



Delivering “Green”:

Case Studies in Carbon-Efficient Logistics

Host

Dr. Edgar Blanco – MIT CTL

Invited Speakers

Jason Mathers – EDF

Ross Corthell – Boise

Zena Onstott – Caterpillar

Kristine Young – Ocean Spray

April 17, 2013

Case Studies in Carbon-Efficient Logistics

Moderator: Edgar Blanco (MIT)

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Jason Mathers

Transportation & logistics matters...

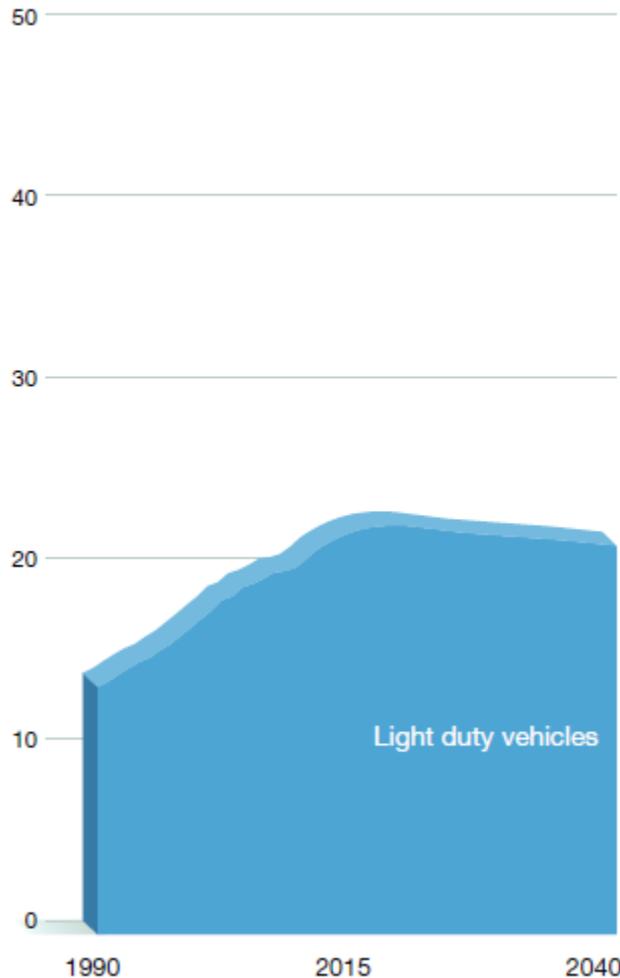
What EDF does in the logistics space

- We partner with corporations to help set and achieve measurable targets for sustainability in logistics operations.
 - We gather and share information about what works.
 - Are you doing something innovative with your logistics network? Are you facing logistics challenges?
We want to tell your story.
- 

Freight Driving Future Emissions

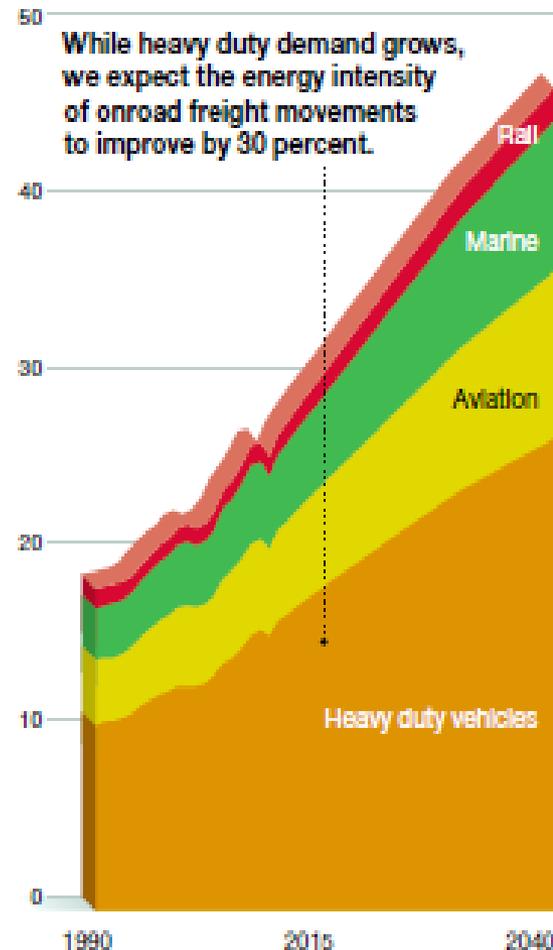
Personal transportation demand

Millions of oil-equivalent barrels per day



Commercial transportation demand

Millions of oil-equivalent barrels per day



Five Rules for Cleaner Freight

1. Improve the Hot-Spots your cargo moves through.
 2. Choose the most carbon-efficient mode possible.
 3. Collaborate with other shippers.
 4. Get the most out of each move.
 5. Redesign your own network for efficiency.
- 



