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WHITEPAPER

THE SCOPE 3 CHALLENGE: UNDERSTANDING TRANSPORTATION EMISSIONS FRAMEWORKS

by...

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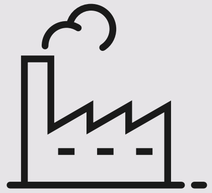
Companies pursuing Net Zero or ambitious emission reduction targets face a significant hurdle: understanding and calculating Scope 3 emissions. These emissions extend beyond a company's direct operations and purchased energy, encompassing the broader value chain. But even companies without current reduction goals should take note. Regulations in the European Union and California are paving the way for mandatory Scope 3 reporting, making a comprehensive understanding increasingly crucial.

Scope 3 emissions are defined as indirect emissions incurred across the supply chain and includes emissions from freight transportation. This process is relatively easy for modes like full truckload, where emissions can be derived from one truck’s fuel usage for a single load and a single trip. Other trucking services, such as less-than-truckload (LTL), utilize one or more trucks for separate trips for the pick-up, linehaul, and delivery, operating in a hub network where multiple shipments are comingled at company service centers then loaded on a trailer. When supply chains are complex, there may be multiple modes, consolidation, and other activities to get a shipment from origin to destination. Deriving an estimate of fuel usage for each point in the supply chain is difficult and depends on available data associated with the shipment.

There are several ways companies are trying to handle this complex calculation. Some shippers are deriving individual models, which can be complex and resource intensive. These individual models can produce significantly different results depending on which factors are considered. Industry frameworks from the Global Emissions Logistics Council (GLEC) and SmartWay are gaining traction. However, it's important to understand the unique strengths and limitations of each approach.

GLOBAL EMISSIONS LOGISTICS COUNCIL (GLEC)



The GLEC framework seeks to capture Greenhouse Gases (GHGs) across the entire transport chain. This holistic approach combines the GHG emissions from each transport activity. The value of this framework is the identification of high-emissions intensity across the transport. For the GLEC framework, the shipper is responsible for aggregating the emissions activity from each of the carriers in their supply chain.

The benefit of the GLEC framework is it makes the process of understanding emissions from transportation relatively complete. It accounts for multiple modes including emissions from buildings. One potential drawback is the limited insight offered into the underlying methodologies used by providers to calculate their emissions and allocate fuel for shared transportation. This blind spot can hinder a more comprehensive evaluation.

When providers cannot produce a GHG total, GLEC offers an average emissions intensity that can be multiplied by ton-miles. This will estimate emissions, but it won't reflect the difference in carriers. This makes it difficult to make informed choices to reduce carbon by using more sustainable providers.

EPA SMARTWAY

The EPA SmartWay program hosts a robust GHG dataset for a variety of transportation providers. SmartWay ranks carriers in aggregate based on estimated grams of CO_2 per ton-mile (g CO_2/tm). Using this carrier ranking, a shipper can compare providers across 15 different transportation elements of the supply chain. Other GHG emissions rankings are also estimated by SmartWay including NO_x (nitrous oxides) and PM2.5 (fine particulate matter). This "emissions factor" can be used to evaluate an element of their supply chain by multiplying this Emissions Factor by shipment weight and distance traveled.

The emissions factor produced by SmartWay is based on expert calculations and a large set of real-world data from freight carriers. SmartWay fosters greater transparency in supply chains by providing publicly accessible carbon emissions estimates for its partner carriers. Shippers can readily access this publicly available data, eliminating the need for direct coordination with carriers. However, the emissions factor published by SmartWay is a ranked category and does not reflect a carrier's actual carbon emissions estimates.

In addition, multiplying this average by ton-miles will not reflect the specific vehicle, shipment, route, or how much freight was on the truck. Because the emissions factor is an estimate based on a ranked category, this does not reflect the actual carbon emissions estimates of a carrier. This makes it difficult to compare carriers because the data may not account for variations in service or efficiency. It also fails to capture specific routing information, such as commingling on vehicles or changes in equipment during multi-leg journeys.

PITT OHIO CARBON CALCULATOR

PITT OHIO's patented carbon calculation estimates the fuel used for each LTL shipment from pick-up, linehaul, and delivery. The estimated carbon emission is based on shipment size (weight and volume) and distance traveled in the PITT OHIO network. Fuel is apportioned to each shipment solving the issue where multiple shipments are transported together. Carbon emissions can be reported as kg or kg/ton-mile to compare emissions intensity with other carriers. In addition, this information can be given to the shipper in whatever means works for their Scope 3 emission reporting process—by shipment, in total for a period, or via EDI on invoices. The PITT OHIO method can work with GLEC or be compared to the SmartWay calculation.

SUMMARY

As companies strive to reduce their environmental impact and meet emission reduction goals, understanding Scope 3 emissions is crucial. The GLEC framework and SmartWay program provide a standardized approach to reporting emissions across the transportation supply chain. However, these tools have limitations, such as using average emissions intensity and not considering specific shipment characteristics.

The key for providing accurate and actionable data will be for the freight industry to come together to develop standards to apportion emissions to each shipment. This collaboration will enable shippers to compare carriers, make informed choices, and reduce carbon emissions effectively. When customers can easily select transportation providers based on price, service, and sustainability, then carriers and shippers will be incentivized to create more sustainable solutions. Ultimately the goal of Scope 3 reporting is to encourage emissions reductions and working together across the transportation industry, the opportunity to improve standards can make sustainability goals a reality.