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1. Membership Drive

Why should the New Year celebration just last a night? To spread the good cheer, CHBC is offering members the chance to attend their next meeting free. Just let Managing Director Catherine Rips know you've signed up a new member and when the membership is paid, we'll give you complimentary registration to your next meeting. She can be reached at (760) 341-2924.

2. Join the Hydrogen Leaders at the CHBC Meeting in San Francisco

Register early for CHBC's next General Meeting, February 10, hosted by Bay Area Air Quality Management District, and save \$50. Plus save on discounted rooms at the Cathedral Hill Hotel, San Francisco. If you register by phone, be sure to ask for the CHBC group discount of \$79 per room. If you reserve your room online (see link below), your attendee login is "CHBC." Featured speakers and topics include: Karl-Heinz Ziwick, BMW's Hydrogen Programs; Chris Bordeaux, DOE International Partnership for the Hydrogen Economy; Analisa Bevan, CARB, California Hydrogen Highway Program; Nick Beck, Natural Resources Canada, Canada's Hydrogen Efforts; Daniel Sioui, Hyradix Reformers in Use; Paul Scott, ISE Corp. Hydrogen Internal Combustion Engine Test Program; Pana Ratana, Shell Hydrogen's Projects; Shimshon Gottesfeld, PhD, MTI Micro

Fuel Cells, Direct Methanol Fuel Cells for Portable Power Applications; Jack Broadbent, BAAQMD Clean Transportation and Clean Energy Initiatives.

Meeting Registration -

http://www.californiahydrogen.org/page.cfm?content=17&event_ID=42

Hotel Reservations - https://reservations.ihotelier.com/crs/g_login.cfm?hotelid=3786

3. Hydrogenics Wins \$8 Million Power Module Order

CHBC Gold Member Hydrogenics Corp. was awarded a \$US 8 million contract for multiple units of its HyPM 500 Series Fuel Cell Power Modules from a world leading military OEM. The power modules, representing in aggregate over 600 kW of power capacity, will be delivered over a two-year period starting in 2006. Hydrogenics also announced in December the firm has received a series of purchase orders from General Motors Corp. for fuel cell test services anticipated to be delivered in 2006.

Hydrogenics - http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=182509

GM Order - http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=182510

4. Air Force Deploys Micro-Grid of Fuel Cells

Georgia's Robins Air Force Base along with representatives from New York-based manufacturer Plug Power Inc., Atlanta-based Logan Energy Corp., the Army Corps of Engineers Research and Development Center and others, gathered outside of the base's Ground Water Treatment Plant for the unveiling of 10 five-kilowatt fuel cells commissioned in early October. The alternative fuel sources, which reform propane gas and extract hydrogen to produce electricity, came to the base as part of Robins' Fuel Cell Micro-grid project, also known as the Common Core Power Production, or C2P2, program.

<http://www.cleandedge.com/story.php?nID=3885>

5. Dynetek and Ford Gain in Airports and Shuttles

Dynetek, together with its alliance partner enviroMECH Industries Ltd., announced it has delivered two 350bar (5000psi) Hydrogen Fuel Storage Systems to TUG Technologies to be used in tow tractors at the Orlando International Airport. This demonstration project utilizes Dynetek's Hydrogen Fuel Storage System solutions by providing hydrogen to tow tractors powered by a Ford Motor Co. internal combustion engine. In 2006, Dynetek's Hydrogen Fuel Storage System will be also showcased on eight HICE V-10, Ford F-450 shuttles operating in the Orlando area, including at the Orlando airport.

<http://www.newswire.ca/en/releases/archive/December2005/23/c3212.html>

6. Wind Electrolysis and HICE Prius for Vermont

New England's first hydrogen fueling station is under construction near Burlington Electric Department in Vermont. Funded by a \$1 million grant from the U.S. Department of Energy, the station will use power from a nearby B.E.D.-owned wind turbine to electrolyze hydrogen for use in a Quantum Technologies-developed Toyota Hydrogen Prius. The station is being built and tested by Proton Energy Systems.

