

Scope 3 GHG Emissions Tracking and Reporting, and Policy Relevance of Scope 3 Emissions

Extended Abstract #53

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INTRODUCTION

While more practitioners are gaining experience with tracking and reporting Scope 1 and 2 greenhouse gas (GHG) emissions, Scope 3 emissions remain somewhat of a mystery to many. These GHG emissions are defined as those that are not emitted directly by facilities or equipment owned or operated by the reporting organization, but occur as a result of the organization's activities.¹ Common examples include emissions from employee commuting, business travel, "upstream" emissions from products used by the organization, and "downstream" emissions from products sold by the organization. Gathering accurate and complete data regarding Scope 3 emissions is often quite difficult.

Selected Scope 3 emissions are now required to be reported by most federal agencies under Executive Order 13514. The same Executive Order will require contractors to the federal government to provide information regarding their GHG inventories to the government; these data could then be used in the procurement process to provide preferential treatment to the contractors that disclose their inventories.² These data would then become part of the Scope 3 GHG inventory for the federal government. Currently, the Carbon Disclosure Project does require reporting of some Scope 3 emissions. Other drivers in the marketplace include life cycle analysis programs from major corporations, such as Wal-Mart, which require suppliers to provide GHG emissions information for their products' supply chains.

There is expected to be continued focus on Scope 3 emissions in GHG management programs. Many organizations, especially non-manufacturing companies or businesses that have small Scope 1 and 2 emissions compared to their Scope 3 emissions will likely not need to comply with current or future regulations, such as mandatory GHG reporting or California's statewide Cap and Trade program, which focus on Scope 1 emissions. However, such organizations could face risk due to the increased price of carbon within the marketplace. Due to these "climate risks," stakeholders, shareholders, and investors are beginning to request information on supply-chain emissions. For example, in 2010 the Securities and Exchange Commission published guidelines regarding how businesses should disclose their risks related to climate change and associated regulations.³

In part due to growing interest in tracking these emissions, new Scope 3 emissions guidance and protocols are in development. For example, the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) have published draft versions of The Corporate Value Chain (Scope 3) Accounting and Reporting Standard, as well as The Product Accounting & Reporting Standard.^{4,5}

This study considers current Scope 3 emissions guidance, and describes methods for setting boundaries of a Scope 3 emissions analysis, and also the methodologies used for three common Scope 3 emission sources. A short case study is also provided for a commercial private sector entity. This paper is not meant to be a comprehensive description of all Scope 3 emission calculation methodologies.

DISCUSSION

Boundaries

Like all GHG inventories, the first step in tracking Scope 3 emissions is to develop a boundary of which emissions will be considered in the analysis. A key source that provides guidance on boundaries is the WRI/WBCSD's draft Corporate Value Chain (Scope 3) Accounting and Reporting Standard (The WRI/WBCSD Scope 3 Standard). The guidance recommends that organizations shall account for and report: 1) the largest Scope 3 emissions that collectively account for 80 percent of total anticipated Scope 3 emissions; and 2) the use phase emissions of all sold products that contain and emit GHGs in the use phase, all sold products that consume fossil fuels or electricity in the use phase, and all sold fuels. (The use phase includes the time the product is in use after it is sold by the reporting organization.)

Furthermore, to develop the boundary, the WRI/WBCSD Scope 3 Standard states that the reporting organization must first map the value chain, and develop a list of all sources and activities, including suppliers, customers, inputs, outputs, and Scope 3 activities. After developing the value chain map, the following questions can be used to prioritize Scope 3 emissions:

- What is the size of emissions in relation to the organization's other emissions?
- What is the ability of the organization to influence emission reductions?
- What is the risk exposure created by the emissions (financial, regulatory, supply chain, product and technology, compliance/litigation, reputational, and physical risks)?
- What is the importance of the emissions to stakeholders?
- Are the emissions due to an outsourced activity that is normally insourced by other organizations in the same sector?

The Federal Energy Management Program (FEMP) of the Department of Energy has also published guidance for federal agencies to use for their required GHG reports. The following sources of Scope 3 emissions are currently required under the FEMP guidelines:⁶

- Employee business travel
- Employee commuting
- Contracted solid waste disposal
- Contracted wastewater treatment
- Transmission and distribution (T&D) losses associated with purchased electricity

Additional Scope 3 emission sources may be added to the FEMP guidelines in the future. The selection of the five emission sources listed above was based on several criteria, including which

sources could be estimated using reliable and accessible data sources, and for which sources more detailed calculation methodologies had been established.

In addition, federal agencies may voluntarily report Scope 3 emissions from additional sources. When determining whether or not to include optional Scope 3 categories, agencies are requested to use criteria similar to the WRI/WBCSD Scope 3 Standard, as well as: 1) the feasibility and cost of collecting data, and 2) the estimated cost of measuring and making reductions.

Tracking

Unlike Scope 1 and 2 emissions, many types of Scope 3 emissions are estimated by using assumptions or limited data. The methodologies used to estimate three common Scope 3 sources – employee commuting, employee business travel, and purchasing products and services – are described in more detail below.

