H2@Scale- End Use Applications
Fuel Cell Truck Powertrain R&D Activities and Target Review

July 30-July 31, 2018

Chicago, IL – Argonne National Laboratory (ANL)

U.S. Department of Energy

H2@Scale is a U.S. Department of Energy (DOE), Fuel Cell Technologies Office (FCTO) initiative bringing together stakeholders to advance affordable wide-scale hydrogen production, transport, storage, and utilization to unlock revenue potential and value across sectors. Your attendance at the event will be critical to the discussion of high impact medium duty and heavy duty truck applications that could be aligned under H2@Scale, as an opportunity to increase hydrogen visibility for multiple applications.

In the development of a technology, technical and performance criteria need to be met before advancing to the next stage. This includes overcoming gaps in understanding and then setting achievable metrics, in collaboration with stakeholders, to ensure component developers can meet the needs of these emerging applications. These metrics will be published as the technical targets to help guide R&D.

Objectives

- Assess the status, challenges, and potential opportunities for the wide scale adoption of fuel cell truck applications (i.e., truck applications for hydrogen and fuel cells, power and range requirements, fueling, hydrogen tank geometry, voltage, temperature, pressure, and cooling fluid compatibility)
- Discuss achievable metrics that will be published as the technical targets to help guide future R&D
- Prioritize R&D topics for fuel cell truck technologies and hydrogen infrastructure

Agenda July 30

12:00 PM	Check-in
12:30 PM	Introduction and Welcome Remarks Dr. Sunita Satyapal, U.S. Department of Energy Fuel Cell Technologies Office
12:40 PM	Objectives of Workshop Jason Marcinkoski, U.S. Department of Energy Fuel Cell Technologies Office

Truck Applications

1:00 PM	Benefits of Hydrogen for Trucks Tony Williamson, Total Transportation Services, Incorporated
1:20 PM	Fuel Cell Applications James Kast, Toyota
1:40 PM	The Case for HD Semi Fuel Cell Trucks and Large Scale Hydrogen Deployment Jesse Schneider, Nikola
2:00 PM	FedEx Express- Fuel Cell, BEV and Alternative Energy Vehicles Phil Galbach, FedEx Express
2:20 PM	Fleet DNA Ken Kelly, National Renewable Energy Laboratory
2:40 PM	Powertrain electrification and FC R&D “Power of Choice” Dr. Tim Frazier, Cummins
3:00 PM	**Break**
3:30 PM	Breakout Session Instructions
4:00 PM	**Breakout Session #1: High Impact Truck Applications** Group and Room Number (Group A- 1406; Group B- 1407; Group C- 1416)
5:30 PM	Adjournment
6:00 PM	**Organized informal dinner (not provided)**

Agenda July 31

9:00 AM Review from Breakout session #1

Vehicle & Fueling Requirements

9:20 AM Truck/Bus Development Challenges- Fueling, Fuel System, Powertrain
Jason Hanlin, Center for Transportation and the Environment

9:40 AM Infrastructure Challenges in the MD/HD Markets
David Edwards, Air Liquide

10:00 AM Heavy Duty Vehicle Hydrogen Infrastructure Challenges
Ryan Erickson, Trillium

10:20 AM Hydrogen Refueling Analysis of Fuel Cell Heavy-Duty Vehicles Fleet
Dr. Amgad Elgowainy, Argonne National Laboratory

10:40 AM **Break**

11:00 AM Fuel Cell Truck System Cost Analysis
Brian James, Strategic Analysis

11:20 AM Fuel Cell Hybrid Truck Sizing: Minimizing Ownership Cost
Ram Vijayagopal, Argonne National Laboratory

11:40 PM Review of Draft Truck Targets
Jason Marcinkoski, U.S. Department of Energy Fuel Cell Technologies Office

12:00 PM Lunch

1:00 PM **Breakout Session #2: Vehicle & Fueling Requirements**
Group and Room Number (Group A- 1406; Group B- 1407; Group C- 1416)

Research and Development Topics

2:30 PM CryoH_2 Enabling Practical & Affordable Hydrogen for Transportation
Dr. Guillaume Petitpas, Lawrence Livermore National Laboratory

2:50 PM Hydrogen Storage Driving Energy Transformation
Rick Rashilla, Hexagon Lincoln

3:10 PM Short and Long Term Considerations for Fuel Cell Deployment and Systems Integration
Joe Ambrosio, Unique Electric Solutions

3:30 PM **Breakout Session #3 Most Important Research and Development Topics**
Group and Room Number (Group A- 1406; Group B- 1407; Group C- 1416)

5:00 PM Review of Breakout 2 and 3

5:30 PM Adjournment