Ross Corthell

Leveraging Rail Direct Service

About Boise

- Wide variety of paper & packaging products
- \$2.56 billion in annual sales (2012)

★ Headquarters

Boise, ID (Boise Inc.);
Buffalo Grove, IL (Hexacomb);
San Lorenzo, CA (Tharco)

● Paper Manufacturing

Jackson, AL; International Falls, MN; St. Helens, OR;
Wallula, WA

▲ Paper Distribution

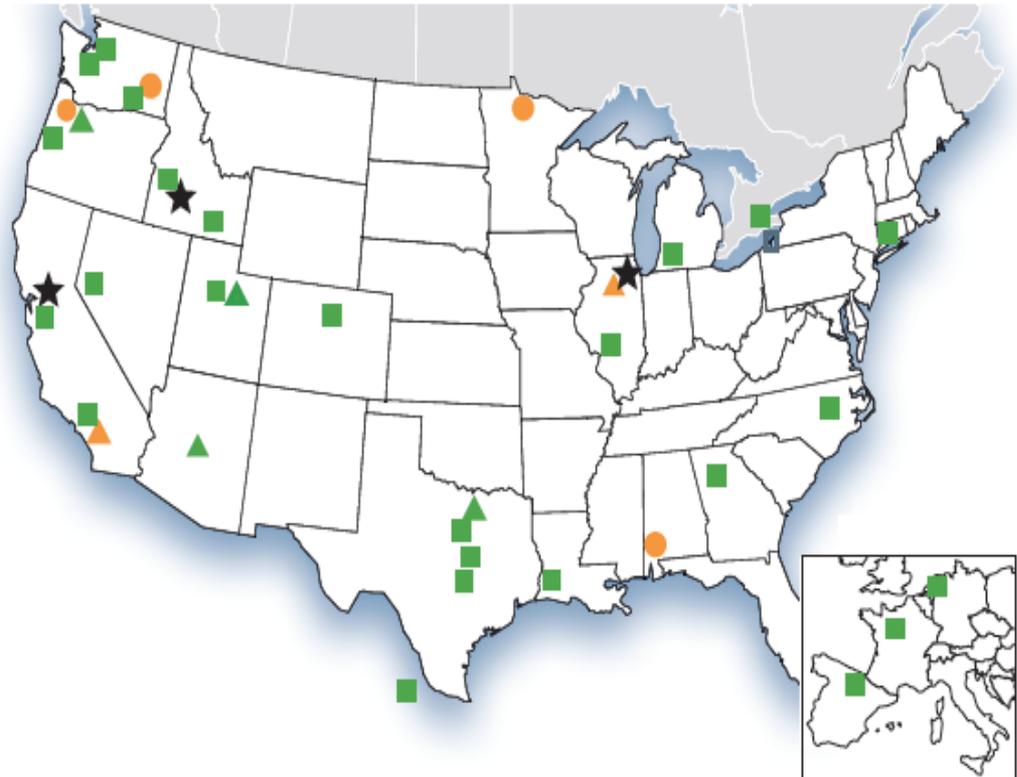
Pico Rivera, CA; Bensenville, IL

■ Packaging

San Lorenzo/Fairfield, CA; Santa Fe Springs, CA (2);
Denver, CO; North Haven, CT; Atlanta, GA; Burley, ID;
Nampa, ID; Trenton, IL; DeRidder, LA; Kalamazoo, MI;
Sparks, NV; Farmville, NC; Salem, OR; Arlington, TX;
Austin, TX; Waco, TX; Salt Lake City, UT; Auburn, WA;
Seattle, WA; Wallula, WA; Tillsonburg, Ontario, Canada;
Amboise, France; Monterrey, Mexico; Ermelo, Netherlands;
Aoiz, Spain

