CHBC News: September 2008

1. Welcome New Members!
CHBC extends a warm welcome to our newest Silver member: UTC Power. We appreciate your support!
UTC Power: http://www.utcfuelcells.com/fs/com/bin/fs_com_PowerHomePage/

2. Prop 10 Pro, Con Discussed at Sept 12 CHBC Meeting
CHBC's September 12 General Meeting, hosted by South Coast Air Quality Management, features three key presentations on the future of hydrogen as well as updates on important projects at AC Transit, CalState Northridge, ClearEdge Power, QuantumSphere and more. In keeping with the political season, a late-breaking addition to the agenda spotlights pros and cons of Prop 10, The California Renewable Energy and Clean Alternative Fuel Act. Register by September 2 to qualify for pre-reg pricing. Following our meeting, The Future is Green Conference and Expo will be held in Long Beach, co-hosted by CHBC members South Coast Air Quality Management District and Bay Area Air Quality Management District. CHBC is a support sponsor.
Sept 12 CHBC Meeting:

http://www.californiahydrogen.org/page.cfm?content=45&event_ID=76
Future is Green: http://www.capcoagreen.com

3. Fuel Cell Entrepreneur Geoff Ballard, 1932 - 2008
Geoff Ballard, a Canadian pioneer of the fuel-cell industry and an entrepreneur Time Magazine once named one of its "Heroes for the Planet," died in August in Vancouver. He was 76. He developed the world's first zero-emission transit bus powered by a hydrogen fuel cell. Science World, a science center in Vancouver, unveiled the vehicle in 1993. In 1979, Ballard founded Ballard Power Systems Inc. He was chairman of the company until 1997. In 1999, he started General Hydrogen, bought last year by Plug Power Inc. "His name will forever be associated with this company's fuel-cell products," said John Sheridan, Ballard's president and CEO. Friends of Geoff Ballard will offer a special tribute to him at CHBC's September 12 General Meeting.
Geoff Ballard: http://www.chicagotribune.com/news/local/chi-ballard_obitaug07,0,4423298.story

4. ARB Awards $7.6 Million for Three New H2 Stations
The California Hydrogen Highway Network will gain three new stations by the end of 2009. The new stations will increase publicly accessible infrastructure in preparation for increased hydrogen fuel cell vehicles from General Motors, Honda and others. $2.7 million will help co-fund the station in Fountain Valley, CA located at the Orange County Sanitation District Facility (see story 15 below). $2.2 million was awarded to California State University, Los Angeles, and $2.7 million was awarded to the Alameda-Contra Costa County Transit District to establish, operate and maintain a new 350/700 bar hydrogen station in Emeryville, CA.
Hydrogen Highway: http://www.californiahydrogen.org/page.cfm?content=20&display=90

5. Linde's Mike McGowan Named Chairman of National Hydrogen Association
Mike McGowan, head of hydrogen solutions for Linde North America, has been named chairman of the National Hydrogen Association (NHA). Linde North America is a member of The Linde Group, one of the world's largest producers and suppliers of hydrogen. During his two-year tenure as chairman, McGowan will be responsible for leading the NHA, through its members, to create a shared vision for the deployment of hydrogen technologies and expanding hydrogen infrastructure. "It is a very appropriate time for the NHA to choose a chair from an industrial gases company. Our industry serves the entire spectrum of NHA membership. I am very proud and privileged to be chairing the NHA at such an exciting and pivotal juncture in the ongoing effort to make the promise of hydrogen a reality," McGowan said.
McGowan:
http://www.linde.com/international/web/linde/like35lindecom.nsf/0/EBF76D5746AF6409C125749E002F7FC8

6. Americans See Glimpse of Hydrogen Powered Future During Historic Two Week Road Tour Across the U.S.
Nine auto manufacturers, the U.S. Dept. of Energy, California Fuel Cell Partnership, National Hydrogen Association, and U.S. DOT sponsored the Hydrogen Road Tour 2008 in August to show that hydrogen vehicle and fueling technologies are approaching commercial availability, even as new research and development breakthroughs continue. The tour made 31 stops in 18 states, stretching from Maine to the final stops in California. Hydrogen vehicles from BMW, Daimler, Ford, GM, Honda, Hyundai-Kia, Nissan, Toyota, and Volkswagen made the journey, and were joined by hydrogen transit buses along the route. Air Products and Chemicals, Inc. and Linde provided mobile refueling stations and hydrogen fuel. Eden Hydrogen provided fuel in Thousand Palms, CA . The California Hydrogen

Business Council participated in the final event.
Press Release: http://www.dot.gov/affairs/dot11108.htm
Hydrogen Road Tour: http://hydrogenroadtour08.dot.gov/

