

CLEAN RESOURCES

CLEAN TECHNOLOGY

HYDROGEN

FUNDING
DETAILS

Alberta Market Demonstration and Scalability for Hydrogen Combustion Retrofit System for Class 8 Trucks

The project seeks to demonstrate that Hydra's hydrogen retrofit system can be engine/make/model/application agnostic and scalable. This will enable the use of hydrogen in commercial transport quicker and cost effectively. Specifically, this project will demonstrate the effectiveness of Hydra's system on 3+ distinct types of HDVs over 24 months. It will collect in-fleet use, performance and emissions data and streamline the retrofit process.



RECIPIENT:

**Hydra Energy
Canada**



PARTNERS:

AMTA, Suncor Energy,
Superior Propane, Trimac,
First Truck Centre and the
Transition Accelerator



TOTAL BUDGET:

\$1,841,980



AI HCOE FUNDING:

\$550,450



PROJECT DATES:

**JAN 2023 –
JAN 2025**



PROJECT TRL:

**Start: 7
End: 9**

APPLICATION

Hydra's retrofit system converts heavy duty vehicles (HDV) to co-combustion operation (hydrogen-diesel) on any diesel powertrain using a specific calibration without modifications to the engine block. It currently reduces up to 40% of diesel combustion and associated carbon emissions.



PROJECT GOALS

1. Convert vehicles and conduct in-fleet demonstrations on 3 vehicle types with Alberta based partners: AMTA, Superior Propane and Trimac.
2. Conduct testing and gather data to document technology and emissions performance on the 3 converted vehicles and a 4th truck already delivered to Edmonton based VEXSL. Data will be analyzed by the University of Alberta.
3. Create and deliver retrofit training programs to fleet operators, technicians, and facilities in Alberta that will install and sell the retrofit kits, provide vehicle/system maintenance for the kit and hydrogen fuel system. First Truck Centre will be the primary conversion facility.
4. Promote and facilitate technology adoption by creating an "Early Adopters Funding Pool" to be administered by the Alberta partners.

BENEFITS TO ALBERTA

- Enable emissions reductions in the AB trucking industry, starting with a minimum of 82 trucks
- Hydra expects to generate 22-26 jobs, 10 positions are expected in AB.
- First Truck Centre plans to hire 4 technicians and mechanics
- AMTA will also create indirect jobs associated with the implementation of their Road Show. These indirect jobs are not yet quantified but will include drivers, marketing specialists and project managers.
- PCL's Industrial Fabrication facility in AB, will be responsible for the fabrication of hydrogen and pre- assembly of Hydra's hydrogen storage system. To meet the demand of 82 new vehicles in AB, PCL will generate 7-10 new jobs per year.
- 3-6 new students will be hired and trained every year.
- Creation and delivery of training programs for drivers, technicians and mechanics.



2 Publications



3-6 Students
Trained



1-2 Patents



5-7 Project Jobs



10-20 Future Jobs



1 New
Product/Service



469 kt/yr Project
GHGs Reduced



5,494 kt/yr Future
GHGs Reduced

CURRENT STATUS

FEB 2023

Conversion of 2 heavy-duty trucks is underway to operate as co-combustion (hydrogen-diesel) vehicles displacing up to 40% of diesel consumption and associated emissions. The converted trucks will be tested by various fleets under AMTA's roadshow, the data collected will be used to advance Hydra's Machine Learning application and to prepare a market report.