

Harmonizing the GHG Reporting Boundary of Terminals and Ports



Guidance for Reporting Terminal GHG Emissions

1. Introduction

This document has been produced as the final output from an investigation of the problems stemming from a lack of guidance on GHG reporting by the terminals that link different transport modes together within multimodal supply chains. The main issue of inconsistent reporting is also noted to a lesser extent for the ports that often act as landlords for these terminals.

1.1. Core Issue

Terminal operators and ports, like all businesses, face growing pressure to report greenhouse gas (GHG) emissions transparently and consistently. However, use of differing approaches, especially regarding vehicles and vessels outside their direct control, have led to inconsistent reporting boundaries across the industry.

1.2. Why this matters

- When included within a terminal's GHG emission inventory the emissions from transportation, particularly ocean-going vessels¹, can form a significant proportion of the total (Scope 1, 2 and 3) GHG emissions.
- It is much harder for an organization to influence an emission source through its GHG reduction strategy and associated action if the emission source is excluded from the organization's inventory, whether it is a Scope 1, 2 or 3 emission, due to a combination of lack of information and prominence in the eyes of decision makers / management.
- Inconsistent reporting by apparently comparable terminal operators makes it hard for them to quantify and accurately understand how they are doing in terms of making progress on decarbonization compared to their peers, so hampering decision making related to decarbonization strategies.

¹ Ocean-going vessels are particularly significant due to their size, which leads to a requirement for large engines, even if only for auxiliary power, and their relatively long dwell time compared to individual trucks or trains.

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- It makes it difficult for external partners such as customers, landlords, emission reporting programs, investors and national / regional authorities to assess emission performance accurately.
 - For example, SBTi has found it very difficult to assess the submissions of both port and terminal due to the differences between the content of the submissions made to them.

1.3. Why this is happening

There are several contributing factors, including:

- A lack of understanding from outside the sector regarding the specific roles and characteristics of terminals as compared to ports. This leads to somewhat ambiguous wording in general guidance documents such as the GHG Protocol, where either terminals are overlooked or considered as fulfilling the same function as a port.
- Unlike ports, where IAPH fulfils this role, there is no organization that speaks collectively for terminals at the global level, either to develop terminal-specific guidance or to interact with IAPH in a joint discussion.
- There is a general lack of up-to-date, sector-specific guidance covering GHG calculation methodology and data sources for terminals or ports, which has led organizations to develop their GHG reporting practices in an uncoordinated environment.
- Variation in the opportunity for different terminals to engage in the provision of energy to, and decarbonization of, the transport services that access them.
- In the absence of specific guidance, development of *ad hoc* reporting practices at organizational level makes it difficult for those organizations to then make changes without incurring potentially significant costs linked to internal recalculation and resubmission of information to voluntary programs such as SBTi. This provides a barrier to voluntary change.

2. Purpose of this Document

The aim of this document is to set out the issues that will need to be considered as part of any future decisions or changes regarding the approach to GHG reporting for terminals and ports. This includes:

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- A reminder of some fundamentals about the motivation to calculate and report GHG emissions.
- The current (and potential future) stipulations and flexibilities of the GHG Protocol.
- Examining feedback received from industry consultation, including a recent webinar hosted by Smart Freight Centre, in cooperation with APM Terminals, Contship and DP World, on how these issues interact with the reality of terminal and port activities.

The hope is that this will act as a foundation and focus point for future action towards harmonization and hence clarity on this issue. However, that will require a widespread consensus building process, preferably with coordination from an organization with enough presence to ensure consistent implementation across terminal operators from across the world.

3. Purpose of and Structures for GHG Calculation and Reporting

3.1. Motivation

The motivation to calculate and report GHG emissions varies across organizations but can largely be categorized as originating from one or more of the following:

- To meet legislative requirements,
- To meet customer or investor requirements
- To support institutional objectives around understanding and reducing emissions.

Legislation is typically accompanied by extensive (and hopefully clear) documentation on the approach to calculation and the related boundaries. However, as terminals are distributed across the world, any legislative requirements, which are not yet commonly applied to terminals, could be subject to variable requirements set by national responsible bodies.

