

ALBERTA INNOVATES CLEAN RESOURCES

CARBON CAPTURE UTILIZATION AND STORAGE AND HYDROGEN HYDROGEN

FUNDING DETAILS

Guardian Hydrogen Diesel System

Diesel Tech Industries (DTI) is developing the technology to blend hydrogen into a diesel combustion engine to reduce the emissions of trucks (GHG's, SOx, NOx, and particulates) by up to 50%. It will allow DTI to retrofit existing vehicles on the road for an immediate environmental impact, provide vehicles with cleaner engines, and lower their costs. Given the environmental regulations coming into play by 2030 and 2050, DTI will have a solution to not only help the transportation industry reach these environmental targets but do it while leveraging a digital strategy.



RECIPIENT:
Diesel Tech
Industries



PARTNERS:
Diversified PWT
& City of
Edmonton



TOTAL BUDGET:
\$1.8 M



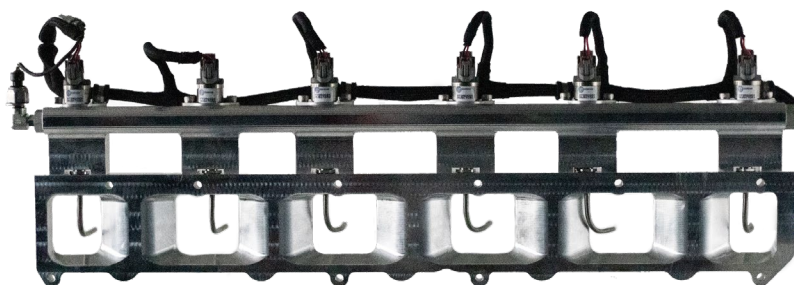
AI FUNDING:
\$900,000



PROJECT DATES:
JAN 2023 –
AUG 2024



PROJECT TRL:
Start: [5]
End: [8]



APPLICATION

By working on the actual engine performance, we can maximize the hydrogen blending efficiency in a traditional diesel combustion engine. Our competitive advantage is using onboard green hydrogen to blend in with diesel fuel. By using a green, low carbon intensity hydrogen, instead of blue (medium) or grey (high) we can lower tailpipe emissions significantly (10kg vs 1kg).



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HYDROGEN

PROJECT GOALS

DTI anticipates we will be able to reach a total serviceable market as 1% of the Canadian diesel market by 2024 which equates to approximately 80 million in revenues. Our initial market will be in Canada but will have plans to expand to North America. DTI's project scope is for any transportation (engines are same or similar) engine application is the differentiator vs the type of vehicle. PWT Group which is Diversified Coachlines and DTI are starting to work on a project to decarbonize the motorcoach and bussing industry through the Guardian Hydrogen- Diesel System. Our goal is to convert 100 units by end of 2024 and an additional 400 units by end of 2025.

BENEFITS TO ALBERTA

During the innovation project, we anticipate creating 5 new high-quality jobs in hydrogen/diesel technical roles, including hiring a University of Alberta graduate student. Once commercialized over the next 10 years we will be creating over 50 new clean tech jobs in Alberta. We will be hiring an expanded operational team in Canada and globally. This innovation will also be creating a new skill set in the industry such as mechanical engineer specializing in hydrogen-diesel engines, journeyman heavy duty technicians specializing in hydrogen-diesel engines as related to clean hydrogen technology. The environmental benefits we anticipate by 2024 is a total reduction of GHG emissions of 1,019,304 tonne of CO₂e.



2 Students Trained



1 Patent



12 Project Jobs



50 Future Jobs



2 New Products/Services



339 kt/yr Project GHGs Reduced



339,768 kt/yr Future GHGs Reduced

CURRENT STATUS

SEP 2023

As of June 2023, Diesel Tech Industries has successfully retrofitted a Diversified Motorcoach to run on the Guardian Hydrogen Diesel System. Signed a partnership with the City of Edmonton, to retrofit their transit busses, and waste services.