

RESTORE FEDERAL FUEL CELL AND HYDROGEN PROGRAMS

PROPOSAL: Fund DOE Hydrogen and Fuel Cell program at FY2009 level; revise to reflect program success and current priorities:

EERE Programs: \$200.5 Million

The fuel cell programs in the Department of Energy's Hydrogen, Fuel Cell and Infrastructure Technologies Program supports the development of fuel cells, their fuels and supporting infrastructure. The program has made exceptional progress in a few short years, helping dramatically reduce the volume production cost of fuel cells and the consumer cost of hydrogen fuel, testing and evaluating more than 125 fuel cell vehicles in real world operation, and helping deploy hundreds of fuel cell systems to federal agencies and early private sector adopters to improve energy efficiency and security of supply with low or zero emissions.

Fuel cell technologies are a crucial part of the portfolio of advanced energy technologies that will achieve the nation's energy policy and greenhouse gas reduction goals. Early systems are entering the marketplace or are poised to do so, and hydrogen fueling infrastructure is spreading rapidly, with fueling stations in at least 24 States. A robust public-private partnership focused on cost reduction and early deployment will accelerate commercialization and the benefits that accrue with marketplace success.

1. Automotive Deployment: \$44 Million

Support for initial sales, backed by a real-world vehicle and fuel testing and evaluation program is essential to accelerating the transition to commercial market.

- Continue road testing fleet of more than 125 vehicles via Technology Validation Program (\$14.9 M)
- Initiate a Market Deployment and Infrastructure program to support early market volumes of FCVs consistent with a commercial transition. (\$30M)

DOE Proposal: \$0

2. Market Transformation: \$30 Million

The Fuel Cell Market Transformation Program provides technical and financial support for purchase or lease of fuel cell systems that are entering the marketplace. Program creates U.S. jobs, improves security of air travel and communications, and enables a transition to commercially competitive products

- Continue Market Transformation activities in all market sectors
- Make Federal agencies, State agencies and private sector all eligible
- Specify that all fuel cell technologies are eligible.

DOE Proposal: \$0

3. Fuel Cell R,D&D: \$62.1 Million

DOE's robust program of cost reduction via research into materials, catalysts and components should continue. (\$47.1 M)

- Manufacturing is a critical component of cost reduction; continue DOE program (\$5 M)

- Distributed fuel cells systems provide energy efficiency and security benefits; continue DOE program (\$10 M)
DOE Proposal: \$63.2 M

4. Fuels R&D: \$44.5 Million

Hydrogen is one of a portfolio of fuels that together will achieve U.S. energy security while meeting greenhouse gas reduction goals. Improved hydrogen storage will reduce vehicle cost and improve capability, and will enable efficient use of hydrogen as a storage strategy for intermittent renewable resources, such as wind and solar power. Hydrogen from biomass uses a renewable domestic energy source and provides greater greenhouse gas reductions than biofuel combustion.

- Hydrogen storage focuses primarily on materials that can store hydrogen efficiently, cheaply and recoverably. (\$22M)
- Fuel Processing. Conversion of fuels to hydrogen on-site appeals to the marketplace and offers fuel flexibility. (\$7.5 M)
- Renewable Production and Delivery. Hydrogen from renewable sources is the ultimate motor fuel, enables use of intermittent solar and wind power, makes energy more portable and offers an off-grid option. (\$15 M)

DOE Proposal: \$0

5. Enabling Activities: \$19 Million

These programs prepare local communities for fuel cell installations, fueling stations and fuel cell vehicles, and help DOE evaluate program options

- Systems Analysis gives DOE tools to evaluate the program and calculate public benefits. (\$5 M)
- Safety, Codes and Standards development sets safety rules and product standardization guidelines, and trains local enforcement officials and first responders (\$11.5 M)
- Education informs the interested public and potential customers fuels and communicates the public's interest (\$2.5 M)

DOE Proposal (\$5 M)

SECA Program: \$58 Million

Solid State Energy Conversion Alliance is a cost shared public-private partnership developing high temperature Solid Oxide fuel cells for power generation and heavy duty vehicle efficiency. SECA's development targets to date have been met ahead of schedule. Commercial Solid Oxide fuel cells will make possible a 60% efficient coal fired power plant and make it easier and cheaper to sequester CO₂ from coal. Solid Oxide auxiliary power units (APU) for line haul trucks can improve efficiency and reduce emissions dramatically.

DOE Proposal: \$54M

DOE Proposed Fuel Cell Program FY 2010				Proposed Restoration/Reallocation		
(\$ Millions)				(\$ Millions)		
Program Description	FY 2009	DOE FY 2010 Proposal	Net 2010- 2009	Program Description	FY 2010	Net 2010- 2009
Automotive Fuel Cell R&D				Automotive Deployment		
Technology Validation*	\$14.9	\$0.0	-\$14.9	Technology Validation*	\$14.9	\$0.0
Transp. Fuel Cell Systems R&D	\$6.6	\$0.0	-\$6.6	Transp. Fuel Cell Systems R&D	\$0.0	-\$6.6
Vehicle deployment	\$0.0	\$0.0	\$0.0	Early Market Deployment+Infrastructure	\$30.0	\$30.0
Total Automotive	\$21.5	\$0.0	-\$21.5	Total Automotive	\$44.9	\$23.4
Market Transformation	\$4.7	\$0.0	-\$4.7	Market Transformation	\$30.0	\$25.3
Fuel cell R,D and D				Fuel cell R,D and D		
Stack Component R&D	\$62.7	\$0.0	-\$62.7	Stack Component R&D	\$47.1	-\$15.6
Manufacturing	\$5.0	\$0.0	-\$5.0	Manufacturing	\$5.0	\$0.0
Distributed FC systems	\$10.0	\$0.0	-\$10.0	Distributed FC systems	\$10.0	\$0.0
Fuel cell R&D	\$77.7	\$63.2	-\$14.5	Total Fuel Cell RD&D	\$62.1	-\$15.6
Hydrogen R&D				Fuels R&D		
Hydrogen storage	\$59.2	\$0.0	-\$59.2	Hydrogen Storage	\$22.0	-\$37.2
Fuel Processing	\$3.0	\$0.0	-\$3.0	Fuel Processing	\$7.5	\$4.5
Hydrogen Production+Delivery	\$10.0	\$0.0	-\$10.0	Renewable Production+Delivery	\$15.0	\$5.0
Total Hydrogen R&D	\$72.2	\$0.0	-\$72.2	Total Fuels R&D	\$44.5	-\$27.7
Enabling Activities				Enabling Activities		
Systems analysis	\$7.7	\$5.0	-\$2.7	Systems Analysis	\$5.0	-\$2.7
Codes and Standards*	\$12.5	\$0.0	-\$12.5	Codes and Standards*	\$11.5	-\$1.0
Education*	\$4.2	\$0.0	-\$4.2	Education*	\$2.5	-\$1.7
Total Enabling Activities	\$24.4	\$5.0	-\$19.4	Total Enabling Activities	\$19.0	-\$5.4
EERE Subtotal	\$200.5	\$68.2	-\$132.3	EERE Subtotal	\$200.5	\$0.0
			\$0.0			\$0.0
SECA	\$58.0	\$54.0	-\$4.0	SECA	\$58.0	\$0.0
Totals	\$258.5	\$122.2	-\$136.3		\$258.5	\$0.0

*Programs were under EERE Vehicles in FY2009