

High Hopes for a New Type of Hybrid Vehicle

UPS is about to field-test "hydraulic hybrid" delivery trucks, developed with the help of the EPA

By Brian Burnsed



In the next few months, United Parcel Service (UPS) will begin testing an automotive breakthrough that comes straight from the Environmental Protection Agency. UPS will launch two prototype delivery trucks whose ordinary-looking brown exteriors mask an exotic assembly of pumps, tanks, and high-pressure hydraulic fluids. Working in concert with a diesel engine, these novel parts will replace the transmission and other standard components.

The big brain behind such "hydraulic hybrid" vehicles is Charles Gray, a top scientist at a laboratory the EPA operates in Ann Arbor, Mich. Barack Obama may never have heard of hydraulic hybrids, but such fleets could go a long way toward meeting goals the President-elect has spelled out in many speeches, says Gray, whose team has racked up 60 patents on green automotive technology. The payoff is not just cleaner air, he says, but something "very important right now—jobs for Americans."

It was UPS that proposed a joint research project in hydraulics when it learned of the EPA's efforts back in 2004. After studying the agency's work, UPS concluded that this sort of hybrid truck, when mass-produced, would cost about \$7,000 more than standard delivery trucks, which run \$40,000 to \$50,000. But the EPA said savings on fuel and maintenance over the life of the truck could be as much as \$50,000, while reduction in carbon dioxide emissions would be 30% or more. "I think we're going to be able to help the environment, but certainly it's going to be a good business decision, too," says Robert Hall, a UPS vice-president versed in the hybrid project.

If the upcoming trial goes well, the company is prepared to place a large order, Hall says. And UPS isn't alone. The U.S. Army has partnered with the EPA, hoping the hybrids will help reduce the high cost of transporting supplies. The EPA may also develop shuttle buses in Southern California. And if UPS decides to build out a fleet, hydraulic-parts suppliers such as Eaton (ETN) could ramp up quickly. "We are prepared to expand, to increase output, to hire more workers," says Eaton Chief Technology Officer Yannis P. Tsavalas.

The diesel engine in the new hybrids drives a hydraulic pump. This maintains pressure to run a pump motor that turns the rear axle. Similar to gas-electric hybrids like the Prius, the trucks also draw energy from braking, which is used to repressurize the spent fluid.

Will the technology be useful for anything besides heavy trucks? Author and technology forecaster Daniel Burrus is skeptical. Large hydraulic tanks will prove hard to pack into smaller vehicles, he predicts, and drivers might be put off by the loud hydraulic hissing noises.

Gray concedes that the new hybrids are a beginning, not a final goal. His lab has other technologies in the pipeline, from near-term advances to hydrogen vehicles that may take decades to develop. "The only way the American auto industry will survive is by producing fuel-efficient vehicles," he says, "not by continuing to produce the same old car."