U.S. DEPARTMENT OF ENERGY

Hydrogen Education Overview

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2006 DOE Hydrogen Program
Merit Review and Peer Evaluation Meeting

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Program Scope

Target Audience	Priority	Notes/Rationale
Safety Officials	Near-Term	Must understand how to handle potential incidents; also facilitate local project approval
Code Officials	Near-Term	Must be familiar with hydrogen to facilitate permit process and local project approval
Local Communities	Near-Term	Community residents with a basic understanding of the concept of a hydrogen economy are more likely to welcome the opportunity for local demonstration projects and embrace the concept of a hydrogen economy
State and Local Government Representatives	Near-Term	Must understand near-term realities of hydrogen technology to make decisions on current opportunities and lay foundation for long-term change
University Faculty and Students	Near-Term	Current interest is high; graduates are needed for research in government, industry, and academia
Other Teachers and Students	Long-Term	Current interest is high; teachers are looking for technically accurate information and assistance with classroom lesson plans and activities

Budget Background

- FY 2004 Budget = $ 2.4M
- FY 2005 Budget = $ 0
  → Congressional language stated, *"No funds are provided for the proposed effort on hydrogen education as these efforts are premature"*
- FY 2006 Budget = $ 495K *
- FY 2007 Request = $ 1.9M *

Lessons Learned from FY05:
DOE hydrogen education and training activities must visibly demonstrate a near-term effect on the transition to the hydrogen economy –
→ priority target audiences include emergency responders and code officials, communities where demonstrations are located, state and local government officials

* Note – FY 2007 request is consistent with FY 2006 request ($1.8M); FY 2006 budget was affected by DOE Hydrogen Program appropriations shortfall and congressionally directed activities

Program Strategy

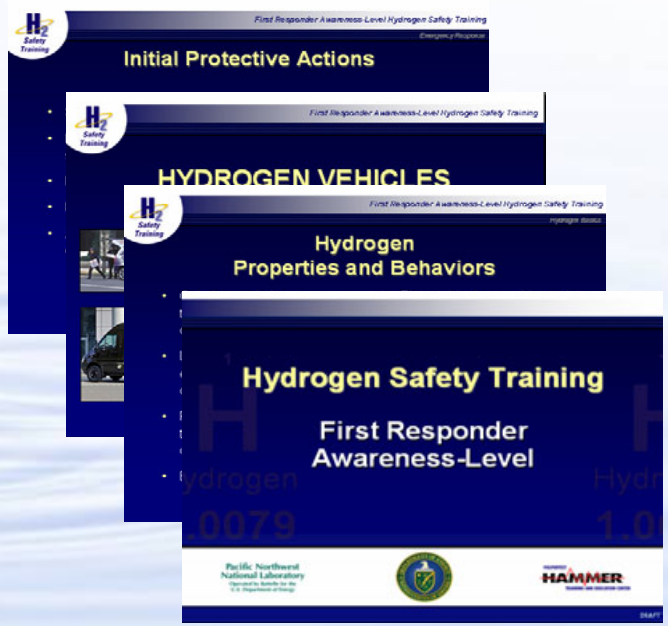
- Complement the DOE Hydrogen Learning Demonstration and the DOE Hydrogen Safety Program
- Support emerging state and regional hydrogen initiatives by providing a consistent message and common set of educational materials

- Focus education and training activities on raising H2IQ
  - → All education activities must tie to the survey
  - → Messages and information conveyed in education resources are designed to increase H2IQ

FY06 Activities: Emergency Responder Training

Hydrogen Safety Awareness-Level Training and Education

- Purpose
  - → Introduce hydrogen, its properties and behavior, and how it differs from other fuels used today
  - → Introduce hydrogen technologies, applications, and infrastructure
  - → Provide basic information about incident recognition, initial emergency response, and protective actions
- Intent
  - → Create a stand-alone training module; web-based for wide distribution
  - → Develop a body of knowledge/information set specific to hydrogen that organizations with emergency responder training programs can “drop in” to their existing or planned curricula



FY06 Activities: Local Community Education

"Raising H2IQ" – Community/Media Information Program

- Purpose – Use various forms of media to do the following:
  - → "Seed the clouds," introduce the concept of a hydrogen economy and hydrogen technologies
  - → Drive people to "information toolbox" on *hydrogen.energy.gov* for more information
- Efforts focused on locations where hydrogen demonstration projects are located
- Messages conveyed in program components and through the information toolbox tie to the technical knowledge questions of the survey

Planned FY06 (but unfunded) Activities:

- **State and Local Government Officials:**
  - → Continue with next round of "Hydrogen 101" training workshops
  - → Pilot new series of "Hydrogen Energy Institutes"

***Baseline Survey Statistic – State and Local Government Officials*:**
86% said "Hydrogen 101" training would be helpful

- **Middle School and High School Educational Materials and Teacher Professional Development:**
  - → Lawrence Hall of Science
  - → National Energy Education Development (NEED) Project

***Baseline Survey Statistics – Students (ages 12-17)*:**
→ Students answered only 32% of the knowledge questions correctly
→ Almost 50% of students said hydrogen is too dangerous for everyday public use

- **Universities:**
  - → Undergraduate and graduate courses
  - → Develop and implement short courses for local community

Hydrogen Technology Learning Centers

VA-MD H2 Education Center
▪ Virginia Tech ▪ UMD ▪

Regional H2 Technology Education Consortium
▪ NC A&T ▪ USC ▪ UGA ▪ UF ▪

H2USA
▪ UCF ▪ RIT ▪ UC-Davis ▪ San Diego-Miramar ▪

For More Information – DOE Education Resources

hydrogen.energy.gov

New intro fact sheets – and the Baseline Survey Report – now available in the web site library!

All hard copy documents, fact sheets, CDs, etc. can be ordered from the DOE Information Center and shipped free-of-charge

877-EERE-INF(O) or 877-337-3463

Mon – Fri, 9am – 6pm EST