



Hydrogen Production R&D



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DOE Hydrogen Production Technology Research Portfolio

EERE

- Distributed natural gas and bio-derived liquid reforming
- Electrolysis
- Reforming biomass gas from gasification/pyrolysis
- Biological hydrogen production
- Photoelectrochemical hydrogen production
- Solar HT thermochemical cycles
- Separations



Office of Fossil Energy

- Coal gasification with sequestration

Office of Nuclear Energy

- Nuclear driven HT thermochemical cycles

Office of Science

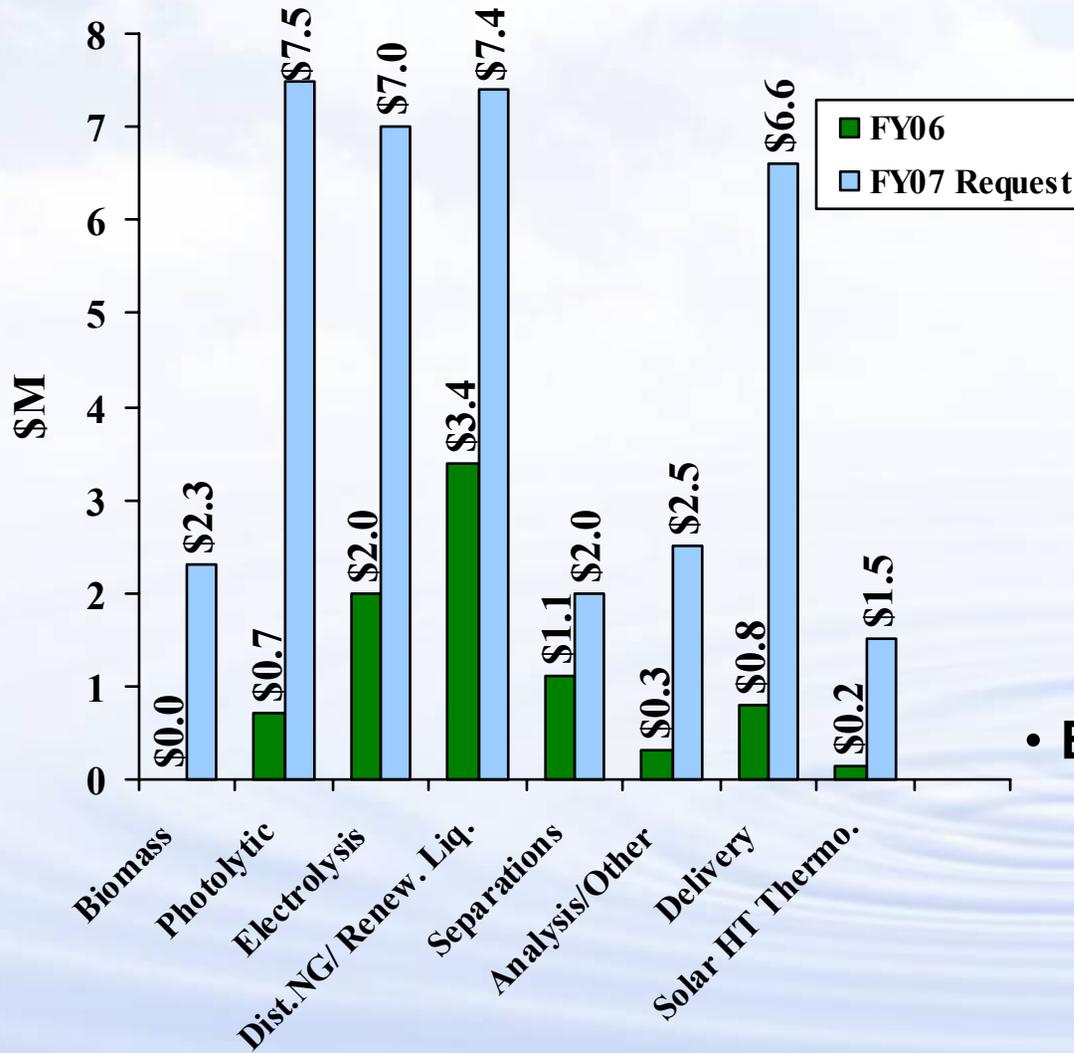
- Basic research on materials and catalysts