7. Honda Delivers FCX Clarity to Jamie Lee Curtis
American Honda Motor Co., Inc., announced that its second FCX Clarity customer, Jamie Lee Curtis, took delivery of the vehicle. Curtis and husband Christopher Guest are the second of approximately 200 customers who will begin leasing the vehicle in the U.S. and Japan over the next three years. Ron Yerxa and Annette Ballester, Santa Monica, CA residents, took delivery of the first FCX Clarity in July 2008. The FCX Clarity is a next-generation, hydrogen-powered fuel cell vehicle. Significant advances over Honda's previous generation FCX include a 25 per cent increase in combined fuel economy to 72 miles/kg-H2 and a greater than 30 per cent increase in driving range up to 280 miles. Its fuel efficiency is three times that of a modern gasoline-powered automobile.
Honda: http://www.hondanews.com/categories/869/releases/4651

8. Ford Fuel Cell Fleet Exceeds Performance Expectations, Test Program Extended
Ford Motor Co.'s fleet of 30 fuel cell vehicles has exceeded expectations of the company's hydrogen research engineers by accumulating more than 865,000 real world miles without significant maintenance issues since the fleet's launch. The Focus Fuel Cell test vehicles also have earned accolades from Ford's global fleet partners for outstanding durability, reliability and capability. Encouraged by the program's success, Ford recently reached an agreement with the U.S. Dept. of Energy to extend its three-year-old hydrogen fuel cell electric vehicle program for up to 24 months, until the next generation system is ready for deployment in the 2010 timeframe. The first generation vehicles lasted three times longer and worked much better than originally expected with virtually no degradation in performance.
Ford: http://www.ford.com/about-ford/news-announcements/press-releases/press-releases-detail/pr-ford-fuel-cell-fleet-exceeds-28904

9. Nissan Doubles Power Density of Fuel Cell Stack
Nissan Motor Co., Ltd. has developed a new fuel cell stack with double the power density of the previous generation stack. The new fuel cell stack also achieves a 35% cost reduction, mainly due to using 50% less platinum, a key material used in the production of fuel cell stacks. Test fleets incorporating the improved fuel cell stacks will be operational by the end of this year. The next generation fuel cell stack is among a range of eco-friendly technologies being pursued by Nissan under its Nissan Green Program 2010, aimed at developing new technologies, products and services that can lead to real-world reductions in vehicle CO2 emissions, cleaner emissions, and recycling of resources.
Nissan:
http://www.nissannews.com/newsrelease.do;jsessionid=ADCD9ABB7787DA7644401C88E6E2F136?mid=1&id=546

10. Hydrogen Scorpion Hits the Texas Hill Country
Ronn Motor Co. in Cottonwood Shores, TX has built a new fuel-efficient car that runs off a combination of hydrogen and fuel. CEO Ronn Maxwell said the technology is not a new concept, but he and his team have improved the efficiency and created a new sports car, both road and racetrack ready, from the ground up. The Scorpion has a 3.5 V6 Acura V-Tech engine and six-speed manual transmission with a hydraulic clutch. Maxwell said it can get 40 miles per gallon. It has a 10-gallon fuel tank and holds about 3 gallons of hydrogen. Maxwell plans on producing 200 Scorpions next year, priced at $150,000. He said there are plans for more affordable and practical models for everyday driving, but that is further down the road. There is already a waiting list for the Scorpion, and production will begin in early

2009.
Scorpion: http://www.kxan.com/Global/story.asp?S=8800878&nav=0s3dvbpp

11. University Builds Mexico's First Hybrid Fuel Cell Vehicle
The National Autonomous University of Mexico (UNAM) is building the first compact hybrid vehicle in the country. The Ecovia, which will operate on energy produced by hydrogen fuel cells and stored in a battery, is expected to be ready in three months. The vehicle will be able to carry two passengers in the front and cargo in the rear. The university plans to use the Ecovia for security patrols, traffic control and delivering mail, among other tasks. If there is no hydrogen available for the fuel cells, the vehicle's batteries can be recharged from a wall outlet. UNAM is the first Mexican public university to completely cover the funding for this type of a project, which has cost 4 million pesos (some $392,000) and taken two years.
Mexico: http://www.fuelcellsworks.com/Supppage9115.html

12. China Exports Fuel Cell Mopeds
China has developed its first hydrogen fuel-cell mopeds and has begun to export them. Shanghai Pearl Hydrogen Power Resource Technology has sent 30 fuel-cell mopeds overseas since May, according to its marketing director. This included 20 units to Spain through a local partner that served the World Expo in Spain this year. Others were shipped to the U.S. and Britain. Founded in 2006, Shanghai Pearl is the first Chinese company to export fuel-cell bikes. The fuel-cell e-bikes have a hydrogen container under the seat that is used to generate electricity to power the bike. The fuel-cell moped can travel 70 to 80 kilometers with 50 grams of hydrogen after charging for 20 minutes. A normal lead-acid e-bike usually runs out of power after 10 miles and takes four to six hours to fully charge the battery.
China: http://www.shanghaidaily.com/article/?id=370411&type=Business

