Carbon Footprint
Management through
Strategic Supply Chain
Logistics

Steve Leffin – Director, Global Sustainability
UPS Today

- Founded in Seattle, Wa - 1907
- 408,000 employees
- 200+ countries and territories
- 95,244 package cars, vans, tractors, motorcycles
- 216 owned / 296 chartered (9th largest airline)
- Drive 2.5+ billion miles / year (U.S. alone)
- Daily flight segments – 936 U.S. / 755 Int’l
- 15.1 million packages a day
- 7.9 million daily customers
- UPS / Supply Chain & Freight / UPS Freight
UPS Roles in the Typical Supply Chain

Freight Services
- Consolidation
- Forwarding
- Brokerage
- DC Bypass

Capital Corp.
- Trade Finance
- Letters of Credit
- Insurance
- Factoring

Freight Services
- International Trade Mgmt
- Supplier Mgmt

Post Sales Reverse Logistics

Distribution Logistics Value Add

Supply Chain Mgt
- Inbound receipt
- Inventory Management & Distribution
- Value Added Services
- Product Configuration
- Order Mgmt
- Fulfillment
- Returns Management
- Customer Services
- VMI

Capital Corp.
- Inventory Financing
- Factoring

Consulting
Efficiency
2009 Global Enterprise CO$_2$e Emissions by Type

Global Operations
- 12.36 million metric tonnes
- Mobile = 90% of emissions
- Stationary = 10% of emissions

UPS Airline fuel was 53% of our global emissions inventory footprint in 2009

52.8% Jet A
0.1% CNG
7.5% Electricity
2% Natural Gas
4.3% Gasoline
0.3% Propane
33% Diesel
What Affects the Carbon Intensity of the Transportation Sector

- What mode of transport is used
- Scale and density of the network
- Efficiencies of the network
- Efficiencies most energy intensive mode (air fleet)
- Efficiencies of the ground fleet
- Carbon Avoidance – strategies and results
- Low carbon fuels (LCA perspective?)
- Advanced Technology Vehicles (HEV, HHV)
- Capturing all carbon from origin to destination (scope 1, 2, 3)

In 2008, more than 3 million absolute metric tonnes of CO₂ avoided. One intermodal network.

In 2009: (m-tonnes)
Air to ground = 1.6 M
Ground to rail = .84 M
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2.44 M

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<tbody>
<tr>
<td>GHG Emissions (million metric tonnes)</td>
<td>0.98 (scope 1 &amp; 2)</td>
<td>5.6 (scope 1 &amp; 2)</td>
<td>12.4* (scope 1 &amp; 2)</td>
<td>15.2 (scope 1 &amp; 2)</td>
<td>5.2 (scope 1 &amp; 2)</td>
</tr>
<tr>
<td>GHG Emissions (million metric tonnes)</td>
<td>1.7 (scope 3)</td>
<td>18.5 (scope 3)</td>
<td>7.3 (scope 3)</td>
<td>1.1 (scope 3)</td>
<td>5.2 (scope 3)</td>
</tr>
</tbody>
</table>

Source: TNT 2009 sustainability report, “Weathering The Storm”
Source: Duetsche Post 2009/10 sustainability report, “Living Responsibility”
Source: FedEx 2009 Global Citizenship Report
(1) Enterprise
(2) FedEx Ground vehicle & feeder aircraft only
Source: 2009 USPS Sustainability Report, “Reduce Reuse Recycle”

TNT
DHL
UPS
FedEx
USPS
U.S. Domestic 2008 Carbon Profile
Why Mode of Transport Matters

Additional CO₂ that would have been generated without modal shifts & efficiencies

In 2008 = 3.5+ million metric tonnes avoided because of modal capabilities, precision in network management, and airline efficiencies

Scope 1, 2 & 3
In 2008 = 8.1 million metric tonnes

Potential of over 12 million metric tonnes

2008 cut away
Alternative Fuels and Advanced Technology Vehicles

**US & International = 2,022**

**Hybrid Electric:**
- P70H (US) = 25
- P100H (US) = 225

**Electric:**
- P100E (US) = 2
- P50E (International) = 12

**Liquid Petroleum Gas:**
- 11 LPG Vehicles (Korea)

**Compressed Natural Gas:**
- 1,148 CNG Vehicles (US)
- 71 CNG Vehicles (International)

**Liquid Natural Gas:**
- 11 LNG Tractors (US)

**Propane:**
- 509 Propane Vehicles (International Package Cars & Shifters)
- 8 Propane Shifters (US)
UPS Airline
Goal for CO\textsubscript{2} pounds per ATM (ATM in nautical miles)

