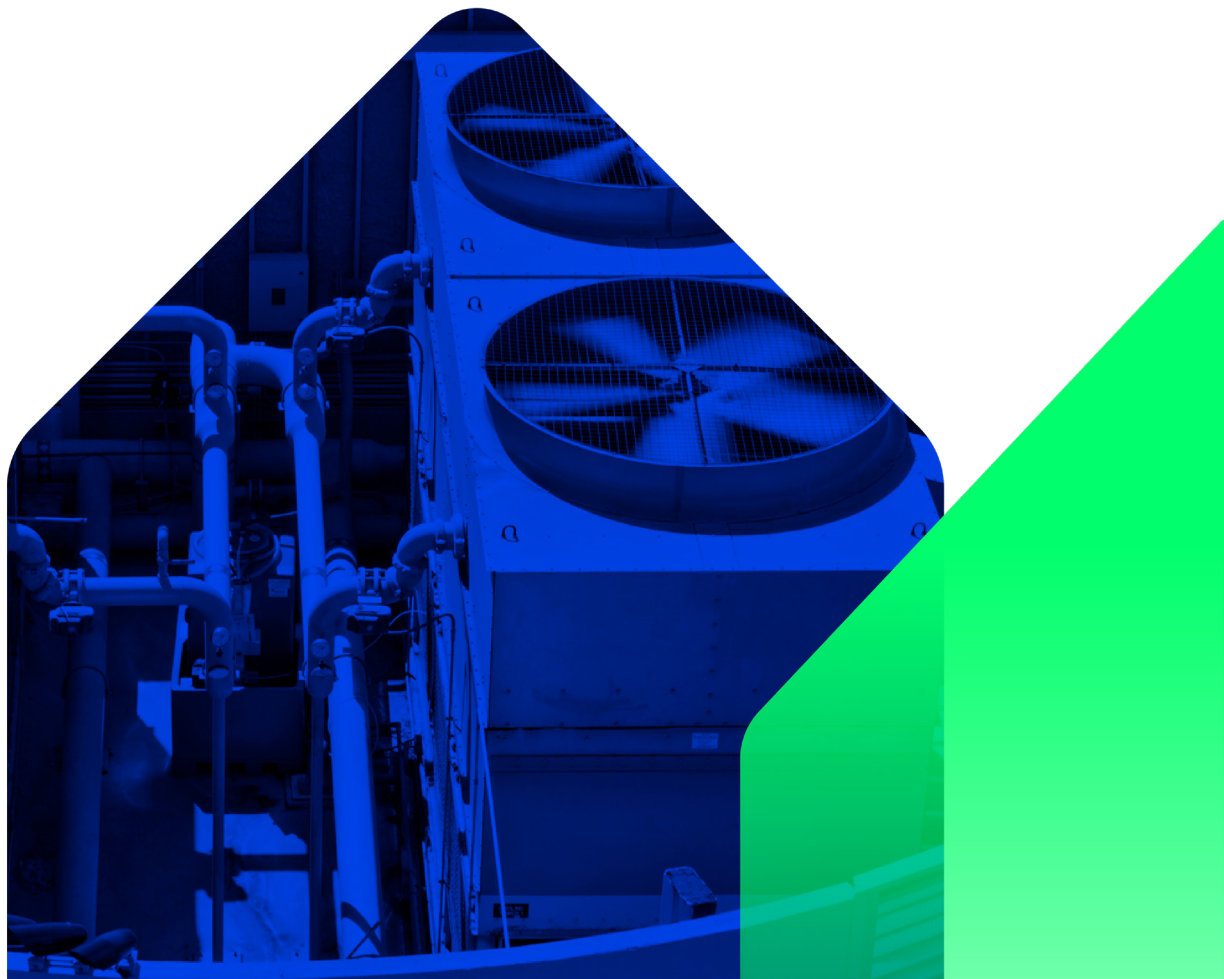# Managing and reducing Scope 3 emissions for cooling businesses

November 2024

About the guideline

This guide, developed in close collaboration with industry and its stakeholders, aims to share knowledge and experience of Scope 3 good practice within the cooling and wider manufacturing sectors. It focuses on addressing and providing solutions to key challenges that cooling refrigerant and equipment manufacturers are likely to encounter when managing their Scope 3 emissions, through the provision of case studies, insights and examples from the cooling and other manufacturing sectors.

Acknowledgements

Who we are

Our mission is to accelerate the move to a decarbonised future.

We have been climate pioneers for more than 20 years, partnering with leading businesses, governments and financial institutions globally. From strategic planning and target setting to activation and communication, we are your expert guide to turning your climate ambition into impact.

We are one global network of 400 experts with offices in the UK, Netherlands, Germany, South Africa, Singapore and Mexico. To date, we have helped set 200+ science-based targets and guided 3,000+ organisations in 70 countries on their route to Net Zero.

The Carbon Trust's mission is to accelerate the move to a decarbonised future.

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Abbreviations

GHG	Greenhouse gas
GWP	Global warming potential
HVAC	Heating, ventilation and air conditioning
KPI	Key performance indicator
OEM	Original equipment manufacturer
RGM	Refrigerant gas manufacturer
SBT	Science-based targets
SBTi	Science Based Targets Initiative
SDGs	Sustainable development goals

1. Introduction

Audience

This guide is aimed primarily at the manufacturers and value chains of heating, ventilation and air conditioning (HVAC) systems, refrigeration systems (e.g. fridges), and the refrigerant gases used in these systems (e.g. hydrofluorocarbons). Throughout this guide, the use of the term 'cooling businesses' is used to refer to both cooling original equipment manufacturers (OEMs) and refrigerant gas manufacturers (RGMs), unless otherwise stated.

> **OEMs:** Cooling OEMs are businesses that manufacture HVAC or refrigeration systems wholly, or supply the parts and components which are then integrated into other HVAC or refrigeration products.
>
> **RGMs:** Cooling RGMs are businesses that manufacture specific chemicals to be used as refrigerant gases or foaming agents in HVAC or refrigeration systems.

Aims and objectives

The purpose of this guide is to share experiences and examples of Scope 3 good practice within the cooling and wider manufacturing sectors, to enable cooling businesses to kickstart or accelerate Scope 3 emissions management in their value chain.

Scope

The guideline focuses on addressing and providing solutions to key challenges that cooling refrigerant and equipment manufacturers are likely to encounter when managing their Scope 3 emissions. It starts by outlining the drivers behind the rise in demand for cooling solutions, and the benefits of cooling to climate and the global population. It then goes on to explore Scope 3 emissions, and ways in which to tackle and measure them. The guideline describes how to deal with use-phase emissions and the importance of engaging with the value chain, providing insights on how best to do this. Finally, it highlights common challenges faced by cooling businesses when managing and reducing their Scope 3 emissions; case studies are provided to demonstrate how others have overcome these challenges.

2. Context

Cooling is essential to health, prosperity and the environment

Cooling is a necessity in an increasingly warming world. The demand for cooling solutions is driven by population and household income growth, as well as temperature rise and the increased frequency and intensity of heatwaves. **Cooling solutions help protect people from rising temperatures, maintain food quality and safety, keep vaccines viable and promote economic productivity**[1]. Cooling supports the achievement of several United Nations sustainable development goals (SDGs), such as SDG 3, which seeks to ensure healthy lives and promote wellbeing for all at all ages.

Cooling demand is increasingly rapidly and needs to be addressed equitably and sustainably

The cooling industry accounted for about 7-10% of global greenhouse gas (GHG) emissions[2,3], equivalent to 4.1 $GtCO_2e$, in 2022[1]. If current cooling industry practices were maintained, GHG emissions from the cooling sector would more than double to 9 $GtCO_2e$ by 2050 – two times the 2050 carbon budget. This expected rise in cooling emissions is driven by the expansion of the global middle class, with more people adopting energy-intensive equipment such as air conditioners and refrigerators, together with typically poor leakage prevention of refrigerants with high global warming potential (GWP) and poor maintenance of equipment globally[1]. Cooling is a key driver of increasing GHG emissions and a threat to achieving Net Zero by 2050. Early action could provide near-term benefits in reducing short-term climate pollutant refrigerant emissions. Early adoption of more efficient technologies, especially in long-lived commercial equipment that can be in use for decades, could provide long-term benefits in reducing GHG emissions from cooling.

