

## CHBC News: May 2007

1. [CHBC Hosts Legislative Reception May 22](#)
2. [Welcome New Members; Save the Dates!](#)
3. [Danish Hydrogen Companies Combine Forces with Giants](#)
4. [Thirty Hydrogen Vehicles to Iceland](#)
5. [Quantum Fuel Systems Puts Hydrogen Hybrids on the Road](#)
6. [GM Unveils Hydrogen-Powered Volt Concept in Shanghai](#)
7. [SAIC Debuts Fuel Cell Sedan at Shanghai Show](#)
8. [Hydrogen from Diesel - Efficient, Residue-free, Reliable](#)
9. [Homegrown Hydrogen Engine on the Horizon in Melbourne](#)
10. [Ballard Secures Fuel Cell Bus Field Service Contracts](#)
11. [University of Delaware Unveils Hydrogen Bus](#)
12. [Hydrogenics Signs Multiple Orders Toward Development of Pre-Commercial FC Markets](#)
13. [Air Products to Build New Hydrogen Production Facility](#)
14. [Las Vegas Valley Water District Dedicates New Solar-Powered Hydrogen Station](#)
15. [Netherlands' Etirc Plans to Invest \\$1 Billion in Hydrogen Production](#)
16. [Germany in Support of Fuel Cell Technology](#)
17. [Intelligent Energy Raises Over 17 Million USD](#)
18. [First Zero Emission Hydrogen Fuel Cell Jet Flies](#)
19. [HEC Demonstrates Hydrogen Fueled 4+1\(TM\) Power Generator System](#)
20. [Hydrogen Engine Center, Inc. Unveils Its One-Cylinder Alternative Fuel Internal Combustion Engine](#)
21. [Terry Tamminen Moderates Panel at May 11 Cal Tech Conference](#)
22. [US Fuel Cell Council Congressional Expo 2007 May 15](#)
23. [Member Benefits](#)
24. [Board of Directors](#)
25. [Send Us Your News!](#)

### 1. CHBC Hosts Legislative Reception May 22

California Hydrogen Business Council urges all hydrogen and fuel cell stakeholders to participate in a day of Legislative Outreach Tuesday, May 22, immediately followed by a Legislative Reception 5 - 8 p.m. Held at the California State Capitol in Sacramento, the event is sponsored by Energy Independence Now (EIN), Air Products, GM and others. Please start making appointments NOW to update key legislators on your company's programs and progress. It is vital that they understand hydrogen is MORE relevant than ever before. We also need their continued support of the California Hydrogen Highway. For help with legislative appointments, briefings, and to RSVP, please contact Daniel Emmett, EIN, (310) 600-4887, demmett@einow.org. If you are interested in helping to sponsor the event, please contact Daniel or CHBC Managing Director Catherine Rips, (760) 341-2924.

### 2. Welcome New Members; Save the Dates!

CHBC extends a warm welcome to new Individual Members Arvind Deogirikarm, ATMA Consulting Services, LLC; Michael Redemer, Hydrogen Solutions International, Inc; and Henry Schneider, TriGenSys. We appreciate your support! Mark your calendars now for CHBC's summer and fall General Meetings. One-day conferences will be held on Friday, July 27 (location to be announced) and Thursday, October 25 (location to be announced). More details will be released soon.

[Meetings](http://www.californiahydrogen.org/page.cfm?content=16): <http://www.californiahydrogen.org/page.cfm?content=16>

### 3. Danish Hydrogen Companies Combine Forces with Giants

Danish environment companies H2 Logic and Topsoe Fuel Cells are taking part in founding an alliance with the purpose of raising 7.5 billion euro to have the fuel cells on the market. This new industry alliance, JTI Industry Grouping, consists of 46 European companies aiming at getting the hydrogen technology out of the laboratories. By founding JTI, the two Danish companies are now together with names such as Daimler-Chrysler, Volkswagen, EON, Shell and BP. They have made a joint plan for implementation of new technologies in the market up to 2015. The financing comes from the EU, national authorities of the member countries, regions in the member countries, companies and end users.

JTI: <http://www.copcap.com/composite-10031.htm>

### 4. Thirty Hydrogen Vehicles to Iceland

Two energy companies in Iceland are planning to import hydrogen vehicles beginning in Fall 2008. The Icelandic companies of Norka and Vistorka are importing thirty hydrogen vehicles, as part of a three-year experimental project. CEO of Norka Bjarni Bjarnason states, "We hope that the hydrogen cars will be able to compete with other cars on the market within five to ten years." The first hydrogen cars that will arrive in Iceland were produced by Daimler-Chrysler and Toyota. The Daimler-Chrysler models are equipped with a hydrogen generator that changes hydrogen directly to electricity; the Toyota models run by an internal hydrogen combustion engine. Norka participated in a project on the operation of three hydrogen buses and hydrogen stations in Reykjavk, which ended in January 2007.

