



# Inside the Box

How Green Buildings and operations are transforming  
the supply chain to

**CSCMP and**

**The Supply Chain & Logistics Institute at GA Tech**

By Janet Flores, SVP of Sales

NFI Supply Chain

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# Buying New for Green Initiatives

- Environmentally certified Leadership in Energy and Environmental Design (LEED) buildings
- Elements incorporated into new commercial buildings include:
  - Solar panels
  - Geothermal heating and cooling
  - Wind turbines
  - High-reflectance roof membranes (absorb less heat)
- Companies/areas with green buildings
  - **FedEx Express**, West Coast hub solar installation meets 80% of peak energy demand (enough to power 900 homes during the day)
  - **Hanes brands/NFI**, Perris, CA – partnership operates the largest LEED certified (1.3 msf distribution center) building in Southern California.
  - **Porche**, Ontario, CA - first U.S. 80 kW solar power array
  - **IDEC**, Osaka, Japan - new facility lit entirely by LED lighting, reducing emissions by 40% when compared to fluorescent!



# “Greening” an existing building

- Electric forklifts
  - **Procter & Gamble’s** new DC in Amiens, France uses forklifts with AC regenerative motors, improving efficiency by up to 30%
  - **CVS Caremark** uses electric forklifts in its DCs
- Plastic pallets – 100% recyclable, 20-27 lbs lighter
- Motion sensor lighting and water systems
- Motor-driven roller (MDR) conveyors power down when not in use, saving energy costs and wear and tear
- Florescent lighting
  - T8 florescent fixtures can produce the same or greater light output as metal vapor or halide lighting with 2/3 less power
- Daylighting
- Paperless warehouses



# Green Buildings & Daylighting





# “Greening” Operations

- Green/electric/hybrid/NG vehicles
  - **UPS** uses 1,629 alternative fuel vehicles in its worldwide fleet
  - “Green” fuels like ethanol and bio-diesel have fallen out of the spotlight since diesel’s dramatic price decline.
- Nitrogen tire inflation
- Altering delivery schedules or routing to maximize vehicle positioning saves fuel costs from deadhead miles and dock idling.
- LA/LB Clean truck program Clean truck fees began Feb. 18, 2009.
  - Pre-1989 trucks were banned from the harbor on Oct. 1, 2008.
  - Pre-1994 trucks and retrofit pre-2004 trucks by the end of 2009.
- **DHL** plans to expand its “Go Green” program for low-carbon and carbon-neutral shipments. DHL offsets the carbon emissions of package transported via “Go Green” with internal and externally-generated carbon credits.



# Truck modifications

Side skirts and cab extenders improve the aerodynamics of the truck, therefore reducing drag and improving fuel efficiency.



Super-single tires replace traditional two tire arrangements in tractor trailers. The design allows for less rolling resistance.

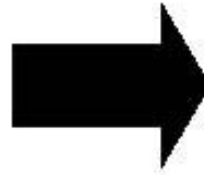


# What are shippers doing?

- Changes in Packaging
  - Focus on cubic size of cartons (for new parcel pricing) spilling over to airfreight, LTL and TL shipments.
  - Recycled paper for branded packaging. (**UPS** envelopes)
- **Wal-Mart's** 2005 packaging initiative saved 3,425 tons of corrugated materials, 1,358 barrels of oil, 5,190 trees & 727 shipping containers.
- **Wal-Mart** sells only concentrated detergent, which saves packaging and transportation costs, but also conserves water.
- Smart Way Shipper partners must ship at least 50% with Smart Way Transport carriers using a combination of truck and rail.
  - Some shippers only transport w/ Smart Way partners. (**HP**)
- **Subway's** supply chain redesign saved 9 million truck miles, 1.6 million gallons of diesel, and almost 17,000 shipments per year since 2006.
- Doing Business Abroad? European Union recycling and greenhouse gas reduction targets
  - 55-80% by weight of packaging waste to be recycled.
  - 20% reduction (from 1990 levels) in GHGs by 2020.



# Then and WOW!





# Modal Shifting

- The U.S. Environmental Protection Agency (EPA) estimates that for every ton-mile, a typical truck emits roughly three times more nitrogen oxides and particulates than a locomotive.
- Modal shifting of truckload and LTL movements to rail intermodal has been facilitated by service improvements on rail lines.
- LTL tonnage is growing faster than shipment counts, suggesting consolidation of shipments for cost reasons. Such consolidation also conserves fuel.
- Air transportation is the most fuel *inefficient* mode.
  - 20% of domestic cargo volumes on passenger airlines travel <500 mi and are susceptible to substitution by time-definite ground products.
- **FedEx** Smart Post minimizes multiple stops to the same address by delivering to the post office and allowing post office routes to complete the last mile, saving fuel by reducing redundancy.



## A different kind of green – bottom line impact

- OOIDA estimates that idling at the dock and empty miles cost a combined \$5.7 billion annually.
- A 2008 Study on “Green ROI” showed that LEED and Energy Star-certified warehouse space commanded rent premiums and had higher occupancy rates. However, the current economic environment has reduced popularity due to cost.
- Wal-Mart’s aforementioned packaging initiative saved \$3.5 million in transportation costs in one year.
- Government incentives
  - Some states offer rebates or tax incentives that could reduce initial expense of solar power implementation.
  - Tax Deductions
    - up to **\$1.80 per square foot** commercial buildings that save at least 50% of the heating and cooling energy.
    - Partial deductions of up to **\$.60 per square foot** can be taken for measures affecting building envelope, lighting, or heating and cooling systems.

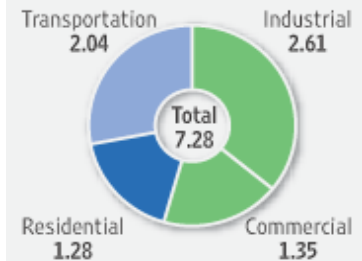


# Green from the Government

- The Recovery Act provides \$300 million for grants and loans to help with projects that reduce diesel emissions.
  - exhaust controls
  - engine upgrades
  - cleaner fuel use
  - idle reduction technologies
  - aerodynamic technologies
  - low rolling resistance tires
  - engine repowers
  - vehicle or equipment replacement
- The American Recovery and Reinvestment Act has allotted \$16.8 billion for The Office of Energy Efficiency and Renewable Energy. (DOE)
- Friday's EPA finding opens the door for cap-and-trade and other regulation of greenhouse gasses by the government.
- Potential implications include:
  - higher fuel efficiency standards for autos (CA – tailpipe emissions)
  - Require OEMs to produce more hybrid/electric vehicles
  - Mandate increased use of “clean” energy such as wind.

## Business Challenge

U.S. greenhouse-gas emissions in 2007 by sector; in billions of metric tons of CO<sub>2</sub> equivalent



Source: Energy Information Administration



# Opportunities

- Companies still print and send paper copies of annual reports to stakeholders when they are available online, creating waste and incurring unnecessary expenses from both transportation and printing.
- Capgemini survey reports that **48%** of 3PL users believe 3PLs could provide consulting services with respect to “green operations” but only **8%** provide such services, showing an area of opportunity.
- The Obama Administration has emphasized the importance of sustainable development. Early adopters of technology will preempt government mandated adoption later.



# Thank You!

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