

Azure Dynamics turns Ford vans into hybrids for FedEx

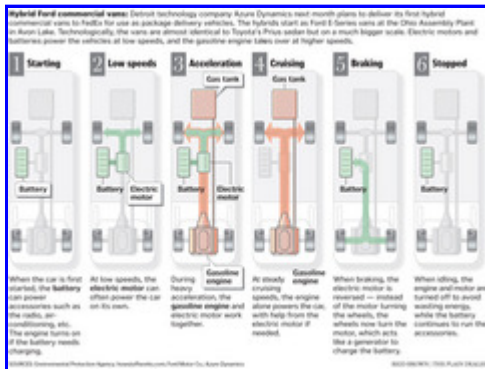
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Roadell Hickman/The Plain

DealerA Detroit company will make hybrids out of these Ford vans produced in Avon Lake.

A Detroit company, as early this week, will begin delivering hybrid-electric delivery vehicles to FedEx that started out as vans from Ford Motor Co.'s plant in Avon Lake.



How it works:

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Azure Dynamics, a technology company that moved to suburban Detroit from Canada last year, has a contract to deliver 20 hybrids based on Ford's E-450 van to FedEx this year.

Like Toyota's Prius hybrid, the E-450 model uses electric motors to get the vehicle moving and switches to its gasoline engine at higher speeds.

That system gives the vehicles a 40 percent boost in fuel efficiency in start-and-stop city driving but lowers fuel economy on the highway, where the batteries and motors simply become extra weight.

"The hybrid technology is perfect for urban settings in stop-and-go traffic," said Azure Dynamics Chief Executive Officer Scott Harrison. "A delivery vehicle will make 200 stops a day."

Each time it starts moving, it will use electricity instead of gasoline, he added. Each time it stops, special brakes will capture some of the energy that is normally lost as heat and convert that into electricity, recharging the vehicle's batteries.

Ford officials have said they have concentrated their hybrid efforts on consumer vehicles. Customer surveys show that commercial truck and van drivers get most of their miles on the highway, where hybrid components would hurt fuel economy.

Harrison said that while Ford has to concentrate on what most of its customers want, smaller companies like his can concentrate on smaller niche markets such as delivery trucks or shuttle buses at airports.



Stefan Barthel, in the vehicle, and Kevin Oversby, both from Azure Dynamics' Vancouver office, test the power output of a hybrid van.

Neither Azure nor FedEx would disclose how much extra the hybrid systems cost, but Harrison said delivery fleet owners can save enough in gasoline costs to pay off the difference in about four years.

"For every 50-cent increase per gallon of gas, our payback goes down by about six months," Harrison said.

Mitch Jackson, director of environmental affairs and sustainability for FedEx, said his company has proven that there is an economic and environmental case to be made for using commercial hybrid vans. But he said there aren't enough choices for fleet buyers.

"We now need the collective leadership of business, nonprofits and government to make cleaner delivery vehicle technology widely available," Jackson said Monday after FedEx announced it had completed 2 million miles in hybrid deliveries using vans from Eaton Corp. and other hybrid producers.

FedEx has about 100 Eaton hybrid trucks and said Monday that it will order 45 more. The Eaton trucks are much larger than Azure's. They use heavy-duty truck frames, not lighter commercial van frames.

Dimitri Kazarinoff, general manager of emerging technologies for Eaton's truck group in Cleveland, said Eaton has sold delivery-style hybrids to FedEx, Coca-Cola and other companies that need big trucks for start-and-stop deliveries.

This year, the company plans to launch a series of garbage trucks using a hydraulic hybrid launch system.

Eaton started working on hybrids in 2000.

"We are absolutely at the birth" of the commercial hybrid vehicle market, Kazarinoff said. "We didn't release our system for full production capability until late last year."

Orders have been strong so far, and many of the companies that ordered small fleets of test vehicles a few years ago are placing bigger orders now.

Kazarinoff said the payback period varies widely based on how and where the vehicles are used, but the number of repeat customers in recent months implies that there is a financial benefit to going hybrid.

"There also really is a tangible value that customers are placing on environmental stewardship," Kazarinoff said. Even when there isn't a direct payback on gas savings, he said, some customers are choosing hybrids to show environmental concerns.

Harrison said Azure's system will catch on with a large number of buyers because it is using a proven commercial system. Ford van chassis lead the delivery market by a wide margin, giving Azure the opportunity to sell to thousands of customers.

Because of its huge customer base, Ford also has hundreds of after-market suppliers who take van chassis and convert them into ambulances, utility trucks, buses and other vehicles. One of the largest of those up-fitters (as Ford calls them) is Utilimaster, an Indiana company that Azure contracted with to install the hybrid components in its vans.

Harrison said that being able to tap a major company like Utilimaster kept its costs low because Azure did not have to build its own plant, and it also gets to use Utilimaster's reputation for quality.

Next year, Azure plans to launch a hybrid version of Ford's lighter E-350 van. For the rest of this year, it plans to produce a few hundred hybrid E-450s for FedEx, Canadian delivery company Purolator, Florida Power & Light and other customers.

High gas prices have raised interest levels among fleet owners in recent months, Harrison said. But he added that his salespeople also encourage managers to look at other areas where the hybrids can cut costs.

With several hundred starts per year, delivery fleet managers often burn through starter motors faster than fleets used for highway driving. Hybrid vans don't use the standard starter, relying instead on the heavy-duty electric motor that powers the vehicle at low speeds.

"We nearly eliminate starter motor failures," Harrison said. Also, during braking, that electric motor runs backward, capturing energy that is normally lost through the brakes as heat.

Running the motor backward generates electricity for the hybrid's batteries, and it reduces wear and tear on brake pads, another major maintenance cost for delivery fleets.

"These folks hold these vehicles for 10 to 12 years," Harrison said. So reductions in fuel and maintenance costs will pay off over time.

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