Reducing cooling load through passive cooling measures and improving energy efficiency will also decrease the electrical grid capacity needed to meet the growing demand for cooling. The cooling industry could make a significant impact by acting now to achieve Net Zero GHG emissions in cooling by 2050.

The cooling sector has a key role to play

To minimise the growth of GHG emissions from cooling, the sector must rapidly decarbonise its business operations, its value chains, and the products and services it offers. Many of the tools and techniques needed to decarbonise are available today, and the rewards of adopting them are significant for society and business[4]. Cooling businesses can deliver Net Zero cooling by 2050 by **offering their customers better cooling choices that are accessible, affordable and scalable,** including the reduction of cooling loads, e.g. through adoption of passive cooling strategies, more insulation, optimising superefficient cooling products, and refrigerant selection to minimise GHG emissions and grid decarbonisation[1].

> **Cooling is important for human wellbeing, food security and economic output. However, conventional cooling methods pose a significant threat to the environment. Business-as-usual practices could see GHG emissions from cooling more than double by 2050[1], jeopardising the ability to curb climate change and meet 2050 Net Zero targets. Finding sustainable cooling solutions and implementing them at speed and scale is paramount to achieving sustainable development goals.**

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[1] Global Cooling Watch 2023 | UNEP - UN Environment Programme
[2] GCA_Yearbook2018_Annex02_Energy_Kigali.pdf (unfccc.int)
[3] Partners announce new ambition on sustainable cooling for COP28 (unep.org)
[4] What is Net Zero and why does it matter? | The Carbon Trust

3. What are Scope 3 emissions?

Scope 3 is a term defined by the Greenhouse Gas Protocol (GHG Protocol). The GHG Protocol provides the world's most widely used GHG accounting standards, which organisations and governments use to understand, quantify and manage their GHG emissions. Created to bring consistency, the GHG Protocol categorises emissions into three 'Scopes' (see Figure 1[5]).

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GHG Protocol emissions categories

Scope 1: Direct emissions from activities within a business's control. This includes onsite fuel combustion from buildings and company vehicles, as well as manufacturing and process emissions, and direct emissions from agriculture.

Scope 2: Indirect emissions from any electricity, heat or steam a business purchases and uses. By using energy, a business is indirectly responsible for the release of GHG emissions.

Scope 3: Any other indirect emissions from sources outside a business's direct control. The GHG Protocol's Scope 3 standard categorises emissions across 15 different categories covering business activities common to many organisations, such as purchased goods and services, business travel and waste in operations. It also encompasses activities such as leased assets, transport and distribution, the use and disposal of sold products, and the impact of any investments.

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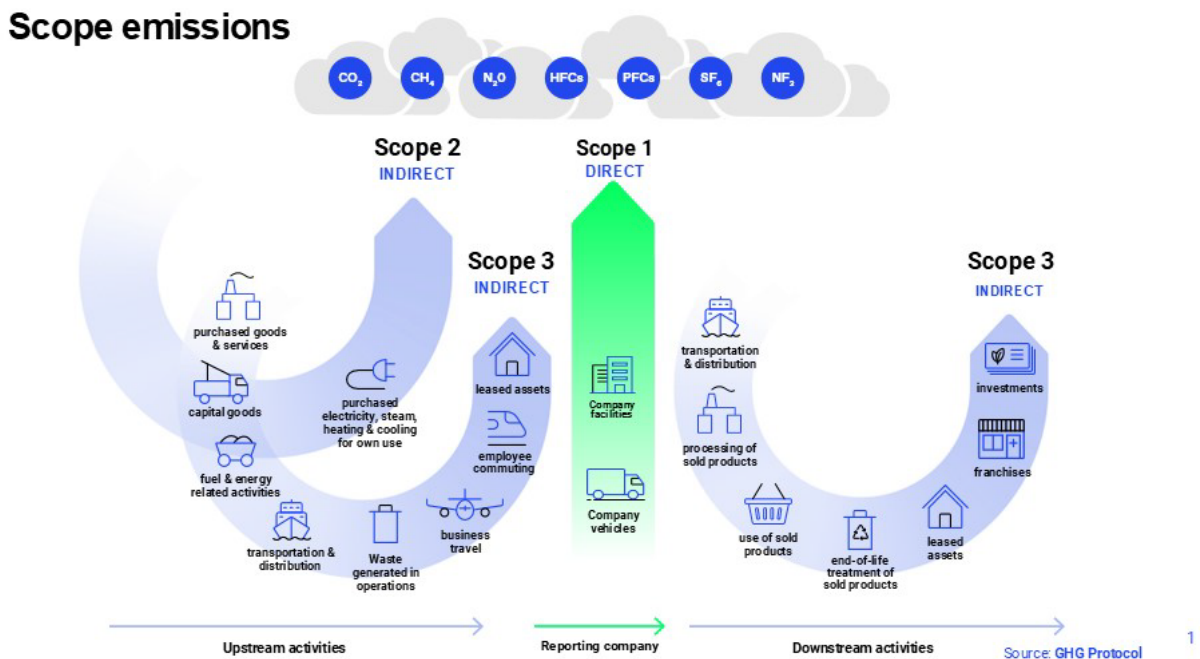# 4. Tackling Scope 3 value chain emissions

Figure 1: Overview of GHG Protocol scopes and emissions across the value chain

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[5] The Greenhouse Protocol, Corporate Value Chain (Scope 3) Standard (GHG Protocol's Scope 3 Standard):
https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporing-Standard_041613_2.pdf

Climate impacts on the value chain present significant challenges and opportunities

Scope 3 value chain emissions represent the largest proportion of cooling businesses' GHG emissions, typically responsible for 90-99% of the carbon footprint[6]. Accelerating action to reduce Scope 3 emissions is vital for cooling businesses seeking to decarbonise to Net Zero. Such actions will need to mitigate recognised challenges and strive to capture acknowledged opportunities.

Challenges

- **Climate risk:** Value chains are an acknowledged and key source of business risk (e.g. supply issues, product quality, margin), and physical and transitionary climate risks are simply a set of additional business risks.

- **GHG emissions data:** Due to the newness of climate data requirements, value chains are typically ill prepared to measure, record and supply GHG emissions data. Moreover inconsistent data requirements slow information request turnaround.

- **Value chain engagement**: Engaging suppliers and ensuring their commitment to providing reliable emissions data can be difficult, and engagement strategies might be resource intensive and costly.

Opportunities

- **New products and markets:** Understanding value chain emissions can drive innovation, leading to the development of eco-friendly products and opening new market opportunities. For example, a business identifying high emissions in steel sourcing might innovate and source only recycled or less carbon intense steel, tapping into the eco-friendly market segment.

- **Enhance value chain robustness and effectiveness:** Identifying emissions sources can help streamline operations, improve supply chain resilience, and optimise logistics. For instance, a business that discovers high emissions in its transportation network can switch to more efficient routes or greener logistics providers, improving overall supply chain efficiency.

- **Improved profitability:** Reducing emissions often leads to cost savings through energy efficiency, waste reduction, and better resource management (e.g. a manufacturing firm that reduces its energy consumption by optimising production processes can lower its operational costs, directly boosting profitability).

- **Wider collaboration:** Collaborating with suppliers and partners on emission reduction initiatives can strengthen business relationships and create shared value (e.g. a retailer working with suppliers to lower emissions can foster stronger partnerships and jointly achieve sustainability goals, enhancing mutual trust and cooperation).

