# Training

# Scope 3 Carbon Footprint

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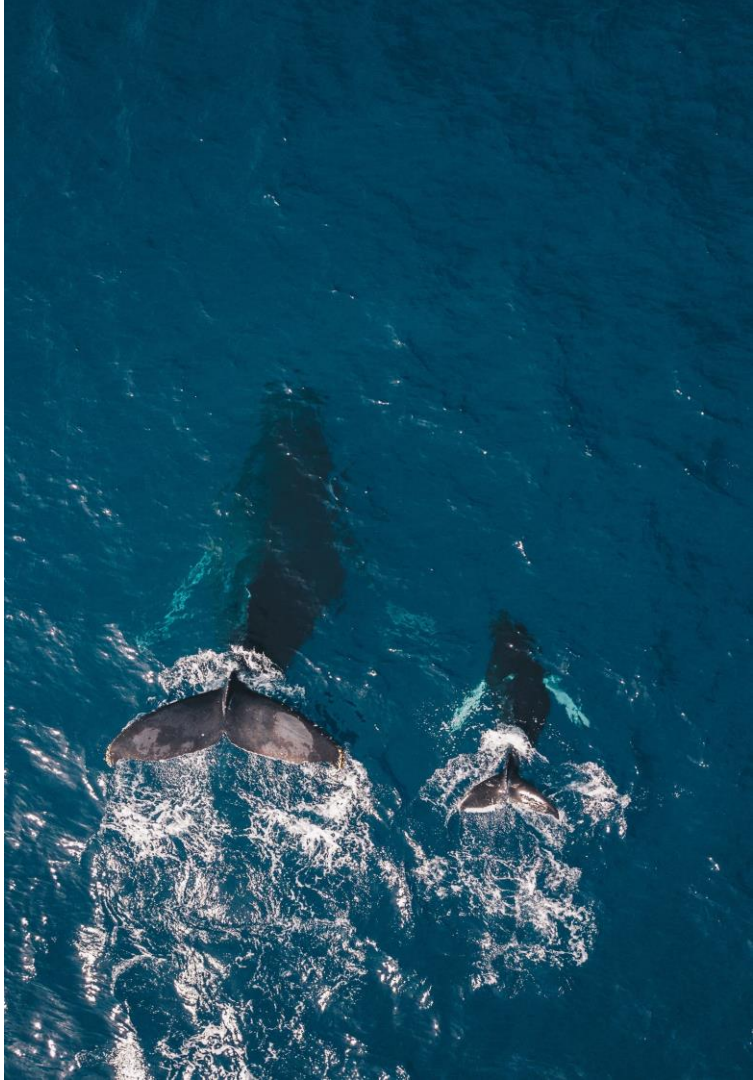

# Introduction and context

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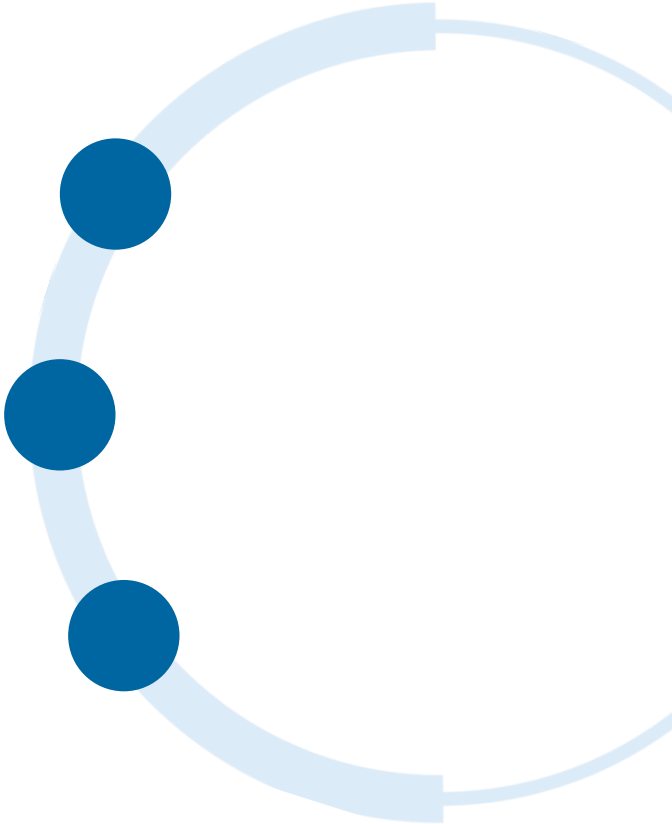
# Introduction and context

Understand the **importance of Scope 3 and its main challenges** when calculating and managing its emissions.

