

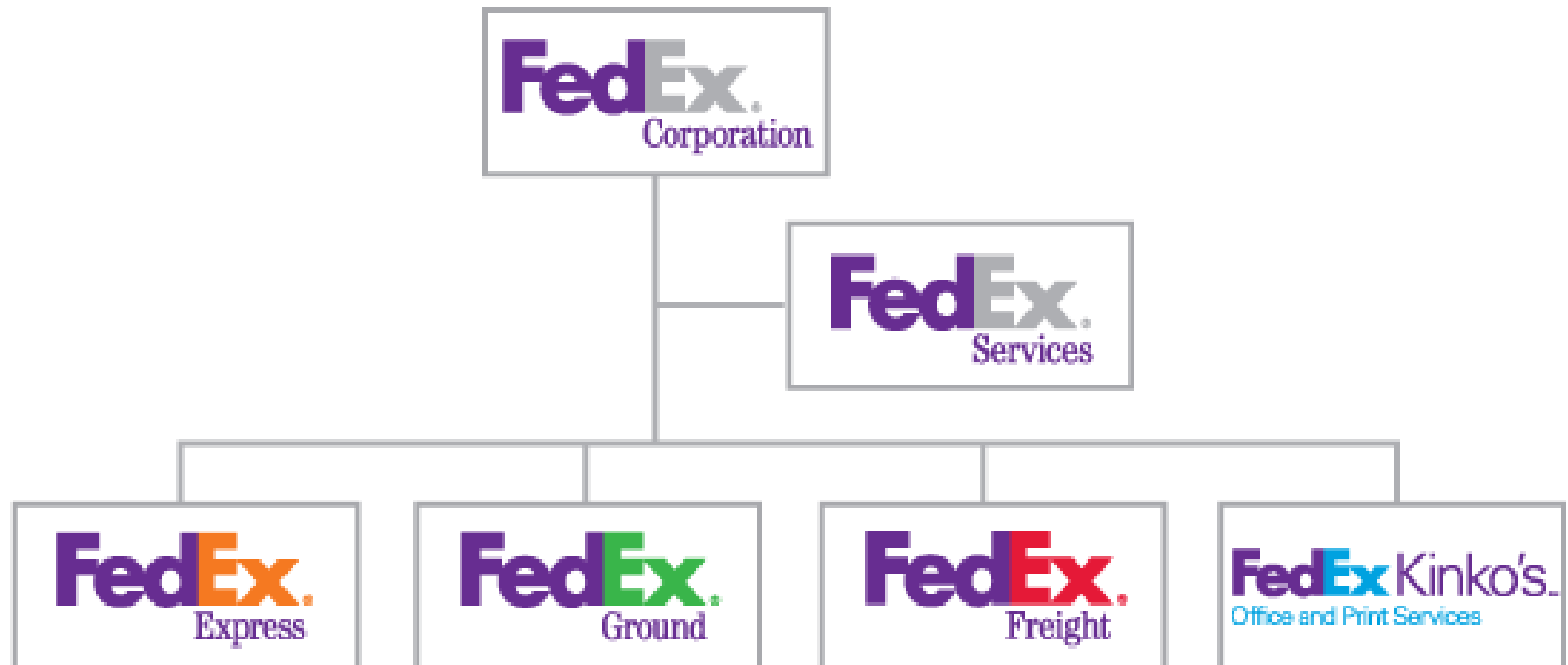
Fleet Use of Advanced Technology Delivery Trucks

Toward A Policy Agenda for Climate Change
10th Biennial Conference on Transportation Energy and Environmental Policy

Session II: Technologies and Fuels

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FedEx Express

FedEx Overview



Operate Independently, Compete Collectively and Manage Collaboratively

A Portion of FedEx Corporation's Environmental Policy Statement

- **FedEx recognizes that effective environmental management is one of its most important corporate priorities.**
- ***FedEx is committed to the use of innovations and technologies to minimize atmospheric emissions from its operations and products.***
- ***Efficient use of natural resources to minimize waste generation through efforts that include recycling, innovation, and prevention of pollution.***



FedEx Freight

EPA Voluntary Retrofit Program
– The first time EPA has joined with a private company to retrofit part of a fleet

- Includes use of ULSD

EPA SmartWay Transport



FedEx Kinko's

Purchases 11% of its total energy consumption from renewable sources, such as wind and solar energy

19th largest user of renewable energy in the nation according to EPA's Green Power Partnership

8th largest corporate user of renewable energy in the nation according to EPA's Green Power Partnership



FedEx Solar Electric Project Oakland, CA West Coast Hub



904 kWp

81,000 square feet of roof space covered with photovoltaic panels

Comprises over 5,700 photovoltaic panels

European Alternate Fuel Vehicles

38 FedEx alternate fuel Mercedes Sprinters in downtown London

London's Battersea station

Exempted from London's congestion charges due to its low emissions performance



FedEx / General Motors Fuel Cell Project

1 year study in real world, commercial setting using GM's HydroGen3 fuel cell vehicle in Tokyo, Japan.

