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# **U.S. Department of Energy Hydrogen Program**

## ***Safety, Codes and Standards***

**Antonio Ruiz**

**2008 DOE Hydrogen Program  
Merit Review and Peer Evaluation Meeting**

**June 9, 2008**





# Goal and Objectives

## **SAFETY:**

Develop and implement the practices and procedures that will ensure safety in the operation, handling, and use of hydrogen and hydrogen systems for all DOE-funded projects and utilize those practices and lessons learned to promote the safe use of hydrogen.

## **CODES & STANDARDS:**

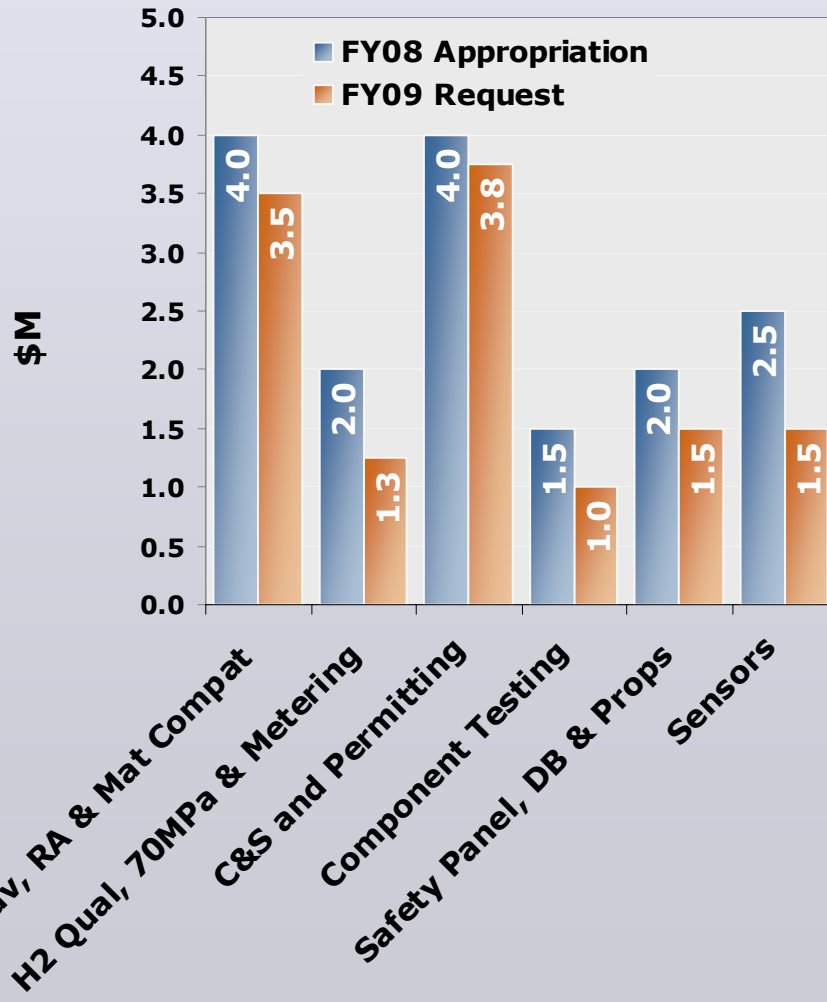
Perform the underlying research to enable codes and standards to be developed for the safe use of hydrogen in all applications. Facilitate the timely development and harmonization of domestic and international codes and standards.



