

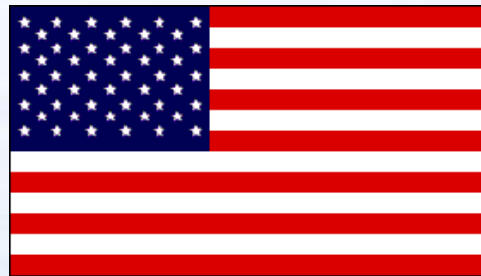
# **US Hydrogen Program**

**Country Statement for the IPHE Steering Committee**

**April 24, 2006**

**São Paulo, Brazil**

**Brad Barton and Robert DeHaan**



United States of America



# The President's "20 in 10" Initiative



**“Tonight, I ask Congress to join me in pursuing a great goal. Let us build on the work we've done and reduce gasoline usage in the United States by 20 percent in the next 10 years.”**

**“To reach this goal, we must increase the supply of alternative fuels, by setting a mandatory fuels standard to require 35 billion gallons of renewable and alternative fuels in 2017.”**



**President George W. Bush  
State of the Union Address  
January 23, 2007**



# Secretary Bodman Announces Over \$100M in Fuel Cell Technology Awards (October 2006)

*25 Awards to Universities, National Labs, and Industrial Recipients*

**Projects addressing membranes, catalysts, water transport, bipolar plates, hydrogen quality and stationary power development/demonstrations**

● **Awards included two international projects:**

**High Temperature PEM Stationary Fuel Cell Development and Demonstration**

**Combined Heat and Power System with Integrated Hydrogen Generation**

❖ Executed through a US/EU consortium:

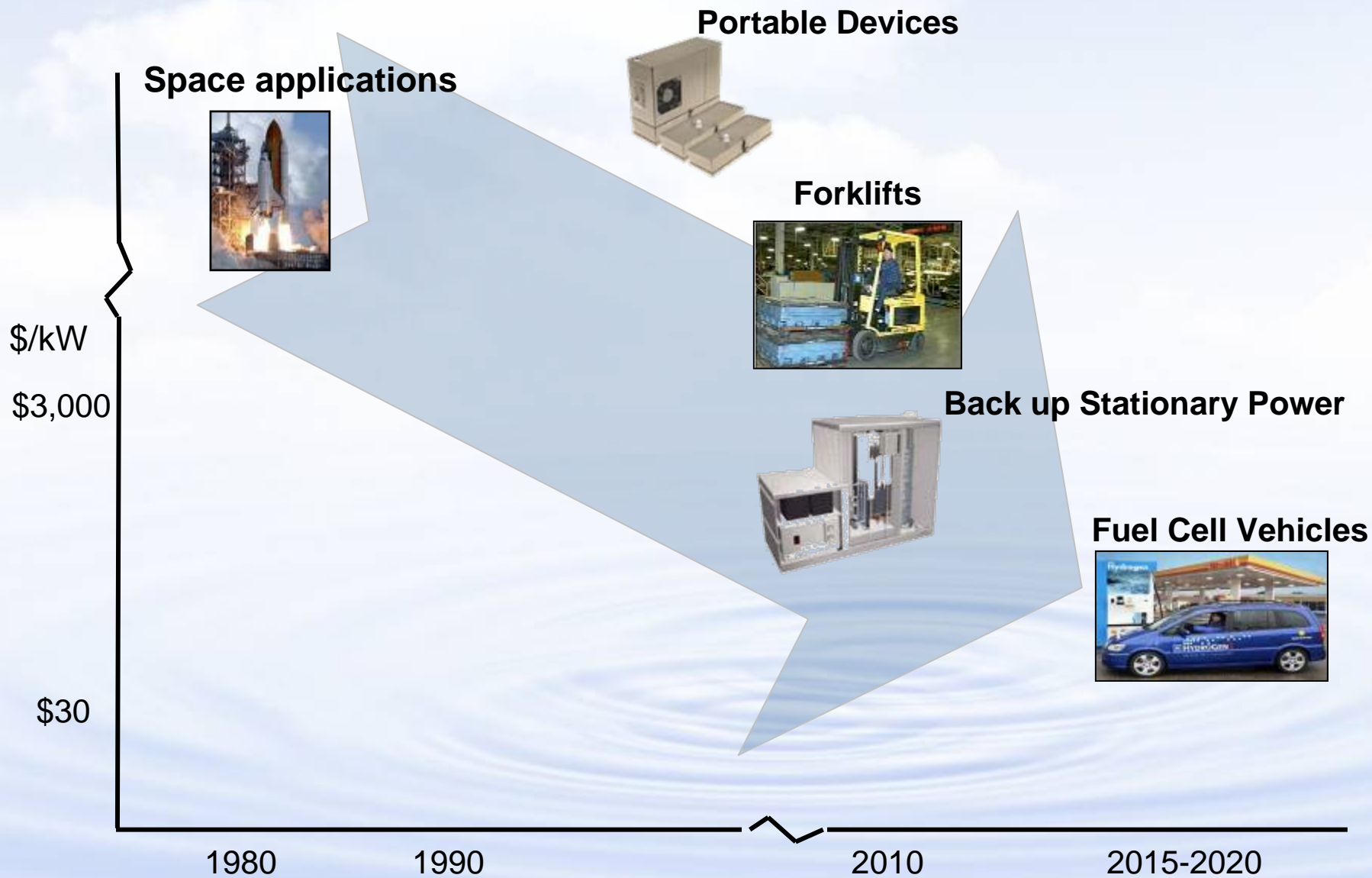
- Plug Power (US)/Plug Power (Netherlands)
- PEMEAS E-TEK US/PEMEAS (Germany)
- Vaillant (Germany)
- Domel (Slovenia)
- Bulgarian Academy of Sciences (Bulgaria)
- Gaia (Sweden)
- Imperial College (United Kingdom)

Major partners Intelligent Energy (USA) and Loughborough (UK) will conduct technology development and field demonstrations in Sweden, Norway and the UK. Project focuses on efficiency improvement and field demonstration of a 2kW system.

**For more information on individual projects, visit  
[www1.eere.energy.gov/hydrogenandfuelcells/new\\_fuel\\_cell\\_mtg.html](http://www1.eere.energy.gov/hydrogenandfuelcells/new_fuel_cell_mtg.html)**



# DOE IS ACTIVELY PURSUING EARLY MARKET APPLICATIONS OF HYDROGEN AND FUEL CELL TECHNOLOGIES







# INTEGRATING RENEWABLE ENERGY & HYDROGEN PRODUCTION

*Exploring synergies between hydrogen production, energy storage and power generation*

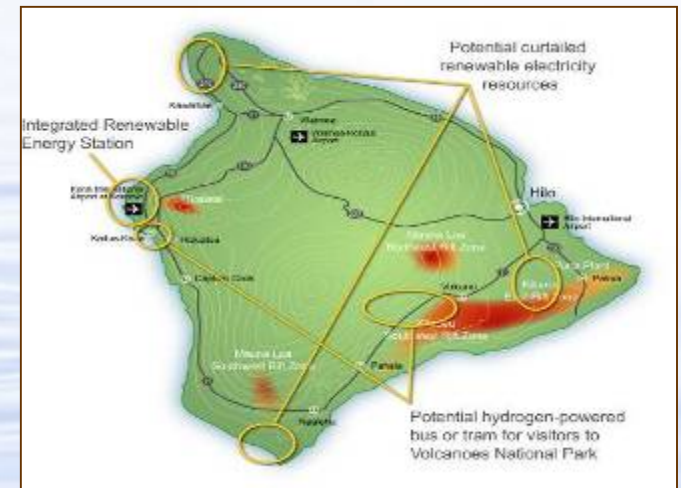
- Energy stored in hydrogen can be converted into electricity by a fuel cell or turbine when output of the wind or solar generators is low.
- Storing energy as hydrogen allows generating facilities to match output with the demands of the grid.
- Capturing and storing “suplus” power from peak-generation times can significantly improve the effective output of renewable facilities



**DTE Power Park**



**Xcel/NREL Wind/Hydrogen Project**



**Hawaii Hydrogen Project (planned)**

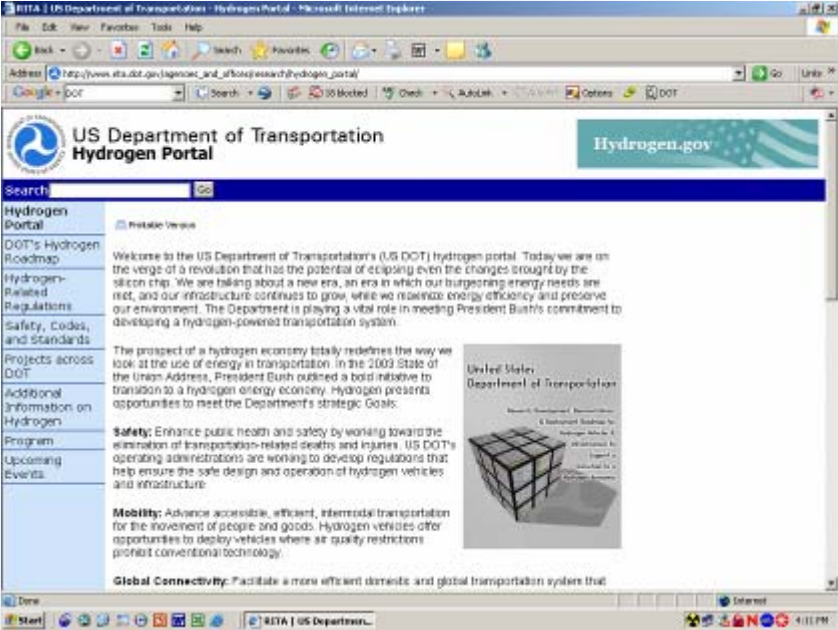


# For More Information

**2007 Annual DOE Hydrogen Program Merit Review and Peer Evaluation Meeting  
May 15-18, 2006 - Arlington, VA**



[www.hydrogen.gov](http://www.hydrogen.gov)



**DOT**  
**[www.rita.dot.gov/agencies\\_and\\_offices/research/hydrogen\\_portal/](http://www.rita.dot.gov/agencies_and_offices/research/hydrogen_portal/)**

**DOE: [www.hydrogen.energy.gov](http://www.hydrogen.energy.gov)**



# National Fuel Cell Bus Technology Development Program

- **\$49 million in federal grants**
- **Design, demonstrate, evaluate 40-foot fuel cell buses in U.S. climates**
- **Includes \$3.9 million to test life expectancy of existing fuel cell bus line**



**C. Mikel Oglesby, General Manager for SunLine Transit, U.S. Congresswoman Mary Bono (R-CA) and James Simpson, Administrator for the Federal Transit Administration, are pictured in front of a SunLine hydrogen fuel cell bus at the agency's Thousand Palms, CA headquarters.**

*Photo courtesy SunLine Transit Agency*





# Regulatory Coordination for a Hydrogen Economy



- January 5, 2007 Federal Register Notice
- Details current U.S. statues and regulations that may be applicable to a hydrogen economy
- [www.hydrogen.gov/regulations](http://www.hydrogen.gov/regulations)

**Interactive Map:**

**Hydrogen in Our Economy**

**Shows which agencies regulate various aspects of the hydrogen economy**





# Other Activities

- **DOT/National Association of State Fire Marshals – technical training materials for fire/emergency responders**
- **Update Motor Carrier Safety Regulations to include H<sub>2</sub>-fueled commercial vehicles**
  - **2006-2008, \$200,000**
- **Hydrogen fuel cell vehicle safety research**
  - **FMEA, storage cylinder integrity, post-crash electrical isolation**
  - **\$1.3 million in 2006**



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