▲ Packaging Distribution/ Warehouses

Phoenix, AZ; Portland, OR; Dallas, TX;
Salt Lake City, UT



Carload Direct

- Collaboration with Office Max
- 256 rail shipments
- 70% CO₂ reduction by avoiding truck load shipments



Three-tier Pallet

- Better utilization of boxcars (8% more...)
- Adjustment of product ordering process to clients
- Difficult estimation of CO₂ savings
 - 6.8% long-term CO₂ savings





Zena Onstott

Light-weighting and Inbound
Consolidation

About Caterpillar Global Mining Division

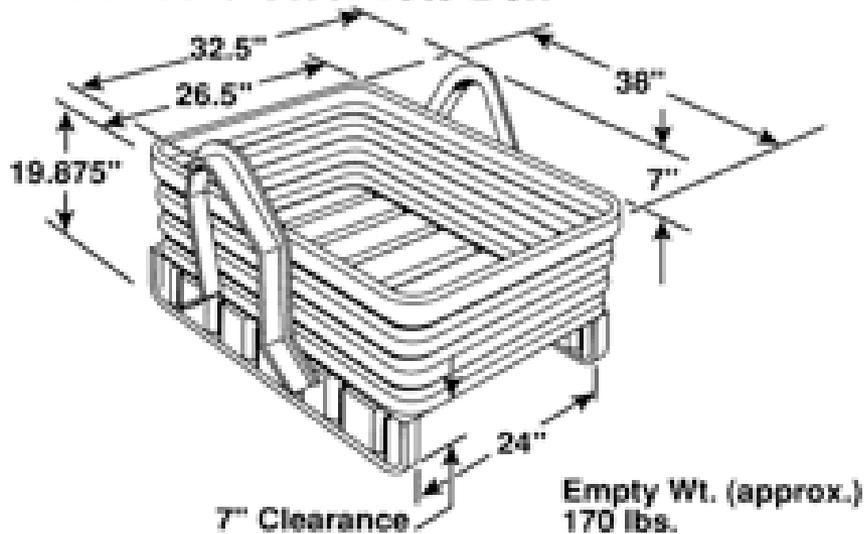
- Specialized trucks for mining industry
- Manufactured in Decatur, Illinois
 - Thousands of parts from all over the US



