

Appendix I

Federal Programs

U.S. Department of Energy Hydrogen Fuel Initiative

The United States Department of Energy (DOE) is validating hydrogen and fuel cell research targets through vehicle and infrastructure learning demonstrations, research and development, and education. The DOE hydrogen program is committing \$1.2 billion over five years (FY04-FY08) nationwide to accelerate research and development and deployment to enable an industry decision to commercialize fuel cell vehicles by 2015. DOE spent \$25 million in California for hydrogen technology and infrastructure through stakeholder development in 2005. DOE has budgeted another \$25.6 million in 2006 for California. Of the amount provided in 2006, \$6.2 million is available for demonstrations including vehicles and stations that contribute directly to the CaH2Net. The State of California is seeking \$13 million for 2007 from the DOE program to match California's investment toward the CaH2Net.

There are currently four DOE sponsored demonstration teams all of which have significant hydrogen activities in California. The teams are led by DaimlerChrysler/BP, General Motors/Shell, Chevron/Hyundai, and Ford/BP and include a long list of California partners including the University of California at Davis, Southern California Edison, the California Energy Commission, the Air Resources Board, the Department of General Services, the South Coast Air Quality Management District, Sacramento Municipal Utility District, Science Applications International Corporation, SRI International, California Fuel Cell Partnership, Air Products, Praxair, Port of Los Angeles, and AC Transit.

These teams are deploying a total of 63 fuel cell vehicles and 9 hydrogen stations in our state. These demonstrations are validating hydrogen technologies against time-phased performance targets including fuel cell durability to 2000 hours, vehicle range of 250+ miles, and hydrogen fuel cost of \$3.00 a gallon of gas equivalent.

The Air Resources Board, California Energy Commission and Department of General Services accepted the keys to three DaimlerChrysler F-Cell fuel cell vehicles in June 2005 and three Ford Focus fuel cell vehicles in October 2005. The vehicles are part of the DOE demonstration program. The vehicles will be used for public outreach and for demonstration with targeted audiences such as policy makers, emergency responders and fleet managers.

In addition to these four demonstration projects is the California Hydrogen Infrastructure Project (CHIP) lead by Air Products, Inc., with participation by Honda, Toyota, Nissan, BMW, General Motors, DaimlerChrysler, Fuel Cell Energy, SCAQMD, ConocoPhillips, Shell Hydrogen and the University of California, Irvine. The focus of this project is to demonstrate a cost effective

infrastructure model in the state of California for nationwide implementation. The goal is to implement a variety of flexible infrastructure concepts within selected regions to demonstrate “real world” infrastructure including potential pathways to a fully developed hydrogen economy.

U.S. Department of Transportation

The U.S. Department of Transportation (U.S. DOT) has been allocated \$49 million over four years for the advancement of fuel cell transit buses. This U.S. DOT program requires 50 percent match funding from successful proposals. Solicitation for white papers describing potential projects was completed in May and awards were announced October 12. In total, \$12 million was awarded to projects in California. California projects included the development and demonstration for a fuel cell bus for SunLine Transit Agency, the accelerated testing of fuel cell bus at Alameda/Contra Costa County Transit, and the development of a fuel cell auxiliary power supply for use on San Francisco Municipal Transit. \$33 million was awarded to projects outside of California, however ISE Corporation, a California based systems integrator, is a participant in a number of number of these projects.

The Governor and Legislature approved funding in the 2006/2007 budget which provides funds for Zero Emission Bus projects including matching the U.S. DOT program awardees. This opportunity to leverage the federal program provides critical support to both the Air Resources Board’s Zero Emission Bus regulation and to the goals of the California Hydrogen Blueprint Plan. ARB staff is evaluating the awarded projects to determine the merit for and amount of State matching funds and is considering providing funds to zero emission bus projects not included in the U.S. DOT awards.

In addition, the U.S. Department of Energy awarded \$ 6 million to Lawrence Berkeley National Laboratory and \$2.2 million to Intelligent Energy Inc. for fuel cell research and development on October 24, 2006.

The U.S. Department of Energy is currently seeking projects that employ innovative technologies in support of its advanced energy initiative. This solicitation includes a broad array of technologies including hydrogen and/or fuel cell. The total amount of funding available under this initiative is \$2 billion. Pre-applications are required and were due by November 6, 2006.

The Departments of Energy and Defense have has released Small Business Innovation Research (SBIR) solicitation notices. DOE has published a list of proposed technical topics including several hydrogen and fuel cell-related topics. The solicitation was introduced September 20 and applications are due November 21, 2006. Grant awards of up to \$100,000 each are available for developing scientific or technical feasibility (Phase I), up to \$750, 000 each for research and development (Phase II) and unspecified amounts for the

development of commercial applications (Phase II). \$36 million will be available for Phase I projects. Previous SBIR funding allocated \$85 million for Phase II.