Although legislative requirements are increasing, their low incidence means that currently GHG reporting is largely motivated by the second and third issues listed above and conducted within the boundaries set out by voluntary programs that often use the Greenhouse Gas Protocol as their reference point. In this context there are generally four purposes that the reporting aims to address:

- To quantify the overall GHG emissions of an organization's activities.

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- To inform strategy development aimed at emission reduction, aligning goals across key actors in value chains.
- Within the decarbonization strategy:
 - To define and prioritize the specific measures deployed.
 - To quantify the impact of those measures and relate to target achievement and strategy revision.

The above purposes interact with each organization's remit and activities to determine the boundary according to which emissions are calculated and included in subsequent reports, targets etc.

3.2. Reporting Structures

The GHG Protocol takes a value chain approach to GHG reporting, splitting the reported emissions across direct and indirect emission sources and further subdividing the indirect emissions. The full structure can be summarized as follows:

- Scope 1: Direct emissions, which occur as a result of an organization's own operations, and which originate directly from their own operated equipment;
- Scope 2: Indirect emissions, which occur as a result of an organization's own operations, but which originate from equipment operated elsewhere in the energy supply chain;
- Scope 3: Indirect emissions, which result from another organization's operations that fall within the value chain of the reporting organization.

Scope 3 emissions, i.e. indirect emissions resulting from activities within the company's value chain, are (currently) split into 15 further categories that are designed to help organizations establish the full extent of their influence. By definition, an organization's influence on the Scope 3 emissions it declares is lower than for its Scope 1 and 2 emissions, and this influence can vary from one Scope 3 category to another. The 15 Scope 3 categories, and their likely sector relevance, are presented at the end of the report².

The GHG Protocol is written as a high-level set of rules and principles designed to apply to any organization. The GHG Protocol defines the value chain as "...all of the upstream

² For more information see the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

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and downstream activities associated with the operations of the reporting company, including the use of sold products by consumers and the end-of-life treatment of sold products after consumer use.” It further defines:

- Upstream emissions as: “Indirect GHG emissions from purchased or acquired goods and services.”
- Downstream emissions as: “Indirect GHG emissions from sold goods and services... also including emissions from products that are distributed but not sold (i.e., without receiving payment).”
- Product as: “Any good or service.”

The complexity of this language begins to show the difficulty in defining a precise boundary because, although a product is defined as including services, most of the explanation within the GHG Protocol focuses on a more traditional interpretation of a product, i.e. the emissions produced through the lifecycle of a physical item. Furthermore, although the value chain is typically interpreted as including goods and services governed by a financial transaction, i.e. that are bought and sold, technically the above definition of downstream emissions opens the possibility of including emissions from products that are “distributed but not sold”. This possibility is not then mentioned in the detailed guidance for emissions from sold products (Scope 3, Category 11). In other words, an opportunity for flexible interpretation is introduced that leads to a risk of incomparable reporting boundaries for apparently comparable organizations.

The uncertainty resulting from this generic wording is best clarified for a specific organization type at the level of a common platform, often a global industry association, where respectful, in-depth discussions leading to consensus can be conducted. As already noted, such a platform does not currently exist for terminals at global level.

The GHG Protocol rules apply equally to ports as they do to terminals. Although the functions of ports and terminals differ, their operations are inextricably linked and some overlap in terms of reported Scope 3 emissions would be expected. It might be hoped that GHG calculation and reporting guidance from an organization such as IAPH would provide some useful insights. However, the IAPH guidance tends to focus on a calculation and reporting approach closely linked to the geographic boundary of the port rather than aligning closely with the value chain approach of the GHG Protocol.

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4. Developing a Structure for GHG Calculation and Reporting for Terminals

In the absence of existing sector guidance, it is necessary to start by developing the structure for GHG calculation and reporting for terminals from first principles. Based on the information presented so far, there are two main questions that need to be answered³:

1. What GHG Emission Sources to include?
 - i.e. how to set the emission boundary
2. How to report?
 - i.e. what Scope 3 Category/ies to allocate emissions to?

