

LCTI: Fuel Cell Hybrid Electric Delivery Van Deployment

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Advanced Technology Demonstration and Pilot Projects



Center for Transportation and the Environment



25th Anniversary
1993-2018

Winter 2019 - Winter 2022

Project Details:

The project team, led by Center for Transportation and the Environment (CTE), is building and demonstrating 15 additional fuel cell hybrid electric delivery vans based upon their first prototype built in partnership with the U.S. Department of Energy. The fuel cell hybrid electric delivery van powertrain is being provided by Unique Electric Solutions and fully integrated by W.W. Williams; University of Texas – Center for Electromechanics is providing consultation into the fuel cell and hydrogen system integration; Cummins/Hydrogenics is supplying each of the 30-kW fuel cell engines; and hydrogen fuel will be provided at the Shell fueling station local to UPS's customer center in Ontario, CA where the vehicles will be demonstrated in regular UPS delivery service for one year.

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 reduction. The following are the central components to achieving this objective:

- Substantially increase the zero-emission driving range, thereby reducing petroleum consumption and related emissions, and increasing the commercial viability of electric drive medium-duty trucks
- Accelerate the introduction and market penetration of electric drive transportation technologies to meet the demands of commercial fleet customers shifting towards zero-emission alternatives and supporting the growth of hydrogen economies at scale
- Collect and analyze data from fifteen fuel cell hybrid electric vehicles to provide the industry with performance, reliability, and cost metrics that will form the basis of future hydrogen focused projects and support the continuous development towards fully commercialized medium-duty, zero-emission vehicles

Grantee:

Center for Transportation and the Environment

Partners:

United Parcel Service (UPS), Unique Electric Solutions (UES), Cummins, University of Texas - Center for Electromechanics (UT-CEM)

Grant Amount

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

Vehicles/Equipment Funded

- Fifteen (15) fuel cell hybrid electric delivery vans integrated by Unique Electric Solutions and W.W. Williams.
 - Fifteen (15) 30-kW fuel cell engines developed and built by Cummins/Hydrogenics USA.
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Lessons Learned

- Full-time, onsite technician support is essential for a successful demonstration of novel technologies seeking to maximize vehicle uptime and generate real-world operational data to help accelerate the commercialization of zero-emission technology.
 - Operator expectations and requirements for vehicle acceptance should be explicitly defined at project outset to avoid delays in deployment and ensure attainable goals and realistic expectations for the demonstration of prototype vehicles.
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Status Updates

- The project team conducted operations, maintenance, and safety training at UPS's Ontario facility across all critical job functions at UPS: supervisors, drivers, and mechanics.
 - The first 10 of 15 vehicles have been assembled and validated, and 2 of these 10 have completed pre-deployment validation activities to enter UPS's revenue service.
 - The final 5 of 15 vehicles are undergoing assembly and validation.
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The University of Texas at Austin
Center for Electromechanics

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