# Budget

**FY2009 Budget (Request) = \$12.5M**

**FY2008 Budget (Approp.) = \$16.0M**

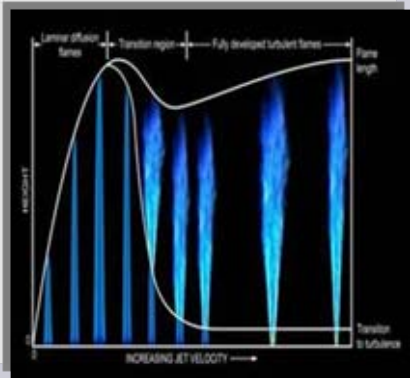
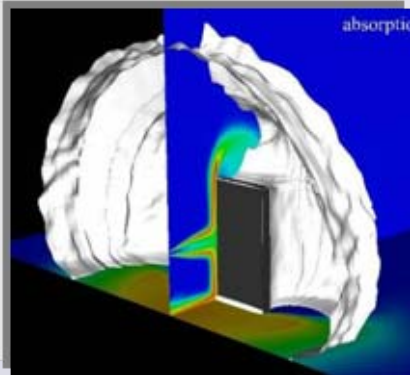


## FY2009 Emphasis

- Technically validated performance data needed for new codes and standards
- Web-based tools to facilitate permitting of hydrogen fueling stations and stationary fuel cell installations
- Hydrogen fuel quality testing, measurement, and metering
- Risk assessment and establishment of protocols to identify and mitigate risk
- Global harmonization of hydrogen fuel quality and other key standards
- Dissemination of hydrogen best practices and safety information



# Challenges



- Synchronizing codes & standards development and adoption with technology commercialization needs
- Aligning data generation with codes & standards development
- Promoting domestic and international consistency
- Streamlining and standardizing the permitting process for hydrogen facilities
- Facilitating timely adoption of approved codes & standards
- Compiling and disseminating hydrogen safety information



# 2008 Progress & Accomplishments

## Launched Online Hydrogen Fueling Station Permitting Compendium *February 2008*

- International Fuel Quality Specification (ISO 14687-2) approved by ISO Technical Committee 197, March 1, 2008
  - ISO TS 14687-2 and SAE J2719 harmonized
- Succeeded in the adoption of risk-informed approach for the incorporation of hydrogen provisions in the next cycle of NFPA code development
- Designed, built and tested a fuel cell vehicle prop for first responder training
- Developed an online course for researchers on hydrogen safety
- Released Hydrogen Safety Best Practices Manual, December 2007



# Future Plans

- Continue hydrogen installation permitting workshops for fire safety and building code officials
- Evaluate current status of hydrogen leak detection technologies and release competitive solicitation for the development of state-of-the-art hydrogen safety sensors
- Conduct testing and modeling to develop international hydrogen fuel quality standard
- Continue generation of technically validated performance data needed for new and revised codes and standards
- Collect current hydrogen safety records and populate safety databases
- Promote risk-informed approach for developing technically sound (and traceable) codes & standards
- Expand permitting compendium to include stationary fuel cell installations



# For More Information

## ***Safety, Codes and Standards Team***

**Antonio Ruiz**

(202) 586-0729

[antonio.ruiz@ee.doe.gov](mailto:antonio.ruiz@ee.doe.gov)

**Jonathan Munetz (Sentech)**

(202) 586-6644

[jonathan.munetz@ee.doe.gov](mailto:jonathan.munetz@ee.doe.gov)

**Jay Keller (SNL)**

(925) 294-3316

[jokelle@sandia.gov](mailto:jokelle@sandia.gov)

**Lea Yancey (GFO)**

(303) 275-4944

[lea.yancey@go.doe.gov](mailto:lea.yancey@go.doe.gov)

**Chris Moen (SNL)**

(925) 294-3709

[cmoen@sandia.gov](mailto:cmoen@sandia.gov)

**Steve Weiner (PNNL)**

(202) 646-7870

[sc.weiner@pnl.gov](mailto:sc.weiner@pnl.gov)

**Carl Rivkin (NREL)**

(303) 275-3839

[carl\\_rivkin@nrel.gov](mailto:carl_rivkin@nrel.gov)

**Catherine Padró (LANL)**

(505) 667-5539

[padro@lanl.gov](mailto:padro@lanl.gov)

**Jim Ohi**

(303) 275-3706

[jim\\_ohi@nrel.gov](mailto:jim_ohi@nrel.gov)