EERE Hydrogen Production & Delivery R&D

FY 2007 Budget Request = \$36.8M

FY 2006 Appropriation = \$8.5M



• Emphasis:

- Advanced distributed natural gas reforming systems to select technologies with the potential to produce hydrogen at 5000 psi for \$2.50/gge by 2010
- Advanced electrolyzer systems toward achieving a delivered hydrogen cost of \$4.50/gge at 5000 psi by 2009
- Recommence significant R&D on longer-term renewable technologies and hydrogen delivery technology

• Budget Obligations for 2007:

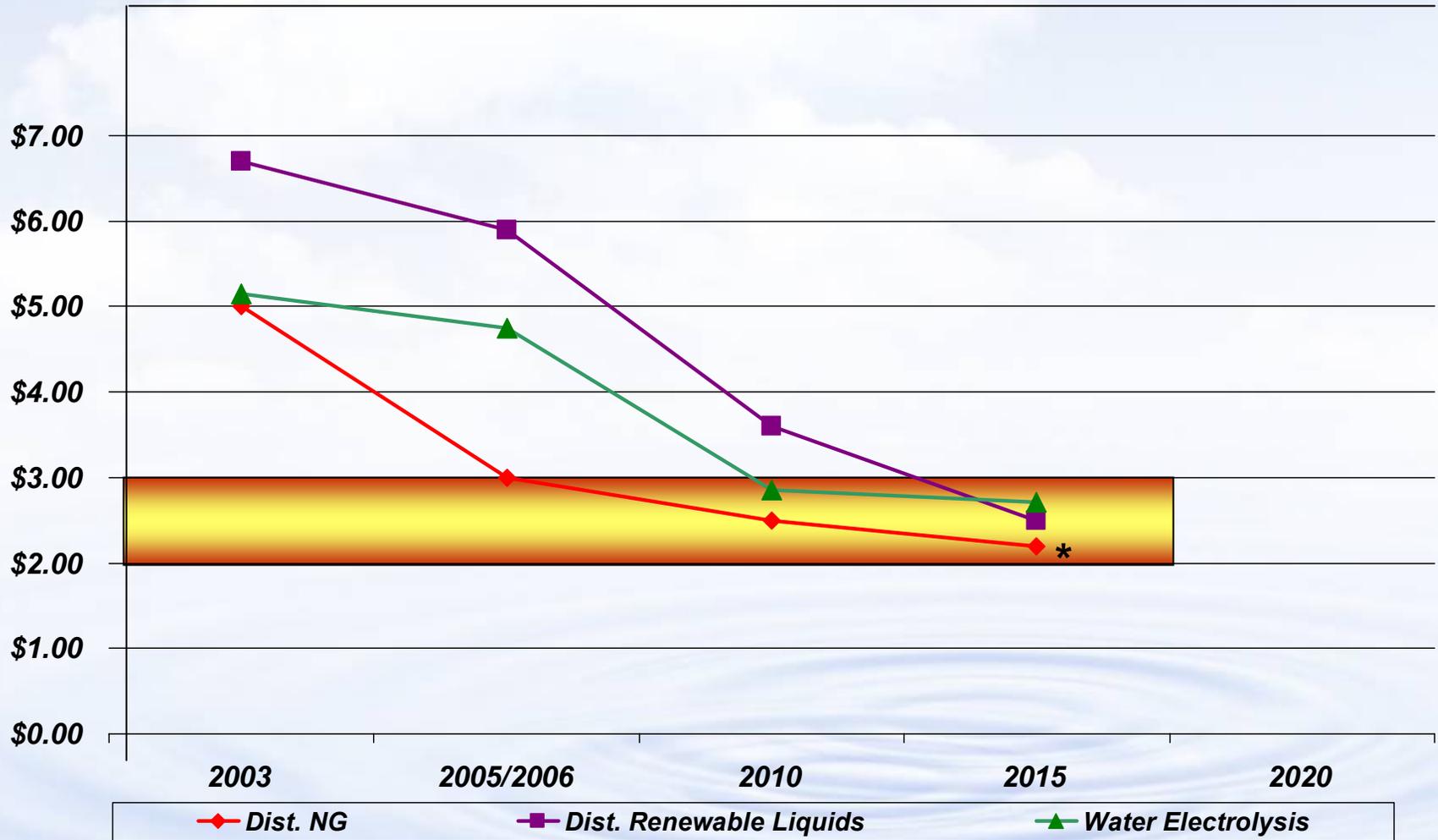
Fulfill current contracts	\$27.6M
Recommence Significant Lab R&D	\$9.2M
Total	\$36.8M