Methodology for Estimating Emissions from Employee Commuting

A best practice for estimating emissions from employee commuting is to conduct a survey of a subset of employees to ascertain their commuting habits, and then using the results of the survey to estimate emissions using extrapolation to the entire employee pool. The survey could be simple, or quite detailed. A simple survey was developed by FEMP for federal agency use and contains 11 questions regarding commuting habits. The information provided includes the zip code where the employee works, and the mode of transportation of the typical commute and miles traveled in each mode, and the same information for an alternate commute. To calculate emissions, assumptions are applied concerning the average number of days per year each employee commutes, taking into consideration average holiday schedules and telework habits.

A more detailed survey, such as one implemented by Sonoma County, incorporated questions on the number of days that employees had commuted in the past year, along with the distance commuted to work using each commute mode. If the commute involved driving a vehicle, the survey gathered information regarding the vehicle fuel usage and fuel efficiency, and the number of people commuting in the vehicle. Thus, the survey gathered more detailed data in order to estimate emissions using fewer assumptions.

Methodology for Estimating Emissions from Employee Business Travel

Most organizations develop a system by which employees are reimbursed for the cost of business travel. These systems are designed for reimbursement purposes, but often some data are available regarding the travel that can be used to estimate Scope 3 emissions. The key information needed is the mode of transportation, and the mileage traveled. Assumptions can then be applied regarding the average fuel efficiency of the vehicle or equipment used, and the appropriate emission factor may then be selected and applied to estimate emissions.

Methodology for Estimating Emissions from Purchasing Products and Services

Some organizations have developed methods to estimate emissions from purchasing of products and services. An initial study was completed by Jones and Kammen, 2010, for the University of California, Berkeley (UC Berkeley).⁷ In this methodology, data were gathered on the total amount spent on various categories of goods and services in 2008. These categories of goods and

services were mapped to the economic sectors included in the 2002 Economic Input-Output Life Cycle Assessment (EIO-LCA) Model developed by Carnegie Mellon University.⁸ The model's output included total GHG emissions per dollar of expenditure for each category of goods or services; these emissions are calculated by estimating the materials and energy required for, and the environmental emissions resulting from, activities in the U.S. economy. A similar approach is used by the Centre for Sustainability Accounting (CenSA), which provides emission factors for Scope 3 emissions based on input-output economic data.⁹ Similar to the EIO-LCA model, the CenSA emission factors are based on one unit of expenditure for a type of good or service.

Results

Scope 3 emissions could make up a large portion of an organization's total GHG inventory, depending on the boundary methodology used, and the types of contracted services and goods that an organization purchases. For example, currently reported Scope 3 emissions comprise about 26% of all emissions from federal agencies.¹⁰ However, the proportion of Scope 3 emissions for each agency varies widely, from 5 - 7% for agencies with very few contracted services and/or very little employee travel, to 96 - 100% for agencies that have very few operations resulting in Scope 1 and 2 emissions.

In a recent study commissioned by Sprint Nextel, Scope 3 emissions from the company's supply chain were found to comprise 52% of the company's total GHG emissions.¹¹ The study also examined the GHG emissions per unit of expenditure, and calculated the carbon intensity of the supply chain, in metric tons of CO₂e per million dollars of expenditure. In addition, the study identified that five suppliers were contributing to 58% of the supply chain footprint, and the top 50 suppliers (out of 162) contributed to 98% of the supply chain footprint. The study and its results will allow Sprint to reduce risk by minimizing their carbon risk.

UNCERTAINTY ASSESSMENT

There is a great amount of uncertainty associated with Scope 3 emissions. Input data for Scope 3 calculations are not as readily available as the Scope 1 and 2 input data, and scope 3 emissions are often estimated by extrapolating a small sample set of data to a larger set. The assumptions used for the estimation and the corresponding variability simply do not allow for adequate accuracy, let alone calculations that could be used to set reduction targets.

As GHG programs mature, uncertainty estimates for Scope 3 emissions are likely to become a standardized component of the inventory process. Moreover, as certain larger private and federal organizations put more emphasis on the carbon footprint of their contractors and vendors, it is possible that standardized Scope 1 and 2 methodologies could be developed for these contractors and vendors. Their direct Scope 1 and Scope 2 emissions would then become the purchasing organization's Scope 3 emissions, allowing for more reasonable emissions estimates and reduction targets.

SUMMARY

In summary, companies seeking to track and potentially report Scope 3 emissions should consider the WRI/WBCSD guidance, while government agencies may choose to follow the

federal agency guidance issued by FEMP. Boundaries for the Scope 3 calculations should be carefully considered by reviewing the projected size of the emissions, the risk exposure from the emissions, and the ability of the organization to influence the emissions. Also, there are various emerging methodologies for estimating some types Scope 3 emissions, although some uncertainty exists with these methodology parameters. Eventually some organizations may require information on Scope 1 and 2 emissions from contractors and vendors, which will allow larger organizations to better determine their Scope 3 emissions. A comprehensive scope 3 emissions analysis can be used to identify and then minimize risk from GHG emission sources outside of an organization's direct control.

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