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[6] Cooling suppliers: A stocktake on the path to Net Zero | The Carbon Trust

Scope 3 value chain emissions management processes deliver real business benefits

Scope 3 value chain management is not just a tick-box exercise to comply with current and upcoming regulatory changes. When done correctly, it can provide valuable insights into business value chain risks and opportunities, the identification of new products and services, and wider commercial benefits.

When the value chain is examined through a decarbonisation lens, important challenges and opportunities can be recognised (see Figure 2).
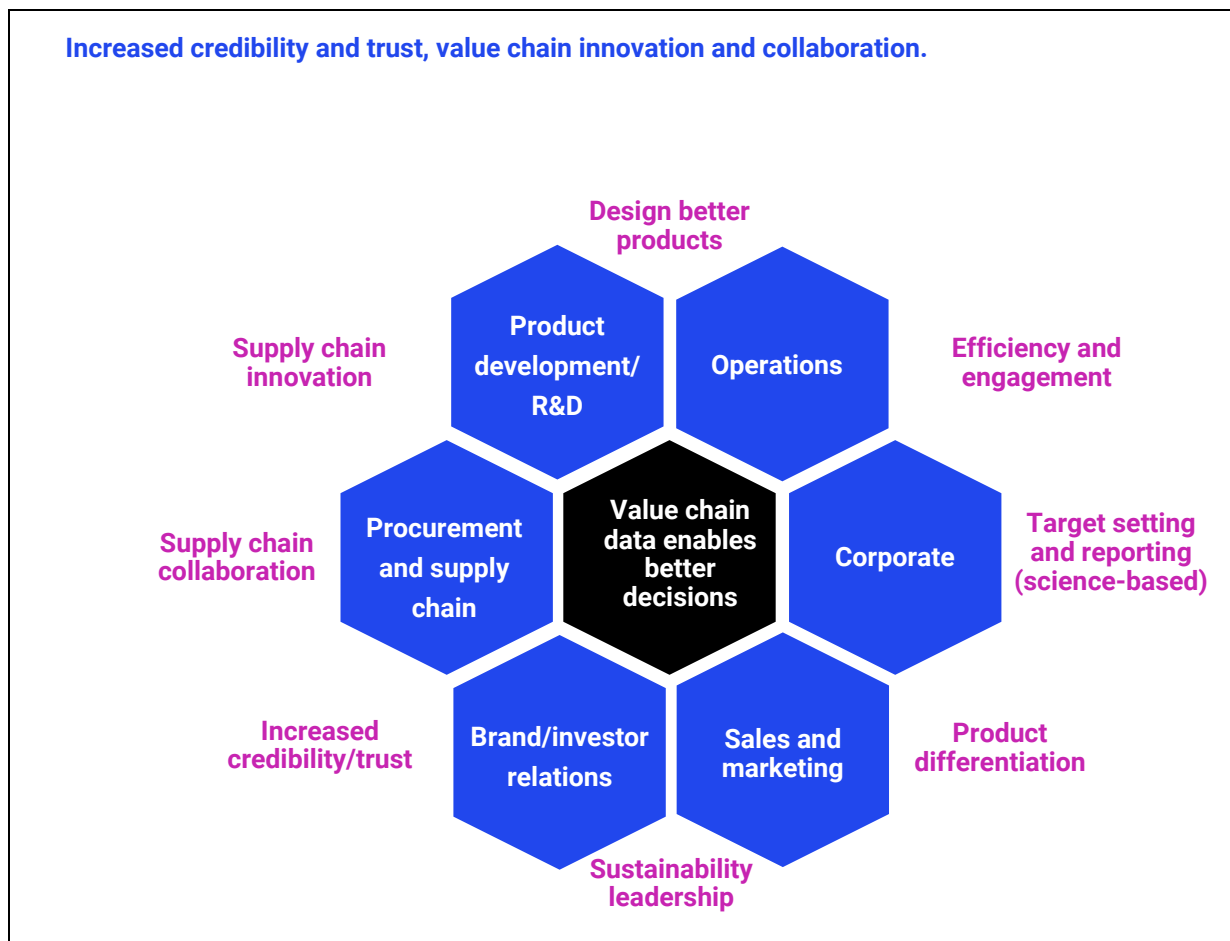
Figure 2: Benefits of Scope 3 value chain management

Through Scope 3 value chain management, cooling businesses can take steps to futureproof their business and build confidence in their decision-making. Benefits of such management include:

- **Identify hotspots:** Business drivers for carbon emissions may be the same drivers for carbon-related risks and opportunities. By assessing where Scope 3 emissions lie across the value chain, cooling businesses can plan to mitigate resource and energy risks and their associated costs.

- **Assess suppliers' sustainability performance:** Understand which raw material/parts providers have established 2030 GHG reduction goals aligned with a maximum temperature increase of 1.5C and have Net Zero 2050 goals (leaders), and which are just starting or haven't yet started work on GHG emissions reductions (laggards).

- **Assess equipment performance:** Discover which products are best suited to use of lower GWP refrigerants and reduced electricity consumption.

- **Collect useful data:** Use Scope 3 data to make informed decisions across procurement, product design and logistics.

- **Set and report goals:** Assure accountability, accuracy and transparency by reporting GHG emissions in line with other reporting requirements.

- **Set contractual targets for suppliers:** Introducing contractual requirements for low embodied carbon and low GHG emission performance will ensure reductions in Scope 3 emissions.

- **Build better relationships:** Helping cooling suppliers to implement sustainability initiatives boosts engagement and strengthens relationships.

- **Innovate:** Find innovative solutions to create more sustainable cooling products.

- **Boost internal engagement:** Engage with employees to reduce emissions from business travel and employee commuting.

- **Build brand reputation:** Increase the credibility of the brand's climate action among investors, customers and other stakeholders.

Many cooling businesses are well advanced in their activities to reduce Scope 1 and 2 emissions. However, they cannot meet their climate goals if they ignore climate impacts in their value chains. Since Scope 3 emissions make up the majority of a cooling business's carbon footprint, the Science Based Targets Initiative (SBTi)[7] has made quantifying and setting Scope 3 targets a requirement of their validation process. Any business whose carbon reduction target has been validated by the SBTi and whose Scope 3 emissions represent more than 40% of its total footprint must now report on its Scope 3 reduction efforts[8].

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[7] Science Based Targets: Ambitious corporate climate action - Science Based Targets

[8] FAQs - Science Based Targets

5. Measuring Scope 3 value chain emissions

Scope 3 value chain emissions calculations need to be good enough to prioritise, guide and implement decarbonisation activities

