



**CSA International Certification Discussion  
Hydrogen Technology Workshop  
November 4, 2010**

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# CSA Group

## Operating Divisions



Testing &  
Certification



Quality Assurance &  
Product Performance  
Evaluation



CANADIAN STANDARDS  
ASSOCIATION



Standards  
Development

*A safer, better, sustainable world  
where standards work for people and  
business*



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# CSA Group Coverage





# CSA Group – Key Facts

- Established in 1919
- Independent, not-for-profit, membership based
- Leader in standards development, consumer product testing and certification services
- Three distinct and independent operating units

# Operating Divisions

## CSA Standards

- Accredited North American Standards Developer with over 2,600 Published Standards

## OnSpeX

- Global Provider of Consumer Product Testing and Evaluation Services for Retailers and Manufacturers

## CSA International

- Global Provider of Accredited North American Certification Services for Manufacturers

# CSA International Overview

- CSA is an organization that offers certification for all of North America
- CSA is fully accredited for electrical, mechanical, gas, and occupational health and safety products
- CSA is approved by OSHA as a Nationally Recognized Testing Laboratory (NRTL) to test and certify products to over 416 ANSI/UL standards
- The CSA Mark appears on over a billion products worldwide





## Certification marks offer:

**The CSA mark shows that a product has been independently tested and certified to meet recognized standards for safety or performance**

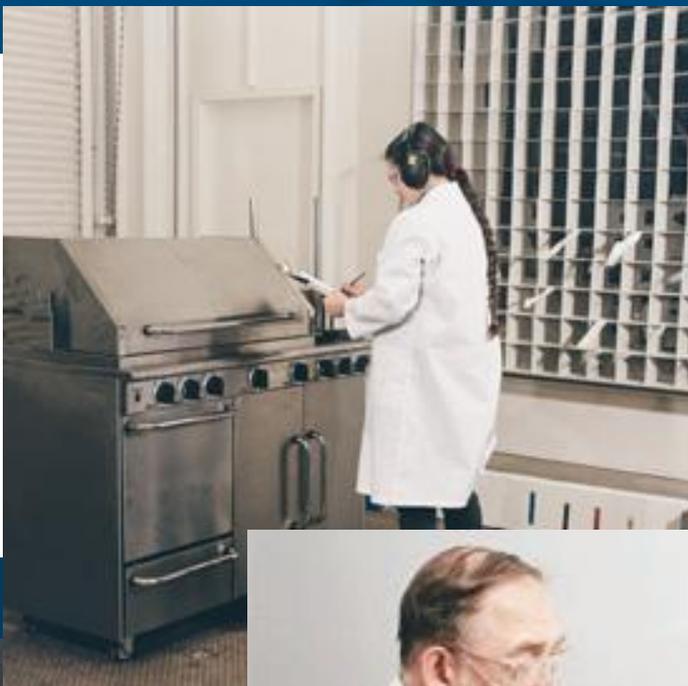
- Our independent Testing and Certification division, evaluates products to a wide range of national and international standards:
  - The American National Standards Institute (ANSI)
  - American Society of Mechanical Engineers (ASME)
  - American Society for Testing and Materials (ASTM)
  - National Sanitation Foundation (NSF)
  - Underwriters Laboratories (UL)
  - NFPA National Electrical Code
  - CSA & Canadian Electrical Code
  - IEC, ISO, Others

## Key Product Certification Service Offerings

- Electrical
- Gas and Fuel-Fired
- Fuel Cells and Alternative Energy
- Plumbing
- Drinking Water
- Sanitation
- Health Care
- Occupational Health, Safety and Sports
- Building and Construction



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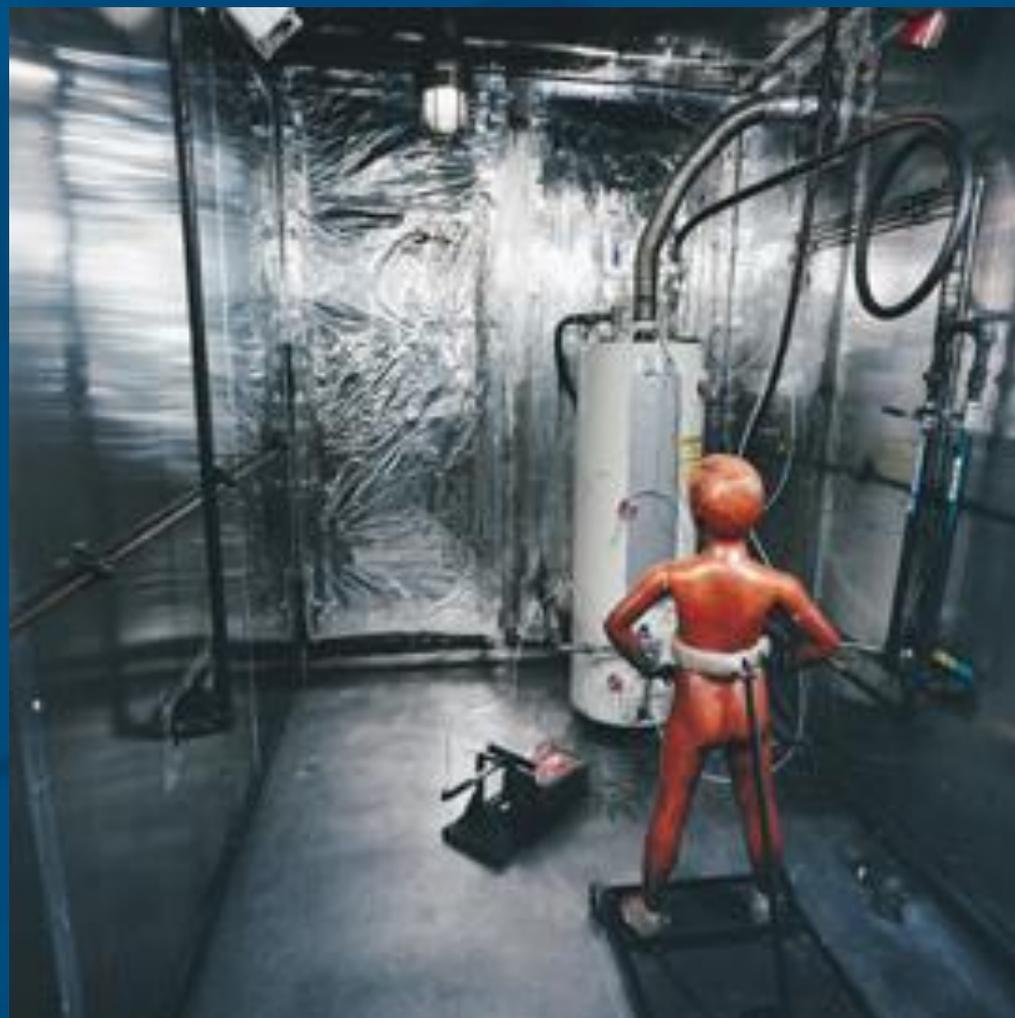


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- U.S. Occupational Health and Safety Administration (OSHA)
  - Nationally Recognized Testing Laboratory (NRTL)
- U.S. Department of Commerce National Institute of Standards and Technology (NIST)
  - National Voluntary Laboratory Accreditation (NVLAP)
- U.S. Environmental Protection Agency (EPA)
- U.S. Coast Guard

- California Energy Commission (CEC)
- South Coast Air Quality Management District (SQAQMD)
- City of Los Angeles & many other States, Cities and Jurisdictions
- American National Standards Institute (ANSI)
- International Accreditation Services (IAS)
- International Association of Plumbing and Mechanical Officials (IAPMO R&T)
- American Society of Sanitary Engineers (ASSE)

# Accepted by Regulators, Specifiers

- Environmental Laboratory Accreditation Program (ELAP) of California Dep't of Health Services (DHS) and Water Treatment Device Certification Program
- U.S. Department of Energy, Office of Energy Efficiency (US DOE)
- Automotive Manufacturers Equipment Compliance Agency, Inc. (AMECA)
- Authorities having Jurisdiction at State, Municipal and Regional levels

# Are Product Certification Marks Required By Law?

- Many municipalities, state laws, codes or regulations that require certain products to be tested to a specific standard or group of standards by a Nationally Recognized Testing Laboratory (NRTL)
- The laws do not specify which NRTL a manufacturer must use, or which product certification mark must appear on the product



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# HOW ARE PRODUCT DESIGNS CERTIFIED?

# CERTIFICATION AGENCIES

## WHAT DO THEY HAVE IN COMMON?

- ACCREDITED BY ANSI & OSHA
- USE PUBLISHED REQUIREMENTS
- INDEPENDENT THIRD PARTY EVALUATIONS
- FOLLOW-UP SERVICES PROGRAM

# Certification Process

## Determination of Conformity

- Product evaluation and report
- Initial factory audit
- Authorization of certification agreement

## Surveillance for continued conformity

- Follow-up factory inspections
- Re-evaluation, if there are changes to the product or standard is changed
- Audit & Investigation/Post Market Surveillance

# Online Certified Product Listings @www.csa-international.org

CSA International - Certified Product Listings - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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CSA Certified Product Listings

Search Certification Records Search Trademarks Search Class Descriptions Home Help

**Search Certification Records**

Choose Directory:  Search

Customer	Certification Record
Name: <input type="text"/>	File Number: <input type="text"/>
Prov/State: <input type="text"/>	Class Number: <input type="text"/> - <input type="text"/>
Country: <input type="text"/>	Class Description: <input type="text"/>
	Keyword Search: <input type="text"/>

## **Standards help to ensure that Products and Services live up to your expectations!**

- Standards define safety and quality requirements; in some cases they focus on efficiency or environmental practices
- For manufacturers, standards help to lower production costs
- For consumers, this means a wider selection of goods and services and a more competitive marketplace

# CSA is an Active Participant in Product Standards Development

## TECHNICAL ADVISORY GROUPS:

- Meet Regularly
- Balanced Membership
- Recommend Revisions
- Public Review
- Forwarded to Parent Committees
- Forwarded to ANSI



# Product Standards

## WHAT DRIVES STANDARD CHANGES?

- Consumer Demand For New Features
- New Technology in Response to Demand
- Change in Product Usage
- Field Problems, Safety Concerns