<http://www.wcax.com/Global/story.asp?S=4275278&nav=4QcS>

7. \$950 Million 'Clean-Coal' Plant to Produce Hydrogen

The U.S. Department of Energy has signed an agreement with an international consortium to build a \$950 million prototype for a new generation of coal-fired power plants that remove additional pollutants including carbon dioxide, and produce hydrogen as well as electricity. The plant, called FutureGen, is scheduled to be built by 2012. Members of the alliance are American Electric Power, Columbus, Ohio; Southern Co., Atlanta; Consol Energy Inc., Pittsburgh; Foundation Coal, Linthicum Heights, MD.; Kennecott Energy, Gillette, WY.; Peabody Energy Corp., St. Louis; China Huaneng Group, Beijing; and BHP Billiton Ltd., Melbourne, Australia.

<http://www.californiahydrogen.org/page.cfm?content=20&display=45>

8. Nissan Begins Leasing Hydrogen Fuel-Cell SUV in Japan

On December 13, Nissan obtained approval from the Japanese government to run on public roads the fuel-cell powered vehicle it developed, based on its X-Trail sport-utility model. The latest fuel cell vehicle has a range of more than 370 kilometers. The size of the fuel-cell stack installed in Nissan's latest offering has been decreased 60% from the previous model and its power generation capacity has been boosted to 90 kilowatts from 85 kilowatts. The automaker developed the stack for the current model independently, though it had used a stack developed by UTC Fuel Cells in its previous fuel cell vehicle.

<http://www.fuelcellworks.com/Supppage4188.html>

9. Toshiba Selling Fuel Cell Powered MP3 Player with 60 Hours of Play

Toshiba launched two MP3 players in October that run on DMFC fuel cells, using methanol as fuel. The larger of the two devices has a hard drive and an edge length of more than 12cm. The fuel cell has a 10ml tank offering an active life of up to 60 hours, Toshiba

reports. The smaller device is no larger than a pack of gum, offers Flash storage and holds 3,5ml of fuel -- good for 35 hours of musical enjoyment. Canon has announced plans to operate its printers, cameras, cellphones and MP3 player using PEM fuel cells. A prototype was presented in early November in Tokyo. Unlike many competitors, Canon's developers have cast their lot with hydrogen energy sources.

<http://www.fuelcellsworks.com/Supppage4187.html>

10. National Hydrogen Financing Forum: Your Opportunity to Present

Now through January 27, CHBC members are invited to apply to present at the National Hydrogen Financing Forum (NHF2), March 16 in Long Beach, CA. NHF2 is a specialized forum showcasing competitively selected hydrogen-related companies that are seeking capital, strategic partners and other relationships as well as greater public recognition. CHBC is a support sponsor of this event. Companies that apply to present are screened by a Selection Committee made up of financial professionals who specialize in hydrogen investing. The selected companies will present summary business plans to an audience of individual, institutional and corporate investors, strategic partners, customers and other interested parties. Contact Gelvin Stevenson, Ph.D., at Gelvin@nhf2.com and 718-863-4156.

<http://www.nhf2.com>

11. Big Hydrogen, Calgary, Alberta

The Canadian Hydrogen Association (CHA) and EnergyINet are hosting a "Big Hydrogen" Workshop in Calgary, Alberta on February 13, 2006. The workshop will focus on existing methods of producing hydrogen in Canada's oil and gas sector, the requirements for long-term hydrogen production and early stage technologies to meet long-term needs. More information can be found on the CHA website as it becomes available.

www.h2.ca

12. Faster Freight - Cleaner Air 2006 Conference

CHBC is an Endorsing Sponsor of Faster Freight - Cleaner Air 2006 (FFCA 2006), a conference to be held January 31-February 1, 2006 on goods movement and air quality. Held at the Long Beach Convention Center, FFCA 2006 will showcase the innovative programs, policies and technologies now being implemented in ports in Southern California and across the nation to improve efficiency and reduce the air quality impacts of the goods movement industry. The goal is to spur the widespread adoption of low-emission technologies. Sponsorship and Exhibitor opportunities are still available. Email info@ffca2006.com for more information.

