



VOLUME 1, ISSUE 5

CaH2Net Update

SUMMER 2006

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SPECIAL POINTS OF INTEREST:

- **The Zero Emission Vehicle Technology Symposium is coming up September 24-27, 2006**
- **A 100% renewable hydrogen station opened in Santa Monica**
- **The ZBus regulation is going to the Air Resources Board's governing body in September 2006**

CALIFORNIA HYDROGEN HIGHWAY NETWORK AWARDS CONTRACTS FOR STATIONS AND VEHICLES

The Air Resources Board (ARB), in continuing its support for clean, sustainable transportation, is excited to announce that proposals have been selected that will establish three new California Hydrogen Highway fueling stations and lease hydrogen vehicles.

The demonstration stations—the first to be co-funded by the State—will meet or exceed the environmental criteria spelled out in the California Hydrogen Blueprint Plan, help build infrastructure and promote the use of hydrogen as a transportation fuel. The fifty percent co-funding was made available through Chapter 91, Statutes of 2005 (Senate Bill 76). The following organizations submitted successful proposals in a competitive bidding process.

- California State University, Los Angeles - The electrolyzer station will be located on the eastern edge of the campus, utilize 100% renewable wind power and have over 60 kg of storage capacity.
- Pacific Gas and Electric - The station will use steam methane reformation to generate 10 kg/day of hydrogen, use photovoltaics to supply the renewable energy component, and be co-located at the compressed natural gas fueling station in San Carlos, south of San Francisco.
- San Diego City Schools - The 100% renewable electrolyzer station will be lo-

cated off Interstate 15, adjacent to the new Thurgood Marshall Middle School and Alliant International University campuses in Scripps Ranch. The station will be powered by a 600 Kw photovoltaic array to be installed at the middle school.

The next immediate step will be contract negotiation, followed by outreach, permitting, site preparation and construction. Station commissioning will likely take place summer through winter 2007.

The State is also leasing hydrogen vehicles to support the CaH2Net. Proposals were received and evaluated to determine which would meet the (continued on page 3).

\$6.5 MILLION FOR CALIFORNIA HYDROGEN HIGHWAY NETWORK IN FY 2007/2008 BUDGET

The ARB is happy to announce that the CaH2Net received another \$6.5 million in funding in the fiscal year 2007/2008 State budget. The budget directs staff to spend the funds pursuant to Section 7 of Chapter 91, of the Statutes of 2005. This means that any stations receiving these funds need to

meet the environmental goals described in the Blueprint Plan. This includes a 30% reduction in greenhouse emissions, the use of 20% new renewable resources and no increase in toxic or smog-forming emissions. In addition to funding stations, this new money may be used to match

Federal funding to bring hydrogen buses to California.

The ARB also received \$25 million for alternative fuel programs. The details on how these funds will be expended is still being discussed.

ZERO EMISSION BUS REGULATION UP FOR APPROVAL

The Zero Emission Bus (ZBus) component of the Transit Bus regulation is currently under review.

Transit buses are ideal for proving fuel cell technologies since they accumulate a lot of mileage in a real world application. In addition, the public who can be introduced to hydrogen fuel cell technology through exposure to transit buses cannot be matched by any other application.

Information gained from a series of public workshops suggests that ZBuses are technologically viable but are not yet commercially ready. Additional bus demonstrations would help assure the success of ZBus technology and the 15 percent ZBus purchase requirement.

On September 28, 2006, staff will present a status update and propose regulatory modifications to the Board. The latest draft proposal includes an advanced demonstration and a postponement

of the purchase requirement. To ensure commercial feasibility and provide market targets for fuel cell manufacturers, the purchase requirement may include a clause that would tie the purchase requirement percentage to performance standards.