UPS set an aggressive goal to reduce CO\textsubscript{2} lbs/ATM

- 42% reduction 1990 - 2020
- 20% reduction 2005 - 2020
- Includes aviation biofuels
- UPS is a leader in airline fuel efficiency, as it has been for decades

1990 = 2.13

20% reduction from 2005 to 2020

2020 goal = 1.24

2005 baseline = 1.54

2008 = 1.42

28% reduction from 1990 to 2005

42% reduction from 1990 to 2020
Composition of CO₂ lbs /ATM Metric:
1. Efficiency of aircraft type (fleet efficiency)
2. How well aircraft are routed (network efficiency)
3. How many ATM's you flew (fleet capacity flown)

CO₂/ATM based on Distance Flown

Routing Aircraft Within the “sweet spot” of Range Optimizes CO₂ Emissions

If you run any of these aircraft less than 600 miles the efficiency goes down dramatically

Short hops - Burn fuel to get to cruise altitude where air is thin and drag is low, but cruise time is cut short.
Long hauls - Fuel weight to cargo weight ratio not optimal
Goal Statement:
- UPS will improve our Total Domestic Ground Fleet MPG 9% from 2009 to 2020
- This represents a 20% improvement from a base year of 2000
Our comprehensive approach to fuel economy and our use of advanced technology and training methods has gotten results.

Over the ten-year period that ended in 2009, we increased the miles per gallon (MPG) of the delivery vehicles in our U.S. Domestic Package segment by 10%.

To understand how this improvement gets multiplied across more than 60,000 vehicles, consider that in 2009;

– our drivers logged 77.3 million miles more than they did in 2000

– yet our fuel consumption was lower by 3.2 million gallons (gasoline & diesel.)

– If we had simply been content to keep driving the same fleet with the same MPG that we had in 2000, our 2009 carbon footprint would have been larger by 30,400 metric tonnes of carbon dioxide (CO2)—or the equivalent of 5,813 passenger vehicles.
Operate Efficiently
Ground Fleet

UPS’s customized delivery fleet is designed for fuel efficiency and full-service operational capabilities
- Lightweight aluminum body
- On-board Telematics wireless technology
- One vehicle for pickup and delivery

Feeder fleet designed for safety, emission reduction and fuel conservation
- Tractor and Trailer
  - Idle shutdown after five minutes
  - Aerodynamic fairing, cab extenders and mirrors
  - Trailer strategies (gaps, doubles, triples, rail usage)

EPA SmartWay Excellence Award 2007 & 2008

UPS SIF is 2.66
(Shipper Index Factor)
(Outstanding performance is 1.25)

UPS Package delivery fleet (includes package cars and tractor trailers) is **33% better than the national average** in CO₂ grams/mile.

* As per the national average cited in SmartWay Fleet Carrier Model
Operate Efficiently

Network Efficiencies

- Electronic cataloging of every package for visibility
- Smart labels linked to GPS technology
- Package Flow Technology for route optimization
- GPS-enabled DIAD (Delivery Information Acquisition Device)
- “No left turns” policy
- Precision in delivery though the use of seasoned Teamster service providers in the US

Route planning technology has eliminated 100 million miles

100,000,000 miles from PFT = 100,000 m/tonnes

Human Readable PAS Label

Imprinter PAS Label
Over 39% of US Fleet Equipped with Telematics Onboard Wireless Technology

Telematics Technology utilizes

<table>
<thead>
<tr>
<th>Engine Data</th>
<th>GPS Data</th>
<th>Sensor Data</th>
<th>DIAD Data</th>
<th>Map Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>Safety</td>
<td>Dispatch</td>
<td>Performance</td>
<td>Process</td>
</tr>
<tr>
<td>• Vehicle diagnostics</td>
<td>• Seatbelt</td>
<td>• Dispatch planning</td>
<td>• Analyze daily driver travel path for efficiency improvement</td>
<td>• Enhanced capabilities for work measurement processes</td>
</tr>
<tr>
<td>• Fault codes</td>
<td>• Bulkhead door</td>
<td>• Address validation</td>
<td></td>
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<tr>
<td>• Conditional maintenance</td>
<td>• In reverse</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Driving habits</td>
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</tbody>
</table>

Visibility on primary and behavioral characteristics that affect fuel consumption

- Seat belt off in travel
- Route overlap
- Speed
- Delivery while idling
UPS Approach: De-carbonization Synergy

Network Optimization
Modal Shift
Green Products

Skilled Workforce
Aircraft
Vehicles
IT Applications
Distribution

Evolution to low carbon fuels

Yesterday
Sustainable Brown 100+ yrs
Electric Cars 1935
Rail 1966 (1 Mill m/Tonnes/yr in 08)
727- re-engine 1985 (50 mil gal saved)
757 in lieu of 727-200 1987 (1.1bill gal)
EDF Shipping materials 1998
First Hybrids on road 1998
First to report 2003 (w/GRI)