Light-weighting of steel containers

Half Standard Steel Tote Box

PE-8213-1



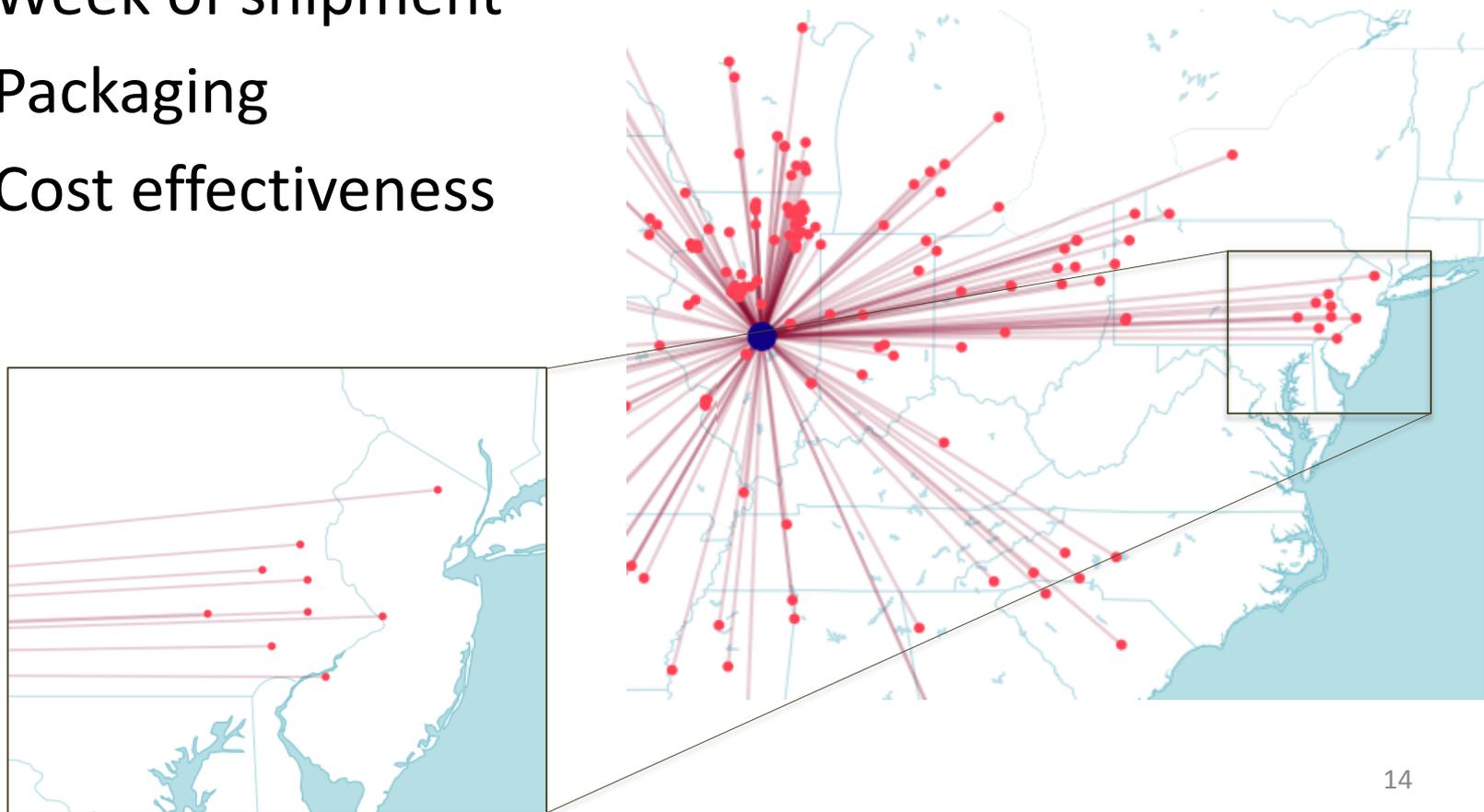
ORBIS[®]



