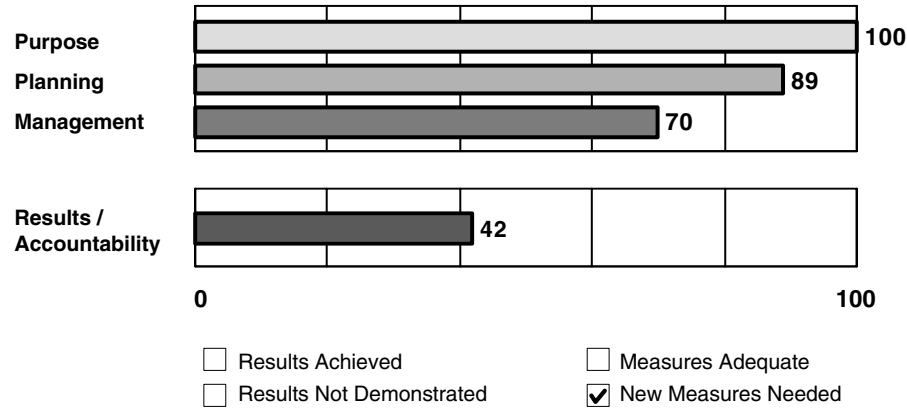


Program: Hydrogen Technology

Agency: Department of Energy

Bureau: Energy Efficiency and Renewable Energy



Key Performance Measures

Year Target Actual

Long-term Measure (new): Use of hydrogen as an energy source to displace petroleum, in millions of barrels of oil per day (mmbbl/d)	2002	0	0
	2010	0.001	
	2020	0.180	
Long-term Measure: Weight percent of hydrogen storage (a higher weight percent means more hydrogen in a smaller volume, allowing a hydrogen fuel cell vehicle that can operate more miles before refueling)	2000	5%	3.5%
	2005	5%	
	2010	6%	
Annual Measure (new): Cost of hydrogen produced from renewable resources, in dollars per gasoline gallon equivalent (\$/gge)	2002		\$8.50
	2003	\$6.00	
	2004	\$5.00	
	2010	\$3.50	

Rating: Adequate

Program Type: Research and Development

Program Summary:

The Hydrogen Technology program develops hydrogen production, storage, and delivery technologies that are more energy efficient, cleaner, safer, and lower in cost. A portion of the program's funding supports the Administration's FreedomCAR partnership that aims to develop technologies to help the U.S. auto industry commercialize hydrogen fuel cell vehicles.

The program has a very clear purpose and strong planning, but needs to develop and apply a consistent methodology for estimating the public benefits of its activities in order to establish priorities within the program and among other applied energy research and development (R&D) programs. Other findings include:

1. In 2000, the National Research Council (NRC) reported that the program "has established a firm technical foothold in the critical technical areas" of hydrogen production and storage.
2. The NRC also indicated that the program should concentrate on research on the production of hydrogen from renewable resources and on hydrogen storage.
3. Some program activities that support the FreedomCAR partnership need involvement of the energy industry as well as the auto industry.
4. The program has had difficulty developing meaningful annual performance measures for much of the R&D it conducts, a challenge for many R&D programs.
5. The program is part of a division that completed a major reorganization in 2002, which should improve program planning and management.

In response to these findings and an assessment of the program's activities using the R&D Investment Criteria developed as part of the President's Management Agenda, the Budget proposes to:

1. Establish a new partnership with energy industry to complement the Administration's FreedomCAR partnership, which will accelerate the Nation's transition to a hydrogen-based economy;
2. Expand high-risk R&D on hydrogen production from renewable resources and on hydrogen storage technologies; and
3. Develop adequate annual performance measures.

(For more information on this program, please see the Department of Energy chapter in the Budget volume.)

Program Funding Level (in millions of dollars)

2002 Actual	2003 Estimate	2004 Estimate
29	40	88