

Zero- and Near Zero-Emission Freight Facilities Project: Next Generation Fuel Cell Delivery Van Deployment

The project team, led by Center for Transportation and the Environment (CTE), will build and demonstrate four fuel cell hybrid-electric walk-in delivery vans featuring Linamar's new Gen 2.0 eAxle design. The objective of this project is to promote future commercialization of fuel cell vehicles that will significantly transform the parcel delivery market while achieving greenhouse gas, criteria pollutant, and toxic emission reduction. The demonstration will generate performance data that will be analyzed to determine the project's effectiveness in meeting its objectives.



Linamar Corporation is responsible for design, build, and validation of the eAxle; Roush Performance will integrate the fuel cell hybrid electric propulsion system into new Ford F-59 chassis; Ballard Power Systems will supply each of the 85-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 each vehicle will be demonstrated in regular UPS delivery service for one year.

Dates: 02/07/2019 – Fall 2021
Grantee: CTE
Partners: Linamar Corporation
Ballard Power Systems
United Parcel Service (UPS)
Roush Performance

Grant Amount:
CARB Contribution: \$5,831,866
Matching Funds: \$5,838,236
Project Total: \$11,670,102



Vehicles/Equipment Funded

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

- Four fuel cell hybrid electric delivery vans integrated by Linamar Corporation.
- Four 85-kW fuel cell engines developed and built by Ballard Power Systems.

These zero emission delivery vans 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

- The expected range of 150 miles will meet virtually all of the UPS operational needs.
- Robust communication among all stakeholders is important for all phases of design, build, risk mitigation, issue resolution and deployment.

Status Updates

- The project team has completed final vehicle and subsystem designs.
- The project team conducted a Functional Hazard Analysis that codifies all safety considerations and details mitigation strategies.
- Linamar has assembled the first eAxle and will complete validation before delivery to Roush for integration.
- All four F-59 chassis were delivered to the Roush facility and the first vehicle build has begun.



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