



HYDROGEN FUEL INITIATIVE
Research and Development Funding in the President's 2005 Budget

The Hydrogen Fuel Initiative (HFI), announced in the President's 2003 State of the Union address, seeks to help industry develop practical and cost-effective technologies for using hydrogen to power automobiles by 2015. HFI focuses primarily on development of technologies for the production, storage, and delivery of hydrogen, and on development of fuel cell technologies that can be used to power automobiles with virtually no emissions of air pollutants or greenhouse gases. Widespread use of fuel-cell vehicles would make the United States much less dependent on foreign sources of energy. The 2005 Budget for HFI is \$228 million, 43% larger than the amount just enacted for FY 2004.

Hydrogen Fuel Initiative Budget (\$ million)

Department/Office	2001 Actual*	2004 Enacted**	2005 Request	Dollar Change, 2001 to 2005	Percent Change, 2001 to 2005
Energy / Energy Efficiency and Renewable Energy	73	147	173	100	137
Energy / Fossil Energy (coal)	0	5	16	16	-
Energy / Nuclear Energy	0	6	9	9	-
Energy / Basic Energy Sciences	0***	0***	29	29	-
Transportation	0	0.6	0.8	0.8	-
TOTAL	73	159	228	155	212

* Reflects funding for baseline activities that HFI augments and/or redirects. 2004 was the first year for the HFI.

** Reflects rescissions, general reductions, and other adjustments included in relevant 2004 appropriations.

*** Base funding for hydrogen-related activities in Basic Energy Sciences was roughly \$8 million in 2001 and 2004. These activities have been reoriented and expanded to support the goals of the President's HFI in 2005.

The 2005 Budget proposes that fundamental research within the Department of Energy (DOE) Office of Science be enhanced, focused, and included in the HFI. This basic research will help overcome key technology hurdles in hydrogen production, storage, and conversion by seeking revolutionary breakthroughs in areas such as non-precious-metal catalysts, high-temperature membrane materials, multifunctional nanoscale structures, biological and photoelectrochemical hydrogen production, and precision manufacturing processes. Most of the 2005 funding for the Office of Science is "new" funding and represents a significant expansion of basic research on hydrogen-related topics.

HFI supports research on hydrogen production from renewable energy, coal, nuclear energy, and biomass, safe and effective hydrogen storage systems, and affordable hydrogen fuel cells for consumer automobiles. The Initiative has spurred increased hydrogen technology development efforts among private-sector, state, and international stakeholders.

The OSTP-led Hydrogen R&D Interagency Task Force serves as the mechanism for collaboration among the nine federal agencies that fund hydrogen-related research and development, some of which contributes to the President's HFI goals. Participating agencies collaborate on research in areas such as materials, electrochemistry, and advanced hydrogen production methods, development of components and manufacturing technologies, demonstration of systems and end-use applications, and development of safety codes and interface standards. The task force has developed an extensive hydrogen research taxonomy, provided guidance for agency research directions, identified key areas for interagency collaboration, and established subgroups to develop and implement a 10-year interagency coordination plan. To the extent that work at other agencies contributes to the goals of the HFI, the DOE provides funding to other agencies (Transportation, NIST, EPA) on a cost reimbursable basis.