4.1. What GHG Emission Sources to include?

When considering the question of what GHG emissions to include, it is best to return to the motivations that drive reporting, as set out in section 3.1. These principles apply irrespective of the type of organization. The reason why they might result in different outcomes for a port rather than a terminal lies in their differing activities, responsibilities and geographic coverage⁴.

Standard practice is for GHG emissions to be reported from within the value chain, using an interpretation based on the sale of a product (i.e. emissions from a good or service where there is a direct transaction cost). However, as noted in section 3, flexibility in the wording of the GHG Protocol leaves open the potential for variable interpretation. As an example, when it comes to setting emission reduction targets, SBTi standard practice is to encourage the use of as comprehensive a boundary as possible, while leaving flexibility for an organization to exclude certain activities with appropriate justification. The premise behind the SBTi perspective is that agreed, industry-specific GHG accounting boundaries should align various actors with influence over activities with significant emissions to determine system-level decarbonisation levers together, ensuring multiple actors' efforts give a coherent

³ These two questions are interlinked as some Scope 3 categories would only apply under specific boundary conditions.

⁴ Ports serve a much broader function, taking responsibility for provision of transport infrastructure, business premises, utilities, services supporting transport access to the businesses in their area of responsibility, but not actually handling the goods that pass through, whereas it is the terminals that have the responsibility for linking the various transport modes with a transport chain by handling the goods.

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decarbonisation strategy at the system level, rather than having competing goals where one lever apparently decarbonises Scope 3 emissions for one actor but makes it harder for another to reduce more significantly the overall system emissions.

Priority should be given to those activities and/or emission sources that an organization has the opportunity to influence, especially in the context of designing and monitoring its decarbonization strategy and emission reduction targets. However, this does generate the potential for uncertainty over the reporting boundary because different terminals will inevitably:

- be dependent upon partnerships with landlord ports and other partners with differing levels of ambition. (For example, some landlord ports might welcome a partnership approach to delivery of onshore power supplies, especially if available locations are limited within the port.)
- have different financial relationships and service offerings with their landlords, customers and supply chain partners. (For example, some port and terminal operating groups that interact across many global sites may welcome a common service provision template as a way to enable their own decarbonization actions, so motivating the terminal operator into action in a particular location that may not otherwise have occurred.)
- be subject to differing physical circumstances that influence what measures are and are not feasible on a location-by-location basis. (For example, restrictions on electricity grid connections will impede the possibility to offer onshore power supplies.)

This will, in turn, lead to circumstances where different terminals, possibly even within the same overall corporate group, apply different reporting boundaries.

In all these circumstances, whether excluding certain activities that might potentially be considered as in scope, or including activities that would normally be considered out of scope, it is vitally important to provide a supporting narrative to explain why the chosen boundary is appropriate.

4.1.1. Rationale Behind Different Approaches

The discussion presented in the preceding sections shows why it is difficult to come to a definitive position regarding the boundary to be used for terminal GHG calculations, especially as there is no agreed sector guidance and no obvious sector body to facilitate such a discussion.

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Particular factors that complicate the situation include:

- Differences in the physical and infrastructure constraints that vary widely from one terminal location to another
- Variation in activities across different terminals and the different combinations of modes they connect
- Different services and levels of ambition set by landlord ports
- Potential differences in requirements according to national legislation
- Ambiguity in high level GHG guidance exacerbated by anticipated future changes

Taken together, these issues make it close to impossible to state that one approach (i.e. boundary) is ‘right’ or ‘wrong’. It is probably more appropriate to say that a particular approach is appropriate to a particular set of circumstances.

Therefore, to make progress at an organizational level in the short- to medium-term, it is probably more beneficial to focus on each organization’s own activities, developing a strong, clear narrative explaining the rationale behind its approach, rather than on comparison with others.

The rationale behind the two approaches, i.e. a terminal including or excluding the emissions from vessels at berth in/from its inventory, can be summarized as set out in the following table⁵.

The result would be a broader, more holistic approach to the management of vessel emissions at berth, similar to that identified by SBTi in its approach to boundary setting, where multiple organizations have an influence on vessel emissions

⁵ There appears to be no disagreement that vessel emissions within the port area should be included in a port authority’s GHG inventory.