Today
Rolling Laboratory
Efficient Aircraft Fleet
Complex tasks simple & accurate
Comprehensive Measurement & visibility
One Optimized Global Network
Precision in Delivery
Carbon Neutral
Telematics

Measure > Manage > Mitigate

Tomorrow
Telematics
Next Gen Ground Fleet
Bio Fuel Capable Vehicles
Expansive Green Service portfolio
Next Gen Wide Body Aircraft
Evolution to LCA Standards
Aviation Bio – Fuel
# Adding Up the Impact

## CO₂ Related Public Statements

<table>
<thead>
<tr>
<th>Public Statement</th>
<th>2008 Carbon Savings (Metric Tonnes)</th>
<th>2009 Carbon Savings (Metric Tonnes)</th>
<th>Total Carbon Savings (Metric Tonnes)</th>
<th>Passenger Vehicle Equivalents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground to Rail Shifts: 2008 and 2009</td>
<td>1,000,000</td>
<td>840,500</td>
<td>1,840,500</td>
<td>351,912</td>
</tr>
<tr>
<td>Air to Ground Shifts: 2008 and 2009</td>
<td>2,027,279</td>
<td>1,600,000</td>
<td>3,627,279</td>
<td>693,552</td>
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<tr>
<td>PFT - Eliminating 100 million miles driven: 2001 thru 2008</td>
<td>100,161</td>
<td>---</td>
<td>100,161</td>
<td>19,151</td>
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<tr>
<td>PFT - Eliminating 20.4 million miles driven: 2009 only</td>
<td>---</td>
<td>20,000</td>
<td>20,000</td>
<td>3,824</td>
</tr>
<tr>
<td>Purchase 757: Savings are thru 2008</td>
<td>11,000,000</td>
<td>---</td>
<td>11,000,000</td>
<td>2,103,250</td>
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<tr>
<td>727 Re-Engine: 1985 thru 2008</td>
<td>479,000</td>
<td>---</td>
<td>479,000</td>
<td>91,587</td>
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<tr>
<td>Surface Management System (SMS) in Louisville - Annual</td>
<td>2,393</td>
<td>2,393</td>
<td>4,786</td>
<td>915</td>
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<tr>
<td>Solar - Palm Springs (100 kw): 2008 and 2009</td>
<td>544</td>
<td>500</td>
<td>1,044</td>
<td>200</td>
</tr>
<tr>
<td>Lighting upgrade projects (117 projects): 2008 only</td>
<td>15,893</td>
<td>---</td>
<td>15,893</td>
<td>557</td>
</tr>
<tr>
<td>Lighting upgrade projects (22,683 fixtures): 2009 only</td>
<td>---</td>
<td>17,994</td>
<td>17,994</td>
<td>3,441</td>
</tr>
</tbody>
</table>

**Totals:** n/a  n/a  17,106,889  3,268,433
Transparency
Differences in Philosophies from Transportation Companies

**UPS**
(Letter from CEO excerpt – 2009 UPS Corporate Sustainability Report)

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**TRANSPARENCY**

As in previous years, we continue our pledge to be as transparent as possible about our environmental impact and to quantify how our efficiency conservation initiatives are mitigating our fuel use and emissions. Our industry-leading practices in 2009 were recognized by the Disclosure Project, who added us to their Leadership Index. We are the only global transportation company on that Index.

We continue to challenge ourselves and our industry peers to offer more comprehensive carbon reporting so that shippers can more accurately report the environmental performance of their supply chains and to do so using globally accepted reporting standards.

**LOOKING AHEAD**

We believe that 2010 will be the turning point for overcoming the challenges of recession. Yet, our work on our competitive advantages remains consistent as we "Deliver the World."

D. Scott Davis
Chairman and CEO
July 26, 2010

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- Report every yr since 2003
- GRI every yr
- 3rd party Assured –GRI check
- Comprehensive Scope 3
- Published airline inventory
- Two 3rd party stamps validated product
Approach to Carbon Quantification in 2009

- Developed a “Carbon Driven” process map in 2009
  - Create structure of GHG emissions (Bus unit, asset category, asset group)
  - Match to Inventory Mgmt Plan (IMP)
  - Match to Sustainability Performance Mgmt software
If you don’t have a comprehensive GHG & scope 3 picture from your transportation provider, you don’t know the true climate impact.
Where we are Headed
The World Business Council for Sustainable Development (WBCSD) is a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development.