<http://www.ffca2006.com>

13. Tax Incentives Assistance Project (TIAP)

A coalition of nonprofit organizations, government agencies, and leaders in the energy efficiency field have sponsored a website called Tax Incentives Assistance Project (TIAP), which aims to help consumers and businesses benefit from the tax incentives and credits under Energy Policy Act (EPACT) of 2005. The TIAP web site was launched in November 2005 and is divided into sections for consumers, businesses, and builders/manufacturers. The General Information section features briefs on state and utility incentives as well as current legislation. TIAP updates the Web site regularly as the IRS makes new information available.

<http://www.energytaxincentives.org>

14. Green Coast Foundation

The Green Coast Foundation has posted a number of articles from CHBC members. This new renewable energy blog site allows others to add comments. Read the latest articles about hydrogen vehicles, fuel cells, energy markets, wind power, policy and clean energy.

<http://www.greencoast.org/blog/>

15. Future CHBC Meeting Dates - Save These Dates

February 10, 2006 - Cathedral Hill Hotel, San Francisco, Hosted by Bay Area AQMD; May 19, 2006 - General Meeting, South Coast Air Quality Management District; September 15, 2006 - General Meeting, Location TBD; December 7, 2006 - Special Dinner Meeting and Holiday Party

16. CHBC Gold and Silver Members

CHBC gives a big thanks to its first Gold Member, Hydrogenics, and to our growing list of Silver Members, who are major contributors to our growth and success.

Gold Members - <http://www.californiahydrogen.org/page.cfm?content=61>

Silver Members - <http://www.californiahydrogen.org/page.cfm?content=33>

17. 2006 CHBC Board of Directors

With the new year comes new board members and officers. The 2006 slate, as approved by CHBC's membership, is as follows: President - Henry Wedaa; Vice President - Paul Scott, ScD; Managing Director - Catherine Rips; Secretary - Josh Mauzey; Treasurer/Communications Chair: Jerald Cole; Membership Chairman - Mark Abramowitz; Northern California Membership Chair & Newsletter - John Addison; Central California Membership Chair - Gene Johnson; Program Chairman - Henry Wedaa; Director at Large - Gary Dixon; Director at Large - Jon Slangerup; Director at Large - John Williams, PE; Ex-Officio Government Liaison - Shannon Baxter-Clemmons, PhD. To contact the board, please email: info@californiahydrogen.org.

18. Be a Member of the California Hydrogen Business Council

Be involved with the leaders in making the hydrogen economy a reality. CHBC is a non-profit organization, which offers a common meeting ground for discussing the technologies, methodologies, and opportunities in the hydrogen economy. Silver Membership is \$1,000 per year and allows organizations to send five people to each meeting at reduced member rates, plus provides valuable marketing opportunities. Individual membership is \$200 per year. To join, visit our website or call (760) 341-2924 with your credit card.

<http://www.californiahydrogen.org/page.cfm?content=6>

19. Send Us Your News!

We welcome important news from our members for inclusion on our website and in next month's report. Please send to: info@californiahydrogen.org. Thank you for helping build a great organization.

John Addison, CHBC Report Publisher
Catherine Rips, Editor
California Hydrogen Business Council
760-341-2924

www.CaliforniaHydrogen.org

1. Welcome New Members

CHBC welcomes its first Gold Member: Hydrogenics Corp. Along with the new Gold Membership, Hydrogenics will retain its sponsorship of the CHBC website for 2006. We appreciate your support!

<http://www.hydrogenics.com>

2. NHA Conference March 12-16, 2006

NHA's Annual Hydrogen Conference 2006 will be held March 12-16, in Long Beach, CA. CHBC is an Endorsing Sponsor of the event, which is expected to draw over 1,000 attendees and hundreds of exhibitors. Highlights include technical workshops on industry issues, high-level international keynote speakers, and a "Ride 'n' Drive" event featuring hydrogen ICE and fuel cell vehicles from a variety of manufacturers.

