

ALBERTA INNOVATES CLEAN RESOURCES

CLEAN TECHNOLOGY

HYDROGEN

FUNDING DETAILS

Air Products Liquid to Gaseous Portable Hydrogen Fueler

Hydrogen powered transportation is one of several solutions supporting Canada's transition to low carbon, or zero carbon transportation. Availability of reliable, efficient hydrogen fueling solutions will accelerate hydrogen powered fuel cell vehicle adoption. [Air Products'](#) proprietary Liquid to Gaseous Portable Hydrogen Fueler (L to G Fueler) utilizes next generation mobile fueling technology and offers the benefits of high-density liquid hydrogen storage with high efficiency vaporization, compression, and safe gas dispensing at up to 700 bar (70 MPa) pressure. During the project, Air Products will design, build, and successfully test its Hydrogen Portable Fueler for medium and heavy-duty mobile fueling applications.



Photo: Example of an Air Products portable gaseous supply product. The Air Products Liquid to Gaseous Portable Hydrogen Fueler will combine both liquid storage and gaseous dispensing systems.



RECIPIENT:
**Air Products
Canada Ltd.**



PARTNERS:
**Natural Resources
Canada**



TOTAL BUDGET:
\$6,007,800



AI HCOE FUNDING:
\$2,000,000



PROJECT DATES:
**MAR 2023 –
MAR 2025**



PROJECT TRL:
**Start: 6
End: 8**

APPLICATION

Air Products L to G Fuelers can supply hydrogen fuel for mobile applications including cars, buses, Class 8 trucks, rail, marine vessels, and material handling equipment. In the short term, Air Products Canada is targeting medium and heavy-duty vehicles and rail and will offer L to G Fuelers for demonstration projects and early adopters. In the long term, L to G Fuelers are expected to serve small fleets and vehicles at remote or temporary refueling locations and job sites where permanent fueling stations may be unavailable.



PROJECT GOALS

Project activities will include the following to validate, demonstrate and collect data on the L to G Fueler performance in Alberta climate conditions:

- Complete required safety, reliability, and environmental work/approvals;
- Validate novel compressor filling speeds;
- Design, assemble and commission the Portable Fueler, including testing to validate increased rapid fill rates;
- Following startup, complete field and longevity testing, including cold weather testing of novel compressor performance;
- Complete fueling tests on a variety of vehicles under various weather conditions, including cold weather; and
- Develop and provide operator training.

BENEFITS TO ALBERTA

- Provide local demonstration and testing opportunities to end-users and original engine manufacturers (OEMs) to advance market development and acceptance of hydrogen-fueled transportation.
- Provide energy transition training and jobs for Alberta’s hydrogen economy.
- Provide a hydrogen fueling solution for mobile applications that is proven safe, reliable, and efficient in Alberta’s climate.
- Advance Alberta market development and end-user acceptance of hydrogen-fueled transportation, and demand for more permanent fueling infrastructure.
- Contribute to advancing Alberta’s hydrogen economy and the Edmonton Region’s Hydrogen HUB by building local demand for hydrogen.



1 Student Trained



1 Project Job



10 Future Jobs



3 New Products/Services



<3,500 t/yr Project GHGs



4,500 – 6,500 t/yr Future GHGs Reduced

CURRENT STATUS

FEB 2023

The first phase of the project will focus on design, fabrication and assembly and testing of the L to G Fueler technology and all its components aiming for increased rapid fill speed rates. The first milestone will also see completion of the testing facility preparations, all necessary project safety, reliability and environmental work, and detailed safety review plans and Product Hazard Review.