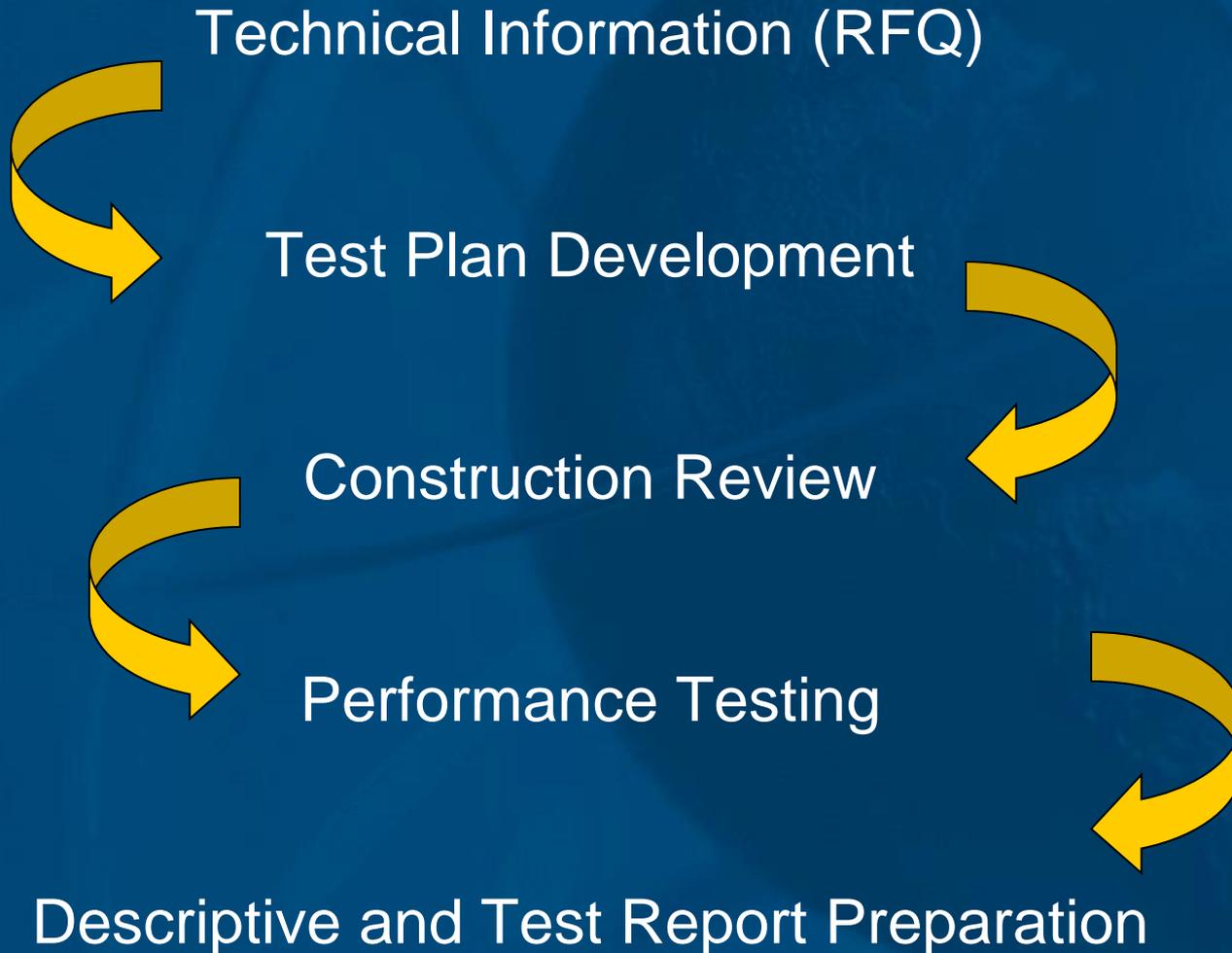
# Product Standards



## WHY IS IT IMPORTANT TO UPDATE STANDARDS?

- Technology Often Changes Rapidly
- New Technology Lacks Standards Coverage
- Standards Process Lags Technology
- Standards Evaluate Products Consistently

# Certification Workflow



# Certification Workflow

Descriptive and Test Report Preparation



IFE (if needed)



Certification Record and Profile Preparation



Review and Decision on Certification



Issue Certificate and Supporting Documents

# Flexible Testing Options

- Model Certification
  - Products are tested at CSA's laboratories
  - Designated Engineer
  - Devoted to meeting customer's deadlines
- Witness Testing
  - Products are tested at your CSA/ISO 17025 accredited facility
  - CSA engineering specialist to witness the testing
  - Used primarily for very large and or complex designs
- Field Certification
  - Single product evaluated to the appropriate standard in the field



# Peace of Mind

## The CSA Mark on a product

- Provides peace of mind for consumers, manufacturers, and government regulators
- Demonstrates that it has been independently tested and certified
- Indicates that it meets recognized standards for safety and/or performance



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**UPDATE ON HYDROGEN VEHICLE  
STANDARDS AND CERTIFICATION  
NOVEMBER 4, 2010**

