

Zero- and Near Zero-Emission Freight Facilities Project: Fuel Cell Hybrid Electric Delivery Van Deployment

The project team, led by Center for Transportation and the Environment (CTE), will build and demonstrate 15 additional fuel cell hybrid electric delivery vans based upon their first prototype built in partnership with the U.S. Department of Energy. The objective of this project is to promote future commercialization of fuel cell system retrofit kits that will significantly transform the parcel delivery market while achieving greenhouse gas, criteria pollutant, and toxic emission reductions. The demonstration will generate performance data that will be analyzed to determine the project's effectiveness in meeting its objectives.



The fuel cell hybrid electric delivery van powertrain will be provided by Unique Electric Solutions and fully integrated by W.W. Williams; University of Texas – Center for Electromechanics will provide consultation into the fuel cell and hydrogen system integration; Hydrogenics will supply each of the 30-kW fuel cell engines; and hydrogen fuel will be provided at the Shell fueling station local to the UPS customer center in Ontario, CA, where the vehicles will be demonstrated in regular UPS delivery service for one year.

Dates: 03/13/2019 – Winter 2022
Grantee: CTE
Partners: Unique Electric Solutions,
Hydrogenics USA,
University of Texas – Center for
Electromechanics,
United Parcel Services (UPS),
W.W. Williams

Grant Amount:
CARB Contribution: \$4,302,896
Matching Funds: \$4,969,429
Project Total: \$9,272,325



Vehicles/Equipment Funded

Under the Zero- and Near Zero-Emission Freight Facilities Project grant, CARB will be funding the following equipment:

- Fifteen fuel cell hybrid electric delivery vans integrated by Unique Electric Solutions and W.W. Williams.
- Fifteen 30-kW fuel cell engines developed and built by Hydrogenics USA.

This equipment will be delivered to and operated at the UPS Customer Service facility in Ontario, CA where they will be demonstrated for one year in regular parcel delivery service.

Lessons Learned

- 125 miles of zero-emission range can be achieved with a fuel cell delivery van, meeting over 97% of parcel delivery route needs.
- The use of proven off-the-shelf components is critical for system-level integration and build for demonstration projects.
- Robust communication among all stakeholders is important for all phases of design, build, risk mitigation, issue resolution and deployment.

Status Updates

- The prototype vehicle continues to operate out of the UPS facility in Gardena, CA, and has been in service for over one year.
- Unique Electric Solutions completed its manufacturing plan and engineering design updates for these 15 delivery vans.
- The 15 delivery vans will be built, tested and deployed in batches of 5 with the first vehicle build currently underway.

