



MAFC/ITTS/KYTC Conference

Twin Goals:

- 1. Decoupling from Oil**
- 2. Sustainable Transportation**

**Jim Bruce, V.P.
UPS Corporate Public
Affairs
March 13, 2013
Louisville, KY**



A Culture of Commitment

Three enduring values:

Unparalleled Service...

Be Responsible...

Be Efficient...

A commitment *to maintain and improve upon* what we started over 100 years ago.

Today, UPS is the world's largest package delivery company.



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Two Major Issues for UPS in Transportation

- **Decoupling from Petroleum.... to the Extent We Can**
- **UPS's Role in Sustainable Transportation**



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Decoupling from Petroleum: UPS

- **2011 fuel purchases: \$4.04 billion**
- **Over 7% of total operating revenue.**
- **Fuel price volatility is a major burden, for any transportation provider**
- **Roughly 100,000 trucks worldwide**
- **Tenth largest airline in the world**
- **“From both a business and environmental perspective, UPS is committed to developing and testing innovative solutions and investing in technologies that minimize fuel consumption and reduce our impact on the environment.”**



Why Leave Petroleum?

1. Mitigation of Risk

- Price driven by a cartel – so domestic oil priced at world price
- Cost of fuel and fuel price volatility
- Fuel supply – weather, terrorism, MidEast instability, etc...