# Evolving Hydrogen Vehicle Industry

## Standards and Codes

- National Recognized Standards
- Enforceable Docs by 2012
- Code Cycle 2012

## Vehicles

- Commercialization 2015
  - 50,000 by 2017
  - Consumer price
  - 80% in CA



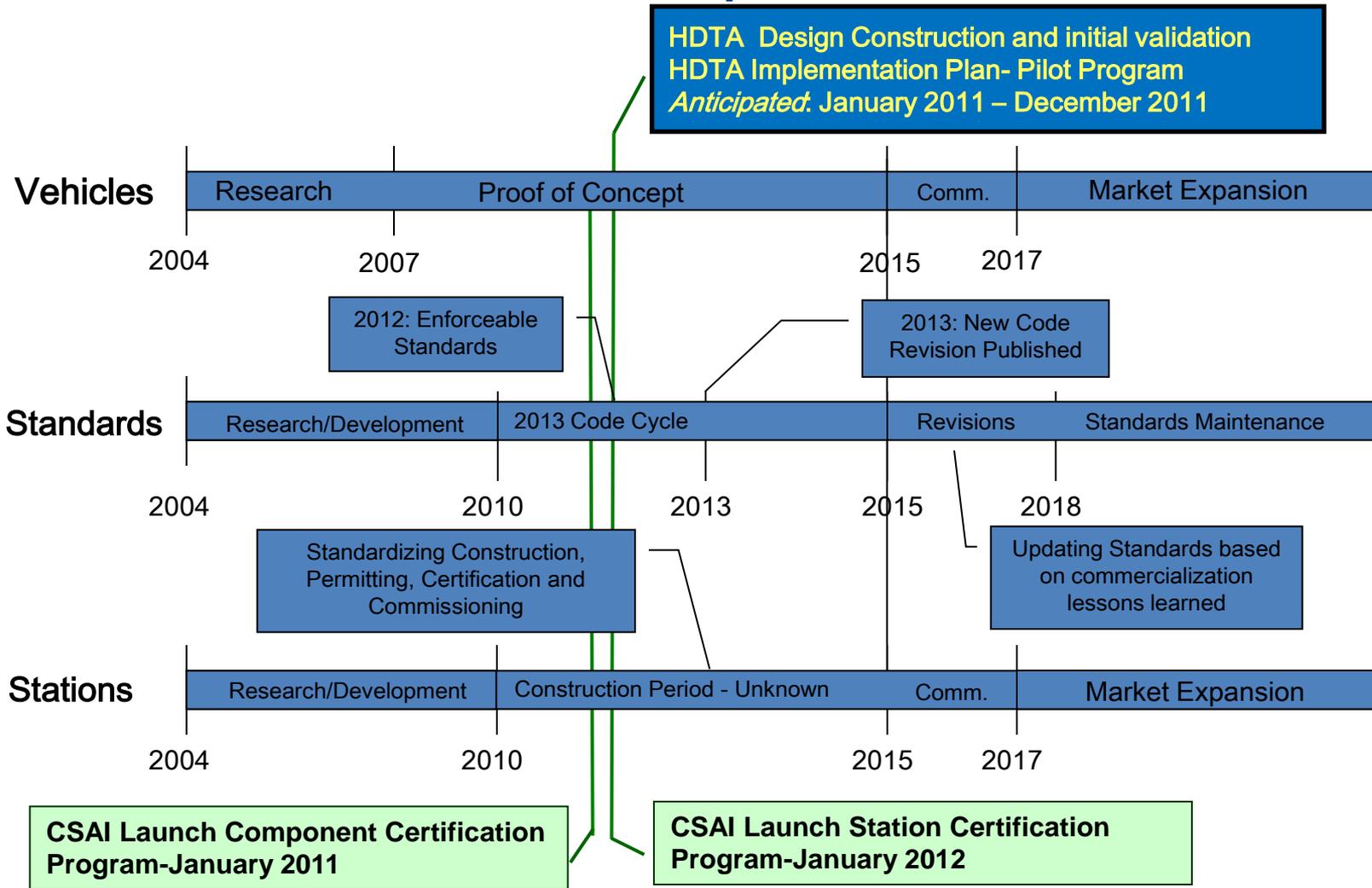
## Implementation

- Public Awareness
- General Education
- Technician Training
- Safety, Reliability and Accurate

## Infrastructure

- Accurate and Safe Equipment
- Commercial Venture
- Station Certification
- Component Certification

# Time Line – Concept to Practice





# CSA *Anticipated* Component Certification Program Availability

- January 2011
  - HGV 4.10, Hydrogen Fittings
  - HGV 4.6, Manual Valves – Infrastructure
  - HGV 4.7, Automatic Valves - Infrastructure
- June 2011
  - HPRD1, Pressure Relief Device
  - HGV 4.2, Hoses for Fueling Stations
  - HGV 4.4, Breakaway Device
  - SAE J2601, Hydrogen Nozzle/receptacle
  - HGV 3.1, Vehicle Components



# CSA *Anticipated* Infrastructure Certification Program Availability

- HGV 4.1, Dispenser
- HGV 4.3, Fueling Parameter Verification
- HGV 4.9, Station Guideline