13. Hydrogen-powered Cars Meet in Championship Race
Six international university teams competed in the Dutch city of Rotterdam recently in what was billed as a motor racing championship for hydrogen-powered vehicles. The "Formula Zero" series aims to demonstrate the viability of zero-emission fuel cell technology, even if the average speeds of around 50 kph (32 mph) were more akin to those of a cycle race than of Formula One. The karts ran individual timed laps rather than racing directly against each other on the 550-metre (600-yard) circuit, because of the risks to car and driver from collision damage to the fuel cells.
Formula Zero: http://uk.reuters.com/article/environmentNews/idUKLN04035620080823

14. New Hydrogen Production Method Created
Chemists at Ohio State University have developed a catalyst that can very efficiently convert ethanol and other biofuels into hydrogen. Ohio State Professor Umit Ozkan said the new catalyst makes hydrogen from ethanol with 90 per cent yield, at a workable temperature and using inexpensive ingredients since it doesn't contain precious metals, such as platinum or rhodium. "Rhodium is used most often for this kind of catalyst and it costs around $9,000 an ounce," Ozkan said. "Our catalyst costs around $9 a kilogram." The method elimimates the need to transport or store the hydrogen. "We could store the biofuel, and make hydrogen on the spot." Ozkan and doctoral students Hua Song and Lingzhi Zhang presented the research recently in Philadelphia during a meeting of the American Chemical Society.
Catalyst:
http://www.upi.com/Science_News/2008/08/25/New_hydrogen_production_method_created/UPI-91161219687669/

15. OCSD to Begin Producing Hydrogen Fuel from Sewage
The Orange County Sanitation District (OSCD) is about to begin converting human waste into hydrogen fuel in a first-of-its-kind attempt to turn sewage into a salable product. The district, along with University of California - Irvine researchers and private companies, has agreed to install the new device in an $8 million demonstration project that could begin operating by May, 2009. And if it takes off, sewage treatment plants around the country could one day double as gas stations. UC Irvine's National Fuel Cell Research Center helped develop the new fuel cell device. "Society is unlikely to run out of human waste anytime soon," noted director Scott Samuelsen "This is the epitome of a sustainable technology," he said.
OCSD: http://www.ocregister.com/articles/fuel-district-hydrogen-2122433-sewage-methane

16. India's GSPC to Mix 20% Hydrogen with CNG
The Gujarat State Petroleum Corp. (GSPC) is working with Australia-based Eden Energy Ltd to introduce HCNG. PPG Sarma, CEO, GSPC Gas, said, "We have started a pilot project with a 20% mix of hydrogen in CNG. This is the second experiment in India. IOC has also started a similar experiment in Delhi. The hydrogen mixing technology we are considering is being used in the U.S. It considerably reduces both pollution levels and cost. It also saves the crucial CNG gas by 20%." He added, "Implementing the proposed fuel would face legal challenges. HCNG is not a listed fuel under the Central Motor Vehicle Rules (CMRV), so first we have to get it listed by the Road and Transport Ministry." The new fuel must also get certification from the Petroleum and Explosives Safety Organization.
India: http://sify.com/finance/fullstory.php?id=14745224

17. U.S. Helps Fund Hydrogen Storage Projects
The U.S. Dept. of Energy (DOE) selected 10 cost-shared hydrogen storage research projects that will receive up to $15.3 million. The selected projects will seek to develop hydrogen storage technologies to enable fuel cell vehicles to meet driving range and performance goals, the department said. DOE will negotiate the terms of the projects. The organizations selected for negotiation of awards are the Energy Department's Los Alamos and Sandia National Laboratories, Northwestern University (two projects), Ohio State University, Pennsylvania State University, U.S. Borax Inc., the University of Missouri, the University of Oregon and the University of California-Los Angeles.
DOE Awards:
http://www.upi.com/Science_News/2008/08/14/US_helps_fund_hydrogen_storage_projects/UPI-77071218737774/

18. Hydrogenics to Supply Electrolyzer for Remote Community Hydrogen Energy System
Hydrogenics Corp. has been selected by Powertech Labs to provide an electrolyzer for a community hydro-hydrogen-diesel system serving the community of Bella Coola, British Columbia. By adding zero-emission hydrogen generation, storage and power generation, the Bella Coola project expects an increase in the proportion of electricity derived from their run-of-the-river hydro-electric power generation system. This increased penetration of renewable resources will lead to a decreased dependence on diesel fuel. Hydrogenics anticipates it will deliver its commercially proven HySTAT™ onsite generation electrolyzer to Powertech Labs within nine months. Funding for the project comes from BC Hydro, Sustainable Technology Development Canada, and GE Canada.
Hydrogenics: http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=326933

