

H₂USA

H₂USA

Mission Statement

The mission of H₂USA is to promote the commercial introduction and widespread adoption of FCEVs across America through creation of a public-private collaboration to overcome the hurdle of establishing hydrogen infrastructure.

Goals

- **Establishing necessary hydrogen infrastructure and leveraging multiple energy sources, including natural gas and renewables**
- **Deploying FCEVs across America**
- **Improving America's energy and economic security**
- **Significantly reducing greenhouse gas emissions**
- **Developing domestic sources of clean energy and creating jobs in the United States**
- **Validating new technologies and creating a strong domestic supply base in the clean energy sector**

H₂USA ORGANIZATION CHART

Operational Steering Committee
(Chair Charlie Freese)

Secretariat
(Administered by FCHEA)

Locations Roadmap Working Group

- Identify and prioritize markets
- Market Modeling Methodology
- Clustering, destinations and locations
- Regulatory barriers (zoning)
- Station rollout timing

Market Support and Acceleration Working Group

- Product launch and timeline
- Studies and whitepapers
- Codes and standards (non-vehicle related)
- Component development
- Cost reduction
- Public education
 - First-responders
 - State and local authorities
 - Opinion leaders
- Etc.

Hydrogen Fueling Station Working Group

- Specification, design, and deployment
- Fueling Resources
- Delivery
- Dispensing technology
- Reliability
- State and local Regulations
- Etc.

Working GRP Coordinating (Chairs and Vice Chairs)

H₂FIRST Coordination Panel

H₂FIRST Leadership NREL/SNL

Project Team A

Project Team B

Financing Infrastructure Working Group

- Private sector financing
- Government support
- Etc.

2015 Key Deliverables

▶ **Hydrogen Station**

- *Reports / Tools on Component R&D, Certification Device, Reference Station Design*

▶ **Investment and Finance**

- *Creation of Investor Analysis Tools*
- *Investment Community Engagement*

▶ **Locations Roadmap**

- *Articulating Projections for Vehicle/Station Market size / Regions*
- *Hydrogen Station Development Roadmap (Beyond California)*

▶ **Market Support**

- *State / Stakeholder Engagement*
- *DC Hydrogen Station Refueling Capability*

Signatories on the Letter of Understanding



U.S. Department of Energy



State of California



Northeast States for Coordinated Air Use Management



Air Liquide



American Gas Association



American Honda Motor Company



ARC: Hydrogen



Argonne National Laboratory



Association of Global Automakers



California Fuel Cell Partnership



Fiat Chrysler Automobiles



Electric Drive Transportation Association



Fuel Cell & Hydrogen Energy Association



General Motors Holding LLC



Hawaii Natural Energy Institute



Hydrogenics



Hyundai Motor America



Intelligent Energy Ltd.



ITM Power



Kobelco Compressors America, Inc.



Linde North America



Massachusetts Hydrogen Coalition



Mercedes-Benz



National Association of Convenience Stores



National Renewable Energy Laboratory



Nissan North America R&D



Nuvera



PDC Machines



Plug Power Inc.



Pacific Northwest National Laboratory



Volkswagen Group of America



Proton Onsite



Sandia National Laboratories



Savannah River National Laboratory



SCRA



Toyota Motor North America



Idaho National Laboratory



Business Council for Sustainable Energy



Oak Ridge National Laboratory



McPhy Energy

HTAC Member Participation

- ▶ **Associate-Level Participation** - *Open to all HTAC individual members*
 - The purpose of this level is to allow smaller organizations / individuals that may be able to provide some valuable input to participate in H₂USA.
 - Eligibility for this level is only open to organizations with five (5) employees or less.
 - Organizations that are already participating in H₂USA are not eligible to downgrade to Associate-Level participation.
 - To participate in H₂USA at the Associate-Level, potential participants will need to provide an explanation of what value they bring to H₂USA and will need to be reviewed by the H₂USA Operational Steering Committee (OSC).
 - Associate-Level participants will be asked to contribute \$1,500 per year to H₂USA .
 - Associate-Level participants are not eligible to participate on H₂USA's OSC.
 - Associate-Level participants are not eligible to be a chair or vice chair of an H₂USA Working Group.
 - Associate-Level participants will not be listed as a full H₂USA participant.
 - Associate-Level participants will not be allowed to vote on H₂USA issues, but will be allowed to comment on them.
 - Associate-Level participants will be allowed to join in all H₂USA working group meetings, outreach meetings, and full participant meetings.
 - All H₂USA participants, including Associate participants, assume the cost of all out of pocket expenses (travel, meals, etc.).

