



Getting in gear

ENVIRONMENTAL DEFENSE AND FEDEX EXPRESS: Transforming truck technology in America



Environmental Defense and FedEx have launched a new era of high-performing, cleaner trucks. Through the power of partnership and innovative engineering, these fuel-efficient hybrid electric vehicles are delivering cleaner air.

Getting in gear

Environmental Defense and FedEx Express are setting a new standard for the truck industry. The national nonprofit environmental organization approached the world's largest express transportation company, and the two joined forces to bring a new generation of fuel-efficient, low-polluting delivery trucks to market.

Environmental Defense and FedEx Express have been working together since March 2000, pooling both organizations' expertise and FedEx's purchasing clout to develop and test the advanced trucks. The Future Vehicle Project began as a request to manufacturers to build a far cleaner truck, specifying the environmental performance standards but not dictating what technology could be used. The hybrid electric technology that resulted is ideally suited to the delivery business, because it captures energy from braking during stop-and-go driving and provides improved acceleration at



FedEx director of environmental affairs Mitch Jackson with Environmental Defense program director Gwen Ruta.

lower speeds. Its electric motor and advanced batteries reduce fuel use and pollution, and a special trap reduces emissions of the small particles that form soot. Readily available today, it is a powerful bridge to future fuel-cell vehicle technology.

The year 2004 will be remembered as a signature year for catalyzing change in the truck industry, with 20 of the new hybrid trucks delivering FedEx packages in four U.S. cities. In 2005, FedEx Express expects to begin purchasing production hybrid trucks on its normal purchasing schedule for routes in the United States and Canada. The program could replace the company's current fleet of 30,000 medium duty trucks within a decade if production rises and prices fall as expected.

What is a hybrid electric truck?

Just as Environmental Defense and FedEx combined their power and individual strengths for this project, a hybrid electric vehicle combines a conventional internal combustion engine and an electric motor, with their interaction controlled by an onboard computer.



When pulling away from a stop, for example, the electric motor provides acceleration from an energy storage device such as a battery, reducing noise, fuel use and pollution. When the driver slows down, energy normally lost in braking is captured and stored. This also reduces wear and tear on the brakes, decreasing maintenance costs.

Cleaner air is just down the road

March 2000

Environmental Defense approaches FedEx Express with a plan for the delivery truck of the future.

February 2001

Truck manufacturers are invited to submit proposals.

February 2002

Four companies are selected to produce prototypes.

May 2003

FedEx Express agrees to purchase and test 20 hybrid delivery trucks from Eaton Corporation.

2000

2001

2002

2003

August 2000

Environmental Defense and FedEx Express agree to a partnership.

September 2002

Two prototype trucks are tested at the independent Southwest Research Institute.

Cleaner trucks mean a safer, healthier environment

Diesel pollution worsens global warming, smog and acid rain. It also contributes to asthma, the nation's fastest growing chronic disease, with 20 million Americans now afflicted.



Putting 10,000 new OptiFleet E700 trucks on the road will cut global warming pollution by 75,000 tons a year, the same as planting 1.9 million trees.

Hybrid electric trucks reduce all these forms of pollution while also reducing the nation's dependence on oil. For every 10,000 conventional FedEx trucks that are replaced by new hybrids:

- Smog-causing pollution will be reduced by 2,000 tons a year, the equivalent of taking all passenger cars off New York City roads for one month.
- Diesel fuel use will drop by 6.5 million gallons a year, the equivalent of 930,000 barrels of crude oil.

Advantages of a cleaner truck

THE OPTIFLEET E700

The advanced truck developed by Environmental Defense and FedEx Express, known as the OptiFleet E700, looks, operates and performs like a conventional truck. It uses hybrid electric technology to achieve a new standard of performance. The OptiFleet E700:

- Travels 50% farther on a gallon of fuel, reducing fuel costs and global warming pollution by one-third
- Emits 75% less smog-causing pollution and 90% less soot
- Uses the existing diesel fuel infrastructure and never needs to be plugged in
- Costs the same as a conventional truck over its lifetime

What are the costs and benefits of hybrids?

Because the technology is new, the initial investment in hybrid trucks is higher than for conventional trucks. The added cost can be offset partially by state and federal incentive programs for clean technology. Environmental Defense and FedEx expect the added investment will be paid back by lower fuel costs and extended brake life over the lifetime of the truck. FedEx and other fleets that adopt cleaner trucks well in advance of regulatory requirements will realize benefits in corporate and brand reputation and favorable market awareness.

“Environmental Defense is very committed to improving our environment. After all, it's the only environment we and our children will ever have.”

— Frederick W. Smith
FedEx founder and CEO

February 2004
Two hybrid trucks begin delivery service in Sacramento, CA.

2004

June – September 2004
Eighteen additional trucks begin delivery service in three U.S. cities.



2005 and beyond

FedEx Express will begin purchasing production hybrid trucks for routes in the U.S. and Canada and, if all goes as planned, will replace 30,000 delivery trucks over the following ten years.

Environmental Defense will continue to work to make cleaner, more fuel-efficient technology the standard in the trucking industry.

Accelerating change

Environmental Defense and FedEx may well have started a revolution in truck technology. To get results, Environmental Defense recruited FedEx to help develop the environmentally advanced truck of the future. The partnership proves that cleaner trucks can hit the road today, reducing oil dependence and protecting public health.

FedEx is on the way to converting its delivery fleet to the new hybrid electric trucks, and momentum is building for change throughout the truck industry. "With Environmental Defense and FedEx leading the way, many fleets are planning to purchase hybrid electric trucks in the next few years, and the supply of cleaner truck technology is growing," says Bill Van Amburg, senior vice president of



Vehicles of all kinds could improve environmental performance and reduce fuel use by applying advanced technology like that used in the new FedEx truck.

Advice that money can't buy

Few have more potential to bring about positive environmental change than business leaders. By working with a select group of corporate partners prominent in their respective industries, such as Citigroup, DuPont and McDonald's, Environmental Defense has quickened the pace of environmental progress while helping companies do well by doing good.

Environmental Defense accepts no payments from its corporate partners. The environment is its only client, while businesses are its allies in pursuit of common aims. Generous individuals and foundations fund the work of Environmental Defense to ensure its total independence and public credibility.

WestStart, a nonprofit group working with the public and private sectors to develop advanced transportation technologies. Government can pave the way with incentive funding and tax relief programs for early adopters.

Environmental Defense will continue working to accelerate the pace of change, delivering cleaner, healthier air for all Americans. With your help, we can drive all vehicles into a new era where affordable technology delivers widespread environmental and health benefits.



ENVIRONMENTAL DEFENSE

finding the ways that work

Founded in 1967, Environmental Defense is a nonprofit, nonpartisan organization representing 400,000 members. Employing more Ph.D. scientists and economists in environmental advocacy than any similar group, it works to create innovative market-based solutions to protect clean air and water, healthy food and flourishing ecosystems.

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