



PROGRESS AND CHALLENGES FOR HYDROGEN FUELING STATIONS - PART 2 WEDNESDAY, NOVEMBER 6 - ROOM 103-A/B, 4:00 PM - 5:30 PM

- **Technology Validation of Hydrogen Refueling Infrastructure** – *Mike Peters, National Renewable Energy Laboratory*
- **Hydrogen Component Testing – Dispenser Reliability** - *Mike Peters, National Renewable Energy Laboratory*
 - This talk will highlight the challenges of hydrogen component testing, discuss the balance between laboratory versus field simulation, and explore how component testing can be accelerated through proper design of test apparatus. NREL will use their experience from the dispenser reliability project to highlight examples of successes and failures in this space. The discussion will include results of the comparison between -40 and -20C testing and the resulting lifetime prediction for individual components. The conclusions from the project will be presented to show how laboratory collected data can be applied to retail hydrogen stations.
- **Comparisons of Design Changes on Footprint of Hydrogen Refueling Stations for Urban Sites** - *Brian Ehrhart, Sandia National Laboratories*
 - Larger capacity public hydrogen refueling stations are needed to meet increasing demand, but this demand is typically concentrated in dense urban areas where space is limited. While station designs will always be specific to a particular location, there are a number of generalizable ways to decrease/minimize the station footprint. We designed generic 600 kg/day reference stations supplied by delivered gas, delivered liquid, and on-site electrolysis-produced hydrogen and present the challenges and considerations for each design.
- **Liquid Hydrogen Vent Stack Dispersion Measurements Using Laser Diagnostics** - *Ethan Hecht, Sandia National Laboratories*
 - We describe an optical laser diagnostic that can be used to quantify the concentration of hydrogen vapor as it disperses from liquid hydrogen vent stacks. The diagnostic measures the Raman shifted light that scatters off of hydrogen molecules as a laser beam projects through the flow. We present the challenges and solutions to designing and implementing this diagnostic, and some initial results from some liquid hydrogen vent stack release experiments.
- **Lessons Learned from the First Generation of Hydrogen Fueling Station Installations** - *Maryline Daviaud Lewett, Black & Veatch*
 - Black & Veatch has been working with FirstElement Fuel on the design and deployment of 19 Hydrogen Fuel Filling Stations throughout California. This project was completed with site design, permitting and installation activities. Our permitting staff has experience with both hydrogen and traditional fuel filling stations, and deep experience with jurisdictions through California and the Northeast.