Intermodal for Shippers

A Glance at Clean Freight Strategies

CASE STUDY: KIMBERLY-CLARK, SMARTWAY PARTNER

Kimberly-Clark

Since 2006, Kimberly-Clark:

Expanded intermodal utilization by 120 percent

- **42,000 loads in 2006 to 95,500 in 2013**
- **49 million miles to 120 million miles**

This intermodal utilization has resulted in:

560,000 trucks off the highways

- **Saved 62 million gallons of diesel**
- **Reduced CO_2 by 630,000 metric tons**
- **Saved $355 Million**

Intermodal shipping combines the efficiency of rail and barge with the flexibility of trucking. For shippers, using multiple modes can dramatically reduce emissions while lowering transportation costs.

WHAT IS THE CHALLENGE?

Shippers face rising transportation costs, demand for quick product turnaround and delivery, and pressure to improve the sustainability of their supply chain. These challenges are exacerbated by the long distances and travel times involved in moving supplies and delivering products to market.

One strategy that can address this challenge is to use a mix of modes in lieu of moving all of your goods over the road, and choosing a combination that meets your needs for service, cost, transit times, and sustainability.

Domestic ground intermodal traffic in North America is growing[1] for a variety of reasons:

- Shippers are concerned about the effects of fuel prices and driver shortages on truckload capacity.
- The number of domestic intermodal containers has increased **75 percent** in the last **10 years**, meaning intermodal services are better equipped to absorb growth and seasonal surges[2].
- Shippers are recognizing intermodal service improvements and network enhancements, particularly on lanes that are traditionally considered regional truckload hauls (500 to 1,500 miles). Service agreements with the country's largest truckload carriers have opened dozens of new lanes or "corridors" running shorter and shorter lengths of haul[3].

Rail and barge shipping also create significant opportunities for carbon reduction in the supply chain. An intermodal train can haul the equivalent of approximately **280 truckloads of freight**[4], with each ton traveling an average of **473 miles on one gallon of fuel**[5]. The relative energy efficiency of rail is estimated at **1.5 to five times** that of trucking[6] and the ratio for greenhouse gas (GHG) emissions is similar. Class I railway operations on average emit about **22 grams of CO_2 per ton-mile** compared to truck operations which emit approximately **65 grams per ton-mile**[7]. Similarly an inland barge can transport a ton of freight approximately **576 miles on a gallon of fuel,** corresponding to about **18 grams of CO_2 per ton-mile**[8]. Therefore, depending upon the additional truck drayage required, rail and barge modes can offer substantial CO_2 efficiency improvements relative to over the road freight.

WHAT IS THE SOLUTION?

Educate yourself about the cost advantages, services, and environmental benefits involved with a shift from all trucks to intermodal. For example, the International Association of North America **(IANA)** is a trade association that represents the interests of the intermodal freight industry and provides information on intermodal transportation and shipping[9]. For some shipments, using rail corridors for domestic long hauls and trucks for the "final mile" offers the best payoff, but other combinations of modes (including barge services) may be better suited to your supply chain. Many logistics services and software providers offer planning tools that can help identify what works best for different shipping scenarios.

Consult with intermodal brokers to determine if a combination of transportation modes is cost-effective and appropriate for shipments based on distance, delivery time, and the type of freight you move.

(continued)

COSTS

In general, there are no capital expenditures associated with using intermodal services; however, there are costs based on fees charged by intermodal brokers.

There can also be costs associated with scheduling. The inability to confidently schedule modal transfers often leads to one of two outcomes[10]:

- If precise transfer schedules are maintained, many intermodal transfers are missed, affecting operations further down the logistics chain.
- Intermodal schedules have built-in slack time to account for unreliable travel times. While this can prevent intermodal connections from being missed, it introduces inefficiencies in the process and drives up total costs for both shippers and carriers.

SAVINGS AND BENEFITS

A shift from trucks to truck-rail intermodal can lower your carbon footprint and reduce your supply chain costs. For example:

- **Reduced emissions:** Baxter International increased the share of U.S. shipments using intermodal transport from **24 percent** in 2009 to **27 percent** in 2011. Its **7,800** intermodal shipments in 2011 resulted in an annual reduction of **19,860 metric tons** of GHG emissions and saved more than **1.94 million U.S. gallons** of fuel [11].
- **Savings in the supply chain:** By expanding the number of intermodal shipments from **42,000** loads in 2006 to **95,500** in 2013, a **120 percent** increase, Kimberly-Clark estimates savings of **$355 million** in transportation costs and **630,000 metric tons** of GHG emissions [12].

Constellation Brands, a publicly-traded drinks company with brands in wine, beer, and spirits historically relied on rail for its long-haul shipping of wines and spirits but was unable to include "rush shipments" by this mode until recently. With the addition of "expedited intermodal" service, the company is able to rely on rail even for rush shipments, with product arriving at the destination nearly as quickly as by truck at substantially reduced prices of **20-25 percent** savings for expedited intermodal. The company estimates **40-50 percent** savings for non-expedited intermodal transport relative to trucks[13].

According to EDF's Green Freight report, Michael Kors, a leading fashion designer of high-end handbags switched from air freight to ocean freight, taking advantage of a single-source option that handled shipments that do not entirely fill a cargo container (less than container load "LCL"). Historically, partial containers added significant transit time due to required resorting of goods upon arrival at the port. However, the specialized intermodal single-source option improved ocean-only transit time by **30 percent** and saved **$20 per handbag** while reducing carbon emissions compared to air freight[14].

- **Verified emissions data:** Shifting from trucks to intermodal can have a positive effect on your carbon footprint but it's important to measure the impact. Seek out reliable methods for calculating emissions before you shift from truckload to intermodal[15].

For example, SmartWay's *Driving Data Integrity in Transportation Supply Chains* document presents data quality assurance best practices and strategies to help SmartWay Partners in their own efforts to collect, manage, and assure the quality of their SmartWay-related data[16]. While this document is geared towards SmartWay Partners, shippers that are not program Partners can certainly benefit from the best practices and strategies listed.

NEXT STEPS

1. Ask your current carriers if they offer intermodal services. Many provide these services through a separate subsidiary. If not, consult with independent intermodal brokers about their offerings.
2. Perform an audit of their current costs for each shipment route in preparation for Step 3 below. This audit process can help you better understand the carbon footprint of the supply chain and how it may be reduced.
3. With your intermodal partner, perform "what-if" scenarios using planning tool software based on several combinations of transportation modes, balancing cost savings and delivery time.

Please visit the SmartWay website at www.epa.gov/smartway to access more tech bulletins.

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