Learnings from cooling and other manufacturing businesses that are further progressed with Scope 3 decarbonisation can help shape and accelerate the approaches, learnings and heuristics adopted by other cooling businesses across their value chains (see Figure 3).
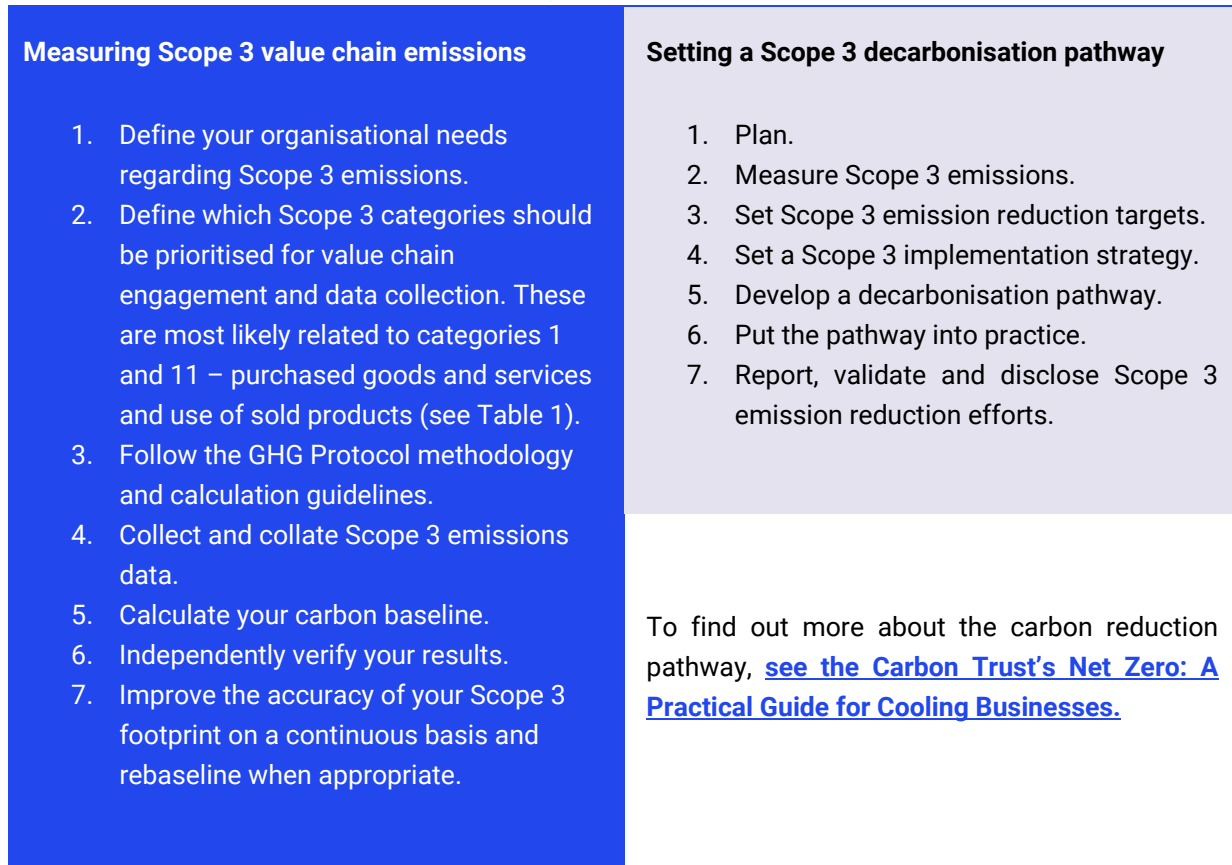
Measuring Scope 3 value chain emissions	Setting a Scope 3 decarbonisation pathway
1. Define your organisational needs regarding Scope 3 emissions. 2. Define which Scope 3 categories should be prioritised for value chain engagement and data collection. These are most likely related to categories 1 and 11 – purchased goods and services and use of sold products (see Table 1). 3. Follow the GHG Protocol methodology and calculation guidelines. 4. Collect and collate Scope 3 emissions data. 5. Calculate your carbon baseline. 6. Independently verify your results. 7. Improve the accuracy of your Scope 3 footprint on a continuous basis and rebaseline when appropriate.	1. Plan. 2. Measure Scope 3 emissions. 3. Set Scope 3 emission reduction targets. 4. Set a Scope 3 implementation strategy. 5. Develop a decarbonisation pathway. 6. Put the pathway into practice. 7. Report, validate and disclose Scope 3 emission reduction efforts. To find out more about the carbon reduction pathway, **see the Carbon Trust's Net Zero: A Practical Guide for Cooling Businesses.**

Figure 3: Approaches, learnings and heuristics for cooling businesses

Measuring the Scope 3 footprint

The GHG Protocol's Scope 3 Standard[5] has identified 15 categories of GHG emissions sources across upstream and downstream activities. Some categories, such as business travel and waste, are easier to influence. Others require new strategies, coordination and collaboration, such as engaging suppliers or adapting the company's product development strategy.

Cooling businesses will find most of their Scope 3 emissions in downstream activities.. Downstream emissions can in part be addressed by increasing the energy efficiency of cooling equipment manufactured and selecting the lowest GWP refrigerant for each specific cooling application. The biggest cause of cooling businesses' Scope 3 value chain emissions is caused by the use of purchased refrigerants(see Table 1). Measuring and addressing these emissions requires dedicated supplier and employee engagement strategies.

Noteworthy learnings and heuristics

1.   Use GHG accounting to identify business value

GHG accounting supports regulatory reporting requirements and provides data to drive innovation, strengthen supplier sustainability conversations or set science-based targets. To stay on track, cooling businesses should always revert their focus to the **business value** that a Scope 3 footprint and reduction plan can generate.

2.   Start with the data at your disposal

It's important to accept that the accuracy of Scope 3 measurement and reporting will not be perfect first time, but will improve as more specific data becomes available. Cooling businesses should begin by calculating their Scope 3 footprint with the best available data at hand, so they can identify their biggest emission hotspots.

Businesses have typically used a spend-based approach to calculate their upstream emissions. The use of spend-based data offers a very wide, but shallow, lens on emissions, focusing on purchased goods and services. Often, the procurement data for the entire year is used, taking the 'amount bought' multiplied by the average cited emission factors. This approach can be limiting as it captures secondary data, which lacks the necessary detail on which to base business decisions. Because the emission factors are not specific to products or suppliers, they do not allow for year-on-year comparisons. While this data collection should not be used in the long term, it is often easier and cheaper to obtain in the first instance.

Regardless of the outcome, **nearly all cooling businesses should focus on Scope 3 categories 1 (purchased of goods and services) and 11 (use of sold products)**, as shown in Table 1. Much of the product use data can be accessed through sales data, and engineering information designed to provide product details to customers (e.g. energy efficiency, equipment size, refrigerants, etc.). Annual energy usage across equipment types and grid intensity factors should also be collected. GHG intensity of grids is often collated by national governments (e.g. Pacific Northwest National Laboratory).

3.   Prioritise your data collection

Don't chase everything at once. With limited resources at your disposal, it is important to focus your efforts on areas where they can have the greatest impact. A screening exercise can help identify where key emissions across downstream and upstream activities lie. **Understanding which value chain Scope 3 categories have the biggest impact** on the business's Scope 3 emissions footprint (i.e. emission hotspots) will drive data collection efforts. Without this, it is impossible to implement a credible Net Zero strategy with internal buy-in and accurate reporting.

For equipment manufacturers, leading sources of Scope 3 emissions are Use of Products Sold, followed by Purchased Goods & Services and End-of-life Treatment of Sold Products. For refrigerant manufacturers, leading emissions sources are created by Purchased Goods & Services where the feedstock that goes into making F-gases is the prominent contributor, Use of Sold Products and End-of-life Treatment of Sold Products (see Table 1).

4.   Make data collection a company-wide exercise

It is important that functional experts from across the business are involved in collecting and analysing Scope 3 data, so they can understand how their decisions impact emissions across the entire value chain, not just in their operations. Treating footprint reporting with the same level of importance and scrutiny as financial reporting can lead to successful outcomes. Here, setting key performance indicators (KPIs)

related to the accuracy and reduction of Scope 3 emissions can be highly beneficial. As highlighted earlier, most of the data required for product use can be accessed through sales data, as well as engineering information that provides product details for customers.

5. Engage with suppliers and other value chain partners

Scope 3 data can inform decision-making, but only if it is both specific and granular enough. Once the largest sources of emissions have been identified in the value chain, it is crucial to act. Cooling businesses should encourage suppliers to calculate their own product footprint to improve the quality of data available. Year-on-year comparison of such supplier data ultimately leads to greater certainty in the Scope 3 footprint. Improving supplier data will also build confidence in the data set, ensuring it is 'good enough' to inform decision-making. (See Section 7 for further information on how to engage the value chains.)

