Reducing Emissions from Freight Transportation the 'SmartWay'

An overview of the SmartWay Transport Partnership, considered by many to be the gold standard of freight carbon accounting.
Freight, including recycled and managed waste goods, is vitally important to our economy. Annually, we move about $18 trillion dollars’ worth of goods in the United States (i.e., 63 tons per person, per year). Although critical for economic robustness, freight activity contributes to air pollution and greenhouse gas emissions. Trucking accounts for the majority of freight-based greenhouse gas emissions in the United States and elsewhere. In keeping pace with growing economies and population, freight-related carbon dioxide emissions across global regions is projected to grow by 300 percent or higher by 2050.

Greenhouse Gas and Fuel Efficiency Standards
The United States leads the world in health-based motor vehicle standards. In 2011, the United States finalized first-ever greenhouse gas and fuel efficiency standards for freight trucks. In August 2016, the United States adopted Phase 2 standards, including first-time requirements for new freight trailers. The Phase 2 standards are cost effective for consumers and businesses, delivering favorable payback periods for truck owners.

While regulations ensure cleaner, more efficient new vehicles, millions of older freight trucks remain in use. Even as new standards phase in, this legacy fleet will continue emitting high levels of greenhouse gases and other harmful air pollutants. For this reason—and because the vehicle is just one aspect of our overall supply chain—there is an urgent need for continuing innovation and collaboration on sustainable freight solutions.

The SmartWay Transport Partnership
SmartWay is a voluntary market-based program, started by the U.S. Environmental Protection Agency (EPA) and 15 “Charter Partners” in 2004, when the concept of sustainable goods movement was just emerging. Together, EPA and this handful of industry leaders formed a vision to improve environmental efficiency in transportation supply chains, while supporting economic growth.

Today, over 3,000 companies are SmartWay-registered. SmartWay’s approach to emissions assessment and reporting is widely accepted, and described by academic institutions such as M.I.T. as the gold standard of freight carbon accounting.

SmartWay catalyzes progress in fuel efficiency and emissions. By listening and working closely with business and environmental communities, SmartWay developed a portfolio of toolkits and information resources to help partners address and improve environmental performance and fuel efficiency in their supply chains.

Supply Chain Complexity and the Need for Collaboration
As transportation emerges as a significant contributor to global carbon, values-oriented consumers and investors have exerted growing influence on the market, to report and reduce carbon. Corporations are becoming more attuned to sustainability reporting, including scope 3 emissions covering freight transportation, as a normal part of business risk and governance.

However, assessing freight’s environmental impact is challenging, because freight is so complex. Countless procurement, production, distribution, delivery, and disposal (or re-use) supply chains transport an ever-growing flow of goods and materials—each managed by armies of producers, suppliers, refiners, assemblers, distributors, and retailers. As businesses strive to improve sustainability, it is critical to provide tools to help assess, coordinate, and optimize across supply chain networks.

SmartWay brings together key supply chain entities to exchange data on carbon and emissions from freight supply chains. Partners include carriers (e.g., truck, rail, barge, air, or multi-modal), shippers (e.g., retailers, manufacturers, distributors, cargo owners), and logistics firms (e.g., third- or fourth-party logistics providers—3PL or 4PL). SmartWay also has affiliates, that is, professional, trade, and public interest groups that promote program goals and educate members and stakeholders (see Figure 1).

Modal-Only Approaches versus Carrier-Specific Data
Despite the business merits of improved efficiency and reporting, companies that hire freight services find it difficult to obtain uniform data from the hundreds of carriers or logistics firms that provide these services. Similarly, carriers may be overwhelmed by multiple shipper requests. As a result, some shippers resort to using modal defaults (i.e., a generic truck factor) to calculate their freight carbon footprints. This approach—while a good start—has limited value in helping companies make the kind of informed decisions that actually improve their carbon footprint.

Carrier-specific data are critical where they’re needed to drive decisions and outcomes. Trucks carry the largest share of freight for all deliveries of up to 750 miles—and trucking is highly competitive. For many cargo routes, shippers and 3PLs can select from among hundreds of truck carriers. Since trucking fleets vary widely in environmental performance, shippers must be able to identify trucking fleets based on carrier-specific performance data in order to effectively manage their scope 3 carbon footprints.
Similarly, without carrier-specific metrics, trucking fleets lack external market pressure to improve environmental performance; they cannot benchmark against the competition or demonstrate improvement. Of course, shippers could request more detailed information from each of their carriers. Competing carriers could agree to share detailed information with each other. However, the information would be inconsistent and difficult to validate. When environmental performance can’t be effectively factored into decision-making (i.e., imperfect information), the result is market failure, and we end up with a freight system not optimized for positive environmental outcomes.

**SmartWay Environmental Data Exchange Framework**

To address this market failure, SmartWay developed a framework to facilitate transparent and uniform exchanges of environmental data to inform the marketplace. SmartWay’s assessment tools use a common platform and consistent metrics and methodologies. SmartWay partners use these tools to characterize emissions profiles.