19. Cell Tower Owners Mulling Fuel Cells for Backup Power
Providing backup at cell towers might soon be mandatory as wireless providers struggle with disaster-related loss of power. Manish Bhandari, general manager of Emerson Network Power, a unit of Emerson Electric Co., says lately he's seen rising interest in fuel cells. "In the last 18 months, I would say the number of inquiries associated with fuel-cell-based applications is 10 to 15 times more than it used to be," Bhandari said. "We are working with pretty much every major wireless operator either on a first office application, a trial site or large network-based RFQs throughout systems." "The fuel is compressed hydrogen. Cylinders would last anywhere from three to nine months without a refill requirement," Bhandari said. That's if they were on standby to be used as backup, not in continual use.
Cell Towers: http://www.fuelcellsworks.com/Supppage9094.html

20. Military Hopes to Propagate Fuel Cell Technology
The Defense Logistics Agency, which provides logistics combat support, began a two year demonstration program at the Warner Robins defense depot on Robins Air Force base in Georgia on July 24. Using hydrogen fuel cells it is expected that forklifts will get back to work faster after a refueling than after battery-powered units are recharged. On site, operators will produce natural gas using a 15 by 18 foot reformer to obtain hydrogen, generating up to 2,000 standard cubic feet per hour. Non-profit technology developer Concurrent Technologies Corp. is teaming with hydrogen supplier Air Products and Chemicals and fuel cell power product creator Hydrogenics Corp. to complete the process. The issues the DLA is encountering will help pave the way for other users in their hydrogen-powered plans.
Forklifts: http://www.mmh.com/article/CA6584314.html

21. Major Discovery Primed To Unleash Solar Revolution: Scientists Mimic Essence Of Plants' Energy Storage System
MIT researchers have hit upon a simple, inexpensive, highly efficient process for storing solar energy. Inspired by the photosynthesis performed by plants, researchers have developed an unprecedented process that will allow the sun's energy to be used to split water into hydrogen and oxygen gases. Later, the oxygen and hydrogen may be recombined inside a fuel cell, creating carbon-free electricity.The key component in the new process is a new catalyst that produces oxygen gas from water; another catalyst produces valuable hydrogen gas. The catalyst consists of cobalt metal, phosphate and an electrode, placed in water. Combined with another catalyst that can produce hydrogen gas from water, the system can duplicate the water splitting reaction that occurs during photosynthesis.
MIT Research: http://www.sciencedaily.com/releases/2008/07/080731143345.htm

22. Technip and Geogreen Announce Carbon Capture and Storage Agreement
Technip and Geogreen have signed a non-exclusive agreement that will allow the two companies to offer clients studies for integrated solutions for the entire carbon (CO_2) capture, transport and storage chain. This partnership teams Technip's know-how in CO_2 capture, transport and gas compression for injection into underground structures, with Geogreen's expertise in CO_2 transport and geological storage. It strengthens the positions of both companies on this high-potential market. CO_2 capture and storage technologies can be applied in many of Technip's sectors of activity including oil field developments, hydrogen production units and treatment of natural gas.
Technip: http://www.technip.com/english/press/articles/2008/2008-08-01.htm

23. Air Products Acquires Harvest Energy Technology
Air Products recently announced it has acquired Harvest Energy Technology, Inc., a leader in the development of hydrogen generation technology for industrial and energy

applications, to enhance its overall global hydrogen product offerings. Terms of the deal for the company based in Sun Valley, CA are not being disclosed. "This acquisition enables Air Products to offer a cost-effective generated hydrogen solution to augment our current gaseous tube trailer and liquid hydrogen tanker offerings," says Robert Dixon, senior vice president and general manager, Merchant Gases at Air Products. "This new hydrogen generation offering rounds out our merchant gases portfolio and enables us to better serve our customers globally."
Air Products:
http://www.airproducts.com/PressRoom/CompanyNews/Archived/2008/20Aug2008.htm

24. NHA Fall Forum Sept. 22-24, Golden, Colo.
Renewable energy and hydrogen industry experts from around the world will gather from September 22-24 in Golden, CO for the nation's only event focused on hydrogen production using renewable resources. Main session topics include: Renewable Resources for Hydrogen Production, Renewable Hydrogen Policy, Infrastructure Development and Planning, and Commercialization Projects. Registration is open. The keynotes, panels and workshops can be combined with an in-depth tour of hydrogen R&D at the National Renewable Energy Lab. Register: http://www.hydrogenforums.org/

25. Board of Directors; 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.

Catherine Rips, Editor/Publisher

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