6. Delve into your data and model solutions

Product design and procurement decisions influence a cooling business's footprint. After collecting Scope 3 data, it is important to interpret this data to identify which products and services have the biggest potential to help reduce emissions across the value chain, particularly during logistics, product use and end-of-life phases. Product design and procurement teams need to consider the impacts of the products purchased or created across their life cycle. This means accounting for factors such as improving designs, recyclability, energy efficiency, customer education and the use of alternative materials from the start, all the way through to the end-of-life phase.

7. Update the carbon baseline

Over time a cooling business will begin to replace secondary emissions data with primary data from suppliers. When this happens, it is important for the business to recalculate its baseline to ensure measured progress is accurate and not a result of comparing different data sets (see Figure 4). Upon receiving primary data from suppliers, it is important to ask for their historical data too, so the baseline can be recalculated.
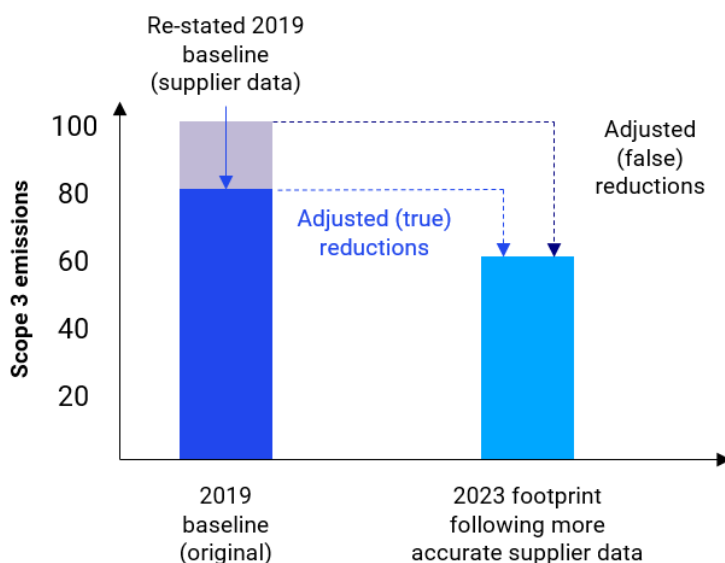

Figure 4: Emissions baseline recalculation

8.   Report transparently

To effectively decarbonise the cooling value chain, each business needs to transparently report and disclose its GHG emissions, including Scope 3 value chain emissions. Because transparent reporting is so critical to Net Zero decarbonisation, the regulatory landscape is witnessing a global shift.

Countries across the world are mandating the disclosure of emissions data for larger businesses, including those in the cooling sector that meet the regulatory threshold. It is expected that most, if not all, businesses in the cooling value chain will need to either: submit mandatory data to regulators as they meet the disclosure requirements or submit mandatory emissions data disclosures to clients or suppliers who themselves meet the mandatory regulatory threshold.

Noteworthy mandatory disclosure requirements that are increasingly being used include: the Task Force on Climate-Related Financial Disclosures (TCFD)[9], EU Corporate Sustainability Reporting Directive (CSRD)[10], European Sustainability Reporting Standards (ESRS)[11], Securities and Exchange Commission (SEC)[12], International Sustainability Standards Board (ISSB)[13], California SB 253[14], and Ecodesign for Sustainable Products Regulation (ESPR)[15].

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[9] The TCFD Framework incorporated into IFRS S1 and S2 Standards | Ecometrica
[10] Corporate sustainability reporting - European Commission (europa.eu)
[11] European Sustainability Reporting Standards (ESRS) – United Nations Environment – Finance Initiative (unepfi.org)
[12] SEC.gov | SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors
[13] IFRS - ISSB issues inaugural global sustainability disclosure standards
[14] California SB 253 and SB 261: a guide for companies – Watershed
[15] Ecodesign for Sustainable Products Regulation - European Commission (europa.eu)

GHG Protocol Scope 3 Emissions Categories		Scope 3 Emissions Hotspots		
Emissions Category	**Definition**	**Original Equipment Manufacturers**	**Refrigerant Gas Manufacturers**	**Cooling Sector ***
Upstream 1 - Purchased goods & services	The extraction, production and transport of goods and services purchased by the reporting company in the reporting year that is not included in categories 2–8.	(Emissions < 20%)	(40% > emissions > 60%)	(20% > emissions > 40%)
2 - Capital goods	The extraction, production and transportation of capital goods purchased or acquired by the reporting company in a reporting year.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
3 - Fuel & energy related emissions	The extraction, production and transportation of fuels and energy purchased by the reporting company in the reporting year, that is not already accounted for in either Scopes 1 or 2.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
4 - Upstream transportation & distribution	Transport and distribution of products and services purchased by the reporting company in the reporting year.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
5 - Waste generated in operations	Waste disposal and treatment generated in the reporting company operations in the reporting year.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
6 - Business travel	Transportation of employees for business-related activities during the reporting year.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
7 - Employee commuting	Transportation of employees between their homes and workplaces during the reporting year.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
8 - Upstream leased assets	The operation of assets leased by the reporting company (the lessee) in the reporting year, and which is not included in Scopes 1 and 2.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
Downstream 9 - Downstream transportation & distribution	Transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company).	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
10 - Processing of sold products	The processing of intermediate products sold in the reporting year by downstream companies.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
11 - Use of sold products	The end use of goods and services sold by the reporting company in the reporting year. For most cooling companies, category 11 will account for the majority of their Scope 3 emissions.	(Emissions > 80%)	(20% > emissions > 40%)	(60% > emissions > 80%)
12 – End-of-life treatment of sold products	Waste disposal and treatment of products sold by the reporting company (in the reporting year) at the end of their lives.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
13 - Downstream leased assets	The operation of assets owned by the reporting company (the lessor) and leased out to other entities in the reporting year, and not included in Scopes 1 and 2.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
14 - Franchises	Operation of franchises in the reporting year, not included in Scope 1 and 2, reported by the franchisor.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)
15 - Investments	Operation of investments, including equity and debt investments and project finance in the reporting year, not included in Scopes 1 and 2.	(Emissions < 20%)	(Emissions < 20%)	(Emissions < 20%)

Legend

☐ Emissions < 20%

☐ 20% > emissions > 40%

☐ 40% > emissions > 60%

☐ 60% > emissions > 80%

☐ Emissions > 80%

Note: The GHG Protocol, *Corporate Value Chain (Scope 3) Standard*[5], provides detailed information on the different categories' boundaries and guidance on how to identify them.

*Nearly all cooling companies should focus on energy use, refrigerants and embodied carbon from manufacturing equipment.

Table 1: Scope 3 emissions categories and intensity matrix for OEMs and RGMs

6. Tackling in-use phase emissions

"Emissions from the cooling sector are dominated by Scope 3 emissions, particularly category 11 - Use of sold products. Focusing on cutting emissions through production of low GWP energy efficient equipment offers a clear pathway towards Net Zero." Fionnuala Walravens, Senior Climate Campaigner, EIA

A common challenge when calculating use-phase emissions is consistently applying assumptions, which should be clearly defined or standardised to ensure homogeneous calculations. An example of a consistent approach when referencing the Scope 3 most prominent emission category (Use-phase emissions) could resemble the following:

- The most straightforward and accurate approach is to use local GHG emissions from energy consumption and refrigerant emissions normalised per heating or cooling tonne.
- Each piece of equipment should be calculated based on its expected working location and local energy grid.

When contemplating decarbonisation pathways, performing a materiality assessment to identify which products and regions make the biggest contribution to the value chain carbon footprint is a priority. The number of units sold per country and the regional business growth values are key factors to be aware of.

When devising a materiality assessment the following activities should be considered:

- Gather as much data as possible around the business's activity and its emission sources.
- Identify which issues are the most relevant (e.g. by applying a Pareto analysis).