30 Cars: <http://www.h2daily.com/news/hydrogen-vehicles-to-iceland-20070415-255-50.html>

### 5. Quantum Fuel Systems Puts Hydrogen Hybrids on the Road

Quantum Fuel Systems Technologies Worldwide, Inc. announced that it has shipped eleven hydrogen-fueled Prius hybrid vehicles to Miljobil Grenland AS, a participant and vehicle provider to the Norwegian Hydrogen Highway [HyNor]. The Hydrogen Hybrid package for the Prius includes Quantum's electronic multi-point hydrogen injection system, turbocharger and intercooler, Quantum's compressed hydrogen fuel storage module and hydrogen fuel delivery system, and Federal Motor Vehicle Safety Standards [FMVSS] crash-worthy design and validation.

Quantum: <http://transport.seekingalpha.com/article/31336>

### 6. GM Unveils Hydrogen-Powered Volt Concept in Shanghai

General Motors unveiled a version of its Chevrolet Volt electric car at the Shanghai Auto Show that uses a hydrogen fuel-cell to extend its range with zero emissions. The experimental Volt is GM's leading entry in the auto industry's race to create a commercially viable electric car that can compete with the range and performance of gasoline-powered models. The new Volt uses lithium-ion batteries that can be plugged in to charge and a fuel cell to recharge them on the road, extending its range to 300 miles. GM has not set a date to start selling such cars but has begun production engineering, a process that can lead to sales within three to four years.

FC Volt: [http://www.forbesautos.com/news/headlines/2007/april/ap041907-gm\\_hydrogen\\_volt.html](http://www.forbesautos.com/news/headlines/2007/april/ap041907-gm_hydrogen_volt.html)

### 7. SAIC Debuts Fuel Cell Sedan at Shanghai Show

Shanghai Automotive Industry Corp's (SAIC) new fuel cell vehicle made its debut under the name of China's oldest car brand at the 2007 Shanghai Auto Show. The sedan is the latest energy vehicle rolled out by SAIC, the nation's biggest car maker, as part of its one billion yuan (US\$129 million) investment in developing cleaner and more energy-saving

models. SAIC has picked the Shanghai brand, which hasn't been used since 1950s, as the nameplate of the fuel cell prototype. The model was unveiled at the show which ran from April 20 to 28. The Shanghai-branded FCV could generate the highest power of 60 kilowatts with a maximum speed of 150 kilometers per hour.

[SAIC FVC:](#)

[http://www.shanghaidaily.com/sp/article/2007/200704/20070407/article\\_311797.htm](http://www.shanghaidaily.com/sp/article/2007/200704/20070407/article_311797.htm)

#### 8. Hydrogen from Diesel - Efficient, Residue-free, Reliable

The fastest market penetration for fuel cells as future on-board electricity generators for vehicles can be realized when fuels which are readily available today are utilized.

Together with a Swiss engineering company, Fraunhofer ISE developed a patented procedure to transform liquid diesel fuel into vapor without residue formation and convert it to hydrogen gas in a reformer. Therefore, with a fuel cell, the energy required in a vehicle for the on-board electronics, for example, the air-conditioning, can be generated in this manner. The reformer in combination with a diesel vaporizer is one of many new developments that Fraunhofer ISE presented at the Hanover Trade Fair from 16-20 April this year.

[Diesel Reformer:](http://www.ise.fhg.de/) <http://www.ise.fhg.de/>

#### 9. Homegrown Hydrogen Engine on the Horizon in Melbourne

A highly efficient low-cost hydrogen internal combustion engine and fuel tank is to be developed by the University of Melbourne and industry collaborators Ford Australia and Haskel Australia. The \$3 million project is supported by a \$1.2m State Government grant from the Energy Technology Innovation Strategy (ETIS) in the Department of Primary Industries. Project leader Dr. Michael Brear (Mechanical and Manufacturing Engineering, University of Melbourne) says the aim of the project is to help make hydrogen "a real alternative to fuels that emit carbon dioxide. Ultimately this will open up a whole new market for not previously developed low-cost fuel efficient hydrogen-powered vehicles," he says. The University has conducted research into advanced, hydrogen-powered engines under the leadership of Professor Harry Watson (Mechanical and Manufacturing Engineering) for well over a decade.