<http://www.hydrogenconference.org>

3. Video Volunteer Sought

Many thanks to longtime member Stan Heinemann for videotaping and publishing past CHBC meetings. Stan is moving to Oregon and has all of our best wishes. In his absence, CHBC is looking for a volunteer to video future meetings. Please contact Managing Director Catherine Rips (info@californiahydrogen.org, 760-341-2924) if you are interested.

4. BP Invests \$8 Billion in Alternative Energy

BP announced recently that it plans to double its investment in alternative and renewable energies to create a new low-carbon power business with the growth potential to deliver revenues of around \$6B a year within the next decade. By building on the success of BP Solar -- which expects to hit revenues of \$1 billion in 2008 -- BP Alternative Energy will manage an investment programme in solar, wind, hydrogen and combined-cycle-gas-turbine (CCGT) power generation, which could amount to \$8B over the next 10 years.

<http://www.bp.com/genericarticle.do?categoryId=2012968&contentId=7012352>

5. Hydrogenics Targets End Users with New HyPM Products

Hydrogenics Corp. announced its next generation HyPM 500 Series Fuel Cell Power Modules, with or without integrated DC power options, and HyPM Fuel Cell Power Packs. The goal is to be close to 'plug and play.' The design of the new HyPM Fuel Cell Power Packs incorporates Hydrogenics' proven success with fuel cell hybrid platforms, based both on ultracapacitors and batteries.

http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=179726

6. Honda's Home Energy Station III

Honda R&D Americas, Inc., in conjunction with technology partner Plug Power Inc., introduced the Home Energy Station III, which provides heat and electricity for the home as well as fuel for a hydrogen-powered fuel cell vehicle. This third generation unit is located at the company's North American headquarters in Torrance, CA. Home Energy

Station III is roughly 30 percent smaller than its predecessor with an approximate 25-percent increase in electrical power output. Hydrogen storage and production capacity are both improved by about 50 percent with the use of a new, high-performance, natural gas reformer. The Home Energy Station III is also able to function as a backup power generation system during power outages by using the hydrogen in the storage tank to power the internal fuel cell, providing as much as 5 KW of electrical power to the home in normal and emergency conditions.

<http://world.honda.com/news/2005/c051114.html>

7. Mazda will Ship HHICE Rotary in 2008

Mazda RX-8 Hydrogen RE is a hydrogen-powered rotary engine vehicle incorporating the dual fuel system to allow use with both hydrogen and gasoline. The latest prototype features automatic transmission and an extended cruising range thanks to a larger high-pressure hydrogen tank and enhanced fuel-efficiency technologies. The flick of a switch - even while driving - engages gasoline mode and this mode switching occurs automatically when the hydrogen supply is exhausted.

<http://www.mazda.co.jp/motorshow/eng/environmental/index.html>

8. Intelligent Energy's Env Bike Earns Dual Award for the ENV Bike

Intelligent Energy's ENV bike -- the world's 'first purpose-built fuel-cell motorbike' has received a prestigious award in the General Innovations category of 2005's Popular Science Best of What's New Awards. The awards are run by Popular Science magazine, first established in 1872 and now the world's largest science and technology magazine, with 6.5 million monthly readers. The bike earned similar honors from Time magazine. It was included in the high profile 'The most amazing inventions' section of a recent issue. Intelligent Energy is a Silver member of CHBC.

http://www.intelligent-energy.com/index_article.asp?SecID=15&secondlevel=798

9. Los Angeles Airport Hydrogen-Fueled Demonstration Vehicle

The Los Angeles Board of Airport Commissioners approved a participant agreement with Mercedes-Benz USA, its parent-company DaimlerChrysler Corporation, and the U.S. Department of Energy to evaluate the use of a prototype zero-emission passenger vehicle that utilizes a hydrogen-fuel cell drive system (F-cell vehicle) in a real-world setting. The agreement calls for Los Angeles International Airport (LAX) to become the only U.S. airport to participate in the "Controlled Hydrogen Fleet and Infrastructure Demonstration and Validation Project" awarded to DaimlerChrysler by the U.S. Department of Energy. The project will include two other field test sites in California and only 30 F-cell vehicles are being placed throughout the nation under a cooperative agreement between the Energy Department and DaimlerChrysler.