Additional emissions reductions accounting

Accounting for previously unaccounted-for emissions prevention

Some businesses simplify their GHG emissions accounting by using typical equipment emissions for a specific location. Additional emissions prevention measures are often unaccounted for by using this more conservative approach. Businesses could account for features such as load reductions (e.g. programmed thermostat) and solar panels providing an alternative non-fossil fuel energy source, which would better correlate with emissions reduction technology installations.

7. Engaging with the value chain

Good practice tips for engaging with the value chain on Scope 3 emissions management

Businesses already use value chain management to ensure the effective and efficient supply of the materials, products and services necessary to create products and services. Businesses have well established IT systems, together with financial, commercial, process and reporting practices, to support their value chain activities. Scope 3 emissions management is an additional value chain management activity, one which will require that each value chain partner has sufficient knowledge to effectively comprehend and tackle its own decarbonisation activities, including statutory reporting.

Noteworthy learnings and heuristics to inform Scope 3 value chain engagement

- **Regularly engage with priority suppliers:** Review processes and assignment of resource andbudget to develop ongoing engagement processes. Collaboration between procurement and sustainability/climate teams is key to ensure good engagement and integration of decarbonisation within procurement processes, as well as for continual improvement of footprint measurement.

- **Set contractual targets for your suppliers**: Contractual requirements for low embodied carbon and lower GHG emission in-use performance embeds actions that lead to a reduction in Scope 3 emissions.

- **Work collaboratively with suppliers to develop informed approaches to procuring low carbon solutions:** Include the development of service-specific metrics for tenders, within contract management KPIs, etc. Develop standard questions that may be used within supplier questionnaires, or as general questions within invitations to tender. Corporate Social Responsibility fund allocations can be used to train suppliers on data monitoring and sustainable transitions.

- **Develop a matrix of common contract types and scales of spend:** For each, set out the strategy for tender and contract improvement aligned with Net Zero targets.

- **Update procurement strategy to ensure that Net Zero commitments are reflected, and that the strategy sets out key changes which will be made**: Develop standard specifications for common project types and contracts. Mandate life cycle carbon and cost assessments for major capital spend projects such as construction; require use of standards (e.g. PAS 2080) where appropriate.

- **Make provision for ongoing collation of a supplier's product and/or service-specific carbon footprint data to give a more accurate understanding of supply chain emissions:** Communicate ambitions to influence the value chain and future inclusion of Net Zero ambitions in all new invitations to tender (and distribute to active contracts on a one-to-many basis).

- **Set targets for key value chain areas and suppliers, aligned with Net Zero ambitions:** Measure improvements in value chain emissions and communicate achievements; share information and best practices among suppliers and peers.

8. Challenges experienced managing Scope 3 value chain emissions

Key challenges faced by cooling businesses in addressing Scope 3 value chain emissions

During the development of the *Cooling suppliers: A stocktake on the path to Net Zero report*[6], it was noted that cooling businesses who are more advanced in their decarbonisation activities are experiencing Scope 3 first-mover challenges and learning through trial and error to solve these. Some of the key challenges noted by these businesses included:

- Cooling sector has low purchasing power and highly fragmented global value chains (i.e. weak demand signals – each manufacturer is a small customer, by value, for their main suppliers).

- Multiple uncoordinated and incoherent supply chain engagements by each cooling business are swamping the value chain with confusing data, reporting and climate action requests; equally, manufacturers themselves are being swamped by these requests.

- Misaligned or absence of national product policies, standards and regulations creates a 'no stimulus event', leading to disinterest, misunderstanding and inaction by the value chain.

- Lack of clarity about the timeframe for the introduction of new innovations or how to effectively use these.

These challenges faced by cooling businesses who are managing and reducing Scope 3 emissions are among those explored below, in order to provide insight, practical guidance and sector-specific examples of how they can be addressed.

Noteworthy learnings and heuristics to inform Scope 3 value chain engagement

Take time to understand the problems and set out a strategy

It is easy to be swept up by the energy and enthusiasm that typically surrounds corporate action on climate change and decarbonisation. Cooling businesses revealed that weak understanding of the real challenges left them overwhelmed and with inconsistent or unfinished projects. By taking the time to understand the problems to be tackled, and the opportunities that may arise, a strategy can be developed that sets out clear decarbonisation goals, is resourced with relevant project and technical skills, and has appropriate levels of funding, as well as access to the executive team.

As part of this exercise, it is important to talk to – and learn from – stakeholders, including key suppliers in the value chain, customers and competitors, about their climate and decarbonisation activities. Corporate value chain decarbonisation is a systemic challenge. Understanding what actions businesses in the value chain system intend to take – and aligning with them, where possible – will reduce friction, magnify impacts and achieve results at less cost.

Scope 3 value chain data management requires effective pre-planning

Identifying, collecting, storing and processing valuable, good quality data stands as a routine challenge for most cooling businesses. The amount of data needed to successfully model and calculate Scope 3 emissions is significant. Collecting such data it always challenging as it typically entails educating and re-educating suppliers on the rationale behind, and the specific data required, for a particular data request. This occurs over long periods of time and requires multi-person efforts.

Start with industry collaboration in mind

Coordinated action by cooling businesses across the value chain can significantly simplify and accelerate efforts to reduce Scope 3 value chain emissions. Collaboration brings focus and clarity to the key actions of manufacturers, customers and key suppliers. For example, collaboration could help key suppliers work with a standard reporting format that has been agreed for use by key customers, such as OEMs, and so reduce the number of individual reporting requests. Collaboration among cooling businesses could communicate a larger positive demand signal to key suppliers, encouraging them to introduce new products or materials with lower GHG emissions footprints.

Such a coordinated, sector-wide approach has been taken by the Sustainable Markets Initiative Health Systems Task Force, to drive supply chain decarbonisation, without overwhelming suppliers with multiple data and collaboration requests.

The health systems task force[16]

Approximately 50% of healthcare sector emissions are produced by the value chains; therefore, a joint approach to support suppliers represents an opportunity to decarbonise the industry.

Objective

The Sustainable Markets Initiative Health Systems Task Force[17] was formed to set minimum climate and sustainability targets for common suppliers, to address emissions across the value chain and reduce the complexity of multiple asks for suppliers.

Participants

This public-private strategic task force brings together leaders from AstraZeneca, GSK, Merck KGaA, Novo Nordisk, Reckitt, Roche, Samsung Biologics, Sanofi, Bupa, Novartis, National Health Service England, the Sustainable Healthcare Coalition, UNICEF, the University of Pavia, and the World Health Organisation (WHO).

Priority areas

Supply chain and patient care pathways decarbonisation, digital innovation and consumer health and wellbeing.

Approach

Industry best practices were analysed collaboratively, and suppliers were consulted to ensure their views were considered when developing the targets[18].

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[16] The Health Systems Task Force Shares Joint Supplier Targets, 16 March 2023: https://www.sustainable-markets.org/news/the-health-systems-task-force-shares-joint-supplier-targets/ The Health Systems Task Force Shares Joint Supplier Targets, 16 March 2023: https://www.sustainable-markets.org/news/the-health-systems-task-force-shares-joint-supplier-targets/

[17] Health Systems Task Force: https://www.sustainable-markets.org/taskforces/health-systems-taskforce/ Health Systems Task Force: https://www.sustainable-markets.org/taskforces/health-systems-taskforce/

[18] Joint Supplier Targets: https://a.storyblok.com/f/109506/x/c6189f0f83/smi_suppliertargets.pdf Joint Supplier Targets: https://a.storyblok.com/f/109506/x/c6189f0f83/smi_suppliertargets.pdf

Pharmaceutical companies represented in the Task Force are responsible for implementing these targets with their respective suppliers as part of their existing engagement processes. The intent is to collectively support suppliers with solutions to achieving these targets as a step towards accelerating the transition to Net Zero healthcare systems that improve individual, societal and planetary health.

