Scope 1, 2, and 3 Emissions

Greenhouse gas (GHG) accounting is a framework of methods to clearly and transparently measure an organization's GHG emissions. According to the GHG Protocol, when an organization's GHG emissions are analyzed, they are categorized into different levels of accounting, referred to as scopes.

Scopes represent the different sources of emissions associated with an organization's activities. They are numbered in ascending order from 1 to 3, with scope 1 falling most directly under the organization's control. This framework was developed by the World Resources Institute and the World Business Council for Sustainable Development as part of their joint initiative, the GHG Protocol.[1] Understanding and managing emissions across these scopes helps organizations to comprehensively address their environmental impact, develop strategies for reducing their overall carbon footprint, and adhere to policies and accounting frameworks.

Scope 1 Emissions

Scope 1 includes the GHG emission sources that are directly owned or controlled by the organization's equipment and facilities, such as emissions from combustion in owned or controlled boilers, furnaces, and vehicles.[2]

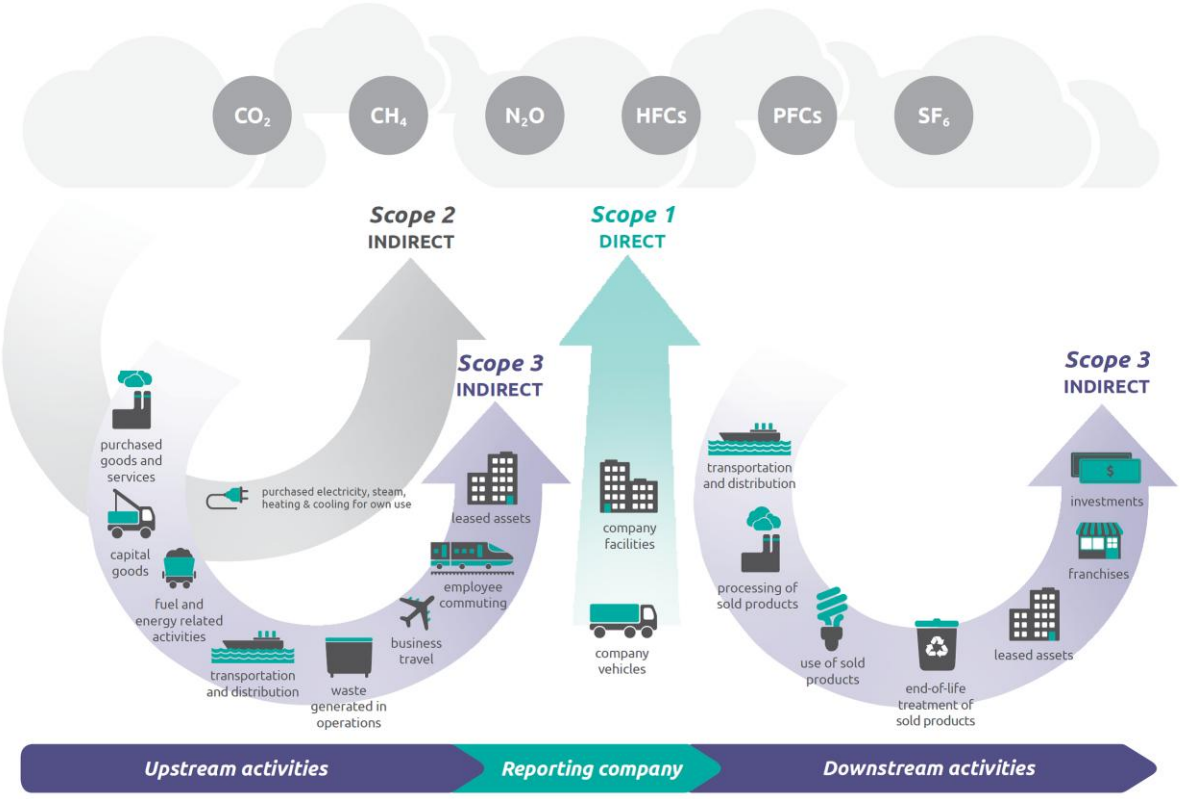
Scope 2 Emissions

Scope 2 refers to emissions associated with electricity, steam, heat, or cooling purchased by the organization. These emissions are produced offsite, but the energy generated is used by the organization for its operations. They are considered indirect because the organization does not directly control the energy production process.[3]

Scope 3 Emissions

Scope 3 includes all other indirect emissions that occur in the value chain of the organization, from both upstream and downstream activities within 15 categories. As an example, a manufacturing company would need to account for its equipment, raw materials, transportation to and from the factory, and use and ultimate disposal of its products, among other things. See Figure 1 for further illustration of scopes 1, 2, and 3. Scope 3 emissions are more complex to quantify and are not always included in an organization's carbon accounting, although in some cases they represent the largest portion of the organization's GHG emissions.[4] However, scope 3 emissions are increasingly included in reporting requirements under regulations such as the EU's Corporate Sustainability Reporting Directive.[5]

Figure 1. Overview of GHG Protocol scopes and emissions across the value chain (Source: Corporate Value Chain (Scope 3) Accounting and Reporting Standard from GHG Protocol,[6] p. 5)



Interactions of Scopes 1-3

The same emissions will fall under different scopes for multiple organizations. They may be counted as scope 3 for multiple entities in some circumstances, but they should never be claimed as scope 1 or scope 2 by more than one organization.[6] This is illustrated in the following example: a utility generates electricity (counted in its scope 1 emissions), which is used by the coffee maker in a company break room (counted in its scope 2 emissions). These same GHGs also fall under the scope 3 emissions of the manufacturer and the retailer of the coffee maker. This interaction can promote collaboration between related organizations such as a retailer and its supply chain. As multiple entities share responsibility for GHG emissions, they should have a common interest in working together to reduce them.

UBQ's GHG Emissions

UBQ Materials' scope 1 and 2 emissions are lower than for many material manufacturers thanks to the company's energy-efficient production process and high use of renewable energy. UBQ is in the process of conducting a scope 3 emissions inventory.

In UBQ's role as a supplier, we can contribute to our partners' goals to reduce their Scope 3 emissions. UBQ™ material is a low-carbon product that can replace conventional materials with higher carbon footprints. UBQ™ also offers additional climate benefits that do not fit into scopes 1, 2, and 3, on top of broader sustainability assets such as circularity and recycled content.

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[1] World Resources Institute. Greenhouse Gas Protocol. https://www.wri.org/initiatives/greenhouse-gas-protocol

[2] US Environmental Protection Agency (21 August 2023). Scope 1 and Scope 2 Inventory Guidance. https://www.epa.gov/climateleadership/scope-1-and-scope-2-inventory-guidanc e

[3] Sotos, M. (n.d.). GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard. Greenhouse Gas Protocol. https://ghgprotocol.org/sites/default/files/standards/Scope%202%20Guidance_Final_Sept26.pdf

[4] US Environmental Protection Agency (4 December 2023). Scope 3 Inventory Guidance. https://www.epa.gov/climateleadership/scope-3-inventory-guidance

[5] Directive (EU) 2022/2464. Corporate Sustainability Reporting Directive. European Parliament and Council. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464

[6] Greenhouse Gas Protocol (n.d.). Corporate Value Chain (Scope 3) Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard. https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf