PowerAvenue Corp.

United States' Position on Hydrogen Technology

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Global Oil Demand in Millions of Barrels per Day in 2005
Source: Wall Street Journal, June 5, 2006

Federal Commitment to the Development of Hydrogen Technologies - President Bush in 2003 announced the **Hydrogen Fuel Initiative** accelerating the R&D of H_2 fuel cells and H_2 production, storage, distribution & infrastructure technologies. When combined with the existing DOE FreedomCAR Program (hybrid vehicle R,D&D), the federal government plans to commit $1.7 billion over a five year period (FY' 04-'08) to help bring H_2 fuel cell vehicles from the lab to the showroom.

The purpose of this Initiative is to encourage federal partnerships with the private sector (collaborating academia, the auto manufacturing and the energy sectors) to overcome key economic and technical barriers to facilitate the mass production of H_2 fueled fuel cell vehicles and H_2 infrastructure commercialization decision by industry in 2015. These barriers are:

- H_2 production
- H_2 storage
- H_2 delivery & infrastructure
- H_2 fuel cell power system development

The issue is not addiction to oil, it is Energy Independence that can be accomplished through combination of alternative

If a positive decision is made in 2015 to lead to commercial market, introduction of H_2 fuel cell vehicles are expected by 2020.

Current Federal Funding Levels - H_2 Initiative is being conducted out of DOE's Hydrogen Fuel Cells & Infrastructure Technologies Program in the Office of Energy Efficiency & Renewable Energy. The site **http://www.eere.energy.gov/hydronandfuelcells/mypp/** includes a description of the multi-year R&D Program.

New FY '06 funding for the H_2 Initiative is approximately $157 million (less earmarks). Estimated FY 07 funding for the proposed Fuel Cell R&D Funding Opportunity Announcement is in the $50- $100 million dollar range

H_2 Fuel Cell Funding Opportunity Announcement

Goals of Funding Announcement:

Development of a durable, direct H_2 fuel power system that:

- reaches peak efficiency of 60%
- has a power density of 650 W/L;
- has a specific power of 650 W/kg;
- has a cost of $45/kW by 2010
- has a cost of $30/kw by 2015

	Key Targets	
Performance Measure	2009*	2015**
Fuel Cell Stack Durability	2000 Hours	5000 Hours
Vehicle Range	250+ miles	300+ miles
Hydrogen Cost at Station	$3/gge	$2-3/gge