<http://www.californiahydrogen.org/page.cfm?content=20&display=43>

10. GTI to Develop Hydrogen Fueling Station Technology for Texas

Gas Technology Institute (GTI) and the State of Texas Commission on Environmental Quality (TCEQ) have signed an agreement for the development of hydrogen fueling station technology as part of the TCEQ's New Technology Research and Development Program to reduce emission sources in Texas. The natural gas-to-hydrogen fueling stations will use GTI-developed steam methane reforming technology as well as GTI's

Hydrofil dispenser control algorithm for accurately filling hydrogen-powered vehicles. In other news, GTI was recently awarded a U.S. patent for a novel technology for direct splitting of water to produce hydrogen from solar energy. Significantly, all 26 of the technical claims were allowed.

<http://www.gastechnology.org/webroot/app/xn/xd.aspx?it=enweb&xd=6newsroom\texashydrogenfuelingstation.xml>

<http://www.gastechnology.org/webroot/app/xn/xd.aspx?it=enweb&xd=6newsroom\gtiganteddirectsolarhydrogenpatent.xml>

11. Faster Freight - Cleaner Air 2006

Held January 30-February 1, the Faster Freight-Cleaner Air (FFCA 2006) conference and expo will highlight solutions and resources to improve operations and reduce air emissions from the goods movement industry while creating healthy communities. The three-day event will be held at the Long Beach Convention Center adjacent to the Ports of Long Beach and Los Angeles.

<http://www.ffca2006.com>

12. Integrating Hydrogen into the ICTC

The recently completed report, "Strategy for the Integration of Hydrogen as a Vehicle Fuel into the Existing Natural Gas Vehicle Fueling Infrastructure of the Interstate Clean Transportation Corridor Project," by Gladstein, Neandross & Associates is now available for free download.

<http://www.nrel.gov/vehiclesandfuels/ngvtf/pdfs/38720.pdf>

13. Free 2005 Fuel Cell Industry Survey from PricewaterhouseCoopers

Aggregate revenues for public companies in the fuel cell sector decreased slightly in 2004 to US\$234 million, down 4% from US\$244 million in 2003. Net losses in the sector grew to US\$465 million from US\$387 million in 2003. The PwC 2005 Fuel Cell Industry Survey focuses on the 2004 year-on-year financial results of the world's 20 publicly traded companies whose primary business is in the areas of fuel cell production, system integration, and/or related fuelling infrastructure.

[Survey](#)

14. Toyota Worldwide Hybrid Sales Top 500,000

If you are discouraged with initial low quantity sales of hydrogen technology, consider that any disruptive technology takes years to achieve major market success. In 1997, Toyota sold only 300 hybrids. Cumulative worldwide sales of Toyota hybrids have topped the 500,000 mark, with approximately 513,000 units sold worldwide by the end of October this year. The majority of those sales (426,800, or 83%) come from the Prius.

http://www.greencarcongress.com/2005/11/toyota_worldwid.html

15. Department of Transportation's New Hydrogen Roadmap

DOT has published a new 42-page roadmap that covers these four areas: Road 1: Safety Codes, Standards, and Regulations; Road 2: Infrastructure Development and Deployment; Road 3: Safety Education, Outreach and Training; and Road 4: Medium- and Heavy-duty Vehicle Development, Demonstration, and Deployment.

