

LCTI: Next Generation Fuel Cell Delivery Van Deployment

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Advanced Technology Demonstration and Pilot Projects



Center for Transportation and the Environment



February 7, 2019 – Fall 2022

Project Details:

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.

Grantee:

Center for Transportation and the Environment

Partners:

Linamar Corporation, Ballard Power Systems, United Parcel Service (UPS) and Roush Performance

Grant Amount

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

Vehicles/Equipment Funded

- Four (4) fuel cell hybrid electric delivery vans integrated by Linamar Corporation and Roush Performance.
- Four (4) 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 West Sacramento, CA where they will be demonstrated for one year in regular parcel delivery service.

Lessons Learned

- Global supply chain issues resulted in difficulties finding replacements for components that failed during vehicle validation. For demonstration projects targeting lower technology readiness levels, the team should identify higher risk componentry and determine alternative suppliers at project outset.
 - Integration of pre-commercial technology requires extensive troubleshooting and validation of both the novel technology and off-the-shelf componentry. The team faced numerous delays during vehicle build and validation due to commercial components being out-of-specification or failing due to unforeseen challenges integrating with novel subsystems.
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Status Updates

- The project team conducted preliminary fuel cell efficiency testing across multiple duty cycles and loads to provide an estimated range of 130-200 miles.
- Roush is working through vehicle validation and testing for all four vehicles. The first vehicle completed validation testing in March 2022 and is expected to enter package delivery service in April 2022.
- CTE is coordinating vehicle delivery, training, fueling, and operations support for the demonstration in West Sacramento.



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