Outcomes

- Supply chain decarbonisation: emphasis is placed on reducing emissions across the supply chain by optimising logistics, using sustainable materials and engaging suppliers in climate goals.
- Digital innovation: promote the implementation of digital solutions to enhance sustainability.
- Joint climate targets: By setting joint climate and sustainability targets, the Task Force simplifies and unifies efforts across the healthcare sector to reduce the complexity of multiple and varied demands on suppliers.
- Consumer health and wellbeing: The Task Force focuses on improving consumer health and wellbeing through sustainable practices.

This initiative highlights how a collaborative approach can make significant strides towards sustainability and efficiency. A similar approach could be followed by the cooling sector to set common sustainability goals and industry best practices to reduce emissions across the value chain.

Prioritise which suppliers to work with on Scope 3 value chain decarbonisation

Prioritisation techniques, such as materiality assessment, should be used to identify which suppliers to engage with first. An initial exercise to engage a small, select group of suppliers (e.g. 10 to 30 of the largest contracts by value/carbon emissions) could be conducted to pilot the business's value chain decarbonisation approach. After analysing its success and making any appropriate adjustments, it could be rolled out to more suppliers. Some cooling businesses have carried out one-to-one interviews with suppliers. Others have conducted surveys to assess suppliers' decarbonisation activities.

Capacity building of value chain suppliers will likely be needed

Inadequate supplier training continues to slow the shift towards more decarbonised products and services. Suppliers often lack the practical knowledge to decarbonise. Training and capacity building across the value chain is needed to bridge this gap.

Sharing decarbonisation expectations and agreeing targets with value chain suppliers is vital. Uncoordinated decarbonisation target-setting causes significant business frictions, such as poor quality regulatory reporting and misaligned value chain goals, as well as decarbonisation challenges, including poor outcomes, along the value chain.

To enhance support and good practice, larger businesses should consider conducting group workshops and organise one-on-one sessions with key suppliers. These allow for feedback on progress and assessment of how issues are being addressed, benefiting the entire value chain (e.g. overcoming challenges in engaging the board).

When planning capacity-building activities with the value chain, consider the following principles:

- **Shared importance:** Ensure there's a shared understanding of why this is important, and convey it consistently to all suppliers.

- **Engagement approach:** Assess the most effective approach to engage suppliers. For instance, a contractual approach may provide certainty in setting targets, but legal levers might not always be useful. A tiered approach could be considered, starting with baseline setting and progressing to target delivery.

- **Information accessibility:** Directing suppliers to essential information that supports target adoption will reduce friction during implementation.

- **Support channels:** Define how suppliers can seek further information and designate a point of contact to facilitate knowledge sharing.

- **Collaboration:** Remember that businesses influence each other's emissions and strategies. Collaborating and sharing good practices will lead to a more effective decarbonisation approach.

Electrolux Group sustainability supply chain program[19]

Electrolux Group works closely with strategic suppliers to ensure that its products are manufactured sustainably throughout the global supply chain and to effectively address Scope 3 emissions, which account for approximately 99% of its carbon footprint. The programme focuses on the Scope 3 emissions related to purchased goods and services, as well as logistics, which accounts for around 10% of the business's GHG emissions. Additionally, engaging suppliers on environmental matters indirectly impacts the other Scope 3 categories, including the product use phase, which represents about 85% of the Group's carbon footprint.

Objectives

- Continuously improve supply chain environmental sustainability by directly supporting strategic suppliers with their climate transition planning.
- Manage Scope 3 emissions by collecting primary data to fully understand suppliers' environmental impact. Primary data provides better control and decision-making compared to secondary or spend-based data.
- Support the achievement of the company's GHG Scope 3 emissions reduction targets.
- Integrate environmental considerations into procurement business decisions.

Approach

- Internal engagement of procurement category managers and directors is necessary.
- Time is made available to host ad hoc meetings to discuss technical environmental aspects and new projects/opportunities.
- Sustainability considerations are included in supplier contracts and when awarding new business.
- Sustainability progress reviews are integrated into quarterly business reviews with suppliers.
- Having partnered with and disclosed to CDP since 2010, the Group joined the CDP Supply Chain program[20] in 2019 to address supply chain emissions more effectively. CDP is a non-profit international organisation that specialises in environmental reporting and ratings, to collaboratively

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[19] https://www.electroluxgroup.com/wp-content/uploads/sites/2/2024/03/sustainability-report-2023.pdf#page=29

[20] Electrolux suppliers commit to CDP program to improve environmental impact – Electrolux Group

engage and support strategic suppliers on environmental topics, such as climate, water and plastics.

- A Supplier Scorecard model has been implemented globally to evaluate suppliers on several areas, including sustainability. Environmental sustainability performance is defined through the CDP score: this is used to reward and promote good supplier performance on sustainability, as well as to support underperforming suppliers (i.e. D/D- CDP rating[21]) to improve.
- Internal KPIs have been established to align with CDP for the entire procurement organisation related to suppliers' environmental performance.
- Weekly interactions with the CDP team take place to monitor progress and define next steps.
- Continuous monitoring and reporting drives action in the OEM supply chain through the Supplier Energy and Water Reporting program, which comprises:
  - **Data collection:** Suppliers collect energy and water consumption data within their facilities, including measuring usage across different processes, equipment, and areas.
  - **Reporting:** Suppliers submit energy and water data on a quarterly basis using the same tool and format as the Group's internal factories. It is essential for suppliers to provide accurate and timely information.
  - **Improvement plans:** Suppliers provide an annual action plan and improvement targets for energy and water consumption.
  - **Monitoring and verification:** Electrolux Group monitors progress and verifies the effectiveness of implemented measures. Regular assessments ensure continuous improvement.
- The Group's Social Sustainability program, which includes labour standards, as well as the health, safety and environmental performance of its suppliers, is managed globally by the Responsible Sourcing team in collaboration with the procurement organisation. The foundation of the program has the same requirements as those set by the Group for internal operations. Suppliers are assessed and evaluated by the Responsible Sourcing team. There is a minimum result threshold to qualify into the supply base and an improvement program in place to ensure the development of individual suppliers, as well as the total supply base. The score from the assessment is used in sourcing decisions and business reviews.
- Webinars are offered to suppliers to provide direct support on emissions disclosure and environmental topics.

Supplier selection

The company invites its strategic suppliers, considering both business and environmental impact, to disclose their environmental information through CDP, covering direct materials, indirect materials, logistics, and OEM suppliers.

In 2020, Electrolux Group invited approximately 200 suppliers and progressively expanded its scope, reaching more than 350 suppliers by 2024.

Results

- Very high response rates, reaching 98% disclosure in 2023.
- CDP has been recognised as an internal tool to assess suppliers' environmental status.
- Electrolux Group's Net Zero journey has served as a catalyst to encourage its suppliers decarbonise.

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[21] Supplier Engagement Rating 2023 - CDP

- Improved suppliers CDP ratings: Around 80% of suppliers were in the lowest CDP band score (i.e. D/D-) in 2020. With the Group's support, only around 40% of them remained in the lowest band score in 2023.

Next steps

Engaging suppliers on environmental topics is a continuous journey. Electrolux Group aims to:

- Support all suppliers to achieve a minimum of C/C- rating in the CDP questionnaire.
- Obtain primary data from all suppliers on basic climate-related information, including energy consumption, Scope 1&2 emissions, emissions intensity and emissions allocation.

Schneider Electric iAccelerate Zero Carbon Day Workshops[22]

Action on reducing CO2e emissions from the top 1,000 suppliers by 50% by 2025.

To drive and scale up the adoption of emission reduction levers by suppliers, Schneider Electric took an innovative approach and curated a dedicated workshop under the aegis of iAccelerate Zero Carbon Day.

A suitability analysis was conducted to identify the appropriate decarbonisation levers and the specific actions that are feasible and applicable for suppliers across various locations. Specific diagnostic tools were then developed and shared with suppliers to analyse their own operations and identify their most relevant actions.