Market Support & Acceleration Working Group

Objective → Accelerate FC vehicle & H₂ infrastructure roll out via stakeholder education and support

- ▶ **Outreach Strike Teams briefing stakeholder groups**
 - Bloomberg Energy & Gov. on industry progress
 - E&E News, C2ES, RFF & State Governors Assoc.
 - Reaching out to other targeted groups (NGOs, etc.)
- ▶ **Creating key communication deliverables**
 - H₂USA websites, slide deck, FAQs ...
- ▶ **Project Management Tracking**
- ▶ **Joint Codes & Standards Task Team (MSAWG & HSWG)**
 - Meets regularly; H₂USA RCS communications vehicle
- ▶ **Coordinating Hydrogen fueling in the D.C. metro area**

Long-term goal → Help H₂USA become recognized as the “go-to” source for H₂ infrastructure information and resources

Market Support & Acceleration

2015 Objectives Timeline

- ▶ **Stakeholder Outreach - Meet with 10 Groups**
 - Two complete, 3 scheduled and outreach begun on others
 - WGA, NCSL, NGA, Conference of Mayors, NASEO, ECOS, Clean Cities
 - Asks – support legislation, connect to ZEV action plan
- ▶ **DOE Outreach - Supported Secretary Moniz speech & walk thru of DC auto show, and drive of Toyota Mirai**
- ▶ **Identify H₂USA spokesperson – In progress**
- ▶ **Key Elements for Business**
 - information on consumer views on ZEV acceptance
 - Information on consumer expectation for fueling
 - Customer Demographics, State motivation, etc.

Hydrogen Fueling Station Working Group

Vision:

Economical H₂ stations for all of the USA with safety, reliability, durability & performance that attracts consumers



Moving H₂ stations from projects to products

Mission:



Hydrogen Fueling Station

Recent Activities

- ▶ **Review of Station Reference Design Report**
 - Near-term station costs and design issues
- ▶ **Component R&D for station implementation**
 - Working with H₂FIRST to develop data and prioritize R&D
- ▶ **Regulations, Codes and Standards**
 - Joint Task Group with MSAWG
 - Identifying opportunities to influence fire codes at state and regional level to support infrastructure deployment.
- ▶ **Modeling Webinar Planning**
 - Improve understanding of H₂USA modeling activities
 - Clarify inputs for consistency and open them to member validation
 - Identify new areas where H₂USA can make improvements
 - Increase industry involvement with the modeling activity and results

Locations Roadmap Working Group

OEM Automaker FCEV scenario projections:

- Where? (state/city/region)
- When? (schedule for deployment)
- How many? (quantify deployment to encourage investment in H2 refueling)

Coordination with NESCAUM /multi-state ZEV alliance

National Projection Analysis/Modeling (NREL)

- Determine aggregate FCEV market share trends (national)
- Determine prevalence of early adopters by Urban Area
- Determine sequence with which Urban Areas install stations and sell FCEVs

Development of Northeast FCEV / H2 Deployment Plan

- ZEV MOU states (8 State Northeast region)
- Reproducible for other states and flexible for revision as new data developed
- Coordination and review by H₂USA, NESCAUM, OEMs and DOE
- Projected for release as a draft for public comment

Investment & Finance Working Group

- ▶ **Purpose:** Lead H₂USA efforts to prompt investment in hydrogen distribution infrastructure, with emphasis on station construction
- ▶ **Key Activities**
 - Identify & develop investor incentives
 - Develop tools to help investors evaluate opportunities
 - Conduct outreach to educate and engage investment community



Investment & Finance Working Group

Goals and Accomplishments

- ▶ **Equip & Expedite**
 - **Developed Business Case Scenario Module (BCS) and H2FAST financial tool to help investors evaluate opportunities**

- ▶ **Engage**
 - **Conducting outreach to educate & engage investment community**
 - **Wall Street Green Summit, March 2015**
 - **New York Auto Show, April 2015**
 - **Private Investor Briefings**



Questions?