## HDTA- CSA Test Sled Project Fundamental to implementation

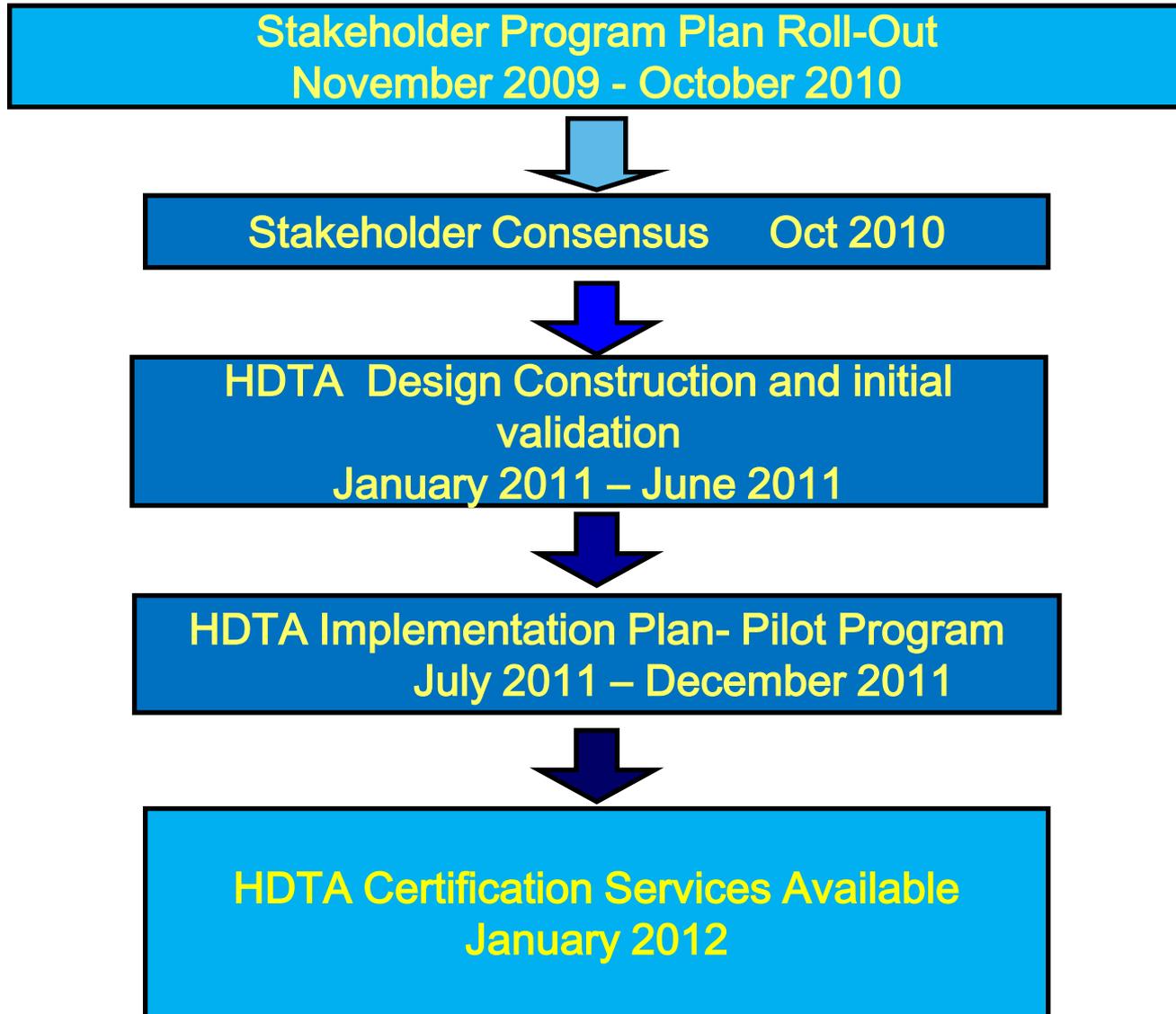
### CSA Major Capital Investment

- HDTA construction
- Validation of design
- \$500K

### Pilot Program

- HDTA Design
- Equipment and protocol (s) validation
- Certification of 16 stations (Ohio and California)

# Hydrogen Dispenser Test Apparatus Program Plan



# Future Certification Programs

- HGV 4.5, Priority and Sequencing
- HGV 4.8, Compressor
- HGV 2, On-board Cylinders



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# Questions?