

# Hydrogen Infrastructure Sub Committee Report-Out

Represented by:

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# Team Members

## **Automotive Group**

Joan Ogden (U. CA Davis)  
Charlie Freese (General Motors)  
John Love (NYSERDA)  
Matt Fronk (Matt Fronk & Associates)  
Rhoads Stephenson  
John Hofmeister (Shell Oil Company, Retired)

## **International**

Geri Richmond (U. Oregon)  
Rich Carlin (Office of naval Research)

## **Non-Automotive Hydrogen/Fuel Cell Infrastructure Initiatives**

Bob Rose (Fuel Cell & Hydrogen Energy Association)  
HAROL Koyama (Ida Tech)  
Mark Cardillo (Camille & Henry Dryfus foundation)  
Alan Lloyd (International Council on Clean Technologies)

## **Safety Codes, Standards, Regulations, and Permitting**

Maurice Kaya (State of Hawaii, retired)

## **Hydrogen Infrastructure for Industrial Hydrogen**

Kathy Taylor (General Motors, retired)

# Objective

The objective of this sub-committee is to assemble information on worldwide hydrogen infrastructure development. Key activities are being cited that support the growing use of hydrogen as an energy carrier, energy storage media, and fuel. A second objective is to identify hydrogen infrastructure opportunities for the DOE in support of the growing use of hydrogen in the U.S.

A report will be forthcoming shortly. This report-out is a short summary of the most relevant points.

# Issues

- Development of Hydrogen Infrastructure is not a “Technology issue”
  - ✓ Hydrogen can be and is generated from many sources including Natural Gas, Hydro, Nuclear, and Renewables
  - ✓ Stations from many suppliers are already in place in 215 installations globally
  - ✓ Auto OEMs are working on standardizing fill nozzles and interfaces to vehicles – much like when unleaded gas was introduced in 1974
- Implementation of Hydrogen Infrastructure is clearly a “Leadership Issue”
  - ✓ Germany, Japan, Korea, UK, and others are stepping up to support strategic and coordinated efforts within their countries. The US has failed to do so. The US has moved from Leader to Follower at best in this global initiative. US leadership is currently preparing us to lose this race.
  - ✓ Several US states are attempting to implement programs, such as CA, NY, Conn, and Hawaii, but without strong Federal leadership & support the programs are at risk to be the birth of a well thought out National Program

# Recommendations

- US (Congress/DOE/President) needs to commit to and support the global FCEV initiative and work closely with the leading countries of Germany, Japan, Korea, UK, etc. to develop credible and consistent rollout plans – Try driving a FCEV in DC
- DOE needs to support developing initiatives in CA., Hawaii, NY, Conn, etc. from a regional perspective with the Auto OEMs and use these experiences to develop a national rollout plan
- Integrate this as part of a well thought out strategy (comprehensive National Energy Policy) to support both 2016/2025 CAFÉ knowing that BEVs alone will not address the requirements – include bio fuels and hybrids.
- Per DOE already – we can utilize the vast NG resources appropriately if we use it for H2 in LD transportation – see Argonne Infrastructure report