**16.5% of CO₂ reduction
from fuel savings**

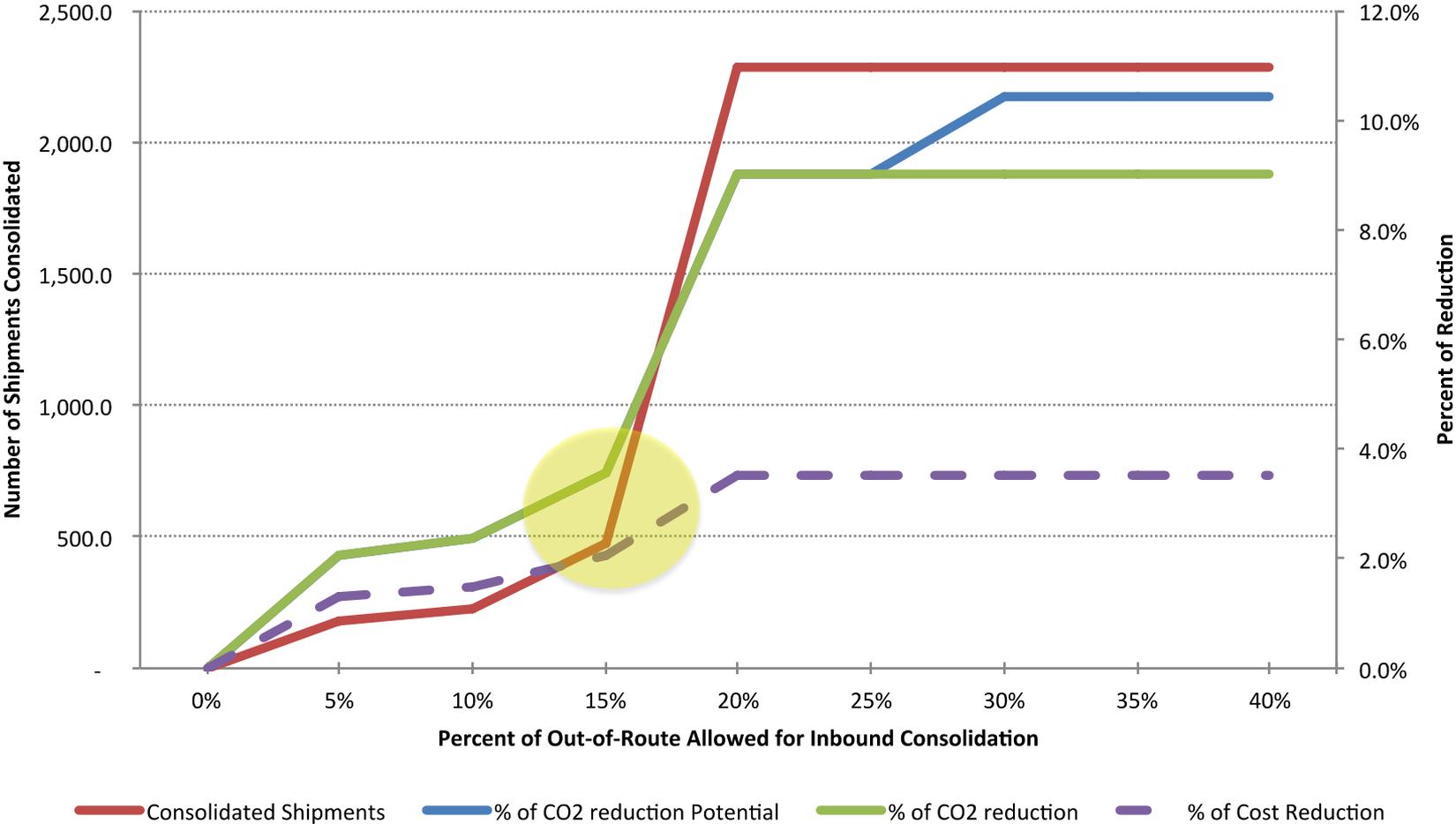
Inbound Shipment Supplier Consolidation

- Operational constraints
 - Week of shipment
 - Packaging
 - Cost effectiveness



Sensitivity of CO₂ reduction potential

Sensitivity to Out-of-Route Consolidation





Kristine Young

Leveraging Distribution
Network Redesign



Supply Chain Sustainability



- Reduction Goals in *direct operations*:
 - 25% reduction in non-renewable energy usage by 2015
 - 25% reduction in carbon emissions by 2015
- Supply Chain View at Ocean Spray
 - Carbon emission reductions = Cost Savings





Carbon Efficiency Initiatives



SHIFTING TO RAIL

Intermodal Backhaul
Fruit Co. + CSX + 3PL

40% cost
Savings

65% CO₂
Savings

External
Collaboration

NETWORK REDESIGN

Reduced Miles
Florida DC

15% cost
Savings

18% CO₂
Savings

Internal
Project



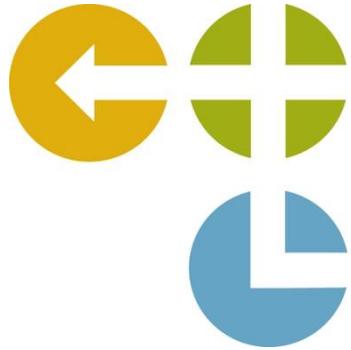
Sustainability in Our Supply Chain



...from learning to action...



- **Integrated Internal Reporting**
 - Tracking our carbon emissions in monthly supply chain scorecard
- **Shift to Rail Opportunity**
 - Reduction of truck transportation
 - 14,000 tons of CO2 savings per year
 - Tool to aid future logistics decisions



MIT Center for
Transportation & Logistics

Edgar E Blanco

Delivering Green Re-Cap...

The “Carbon-Efficiency” Math

$$$$$ = D \times W \times \text{Rate}$$

$$\text{CO}_2 = D \times W \times \text{EF}$$

$$\downarrow \text{Rate} \approx \downarrow \text{EF}$$

Case Study Learnings

- The math works...
 - Cost is correlated to CO₂
 - Data transparency
- Operational focus & coordination
 - Make each “move” counts
 - Modal variety
 - Internal collaboration
 - Metrics & scorecards
 - New partners

Q&A Case Studies in Carbon-Efficient Logistics

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Speakers: Jason Mathers (EDF)



Ross Corthell (Boise)



Zena Onstott (Caterpillar)



Kristine Young (Ocean Spray)



Thanks!

To obtain a copy of the case studies and other MIT CTL publications go to:

<http://ctl.mit.edu/pubs>

(filter by author: Edgar Blanco)