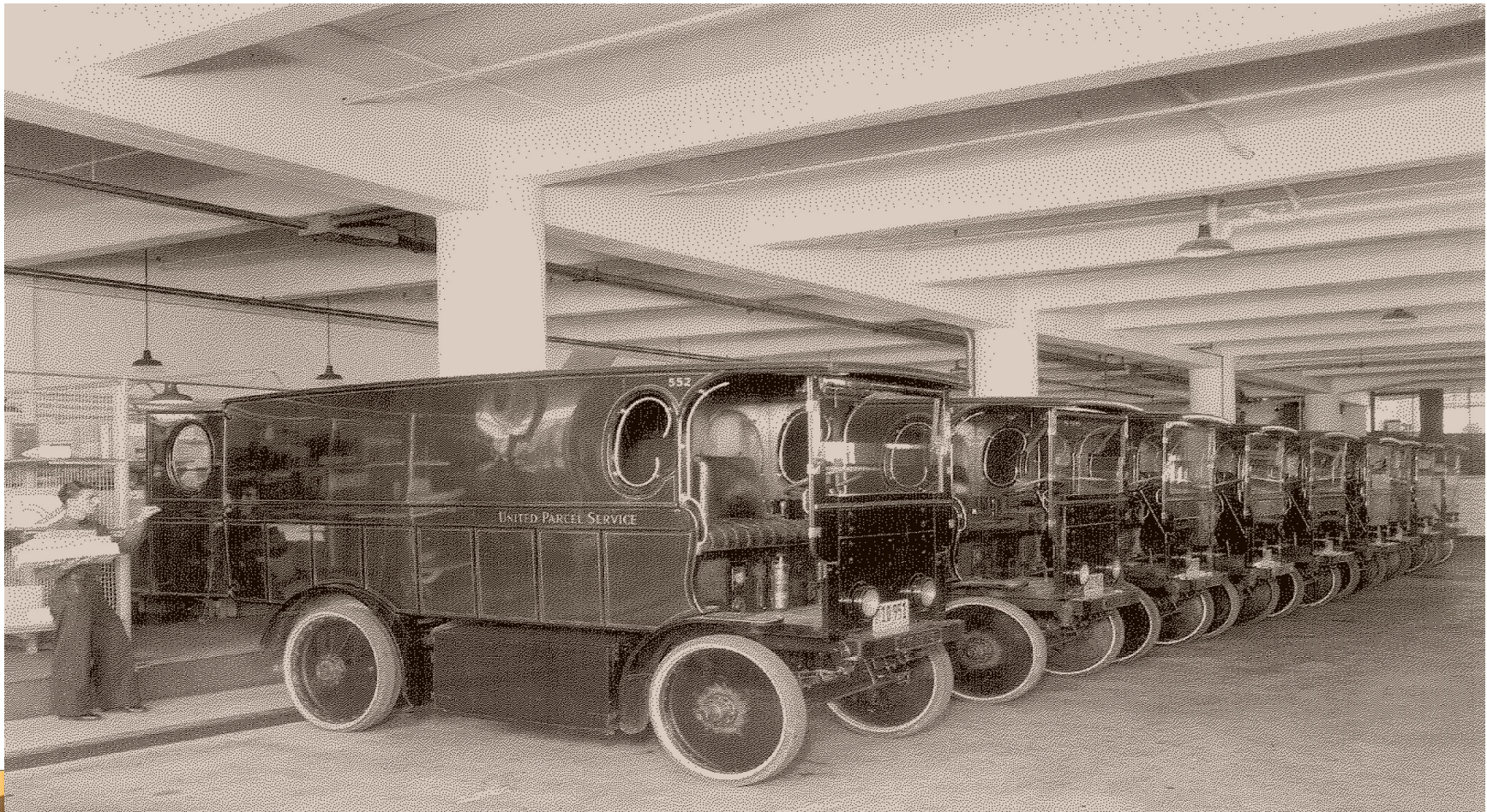
2. Reduce emissions

3. Political mandates

- EPA / Legal Requirement
- Urban access



UPS Fleet of Plug-in Electric Package Cars, New York City, 1930's



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Alternate Fuels and Technology

Total Alternative Fuel Vehicles (U.S. & International): 2,538

U.S. Alternative Fuel Fleet: 1,460

- Compressed Natural Gas Vehicles: 921
- Hybrid Electric Vehicles: 380
- Liquid Natural Gas Vehicles: 93
- Propane Vehicles: 11
- Electric Vehicles: 33
- Hydraulic Hybrid Vehicles: 22



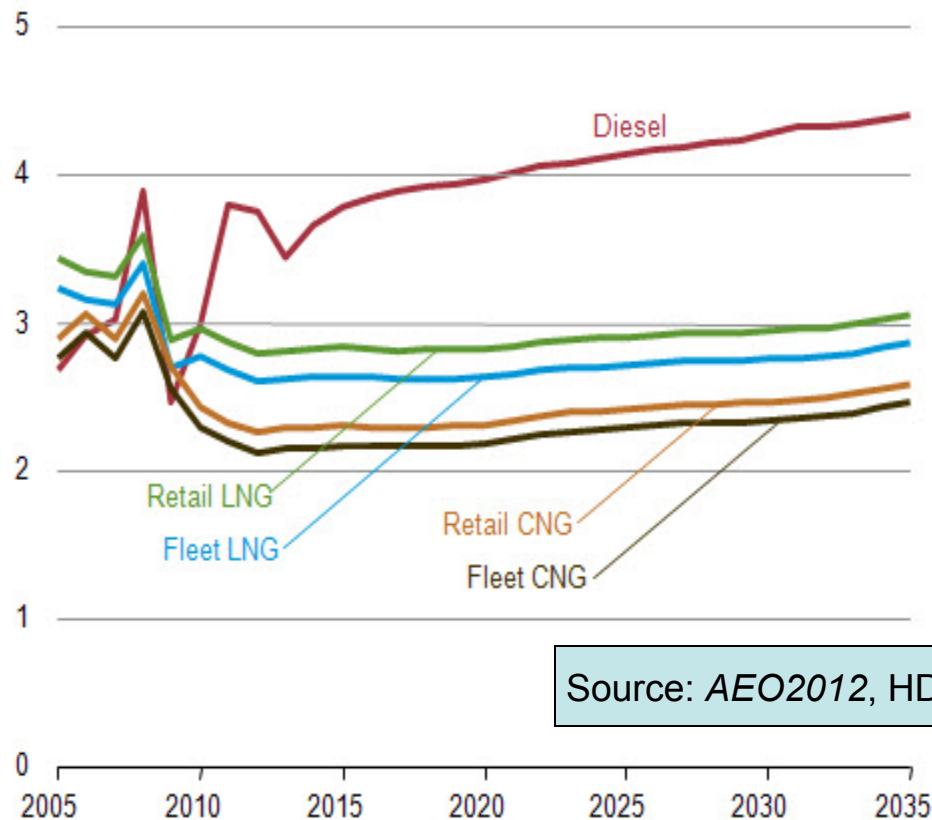
Updated: 01/11/2013

International Alternative Fuel Fleet: 1,078

- Compressed Natural Gas Vehicles: 93
- Hybrid Electric Vehicles: 4
- Propane Vehicles: 893
- Electric Vehicles: 32
- Ethanol Vehicles: 46
- Biomethane Vehicles: 10