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Model 1: Emissions from Vessels at Berth are Included

The typical argument used by container terminal operators that include emissions from vessels at berth in their Scope 3 inventory is that they generate revenue by providing the service of the transshipment of containers from the vessels while at berth. This revenue, generated from loading, discharging, stowage etc. by terminal operators from shipping lines, is typically much larger than the revenue collected by Port Authorities for port fees, pilotage towage etc. The vessels emit GHGs while at berth due to the operation of their auxiliary diesel engines and generators to power on board systems (lighting, refrigeration, navigation etc.) and reefer containers. The terminal can directly influence (i.e. reduce) the time spent at berth, and therefore the emissions, as a result of improved efficiency and productivity.

The role of container terminal operators in investing, installing and operating Shorepower - the key mitigation lever for emission from vessels at berth - will differ according to local circumstances. However, terminal operators are typically, at minimum, involved in the development of the Shorepower solution and the implementation of the project, because the Shorepower system is located on the terminal premises and its operation directly impacts the container terminal operation.

This model is used by, among others, **Contship and APM Terminals**.

Model 2: Emissions from Vessels at Berth are Excluded

The port authority is considered to be the organization that engages strategically with the shipping lines, has responsibility to levy access fees and the primary responsibility to provide the supporting infrastructure to support low-emission operation while vessels are at berth. In this scenario, the role of the terminal is seen to be one of providing support to the other entities without the opportunity to influence the outcome – this could be considered as transactional at the level of the transport chain. As a result, because the terminal has limited to no direct influence over the GHG emissions at berth it is considered appropriate for the emissions from vessels at berth to be excluded from the inventory.

The role of container terminal operators in investing, installing and operating Shorepower - the key lever for reducing emissions from vessels at berth - will differ according to local circumstances. In situations where the terminal operator does not have agency in respect of onshore power systems, model 2 would match the extent of their influence.

This model is used by, among others, **DP World and Hutchison Ports BEST Terminal, Barcelona**.

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4.2. How to Report (what Scope 3 Category/ies to allocate emissions to)

4.2.1. Current Situation

Currently, the closest match within the GHGP Scope 3 Categories for a terminal and port that chooses to report emissions from vessels at berth would be Scope 3, Category 11.

4.2.2. Other Possible Situations

If a reporting entity directly sells (or facilitates the sale of) fuel or energy that is used for vehicle or vessel propulsion, again more likely a port, then the associated emissions would also be reported under Scope 3, Category 11. This would undoubtedly be a much larger figure because the emissions would occur for significant proportions of subsequent voyages.

If the terminal has actually paid for a contracted transport service where they take responsibility for the cargo, for example drayage operations, any associated emissions would be reported under Scope 3, Category 4.

Inclusion of vessel emissions at berth by a terminal could be interpreted as implying that emissions from other transport modes accessing the terminal should also be included in the Scope 3 inventory of the terminal.

4.3. Analogy from a Comparable Sector

Since 2008 airports have had the opportunity to sign up to a scheme called the Airport Carbon Accreditation scheme, organized through the auspices of the trade body ACI Europe. The scheme uses an independent audit process to assess and recognize the efforts of airports to manage and reduce their carbon emissions through 7 levels of certification. One of the key aspects that differentiates the levels of certification is the boundary of an airport's GHG inventory with a wider boundary being necessary to achieve a higher certification status. (Higher levels of certification include emissions from aircraft within the taxi, take-off and landing cycle and engagement with the providers of surface access transport services⁶.) This shows that, in this comparable sector, airports also have difficulty in consistently reporting to a common boundary and

⁶ SBTi mandates reporting of emissions from taxi, take-off and landing up to 3,000 feet for airport operators.

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have found a way to accommodate this in a structured way where a wider boundary results in a greater level of recognition.

5. Next Steps

There is value in using the findings of the work contained in this document as the basis for an ongoing, wider industry discussion to both raise awareness of the issues and to call for action to develop a broader industry consensus, which will (hopefully) lead to greater action.

The definitive answer would be for the GHG Protocol to issue specific guidance to terminals and ports, to supplement the SBTi position for use of as comprehensive a boundary as is relevant. The implementation of Scope 3, Category 16 will be a step in that direction, but it seems that unless it is compulsory it will not help in removing the current uncertainty. It is extremely unlikely that GHG Protocol or SBTi will provide terminal or port specific guidance because they are unable to work to that detailed level of granularity across all segments of the economy.