More than 10,000 packages were delivered with this vehicle.



EPA's SmartWay Transport

Fuel economy gains and GHG reductions/avoidances from operational and technological means

- Elimination of idling
 - Synthetic lubricants
 - Driver training / education
 - Improved technologies
-
- Over 800,000 tons of CO₂ avoided by FedEx Freight, Express and Ground in 2002

FedEx Express

Future Vehicle Project “Delivering Cleaner Air”

To develop a replacement for the current FedEx Express pick-up and delivery truck that is:

- environmentally superior,
- cost-effective,
- and meets all of FedEx’s operational requirements



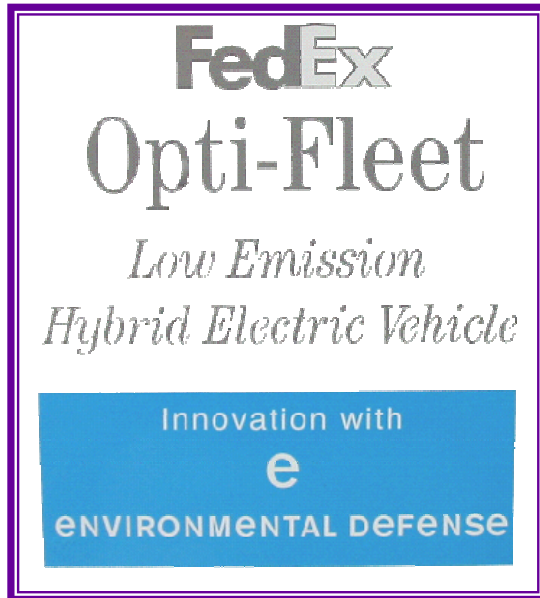
The Prize



Project Update

Test Results

Pre-production e700 vs. Listed Vehicles:



	<u>Baseline W700</u>	<u>2004 W700</u>
CO	(82%)	(77%)
NO _x	(65%)	(12%)
PM	(96%)	(96%)
CO ₂	(37%)	(29%)
MPG	57%	42%

In Service Operation

<u>Location</u>	<u>Number of Hybrids</u>
Sacramento, CA	2
New York City, NY	10
Tampa, FL	4
Washington, DC	2
Total	18

75 more hybrids to be added to the fleet by mid 2006



Possible Benefits

10,000 hybrid electric vehicles could generate substantial reductions in emissions and fuel use annually:

- Smog-causing emissions would be reduced by **1,700 tons**, the equivalent of taking passenger cars off New York City roads for 25 days
- Carbon dioxide emissions would be reduced by **83,000 tons**, the equivalent to planting 2 million trees
- Diesel fuel usage would be reduced by **7.2 million gallons**, which requires 1 million barrels of crude oil to produce

Some Numbers

Medium-Duty Trucks In Service:

14,001 to 16,000 lb.	395,900
16,001 to 19,500 lb.	376,100
Total	772,000

*Bureau of Transportation Statistics

Based upon these numbers and possible benefits' calculations from previous slide, fuel and GHG savings could be significant from a transition to hybrids

Practical Needs & Desires

Incentives

- Federal, state and/or local

Buyers

- Technology is viable
- *BUT volumes are needed to bring production costs down*

Certification

- No EPA certification for hybrid vehicles in heavy-duty vehicle classes

Energy Policy Act of 2005

Title XIII: Energy Policy Tax Incentives

Subtitle D: Alternative Motor Vehicles and Fuels Incentives

- Fuel Cell Vehicles
- Lean Burn Vehicles
- Hybrid Vehicles
- Alternative Fuel Vehicles

Hybrid Motor Vehicle Credit

Vehicles with GVWR of 14,001 to 26,000 pounds:

Qualified incremental hybrid cost: \$15,000

- 20% of qualified incremental cost for 30% to 39% fuel economy gain
- 30% of qualified incremental cost for 40% to 49% fuel economy gain
- 40% of qualified incremental cost for 50% fuel economy gain

Example:

- Maximum incremental cost: \$15,000
- Vehicle achieves between 40% and 49% fuel economy gain
- \$4,500 Tax Credit

Conclusions

To address greenhouse gas emissions:

Reductions can come from *BOTH* operational and technological efficiencies

There is no single answer, but multiple approaches that can be tailored

Ambitious long-term technological goals are important, but near-term technological and operational solutions are necessary

In the end, it really just comes down to fuel efficiencies