SmartWay collects operational information (e.g., fuel used, miles travelled, cargo weight, vehicle model year, etc.) from trucking, rail, logistics, barge, air, and multimodal companies. The information is used to calculate performance data for
The SmartWay Transport Partnership

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emissions of carbon dioxide, nitrogen oxides, and particulate matter, expressed as grams per mile and grams per ton-mile. For most shippers, the gram per ton-mile method is appropriate, as it normalizes for cargo weight. However, shippers of predominantly lightweight cargo may find the gram per mile method more useful.

SmartWay conducts multiple quality checks to ensure data integrity. These include comparing data to an expected range of values in the tools and database. Additionally, each report is individually reviewed. SmartWay also performs macro analyses to identify and correct outliers and determine industry trends, averages, and expected data ranges. SmartWay publishes information and guidelines to help companies provide accurate data and to understand performance results, so they can use this business intelligence to manage and improve environmental outcomes.

Since SmartWay tools incorporate peer-reviewed methodologies and data subject to rigorous scientific review, businesses can trust the results. SmartWay also compares partner results to national results, using EPA emissions models. This step avoids any duplication of reported carbon reductions, with a certainty unmatched by other carbon protocols or assessment tools.

Using SmartWay Tools for Business Analytics

SmartWay collects carrier information at the fleet level—the most discrete level at which shippers hire carriers, and thus, the most effective level for decision-making. SmartWay further characterizes fleets by operational and equipment type (e.g., truckload dry van, refrigerated, tanker, and flatbed). So, rather than a generic truck factor, shippers can look at a specific refrigerated truck carrier compared to other refrigerated truck carriers. This allows companies greater transparency into their own freight operations. With this business intelligence, shippers can custom-fit carriers with each shipping need, to optimize freight performance.

SmartWay also enables carriers to see how they compare to industry peers within their market segment. Efficiency is a surrogate for economic performance, so this is valuable business intelligence for carriers. Ranking poorly against one’s peers is a sign of lagging competitiveness. It signals that improvement is needed to protect market share and profits, or even stay in business.

In determining the type, amount, and detail of data information reported, SmartWay balances the need for information with the ability and willingness of companies to provide it. SmartWay’s data level allows for informed decision-making, while not overburdening companies. Although it is possible to drill down to finer degrees of detail, it would be counterproductive to impose data collection requirements beyond the capabilities of participants’ systems and resources, especially for a voluntary program. At some point, the burden would become too great, participation would lapse, and the program would fail to achieve its environmental aims. By focusing on the needs of businesses to have actionable information, SmartWay has identified the optimal balance of data reporting and accuracy versus reporting burden.

Knowledge Transfer and Thought Leadership

SmartWay provides multiple forums for businesses to share knowledge and information on improving efficiency and environmental performance. For example, SmartWay works with manufacturers and suppliers to test and verify technologies, spurring technical innovation. In addition, SmartWay coordinates with EPA’s National Clean Diesel Program on projects to upgrade or replace older diesel vehicles, expanding access to cleaner, more efficient equipment. SmartWay also encourages partners with communication and recognition opportunities. These include partner case studies and profiles; partner stories in articles, reports, presentations; the SmartWay e-update; webinars; and annual SmartWay Excellence Awards. The SmartWay website (http://www.epa.gov/smartway) provides a wealth of information on program offerings and resources to assist partners to improve environmental performance. And, SmartWay serves as a role model for other green freight programs globally.

Looking Forward

Today, both U.S. and Canadian businesses participate in SmartWay. During the 2016 North American Leaders’ Summit, Presidents Obama and Peña Nieto, along with
Prime Minister Trudeau, announced plans to expand SmartWay across North America. There is strong demand from Asia, South America, and Europe. EPA encourages and supports global green freight efforts where possible, and is working to align SmartWay reporting with other global carbon reporting systems.

To encourage more small businesses, SmartWay recently launched a new option allowing shippers to engage gradually, prior to becoming partners, and is working on a mobile reporting platform for small carriers. SmartWay covers all freight modes except ocean vessel, and is exploring options with Business for Social Responsibility’s Clean Cargo Working Group to integrate their container vessel emission factors into SmartWay, and on approaches for other ocean vessel categories.

SmartWay evaluates its direction, scope, and performance through stakeholder feedback. Comments are welcome in the partner tools and portal; via the SmartWay helpline and website; at public forums, including webinars, meetings, and conferences; and in consultations with partner account managers. Each year, SmartWay reviews this input and optimizes its tools, systems, processes, and outreach based upon that information.

In its commitment to partners and stakeholders, SmartWay helps set the pace for industry progress and advances SmartWay partner accomplishments. Their leadership and environmental achievements contribute to healthier air, save fuel and money, and help protect our planet from climate change.

Learn more:
• Clean Cargo Working Group, 2016. See https://www.bsr.org/collaboration/groups/clean-cargo-working-group.
• SmartWay. See https://www.epa.gov/smartway.
• SmartWay Transport Partnership: Driving Data Integrity in Transportation Supply Chains; EPA-420-B-13-005; U.S. Environmental Protection Agency, 2013.

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