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Annex: Current Scope 3 Categories & Potential Sector Relevance

Scope 3 Category #	Title	Explanation	Sector relevance
Category 1	Purchased goods and services	These are cradle-to-gate emissions of the goods and services purchased by the reporting organization. They include WTW emissions from any transportation used to produce the items purchased. However, transportation from the supplier to the reporting organization is included in Scope 3, Category 4.	Likely to be limited to day-to-day operational purchases.
Category 2	Capital goods	Like Category 1, Scope 3, Category 2 contains WTW emissions for transport embedded in capital goods purchased by the reporting organization.	Related to significant investment in equipment.
Category 3	Fuel- and energy-related emissions (not included in Scope 1 or Scope 2)	Emissions resulting from the production and distribution of fuels (WTT) reported in Scope 1 and 2 are included here. This includes emissions linked to extraction, production, and transportation of fuels consumed in the generation of electricity consumed by the reporting company and losses in the distribution of electricity.	Important for the reporting of energy production emissions from the full energy lifecycle.
Category 4	Upstream transportation and distribution	This category covers WTW emissions from any outsourced logistics services paid for by the organization to transport products from tier 1 suppliers to the organization, or between the organization's own facilities, or from the organization to its customers. It also covers outsourced logistics services used to transport products from tier 1 suppliers to the organization that are paid for by the tier 1 supplier.	Minimal impact for ports and terminals, unless there is subcontracted transport paid and provided by the terminal/port, as their primary business function is not product manufacture.

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Scope 3 Category #	Title	Explanation	Sector relevance
Category 5	Waste generated in operation	This category includes WTW emissions related to the disposal and treatment of waste generated from an organization's activities.	Would be relevant for operations where un- or re-packaging is an important activity.
Category 6	Business travel	This category includes WTW emissions pertaining to the movement of people on business activities when they use either their own vehicle or a commercial transport service (bus, train etc.)	Relevant to all entities
Category 7	Employee commuting	This category includes WTW emissions pertaining to the movement of people on their travel to or from their normal place of work when they use either their own vehicle or a commercial transport service (bus, train etc.)	Relevant to all entities
Category 8	Upstream leased assets	WTW emissions from facilities or vehicles leased by the reporting organization, i.e., where the reporting organization is the lessee, are included here, if not already reported in Scope 1 or Scope 2.	Depends on operating model and boundary definition. Often it is better to report emissions from leased equipment in the same way as your own equipment. Likely more relevant for terminals than ports.
Category 9	Downstream transportation and distribution	This category covers WTW emissions from the distribution of goods from the reporting organization to the end customer, specifically when these logistics services are not paid for by the reporting organization.	Minimal impact for ports and terminals as their primary business function is not product manufacture.
Category 10	Processing of sold products	WTW emissions resulting from the transport and distribution of sold products, e.g., by a stakeholder in the downstream value chain, are covered here.	Minimal relevance

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Scope 3 Category #	Title	Explanation	Sector relevance
Category 11	Use of sold products (NB the GHG Protocol definition of a product includes services)	These include the lifetime emissions from the use phase of sold products. This is particularly relevant for transport equipment manufacturers.	Relevant for emissions from vessels at berth, depending on port fee structures and the services received. Also be relevant if a port or terminal is involved in the sale of fuel to vehicles / vessels that use its services.
Category 12	End of life treatment for sold products	Particularly important for the circular economy, transport emissions from the disposal or treatment of a sold product are included here.	Minimal relevance
Category 13	Downstream leased assets	WTW emissions from facilities or vehicles leased from the reporting organization, i.e., where the reporting organization is the lessor, are included in this category.	Depends on operating model and boundary definition. Likely more relevant for ports than terminals.
Category 14	Franchises	WTW emissions related to activities of franchises should be considered here.	Depends on operating model
Category 15	Investments	WTW emissions from investments made by the reporting organization should be tallied here.	Depends on whether the organization has accumulated enough assets to have an investment portfolio.