

# Gasoline hybrid electric delivery vehicles reduce tailpipe emissions while maintaining fuel economy

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The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) recently completed a yearlong technology evaluation of gasoline hybrid electric (gHEV) trucks compared with conventional diesel vehicles. A [report released this week](#) details NREL's efforts to determine the impact of hybridization on performance, emissions, and fuel economy.

The gHEV trucks produced substantially reduced tailpipe emissions during all drive cycles tested in the laboratory when compared to conventional diesel vehicles. On a drive cycle representing routes with frequent stops and accelerations, the gHEV trucks exhibited a 20 percent improvement in [fuel economy](#) while drive cycles representing routes with fewer stops and accelerations demonstrated similar fuel economy to the diesels.

“We conducted this study to show how a gasoline hybrid might perform compared to a conventional diesel truck given that gasoline engines are less efficient than diesel engines and generally not used in heavier vehicles,” said Lee Slezak, program manager for DOE's Advanced Vehicle Testing Activity.

NREL's Fleet Test and Evaluation Team collected and analyzed fuel economy, maintenance, and other vehicle performance data on three gHEV trucks and three conventional diesel trucks used for FedEx parcel

delivery service in the Los Angeles area. The team also tested a hybrid and conventional truck at NREL's Renewable Fuels and Lubricants Research Laboratory in Denver, Colo.

“Southern California continues to experience the worst air quality in the nation, and transitioning heavy-duty vehicle fleets to cleaner-burning vehicle technology is an important element of our overall clean air goals,” said Barry R. Wallerstein, executive officer of the South Coast Air Quality Management District.

Manufactured by Ford, the gHEV trucks feature 5.4L gasoline engines and hybrid propulsion systems produced by Azure Dynamics with 100kW electric motors, regenerative braking, and nickel-metal-hydride batteries.

FedEx Express operates more than 32,000 motorized vehicles in the United States, including 20 gHEVs on parcel delivery routes in Los Angeles and Sacramento, Calif. The FedEx Express hybrid fleet, which has driven more than 8 million miles in revenue service, includes an all-hybrid station in Bronx, N.Y., where nearly half of the vehicles are gHEVs.

Provided by National Renewable Energy Laboratory

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