Analyzing the Business Case for Natural Gas Powered Trucks: Natural Gas Price Advantage

Figure 36. Diesel and natural gas transportation fuel prices in the HDV Reference case, 2005-2035
(2010 dollars per diesel gallon equivalent)



Source: AEO2012, HDV Reference case

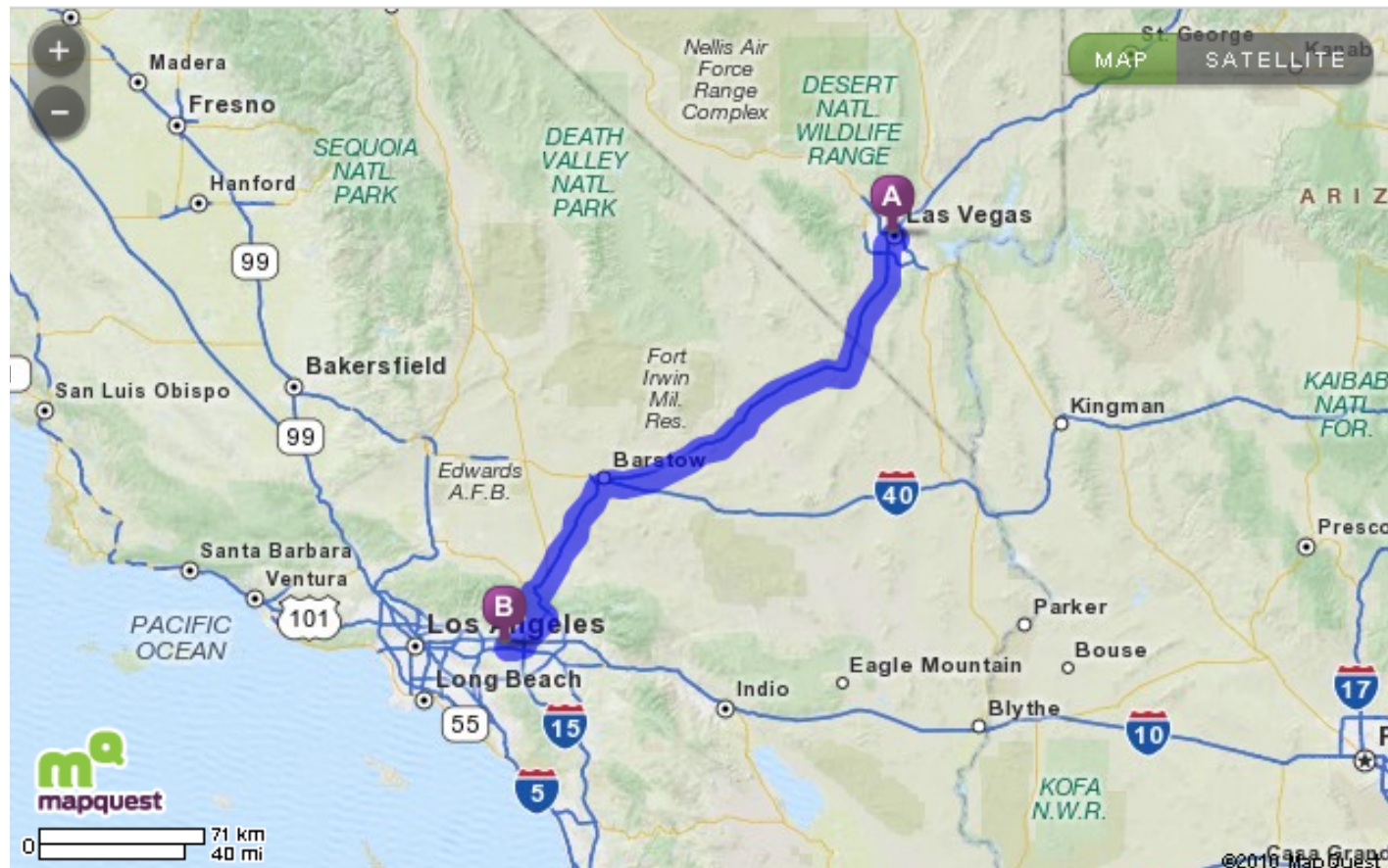


Central Fueling: Hub and Spoke Trucking Firms Don't Need Extensive Fuel Infrastructure

- Hubs: Place NG fueling stations at hubs as much as 300 miles apart.
- LNG tractor trailers with 550 mile range go 275 miles to next hub and return to their home hub for refueling