[Melbourne HICE:](http://www.sciencealert.com.au/news/20071804-15099.html) <http://www.sciencealert.com.au/news/20071804-15099.html>

#### 10. Ballard Secures Fuel Cell Bus Field Service Contracts

Ballard Power Systems announced it has secured contract extensions with DaimlerChrysler to provide field service to Mercedes-Benz fuel cell bus fleets in Hamburg and Amsterdam in 2007 and 2008. This is the second extension for these two city-partners of the HyFLEET:CUTE demonstration program, a follow on to the successful Clean Urban Transport for Europe (CUTE) program established in 2003. "The performance of the European fuel cell buses, particularly with respect to availability and durability, has far exceeded expectations," said Noordin Nanji, Ballard's Vice President and Chief Customer Officer. Several fuel cell stacks have run for more than 4,000 hours, and availability of the fuel cell drive systems for the Hamburg and Amsterdam buses averaged 98% in 2006."

[Ballard:](#)

[http://www.ballard.com/be\\_informed/about\\_ballard/news/2007/04/02/BUS\\_Service](http://www.ballard.com/be_informed/about_ballard/news/2007/04/02/BUS_Service)

#### 11. University of Delaware Unveils Hydrogen Bus

The University of Delaware (UD) will soon be operating a shuttle bus powered by hydrogen fuel cells. The bus was unveiled during a ceremony on Monday, April 9, on UD's Newark campus. The hydrogen fuel cell bus project is supported by a \$1.7 million grant from the U.S. Department of Transportation's Federal Transit Administration, matched by private financing from companies working in partnership with the University. A

consortium consisting of EBus, Ballard Power Systems, Electric Power Research Institute (EPRI), Air Liquide Advanced Technologies U.S., and the Delaware Transit Corp. has been assembled for this project. EBus has adapted its existing 22-foot, 22-passenger chassis and electric drive system to use a Ballard 19-kwK Mark9 SSL fuel cell stack.

[UD Bus:](http://www.udel.edu/PR/UDaily/2007/apr/bus040907.html) <http://www.udel.edu/PR/UDaily/2007/apr/bus040907.html>

#### 12. Hydrogenics Signs Multiple Orders Toward Development of Pre-Commercial FC Markets

Hydrogenics Corp. announced that it has received HyPM(R) Fuel Cell Power Module orders to date in 2007 from eight new customers and one repeat customer, for deployment in a range of pre-commercial markets. The total value of these orders is approximately \$1 million and in some cases includes additional engineering and system integration. Power module orders from three leading European OEMs and system integrators involved in renewable energy applications will be deployed in projects that are combining hydrogen and fuel cells with wind and/or solar energy sources to demonstrate the benefits of integrating hydrogen technologies to create fully renewable, continuous power systems.

[Hydrogenics:](http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=238677) [http://www.hydrogenics.com/ir\\_newsdetail.asp?RELEASEID=238677](http://www.hydrogenics.com/ir_newsdetail.asp?RELEASEID=238677)

#### 13. Air Products to Build New Hydrogen Production Facility

Air Products, the leading global hydrogen provider, recently announced it will add new capacity to its Louisiana pipeline system by building a new hydrogen production facility in Garyville, LA. The facility will supply the Garyville refinery operations of Marathon Petroleum Company LLC, a subsidiary of Marathon Oil Corporation, and other customers located on its extensive Louisiana Hydrogen Pipeline Network. The 120 million standard cubic feet per day (MMSCFD) plant is projected to be on-stream in late 2009, in conjunction with Marathon's major refinery expansion project.

[Air Products:](http://www.airproducts.com/PressRoom/CompanyNews/Archived/2007/02Apr2007.htm)

<http://www.airproducts.com/PressRoom/CompanyNews/Archived/2007/02Apr2007.htm>

#### 14. Las Vegas Valley Water District Dedicates New Solar-Powered Hydrogen Station

The Las Vegas Valley Water District (LVVWD), in partnership with the UNLV Research Foundation, dedicated a pilot hydrogen refueling station that operates on solar power. Solar panels produce the electricity for a Proton Energy Systems electrolyzer that generates up to 12 kg of hydrogen per day, to be used to fuel two vehicles in the LVVWD fleet. The first is a Polaris Ranger internal combustion utility vehicle that has been converted to hydrogen fuel, and the second, a Taylor-Dunn converted electric truck that runs on a hydrogen fuel cell. The project is part of a multi-faceted research project that received \$12 million in research and development funding from the Department of Energy.

