

### VI.E.3 Analysis and Development of Cost-Effective and Reliable H<sub>2</sub> Off-Board Hydrogen Storage Technology for Refueling Sites

*Louis A. Lautman*

*Gas Technology Institute*

*1700 South Mount Prospect Road*

*Des Plaines, IL 60018*

*Phone: (847) 768-0760; Fax: (847) 768-0501; E-mail: lou.lautman@gastechnology.org*

*DOE Technology Development Manager: Mark Paster*

*Phone: (202) 586-2821; Fax: (202) 586-9811; E-mail: Mark.Paster@ee.doe.gov*

*DOE Project Officer: Jesse Adams*

*Phone: (303) 275-4954; Fax: (303) 275-4753; E-mail: Jesse.Adams@go.doe.gov*

*Contract Number: DE-FG36-05GO5013*

*Start Date: 6/1/2005*

*Projected End Date: 5/31/2006*

#### 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 H<sub>2</sub> 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 <sub>2</sub> )	\$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.

