanced hydrogen fuel cell technology. Proton's regenerative fuel cell technology may enable the military to operate its generators at higher efficiency points, and provide critical energy storage to capture excess capacity. The system could reduce logistics and potential loss of life associated with high risk fuel transport operations. It could also provide backup power for extended operations if generators fail.
Proton: http://mae.pennnet.com/display_article/342793/32/NEWS/none/none/1/Proton-Energy-Systems'-fuel-cells-to-power-US-Army/

19. H-Delivery Project Receives Initial $8M Grant
Funded under the UK Research Councils' SUPERGEN program, the Delivery of Sustainable Hydrogen (H-Delivery) project has been awarded an initial grant of U$8 million over four years. The collaboration brings together an interdisciplinary research team spanning the physical sciences, engineering and social sciences from 13 UK universities to research a number of aspects of hydrogen production, including: advanced methods for the chemical and electrical generation of sustainable hydrogen; the conversion of hydrogen and associated by-products into alternative industrial feedstocks and fuels; the socio-economic appraisal of novel hydrogen production technologies; and policy measures to promote the transition to a sustainable, low-carbon, hydrogen economy.
H-Delivery: http://www.greencarcongress.com/2008/10/delivery-of-sus.html

20. Tata Steel Develops Hydrogen Production Technology
Tata Steel has developed technology to produce hydrogen by harnessing the heat from slag, which is generated during production of steel. The process, called hydrogen harvesting, is

the effort of Tata Steel's R&D wing. Water is split into its components of hydrogen and oxygen by spraying it over slag as hot as 1,600 degrees Celsius. The oxygen is directed back into the slag to form oxides, while the steam accompanying hydrogen gets condensed to leave only hydrogen. "Depending on how carefully you have done it, you can get as much as 70% of hydrogen, while the rest could be nitrogen and some carbon dioxide," Debashish Bhattacharjee, chief, R&D and scientific services, Tata Steel, said recently. He said the process has successfully generated up to 73% pure hydrogen.
Tata: http://www.financialexpress.com/news/tata-steel-develops-hydrogen-production-tech-granted-pct/370776/

21. Sprint Announces Environmental Leadership Priorities
Sprint is announcing an ambitious goal to reduce its total greenhouse gas (GHG) emissions 15 percent by 2017, along with a set of environmental priorities, as part of its expanded environmental program. The Environmental Protection Agency (EPA) recognized Sprint as a "GHG Reduction Goal Setter" during the recent 2008 Climate Leaders Conference in Chicago. Sprint is currently a leader in hydrogen fuel cell deployment within the U.S. communications arena, with more than 250 hydrogen fuel cells in its core network -- and with more planned. In addition, Sprint's XOHM network, launched in Baltimore in September, was designed to be green, relying on hydrogen fuel cells as the primary backup power source.
Sprint: http://www.marketwatch.com/news/story/sprint-announces-environmental-leadership-priorities/story.aspx?guid=%7BE00B97CA-92D8-4E6F-A0FD-CC6733BE2252%7D&dist=hppr

22. Another Breakthrough in Aircraft Fuel Cell Technology
Europe's aviation establishment continues to push the limits of fuel cell technology. In October, an Antares motor glider became the first manned aircraft to take off and land using only a fuel cell to power its electric engine. DLR, Germany's national aviation research body, conducted the test in partnership with BASF and Denmark's Serenergy, a company that designs fuel cell stacks and power modules. While it's unlikely that fuel cells will ever be used to propel commercial aircraft, researchers believe the technology could be used for electrical systems and axillary power. The air-cooled stack in the fuel cell system uses polymer electrolyte membrane (PEM) technology based on BASF's Celtec membrane electrode assemblies and a stack supplied by Serenergy.
Aviation: http://blog.wired.com/cars/2008/10/high-temperatur.html

23. California Roundtable, EDTA 2008 Both Held Dec. 2-4
Advanced energy storage technologies represent a long-awaited answer to growing demands for availability, load leveling, peak-shaving, and power quality. The California Energy Roundtable (AES08), to be held in La Jolla, CA addresses the timing and commercialization of all leading storage technologies, policy developments, and investment trends. California's national and international clean energy leadership role will also be highlighted. Also on December 2-4, The Electric Drive Transportation Assn. presents its 2008 industry conference and expo at the Washington DC Convention Center USA. The theme, "Powering Sustainable Transportation," includes battery, hybrid, plug-in and fuel cell technologies.
Roundtable: http://www.MontreuxEnergy.com
EDTA 2008: http://edta.orchidsuites.net/sites/conf2008/ht/d/Home/pid/224

24. CalStart Target 2030 Jan 14-15, Sacramento
The transportation energy and climate challenge facing California and the nation is huge; the goals set to combat the challenge can seem daunting. While there is finally emerging

consensus that action is needed, the public dialogue often seems trapped in the confines of old approaches and single solution pathways. CALSTART is planning a symposium in Sacramento aimed at establishing a forum for identifying, stimulating and measuring real actions. Linked closely with the California Secure Transportation Energy Partnership (CalSTEP) action plan and its efforts to push momentum for tangible steps to achieve California's policy goals, Target 2030 will highlight the comprehensive solutions needed to achieve a secure transportation energy and climate future.
CalStart: http://www.calstart.org/programs/2030_index.php

25. CHBC Board; Send Us Your News
We welcome important news from our members for inclusion on our website and in next month's report. Thank you for helping build a great organization. Our board: President - Henry Wedaa; Vice President - Paul Scott, ScD; Secretary - Josh Mauzey; Treasurer - John Williams; Managing Director - Catherine Rips; Membership Chairman - Mark Abramowitz; Program Chairman - Henry Wedaa; Director at Large - Allan Bedwell; Director at Large - Fred Silver; Director at Large - Larry Watkins; Ex-officio Government Liaision - Analisa Bevan. To send news or contact the board, please email: info@californiahydrogen.org.

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