



*A Better, Safer, More Sustainable World,
where Standards Work for People and Business*

CSA Standards

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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

Standards and Codes

Vehicle Technology

Implementation

Infrastructure

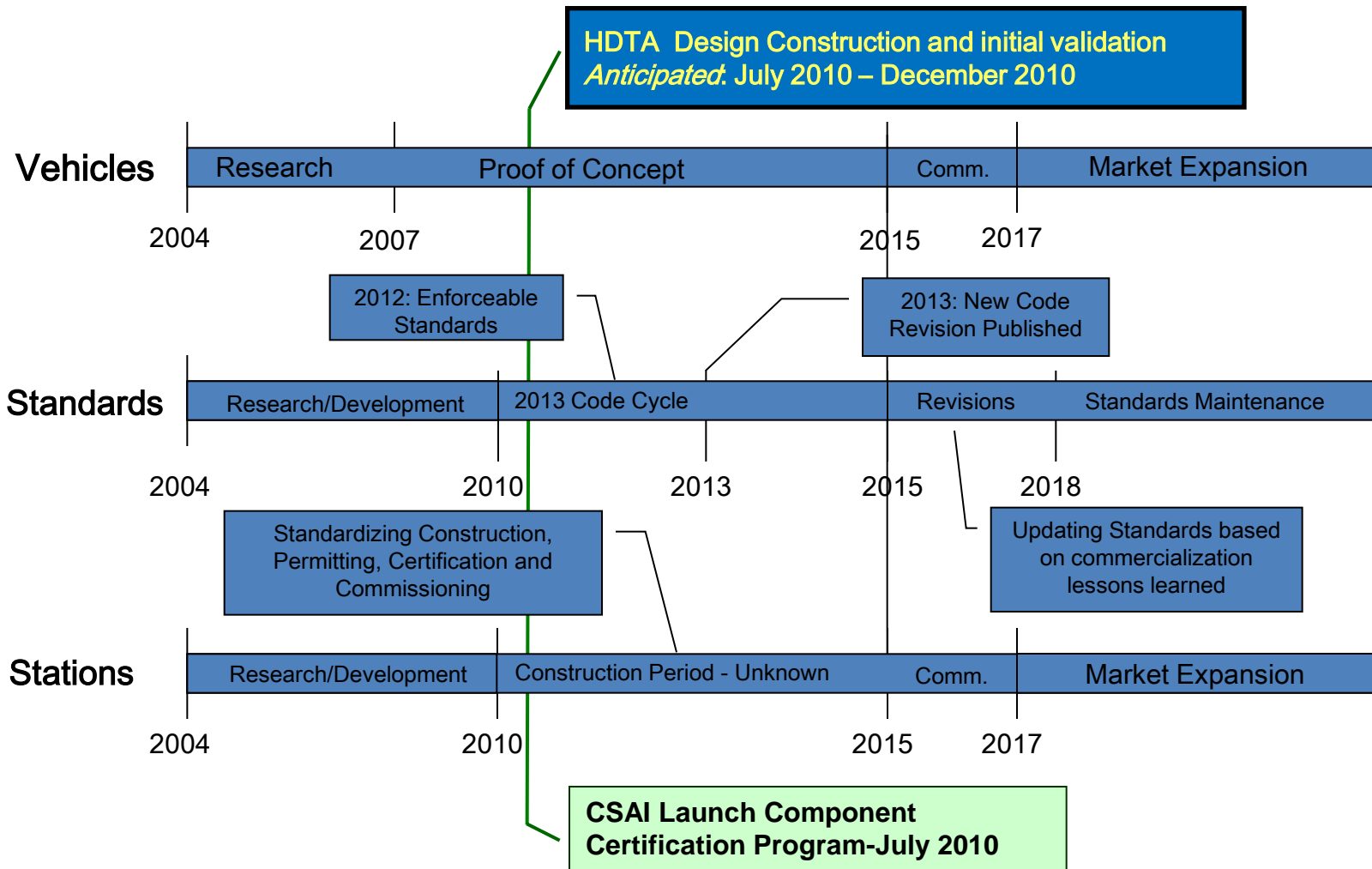
Implementation

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

Infrastructure

- 200 Stations in CA
- Accurate and Safe Equipment
- Commercial Venture
- Station Certification