The Council provides a platform for companies to explore sustainable development, share knowledge, experiences and best practices, and to advocate business positions on these issues in a variety of forums, working with governments, non-governmental and intergovernmental organizations.

Members are drawn from more than 30 countries and 20 major industrial sectors. The Council also benefits from a global network of some 60 national and regional business councils and regional partners.

The Council’s objectives are to:
- Be a leading business advocate on sustainable development;
- Participate in policy development to create the right framework conditions for business to make an effective contribution to sustainable human progress;
- Develop and promote the business case for sustainable development;
- Demonstrate the business contribution to sustainable development solutions and share leading edge practices among members;
- Contribute to a sustainable future for developing nations and nations in transition.

In order to achieve this, the Council focuses on four key areas:
- Energy and Climate
- Development
- The Business Role
- Ecosystems

Source: http://www.wbcsd.org
## Climate Change: Implementing LOCOG’s carbon management strategy

<table>
<thead>
<tr>
<th>Strategy to minimize carbon emissions</th>
<th>LOCOG strategies</th>
<th>UPS strategies</th>
</tr>
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</table>
| **Avoid/Eliminate**                  | Design out emissions at source | • To use the most climate-friendly transport modes achievable, consistent with operational requirements  
• To use proprietary routing technology to optimize delivery mapping |
| **Reduce**                           | Increase resource efficiency in energy use, transport and work practices | • To employ telematics to increase efficiency and reduce idling time |
| **Substitute/Replace**               | Measures to introduce renewables/lower carbon technologies both on site or through transport | • To explore opportunities to reduce the climate impact of vehicles used  
• To seek to minimise the climate impact from warehousing operations |
| **Compensate**                       | Measures to deal with residual or unavoidable emissions | • To use UPS’s advanced data engineering capabilities to ensure that the remaining carbon generated is measured and considered for mitigation |
Our Forward Looking View of Biofuels - Essential Components of Implementation

1. **Environmentally responsible** (if take down a rain forest to make a palm grove - not good, grow feedstock for fuel supply instead of food – not good, etc)

2. **Meets the relevant standards** and can run in readily/currently available engine technology

3. **Works in real world applications** with seasonal conditions

4. **Is economically viable & available in the fuel supply chain**

5. At the end **of the day**, is actually at **least equal or hopefully lower carbon fuel**
   - From a **life cycle perspective including land use**
   - **BTU’s matter**, have to take a total view of the energy capability of the fuel

6. Use of these fuels **should be recognized & rewarded**
UPS’s Carbon Neutral Service

*UPS calculates carbon emissions for all carbon neutral shipments, then purchases and retires offsets equaling that amount*

- October 2009: Launched within US
- July 2010: Expansion to 36 countries
- A nominal fee covers the offset cost plus carbon calculation
- UPS purchases only certified offsets that fund projects with positive climate impact
- UPS will match offsets up to $1 million through 2010
- UPS’s offset purchase process was certified by The CarbonNeutral Company; UPS calculator was verified by SGS
- Carbon neutral comes in two forms: Transactional (GSO) and Contractual
- Detailed information about UPS carbon neutral services is available at [www.ups.com/carbonneutral](http://www.ups.com/carbonneutral)
How you get Accurate Carbon Impact Calculations
And why can UPS do it more Accurately than a 3rd Party

1. Starts with an accurate company inventory
   (otherwise you miss a significant portion of the carbon spent to move the product)

2. Needs to include scope 1, 2 & 3

3. Has to use company specific factoring for each mode of transport to be accurate

4. The actual true-up calculation needs to be done with company inventory from the same year as the shipment occurred
Introducing the green side of packaging

UPS customers can demonstrate to their customers that they are concerned about packaging waste and sustainability.

We evaluate sustainability of transportation packaging on 3 criteria:

- Packaging materials
- Cube optimization (product-to-package ratio)
- Damage prevention

Passing score on all three criteria required to become participant and use UPS program logo on packages.

- To maintain integrity, company must recertify annually
- Package testing fee and licensing fee for use of stamp

XYZ Supply meets UPS’s Eco Responsible Packaging Program criteria. Details at ups.com/ecoresponsible
Decision Green™ Portfolio

Environmentally Centered
- Carbon Emissions Analysis (calculator)
- Carbon Neutral Shipping
- Eco Responsible Packaging Program
- Green Consulting

“Responsible Choices”/ Can achieve environmental improvement
- Package design services
- Supply Chain optimization
- Smart Pickup
- Reverse logistics
- Green Box
- Electronic billing and Paperless invoice
- Reusable envelope
Taking the Lead in London
Sustainable Logistics for the London 2012 Games

www.ups.com/sustainability