U.S. Department of Energy
H2@Scale Workshop Agenda

May 23-24, 2017
University of Houston – Houston, TX
Melcher Hall
47500 Calhoun Road, 77004

Objectives:

- Gather stakeholder feedback on early-stage research and development (R&D) needs to advance H2@Scale, as outlined in the draft H2@Scale Roadmap.
- Identify opportunities to align R&D needs with industry priorities & national lab capabilities.
- Identify regional and near-term opportunities to use domestic hydrogen production to support resiliency of power generation and alignment of industry with global imperatives.

Day 1 – May 23

9:00 – 9:30 AM **Registration**

9:30 – 11:00 AM **Plenary Session**

- **Overview of Hydrogen and Fuel Cells Technology Status**
  Dr. Sunita Satyapal, **U.S. Department of Energy Fuel Cell Technologies Office**
- **Overview H2@Scale Concept and Preliminary Analysis**
  Dr. Mark Ruth, **National Renewable Energy Laboratory**
- **Strategies and Technologies to Enable Resiliency of the Power Grid**
  Sandip Sharma, **Electric Reliability Council of Texas**
- **Mobile Source Emissions at Port Houston - Can Hydrogen Help?**
  Ken Gathright, **Port Houston**

11:00 – 11:15 AM **Break**

11:15 – 12:45 PM **Session I: Hydrogen's Current Usage in Industry and Transportation**

- **Hydrogen Use at Refineries, & Drivers for Expected Growth**
  Aimee LaFleur, **Shell**

- **Current Use of Hydrogen in Ammonia Production and Research Needs**
  Steve Szymanski, **Proton Onsite**

- **Innovative Uses of Hydrogen in Iron-Making**
  Dr. Jayson Ripke, **Midrex**

12:45 – 1:15 PM **Box Lunch during Roadmap Review**

1:15 – 2:45 PM **Session II: Hydrogen Delivery & Grid Infrastructure**

- **Current Status and Research Needs for Hydrogen Infrastructure (Pipelines, Liquefiers, Tube Trailers, and Fueling Stations)**
  Aaron Harris, **Air Liquide**

- **Hydrogen Safety, Risk Assessment, and Material Compatibility R&D**
  Dr. Christopher Moen, **Sandia National Laboratories**

- **Role of Electrolyzers in Grid Services**
  Dr. Rob Hovsapian, **Idaho National Laboratory**

2:45 – 3:00 PM **Break**

3:00 – 5:00 PM **Feedback Session and Discussion on H2@Scale Lab Capabilities**

Day 2 – May 24

9:00 – 10:30 AM **Session III: Hydrogen Production in the near-term**

- **Scalable, Economic Hydrogen Generation from Natural Gas**
  Dr. Jeff Mays, **Gas Technologies Institute**

- **Resourcing Byproduct Hydrogen from Industrial Operations for Emerging Hydrogen Markets**
  Dr. Amgad Elgowainy, **Argonne National Laboratory**

- **Water Electrolyzer Technology: Status and Challenges**
  Dr. Monjid Hamdan, **Giner**

10:30 – 10:45 AM **Break**

10:45 – 12:30 PM Session IV: The Role of Hydrogen in the Future of Energy

- **Current and Future Markets and Challenges for Onshore and Offshore Wind in TX**
  Dr. Carsten Westergaard, **Texas Tech University's National Wind Institute**

- **Integrating Next Generation Nuclear Generators with Hydrogen Production**
  Dr. Noah Meeks, **Southern Company**

- **Fundamental Hydrogen Production research needs being addressed by the HydroGEN R&D Consortium, within DOE's Energy Materials Network**
  Dr. Eric Miller, **U.S. Department of Energy's Fuel Cell Technologies Office**

12:30 – 3:00 PM Box Lunch and Breakout Sessions

- Review R&D Sections of H2@Scale Roadmap:
  - Hydrogen Production & the Grid
  - Long-term Needs for Hydrogen Infrastructure
  - Water splitting with Current and Developing Hydrogen Uses (Fuel Cells, Ironmaking, Oil Refining, Chemicals Production)