Suppliers were also asked to complete a self-assessment to identify subject matter experts (SMEs) within the Schneider Electric ecosystem. **The main task of these experts was to demystify each action and explain in practical terms what needs to be done, how it impacts their in-house processes and what are the overall benefits to the organisation**. In addition, service/solution providers were identified who can support suppliers to carry out these actions.

Suppliers were then **engaged in an intensive five-week pre-workshop process to review the GHG emissions data, diagnostic results and commitment of the leadership to overall decarbonisation**. During the iAccelerate Zero Carbon Day, SMEs explained how individual actions can benefit their companies. Suppliers then visited a roadshow organised by the service/solution providers to discover ways of implementing new decarbonising strategies.

During the workshops, the suppliers were able to engage with other stakeholders and explore the market to find the most suitable partners for implementing decarbonisation measures. Separate sessions were organised with participating companies who are well ahead in their decarbonisation journey. These included teams from Henkel AG and ArcelorMittal, who shared their experiences and provided practical suggestions for enhancing decarbonisation efforts.

[22] Schneider Electric 2022 Climate Report: https://www.se.com/ww/en/assets/564/document/396656/2022-climate-report.pdf

Explore supplier incentives to influence Scope 3 action

The lack of supplier incentives to encourage value chain decarbonisation can hinder progress for cooling businesses working to decarbonise Scope 3 emissions. Such businesses often struggle to influence suppliers to adopt sustainable practices as without appropriate incentives some suppliers do not prioritise decarbonisation efforts[23]. Incentives offer businesses an opportunity to influence supplier behaviours, operations, and investments. They can include collaborating with suppliers, providing technical expertise, financial assistance and recognising leadership in decarbonisation efforts[24].

Electrolux Group supplier awards program

Electrolux Group has introduced a Sustainability Award[25] as part of its Supplier Awards program. This annual award recognises the best supplier contributing to any of the Group's For the Better 2030 sustainability framework goals[26]. The Group aims to ensure that the entire value chain reaches Net Zero by 2050.

The Sustainability Award recognises suppliers who have made significant progress towards the Group's sustainability targets. It focuses on three main areas:

- **Recycled materials:** Encouraging the use of recycled materials, including plastics.
- **More efficient appliances:** Developing components such as compressors and motors to reduce the carbon footprint of appliances.
- **More efficient operations:** Enhancing operational processes to reduce emissions and waste.

Winners are celebrated for their commitment to sustainability and their contributions to the Group's environmental objectives.

Nidec Global Appliance, a home and commercial product manufacturer, was the winner of the Electrolux Group Sustainability Award in 2023. The supplier was recognised for proactively sharing its sustainability progress and for the implementation of an environmental, social and governance materiality steering committee to demonstrate the company's commitment to integrating sustainability into its business.

Modify products and services to reduce in-use phase and end-of-life emissions

In-use phase and end-of-life Scope 3 value chain emissions are driven primarily by energy consumed while using a cooling product, as well as the accidental release of refrigerant gases (e.g. due to leakage or poor end-of-life practices). Emissions can also be caused by poor product selection (e.g. oversized for

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[23] Science Based Targets, Catalysing Value Chain Decarbonisation, February 2023:
https://sciencebasedtargets.org/resources/files/SBTi-The-Scope-3-challenge-survey-results.pdf?trk=public_post_comment-text

[24] The World Business Council for Sustainable Development (WBCSD), Reaching net zero: incentives for supply chain decarbonisation: https://www.wbcsd.org/wp-content/uploads/2023/10/Reaching-Net-Zero-Incentives-for-supply-chain-decarbonisation-.pdf

[25] https://www.electroluxgroup.com/en/new-sustainability-award-for-electrolux-suppliers-attracts-high-number-of-entries-31707/

[26] For the Better 2030 – Electrolux Group

application), poor servicing and maintenance, or not adopting passive cooling strategies during equipment selection.

Actions that can be taken to reduce in-use and end-of-life emissions from cooling products include:

- Reduce cooling demand through encouraging use of a passive cooling measures.
- Build products to minimum energy performance standards that incorporate the lowest climate footprint. This includes using the lowest GWP solution available for the application and using green materials, such as recycled, recovered and renewably produced, that are easy to service and maintain.
- Reclaim, recycle or destroy used refrigerants for customers to prevent leakage or end-of-life emissions.
- Offer new services to customers to maximise product performance and minimise preventable emissions releases, such as cooling as a service, refrigerant reclaim and recycling.

GE Healthcare
According to Reuters, the GHGs released by US healthcare facilities exceed those emitted in total by the UK. When US healthcare facilities were compared to other nations, they rank as the 13th largest emitter of GHGs globally. Currently, anaesthetic gases account for 5% of the carbon footprint for all acute services in the UK National Health Service organisations.

What's the problem?
GE Healthcare, a US multinational medical technology company, found significant emissions around their category 11 (use-phase) emissions.

What's the solution?
GE Healthcare received US Food and Drug Administration premarket approval for the End-tidal (Et) Control software for one of their general anaesthesia delivery system offerings.
This facilitates a potential 44% emission decline due to several efficiency improvements[27]. This reduction would most likely be linked to use-phase emissions since anaesthetic agent consumption is decreased by applying Et Control software rather than manual control. Moreover, this potential reduction may be supported by switching the anaesthetic agent from desflurane to sevoflurane as there is a GWP difference of 3,365 tonnes of CO_{2e} equivalent emissions per tonne of material used.

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[27] **GE Healthcare Sustainability report, https://www.gehealthcare.co.uk/-/jssmedia/gehc/us/files/about-us/sustainability/reports/ge-healthcare-sustainability-report-2023.pdf?rev=-1**

Summary

Scope 3 value chain emissions are the main source of GHG emissions for cooling businesses

Scope 3 emissions typically account for 90-99% of a cooling business's carbon footprint. Of the 15 Scope 3 emissions categories, three are the typical emissions hotspots: Use of Sold Products, Purchased Goods & Services and End-of-life Treatment of Sold Products.

Scope 3 value chain management present significant challenges, opportunities and benefits

Notable challenges include: engaging with the value chain, ensuring access to good quality GHG emissions data and ensuring suppliers tackle physical and transitory risks. Opportunities include: wider collaboration, innovation, improved supply chain reliability and enhanced profitability.

Measuring Scope 3 value chain emissions management needs to prioritise, guide and implement decarbonisation activities

Focus on the value that reducing Scope 3 emissions provides to the business. Start with the data at the business's disposal, prioritise data collection from suppliers who are likely to have material emissions, make data collection a business-wide exercise, delve into data and data models, update baselines and report transparently.

Businesses should expand existing value chain management practices to include manage Scope 3 emissions impacts

Regularly engage with priority suppliers, update or modify contracts to facilitate Scope 3 management, set targets for value chain decarbonisation in line with the business's own Net Zero ambitions, and work collaboratively with suppliers, peers and customers to reduce the burden of managing and reporting on Scope 3 activities.

Mandatory regulatory reporting is becoming commonplace for large businesses

Large businesses, whether customers or suppliers, are increasingly obliged to disclose emissions data. Mediatory reporting includes: TCFD, CSRD, ESRS, SEC, ISSB, California SB 253 and ESPR.

Mandatory disclosures of climate data necessitate Scope 3 information requests across the value chain. Where practical, cooling businesses should explore collaboration opportunities to simplify data gathering and reporting, such as by using agreed pro-forma templates or outsourcing to a specialist data broker.

Learn from the challenges faced by cooling businesses who are already addressing Scope 3 value chain emissions

It's important to take the time to understand the real problems, and set out a strategy from the outset. Study the details to ensure effect pre-planning. Start with industry collaboration in mind and prioritise which suppliers to work with based on materiality. Understand that capacity building with suppliers is necessary; where practical, work with others to share the burden of this activity. Recognise that Scope 3 management can drive improvements in the climate readiness of products and services sold.