[Solar Hydrogen:](http://www.greencarcongress.com/2007/04/las_vegas_valle.html#more) [http://www.greencarcongress.com/2007/04/las\\_vegas\\_valle.html#more](http://www.greencarcongress.com/2007/04/las_vegas_valle.html#more)

#### 15. Netherlands' Etirc Plans to Invest \$1 Billion in Hydrogen Production

The Netherlands' Etirc is planning to invest around \$1 billion in building a module complex to produce hydrogen fuel in Irkutsk. Etirc is planning to produce hydrogen fuel through electrolysis from water, liquefy it and shipping it by rail to Japan. Producing the fuel is very cost effective and it requires a capacity of approximately 200 megawatts to produce. Etirc is waiting for the technical terms for joining from Irkutskenergo. The company is ready to invest in building generation capacity. The project to produce hydrogen fuel will be submitted at a government meeting on May 10 that will discuss the social and economic development of Irkutsk region, Voronov said.

[Etirc:](http://www.fuelcellsworks.com/Supppage7174.html) <http://www.fuelcellsworks.com/Supppage7174.html>

#### 16. Germany in Support of Fuel Cell Technology

Germany is leading the way in supporting the development of alternative energy solutions for the transport sector, including hydrogen and fuel cell technology, the country's authorities have claimed. Wolfgang Tiefensee, Germany's federal minister for transport, said that concerns about climate change were focusing attention on new technology such as fuel cells, something that the German government was keen to support. "We aim to have hydrogen and fuel cell applications ready for commercialization within the next ten years," he remarked, citing the establishment of the National Programme of Innovation for Hydrogen and Fuel Cell Technology, which it is claimed will provide 500 million Euro in funding.

[Germany:](#)

<http://www.fuelcelltoday.com/FuelCellToday/IndustryInformation/IndustryInformationExternal/NewsDisplayArticle/0,1602,9044,00.html>

#### 17. Intelligent Energy Raises Over 17 Million USD

Intelligent Energy recently announced that it has raised over 17 million USD in a recently-completed round of fundraising. The fundraising was comprised of a number of private placements, followed by an open offer to all existing shareholders. Subscribers for new ordinary shares included Credit Suisse Securities (Europe) Limited, Black River Commodity Clean Energy Investment Fund LLC, Black River Global Equity Fund Limited, Meditor Capital Management Limited and Evolution Placements Corporation.

[Intelligent Energy:](#) [http://www.intelligent-](http://www.intelligent-energy.com/index_article.asp?SecID=15&secondlevel=798&artid=3821)

[energy.com/index\\_article.asp?SecID=15&secondlevel=798&artid=3821](http://www.intelligent-energy.com/index_article.asp?SecID=15&secondlevel=798&artid=3821)

#### 18. First Zero Emission Hydrogen Fuel Cell Jet Flies

An unmanned hydrogen fuel cell powered jet made history in April as it took to the skies over the hills of Bern, Switzerland. The "Hyfish" astonished its creators as it flawlessly performed vertical climbs, loops and other aerial acrobatics at speeds reaching 200 km/h. These first amazing flights were the result of 18 months of cooperative development between the German Air & Space Center and a number of international partners, including Horizon Fuel Cell Technologies Pte Ltd of Singapore, which provided fuel cell that powered the flight of this next-generation Unmanned Aerial Vehicle (UAV).

[H2 UAV:](#) <http://www.d-silence.com/headlines/Hydrogen%20Jet/23877>

#### 19. HEC Demonstrates Hydrogen Fueled 4+1 (TM) Power Generator System

Hydrogen Engine Center, Inc. (HEC) demonstrated the company's Oxx Power(TM) 4 + 1(TM) hydrogen-fueled generator system at an energy technology showcase at Hydrogenics Corp. near Toronto, Ontario, Canada on April 5. The HEC power generating system is part of an advanced "wind-hydrogen" energy project. At the event, HEC's hydrogen-powered Oxx Power 4 + 1(TM) generator system is generating electricity by using hydrogen as a fuel. The HEC system will then be delivered to an HEC client, where it will be placed in service as part of a wind farm project in Newfoundland, Canada. HEC views this project as a key validation point within its strategic program to provide advanced power generation solutions that are environmentally clean, economically viable and highly scalable.