- Hubs on corridors and triangles
- Spokes: Package cars refuel with CNG at their hub, make local deliveries, and return to hub for refueling for next day.
- Fueling infrastructure at each hub is expensive. UPS seeks government assistance and permits public access “through the fence” to our refueling stations.



The “Energy Security Corridor” Las Vegas, NV to Ontario, CA



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UPS Major Hubs

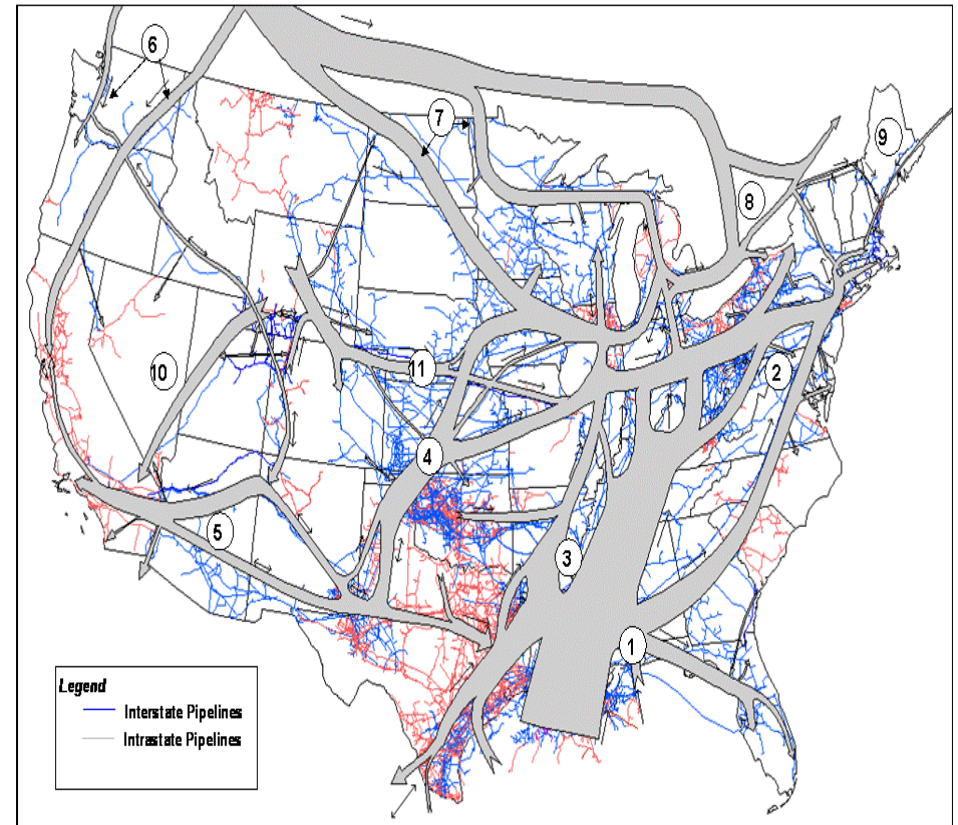
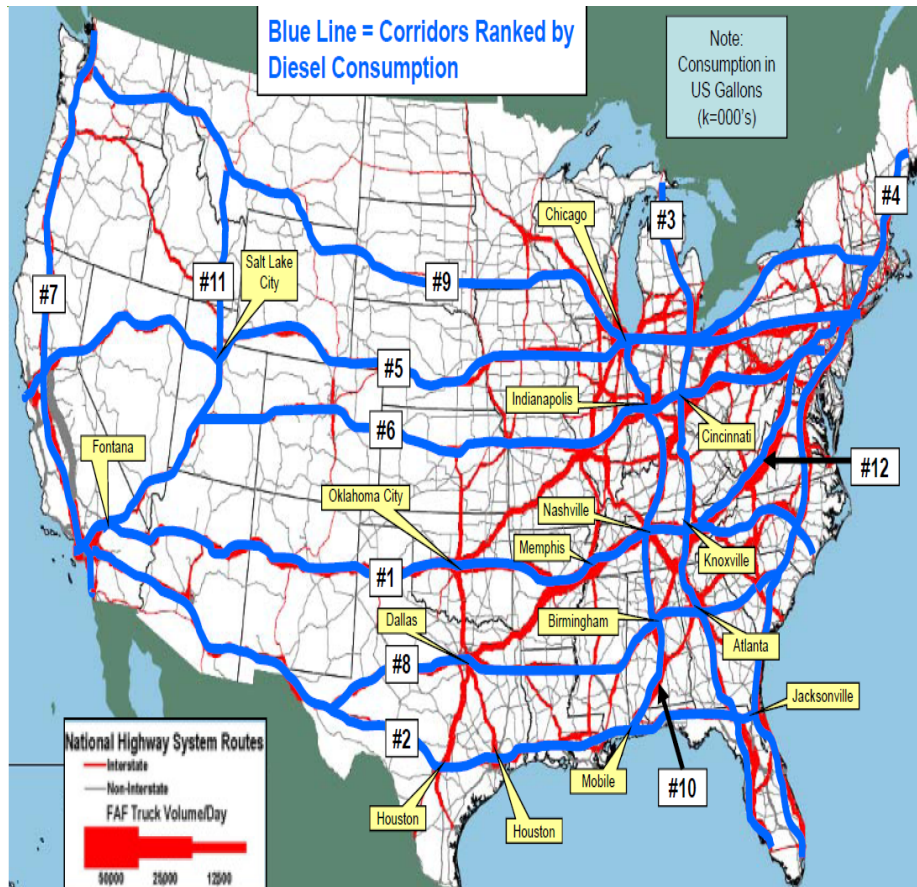


