

VI.E.3 Analysis and Development of Cost-Effective and Reliable H₂ Off-Board Hydrogen Storage Technology for Refueling Sites

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Objectives

Analyze the technical and economic factors related to bulk hydrogen storage, and dispensing at refueling stations for vehicle applications, including:

- Operating costs and efficiencies of various hydrogen storage methods
- Capability of fueling system to store and effectively deliver H₂ to vehicles
- Safety of the fuel storage and delivery system

Technical Barriers

This project addresses the following technical barriers from the Hydrogen Delivery section of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

- B. Reliability and Costs of Hydrogen Compression
- F. Hydrogen Delivery Infrastructure Storage Costs
- H. Storage Tank Materials and Costs
- I. Hydrogen Leakage
- J. Safety, Codes and Standards, Permitting and Sensors

Technical Targets

Off-Board Storage	2003 Status	2005	2010	2015
Refueling Site Storage Costs Contribution (\$/gge of H ₂)	\$0.70	\$0.70	\$0.30	\$0.20

Approach

- Analyze available technology options for bulk storage of hydrogen at a refueling station.
- Address capital cost, operating costs, footprint, fuel capacity and safety.

Accomplishments

- None to date, as work was initiated in June 2005.