[4+1\(TM\):](#) <http://www.sys-con.com/read/358419.htm>

#### 20. Hydrogen Engine Center, Inc. Unveils Its One-Cylinder Alternative Fuel Internal Combustion Engine

Hydrogen Engine Center, Inc. (HEC) announced that it has completed the initial design and engineering of its compact, single-cylinder internal combustion engine. The new engine is entering operational testing, and is designed to run interchangeably on hydrogen, propane, natural gas, ethanol or gasoline. This engine complements HEC's

existing family of 2, 3, 6 and 8-cylinder Oxx Power(TM) alternative fuel internal combustion engines. The one-cylinder engine greatly expands the potential market for HEC's engines and power generation products. This market includes applications such as powering industrial compressors, chemical and substance mixers and industrial conveyers.

[HEC](http://www.sys-con.com/read/356788.htm): <http://www.sys-con.com/read/356788.htm>

21. Terry Tamminen Moderates Panel at May 11 Cal Tech Conference  
California Clean Innovation 2007 (CACI) is a day-long conference that will review the current state of the Clean Technology sector, explore applications on the horizon, and discuss the importance of each discipline and success factor across the clean technology value chain. Two especially important segments, Energy and Transportation, will be the primary focus of this event. A key panel discussion -- Fuels for Transportation -- addresses alternative fuels for transportation and is moderated by Terry Tamminen, formerly of the Schwarzenegger administration and now director of climate policy at the New America Foundation. A second panel -- Fuel Cells and Hydrogen Storage -- addresses fuel cells and hydrogen storage, including presentations by Toyota, UTC Fuel Cells, and work underway at Caltech as well.

[CA Clean Innovation](http://tinyurl.com/2h2lao): <http://tinyurl.com/2h2lao>

22. US Fuel Cell Council Congressional Expo 2007 May 15

Industry-leading organizations dedicated to the commercialization of fuel cell technologies will display cutting-edge power systems during the 2007 Congressional Fuel Cell Expo on Tuesday, May 15, 2007, in the Cannon Caucus Room of the Cannon House Office Building at 1 st and Independence Avenues, SW, Washington, DC . The demonstrations will include fuel cell systems representing portable, stationary, micro and automotive applications. The Congressional EXPO will allow Members of Congress and their staff, administration officials and the general public to see the progress being made to make our nation more energy independent. Attendees will have the opportunity to drive a fuel cell vehicle from 9:00 a.m. until 2:00 p.m. The event is being cosponsored by founding members of the House Hydrogen and Fuel Cell Caucus, including Congressman Charles Dent (R-PA) and Congressman Bob Inglis (R-SC).

[Congressional Expo](http://www.sentech.org/usfcc_cfce2007/main.htm): [http://www.sentech.org/usfcc\\_cfce2007/main.htm](http://www.sentech.org/usfcc_cfce2007/main.htm)

23. Member Benefits

Platinum membership is \$5,000 per year and includes your logo on each page of the CHBC website for one year, your firm credited as sponsor of two General Meetings during the year, and two free registrations at each CHBC meeting for 12 months. Gold membership is \$2,500 and includes your firm credited as a sponsor of one General Meeting during the year and one free registration to each CHBC General meeting for one year. Silver membership is the buy of the century at \$1,000; Individual membership is \$200. Please see <http://www.californiahydrogen.org/page.cfm?content=12> for full details. To inquire about membership, contact Managing Director Catherine Rips, [info@californiahydrogen.org](mailto:info@californiahydrogen.org).

[Gold Members](http://www.californiahydrogen.org/page.cfm?content=61): <http://www.californiahydrogen.org/page.cfm?content=61>

[Silver Members](http://www.californiahydrogen.org/page.cfm?content=33): <http://www.californiahydrogen.org/page.cfm?content=33>

24. Board of Directors

President - Henry Wedaa; Vice President - Paul Scott, ScD; Managing Director - Catherine Rips; Secretary - Josh Mauzey; Treasurer: Jerald Cole; Membership Chairman - Mark Abramowitz; Fleets Chair - John Addison; Program Chairman - Henry Wedaa; Director at Large - Larry Watkins; Director at Large - John Williams, PE; Director at Large

- Allan Bedwell; Director at Large - Fred Silver; Ex-officio Government Liaison - Analisa Bevan. To contact the board, please email: [info@californiahydrogen.org](mailto:info@californiahydrogen.org).

25. 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](mailto:info@californiahydrogen.org). Thank you for helping build a great organization.

[CHA](http://www.h2.ca/): <http://www.h2.ca/>

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

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John Addison, Contributing Editor  
Catherine Rips, Editor/Publisher

California Hydrogen Business Council  
760-341-2924  
[www.CaliforniaHydrogen.org](http://www.CaliforniaHydrogen.org)