http://www.rita.dot.gov/publications/hydrogen_roadmap/

16. Argonne National Laboratory Forecasts 5.7 Quads Demand for Hydrogen

Hydrogen demand in a new report from Argonne is forecast to be substantial: nearly 5.7 quads (quadrillion BTUs) -- the energy of about 45 billion gallons of gasoline. Among the conclusions is that coal will match natural gas as the largest source of hydrogen by 2030, and then move into the lead, providing 26.5% of the hydrogen to fuel the hydrogen highway by 2050. Biomass-derived hydrogen (via gasification) comes in second by 2050, with 23.9%, followed by distributed electrolysis, with 17.6%. The report is considered flawed for ignoring a well-to-wheels analysis of the energy, greenhouse gas and criteria pollutant emissions involved in each of these pathways.

http://www.greencarcongress.com/2005/11/argonne_coal_an.html

17. Green Coast Foundation

The Green Coast Foundation has posted a number of articles from CHBC members. This new blog site allows others to add comments. Read the latest articles about hydrogen vehicles, fuel cells, energy markets, wind power, policy and clean energy.

<http://www.greencoast.org/blog/>

18. India's First Hydrogen Fueling Station Opened by Air Products

The opening of India's first hydrogen fueling station officially launched Phase 1 of the country's Hydrogen Economy. The facility, a hydrogen/compressed natural gas (HCNG) blend and pure hydrogen dispensing station, is located at the Indian Oil Corp. Limited's R&D centre, in Faridabad, just north of New Delhi. The fuelling station, owned by the Indian Oil Corporation Limited (IOCL), has been supplied by Air Products and its Indian joint venture company INOX Air Products Ltd.

<http://www.airproducts.com/PressRoom/CompanyNews/Archived/2005/11Oct05uk.htm>

19. India's Hydrogen Roadmap: 1M Hydrogen Vehicles and 1,000 MW Hydrogen Power by 2020

The Indian national steering group on hydrogen energy, headed by industrialist Ratan Tata, has developed a roadmap to have 1 million hydrogen-fueled vehicles -- internal combustion engine as well as fuel-cell vehicles on Indian roads by 2020 and to generate 1,000 MW of power through hydrogen-fueled plants.

http://www.greencarcongress.com/2005/11/indias_hydrogen.html

20. Future CHBC Meeting Dates - Save These Dates

The next CHBC General Meeting, hosted by the Bay Area AQMD, will be held February 10, 2006 at the Cathedral Hill Hotel, Van Ness Street, San Francisco, CA. Other dates to remember are: May 19, 2006 General Meeting, location to be announced; September 15, 2006 General Meeting at South Coast AQMD, Diamond Bar, CA; and December 7, 2006, our first Annual Dinner Meeting and Holiday Party, location to be announced.

21. CHBC Gold and Silver Members

CHBC gives a big thanks to our growing list of Gold and Silver Members, who are major contributors to our growth and success.

<http://www.californiahydrogen.org/page.cfm?content=61>

<http://www.californiahydrogen.org/page.cfm?content=33>

22. 2005 CHBC Board of Directors

President - Henry Wedaa; Vice President - Paul Scott, PhD; Managing Director - Catherine Rips; Secretary - Josh Mauzey; Treasurer - John Williams, PE; Membership Chairman - Mark Abramowitz; Northern California Membership - John Addison; Central California Membership - Gene Johnson; Communications Director - Jerald Cole; Program Chairman - Henry Wedaa; Director at Large - Gary Dixon; Director at Large - Jon Slangerup; Ex-Officio Government Liaison - Shannon Baxter-Clemmons, PhD. To contact the board, please click info@californiahydrogen.org.

23. Join the CHBC

Be involved with the leaders in making the hydrogen economy a reality. CHBC is a non-profit organization, which offers a common meeting ground for discussing the technologies, methodologies, and opportunities in the hydrogen economy. Gold Membership is \$5,000 per year; Silver Membership is \$1,000 per year. Both provide meeting discounts and valuable marketing opportunities. Individual membership is \$200 per year. To join, visit our website or call (760) 341-2924 with your credit card. <http://www.californiahydrogen.org/page.cfm?content=6>

24. Send Us Your News!

We welcome important news from our members for inclusion on our website and in next month's report. Please send to: info@californiahydrogen.org. Thank you for helping build a great organization.