For more information about the ZBus regulation and upcoming Board meeting, go to:
<http://www.arb.ca.gov/msprog/bus/zeb/zeb.htm>

Keep in touch with the latest news on the CaH2Net by signing up for our list serve at <http://www.hydrogenhighway.ca.gov/sub2hwy.html>

OSFM KICKS OFF CAH2NET ADVISORY COMMITTEE

On May 16, 2006, the Office of the State Fire Marshal (OSFM) kicked off the first meeting of the Hydrogen Highway Advisory Committee (Committee). The Committee includes fire officials from all over the state as well as staff from the OSFM, California Fuel Cell Partnership, National Fuel Cell Research Center, and the Air Resources Board. The group was very enthusiastic about hydrogen technology and the prospect of working to standardize regulations and training statewide so that hydrogen technology, both in stationary and transportation applications, can be successful.

The Committee is planning to meet again in early August and

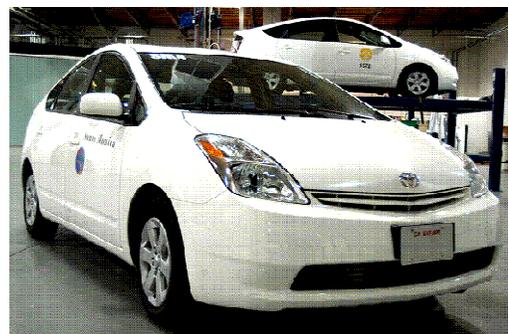
is currently working on a mission statement that will encompass the following goals:

- Education for local government agencies, public and first responders
- Develop areas or goals for State fire personnel training
- Determine methods of data capture for safety incident reporting
- Help agencies understand what regulations and standards are relevant

For more information about this committee, please contact Mr. Steve Guarino, Office of the State Fire Marshal at steve.guarino@fire.ca.gov



Ford E-450 hydrogen fueled shuttle bus



Quantum hydrogen hybrid Prius

100% RENEWABLE STATION OPENS IN SANTA MONICA

The City of Santa Monica joined the South Coast Air Quality Management District (SCAQMD), Air Products, and Quantum Technologies on June 15, to celebrate the opening of their hydrogen vehicle refueling station. This is the final station to open as part of SCAQMD's Five Cities Hydrogen Fueling Alternative Energy Demonstration Program. The other participating cities are Burbank, Ontario, Riverside and Santa Ana. This program pairs hydrogen vehicles with hydrogen fueling stations to increase public awareness about hydrogen as a safe

transportation fuel and help build the hydrogen fueling network in Southern California.

Santa Monica's Mayor, Robert Holbrook, affirmed that participation in this demonstration program is in line with the city's mission to provide an array of clean alternative vehicles and mass transit options. The five Toyota Priuses, converted to run on hydrogen by Quantum Technologies, will join the city's existing fleet of electric, natural gas and biodiesel powered cars, street sweepers and garbage trucks. Now, over 70 percent

of the city's fleet is powered by non-petroleum fuels.

The hydrogen station is nestled closely with the existing natural gas infrastructure. This station produces hydrogen on-site via electrolysis. However, what's unique is that the hydrogen is produced from 100 percent renewable electricity, which they purchase for all their municipal electricity needs.



Ribbon cutting at the Santa Monica station opening.

ZERO EMISSION VEHICLE TECHNOLOGY SYMPOSIUM

On September 25th - 27th 2006, ARB will host a ZEV Technology Symposium at Cal/EPA Headquarters in Sacramento, California. The Symposium is part of the ZEV Technology Review directed by the Board at the regulatory hearing in 2003. Overall findings from the ZEV Symposium, and the work being

done by the Expert Review Panel, will be summarized in a staff report and presented to the Board in early 2007. Regulatory changes, if any, will be considered only after CARB has submitted the ZEV Technology Review staff report to the Board.