Upcoming Solicitations

- Fall 2006: Solicitation focusing on delivery technologies – Forecourt compression & storage, liquefaction and tube trailers
- Fall 2007: Broad production solicitation addressing technologies to meet out-year targets
- Fall 2007: Manufacturing R&D solicitation addressing production and delivery manufacturing technologies

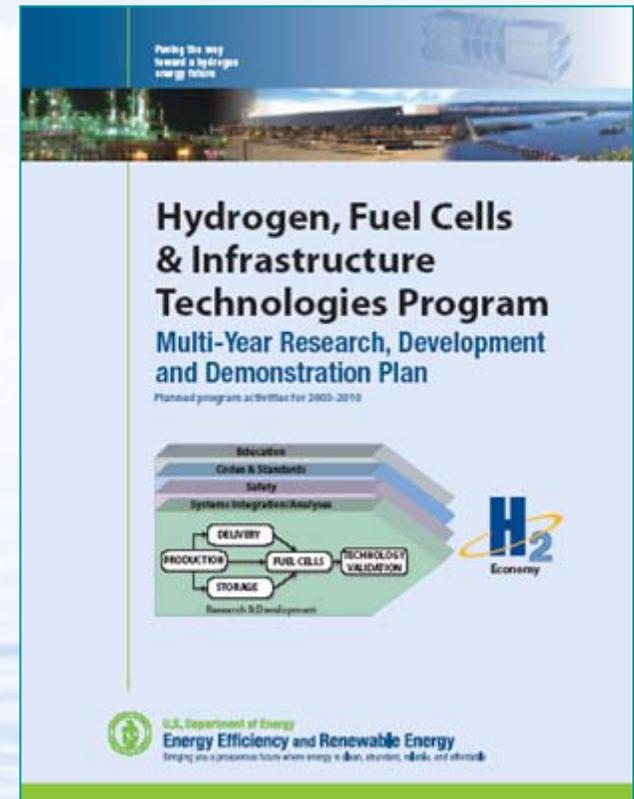


Hydrogen Production Targets Compared to 2015 Cost Goal



Updating the Multi-Year R,D&D Plan

- Updating targets and target years in light of budget impacts and progress made
- Using the H2A tool in target revision process
 - Example: Central and distributed electrolysis target analysis
- Harmonizing with other recently released documents such as the Solar and Wind Technologies Technology for Hydrogen Production report to Congress and the updated Hydrogen Posture Plan.



Key Milestones

2006: Verify \$3.00/gge cost of distributed natural gas reforming based on laboratory results.

2007: Lab-scale electrolyzer technology that achieves 64% energy efficiency and meets \$5.50/gge hydrogen cost target, untaxed at the station [based on 500 units/year].

2010: Hydrogen production and delivery R&D for market-based technologies at \$2.85/gge untaxed, delivered (at 5000 psi)

2010: Distributed natural gas technology available to produce hydrogen at \$2.50/gge (at 5,000 psi) untaxed at the station with high equipment manufacturing volumes (i.e. 500 units/year);