

Bulk Hydrogen Delivery for ORNL Hardin Valley Campus

Overview:

The Fuels Technology and Engines Research Group (FSETRG) conducts research and development (R&D) in decarbonizing the hardest to electrify transportation sectors for the Department of Energy (DOE) Vehicle Technologies Office (VTO). The FSETRG is seeking a bulk hydrogen fueling solution that will be capable of supplying hydrogen to a ~16L engine with supply pressures between 150 and 500 PSI and maximum flow rate of 22 kg/hr with an estimated monthly volume of 480,000 SCF (which could be lower or higher in some months). The hydrogen storage solution will be supplying a laboratory at 2360 Cherahala Blvd, Knoxville TN at an ORNL leased facility and as such, the location and size of the hydrogen storage system must conform with national, state and local laws and regulations. Initial discussions with ORNL Fire Protection Engineering have determined a bulk hydrogen tube trailer solution is the preferred solution to meet the criteria sets provided below.

Bulk Hydrogen Required Specifications and Period of Performance :

- 1- Supply hydrogen from 2 - 22kg/hr at 150 – 500 PSI supply pressure
- 2- Hydrogen purity of at least 99.95% with oxygen content not more than 0.0005% and dew point of -90F or lower
- 3- Be able to deliver at least two shipments of hydrogen of at least 129,000 SCF per delivery
- 4- Be able to remove the hydrogen storage vessel during times when other on-site research activities are deemed hazardous with 2 weeks prior notification
- 5- Maintain fueling stanchion and hydrogen storage equipment
- 6- Installation of stanchion must occur before 12/01/2022
- 7- Period of performance is ~ 4 years with an option to extend to 5 years depending on project funding