Time Line – Concept to Practice



CSA *Anticipated* Component Certification Program Availability

- July 2010
 - HGV 4.10, Hydrogen Fittings
 - HGV 4.6, Manual Valves – Infrastructure
 - HGV 4.7, Automatic Valves - Infrastructure
- October 2010
 - 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

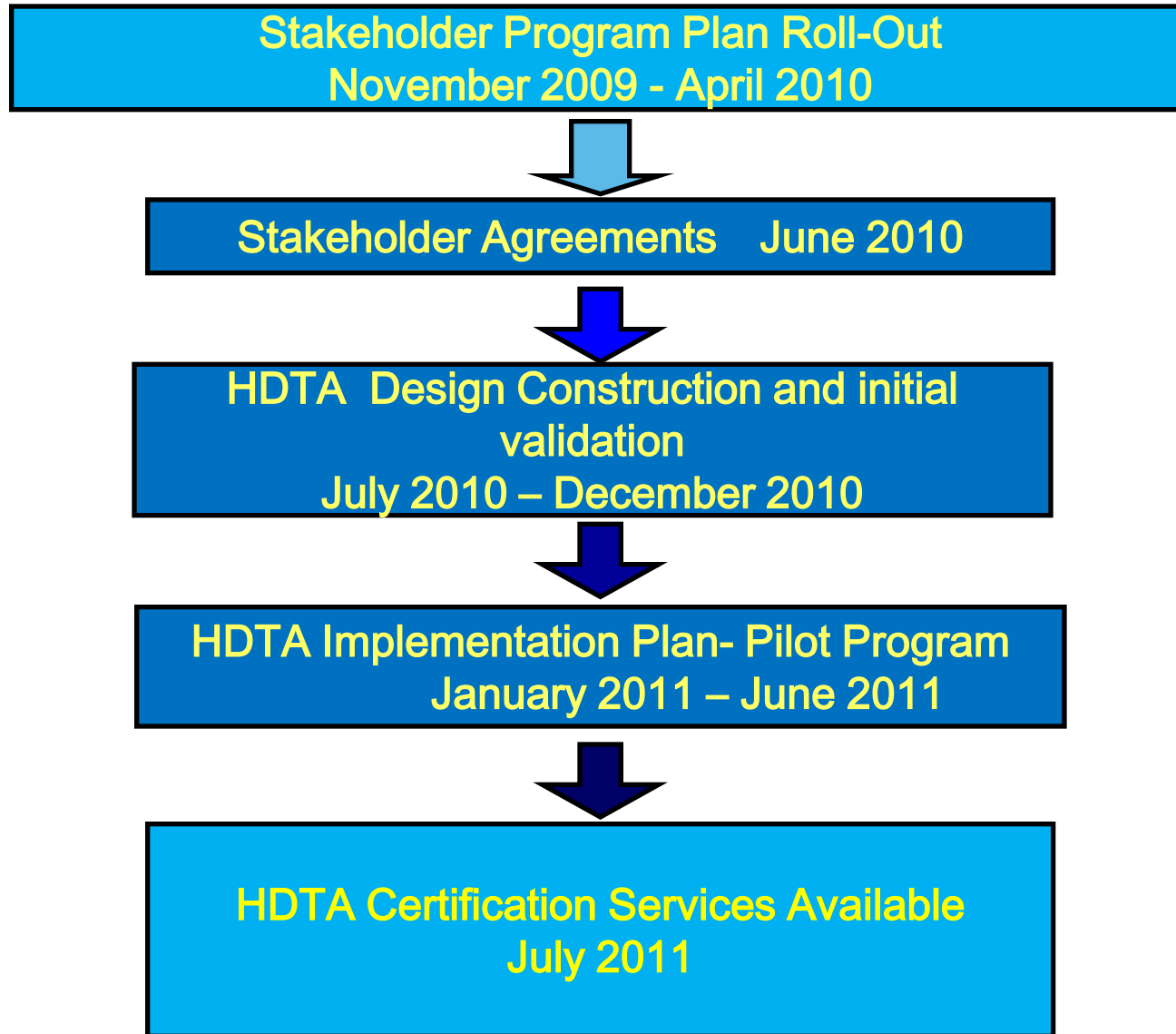
HDTA- CSA Test Sled Project Fundamental to implementation

CSA Major Capital Investment

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

Pilot Program

- HDTA Design
- Equipment and protocol (s) validation
- Certification of 10 stations
- \$460K



Future certification programs

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

THANK YOU!