Pointer 38°41'16.53" N 95°43'50.06" W elev. 994 ft

Streaming ||||| 100%

UPS Alternative Fuels: What's On Our Menu?
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Heavy Truck Corridors Align With NG Pipelines



Source: Energy Information Administration, Office of Oil and Gas, Natural Gas Division, GasTran Gas Transportation Information System.

The EIA has determined that the informational map displays here do not raise security concerns, based on the application of the Federal Geographic Data Committee's Guidelines for Providing Appropriate Access to Geospatial Data in Response to Security Concerns.



Liquid Natural Gas (LNG) As A Fuel For Over-the-Road Heavy Trucks (Compression Ignition)

95% reduction in petroleum use

25% reduction in greenhouse gas emissions when replacing diesel trucks.

500 - 550-mile range

Much reduced operating costs

Cryogenic tanks

High initial costs

- LNG truck – 100% premium over new diesel truck
- Fueling station -- \$1 million +

UPS: a decade of experience with 11 LNG heavy trucks on the road between CA and NV.



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Kenworth T800

- Extended Day Cab
- Single Rear Axle
- Fuller 10 Speed Transmission



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100 Electric Brown Trucks in California



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UPS Hydraulic Hybrid (No batteries, just a bag of air)



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An “All-of-the-Above” Strategy



“As the folks here at UPS understand, we’ve got to have an all-out, all-in, all-of-the-above strategy that develops every source of American energy.”