For more information about the ZEV Technology Review, visit:

<http://www.arb.ca.gov/msprog/zevprog/zevreview/zevreview.htm>

CALIFORNIA HYDROGEN HIGHWAY NETWORK AWARDS CONTRACTS FOR STATIONS AND VEHICLES (CONTINUED)

criteria specified in the Request of Proposal and assist in the goals of the Hydrogen Highway Network. As a result the following vehicles were selected:

- Two hydrogen internal combustion engine shuttle buses from Ford
- One hydrogen Fuel Cell Vehicle (FCV) from General Motors

- Four hydrogen hybrid internal combustion engine Priuses from Quantum.

Contract negotiations are underway with plans to place vehicles in state fleets or universities to allow for evaluation and outreach. The vehicles will be leased for up to 24 months.



GM HydroGen3. GM plans to use a new hydrogen-powered fuel cell vehicle as part of its CaH2Net bid. Details as to its look and feel are to come in the future

www.HydrogenHighway.ca.gov

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The California Hydrogen Highway Network is an initiative to establish hydrogen infrastructure to support commercialization of sustainable, zero and near zero emission hydrogen vehicles.

The CaH2Net is a key part of California's strategy to achieve the State's vision of a secure energy future that simultaneously addresses our environmental, public health and economic challenges working in partnership with other components of the State's programs to advance energy efficiency and renewable energy.

SOUTHERN CALIFORNIA EDISON ADVANCED H2 WORK

Southern California Edison (SCE) is stepping up its multi-pronged approach to evaluate the safety and electrical system impacts of hydrogen for both fuel cell electric vehicles (FCEVs) and stationary fuel cell applications.

An electrolyser hydrogen refueling station at SCE's headquarters, currently under construction, is expected to begin operation by year's end. Part of the U.S. Department of Energy's national hydrogen fuel cell demonstration program, the station is being built by Chevron Hydrogen Company, and is designed to meet or exceed all safety requirements.

Completion of the station will allow SCE to better assess the system impacts of hydrogen storage and delivery. SCE currently uses a DaimlerChrysler *F-Cell* and plans to

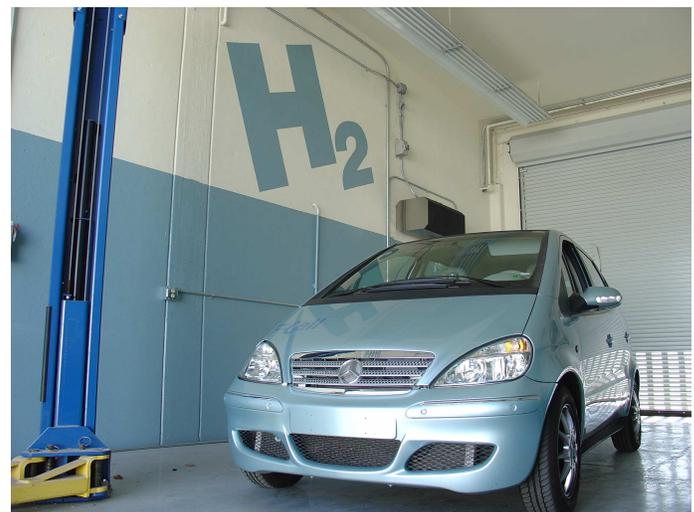
obtain up to nine Hyundai-Kia *Tucson FCEVs*, starting with three this fall.

Besides conducting performance characterization testing on the vehicles and placing them in its fleet, SCE intends to perform maintenance procedures at its Electric Vehicle Technical Center's unique new maintenance bay designed especially for hydrogen-powered technologies.

Moving beyond fuel cell use in vehicles, SCE will test hydrogen fuel cells for stationary applications like distributed generation, backup power, facility space heating and more. Initial projects include testing the efficiency, temperature rating and expected lifecycle for a variety of manufacturers' fuel cells.

For more information, visit www.sce.com/electrodrive or

contact Darcy Skaggs at 909-469-0315 or Darcy.Skaggs@sce.com.



DaimlerChrysler *F-Cell* FCEV, shown in the newly commissioned hydrogen maintenance bay at SCE's state-of-the-art Electric Vehicle Technical Center. *Photo courtesy of SCE*