-Barack Obama,
Jan 26, 2012



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Summary: UPS and Alternative Fuel Vehicles

- No blanket solution to replacing petroleum.
- UPS is fuel neutral. We have tested in service just about everything.
- Will use a variety of alternative fuel vehicles depending on the vehicle, load hauled, and the mission, e.g., long-haul, stop and go, type of fuel available.
- Most fuel consumption per vehicle - - heavy duty tractor fleet
- UPS systematically seeking local or regional alternative fuels that are cleaner and cheaper than oil
- Liquid natural gas (LNG) looks particularly attractive for class 8 tractors.
- Hubs and spokes on corridors and triangles
- Currently, all our alternative fuel vehicles require financial assistance to meet our required return on investment, but this may change for some vehicles. We prefer not to rely on such financial assistance long-term.
- Future: many see electric drive as inevitable for many types of trucks



What Is Brown's Path for Sustainable Transportation?

- In transportation, sustainability means vehicle energy efficiency and network efficiency
 - **The greenhouse gases: all CO2 from combustion**
 - **Minimize empty space on vehicles**
- Multi-modal transportation
- Supply chain sustainability
- What role does the private sector play?
- What role does federal and state government play?



Mode of Transportation: CO2 Emissions Comparisons

(using US EPA Emission Factors)

3.6-7.8 X

“X”

1/12 X

1/4 X



AIR

ROAD

RAIL

SHIPPING

0.6649 long haul

0.184547244

0.015658554

0.049709695

1.4388 short haul

- Notes:
- (1) US EPA emission factors in terms of kg of CO2 per metric tonne-km
 - (2) A metric tonne-km is equal to one (1) metric tonne of freight moving the distance of one (1) kilometer
 - (3) Air long haul defined as >1600 km



Data Source: World Resources Institute GHG Protocol “Emission Factors from Cross-Sector Tools”
www.ghgprotocol.org/downloads/calcs/Compilation%20of%20emission%20factors%20used%20in%20the%20cross-sector%20tools.xls
 (Mobile-Freight tab)

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1 million metric tonnes of CO₂ avoided. One intermodal network.

UPS uses rail transport extensively to gain significant carbon reductions—far more than any other package delivery company in the United States. In 2008, ground-to-rail shifts prevented absolute emissions of 1 million metric tonnes of CO₂ in our U.S. Package Operations.



Role of the Private Sector in Sustainable Supply Chains: Blue and Brown Make Green

<http://vimeo.com/57379002>

<http://www.youtube.com/watch?v=WYuogjaJYVM>



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Role of the Private Sector in Sustainability

“Companies are “doing well by doing good,” because corporate sustainability is becoming a matter of competitive advantage in the marketplace. Companies are requiring their suppliers to report their sustainability to organizations such as the Carbon Disclosure Project (CDP) for review. CDP is an independent, not-for-profit organization working to drive greenhouse emissions reduction and sustainable water use through corporate sustainability disclosures. Even investors see corporate sustainability disclosure as a factor in assessing a firm’s future wellbeing. [CDP reports](#): “A record 722 investors with US\$87 trillion in assets have asked more than 5,000 companies to disclose through CDP.”

UPS submission to Business Roundtable’s 2013
Sustainability Report March 1, 2013



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Role of Government in Promoting Sustainability

- **Executive Order 13514 Federal Leadership in Environmental, Energy, and Economic Performance, issued Oct. 5, 2009,**
 - **Sustainability of Federal agencies**
 - Appoint Sustainability officers
 - Determine carbon footprint – scope 1, 2, and 3
 - Set sustainability goals for federal agencies
 - **Sustainability of Government’s private sector suppliers – measure their carbon emitted in providing services to the federal government**



• UPS sought the Order

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UPS Seeking Further Leadership from Government

- UPS seeking follow-on federal effort
- “While the Executive Branch has implemented much of the Executive Order with respect to the sustainability of federal agencies, the effort to address federal contractors appears to have moved little beyond the 2010 report.”
- “We think that the federal government should borrow from the private sector example and move forward to take the lead in procurement preferences. If nothing else, procurement solicitations could ask bidders to explain how they could help the federal agency meet its sustainability goals, as all agencies have such goals, unless exempted, under the Executive Order. “
 - **UPS seeking policies favoring procurement preferences for sustainable suppliers in State procurements**