Offer insight into how to address Scope 3, identify emission hotspots, and improve data quality.





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# Introduction and context

## Challenges of Calculating and Managing Scope 3

### Complexity

- Big, global by nature
- Very diverse (by sector, by company)
- Decentralized
- High risk, low influence
- Challenge in data collection
- Direct (Level 1), Indirect (Level 2, Level 3+)

### Impact

- Growing focus
- Scope 3 emissions are generally more material than direct emissions
- Reputation
- Responsibility
- Regulation
- Increasingly in the focus of investors

### Uncertainty

- What is considered best practices?
- How to involve suppliers?
- How to act on the data?
- Return on investment
- Target Configuration - SBTi
- Decision making
- Evolution of technology

# Calculation of Scope 3 emissions



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# Calculation of Scope 3 emissions
## Accounting and reporting standards

There are different methodologies for calculating the corporate carbon footprint validated and internationally recognized. The Greenhouse Gas Protocol and ISO 14064:1 (2019) are environmental standards that provide methodologies for the calculation of GHG emissions, thus allowing organizations to use recognized methods and standardizing the calculation to facilitate the comparison of different footprints.

### ISO 14064-1

- Published in 2006, part of the ISO series on environmental management
- Provides **guidance on principles and requirements for GHG reporting**
- Additional guidance on **verification, data validation** and external reporting.

**GHG Protocol** ← For this workshop we will rely on the methodology provided by the protocol

- The corporate and value chain standards of the GHG Protocol are **emissions accounting tools**
- Widely used by companies and organizations around the world.
- It provides a **consistent approach to corporate carbon accounting and reporting**.

# Calculation of Scope 3 emissions

## Greenhouse Gas Protocol

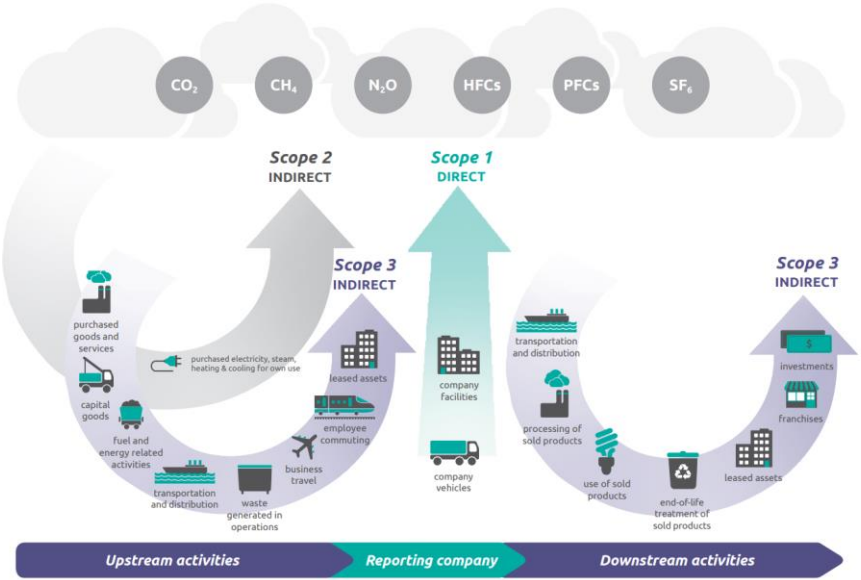
GREENHOUSE GAS PROTOCOL

The GHG Protocol Corporate Reporting and Accounting Standard provides requirements and guidance for companies preparing a corporate GHG or carbon footprint inventory, created to **increase consistency and transparency in GHG accounting and reporting** among multiple companies. In it, the emissions are classified between:

**Scope 1:** GHG emissions from sources that are owned or controlled by the company (e.g. combustion in boilers, vehicles, etc.).

**Scope 2:** Emissions from the purchased electricity generation consumed by the company.

**Scope 3:** A category that covers all other emissions that are a result of the company's activities, but that are produced from sources that the company does not own or control (e.g., business travel).



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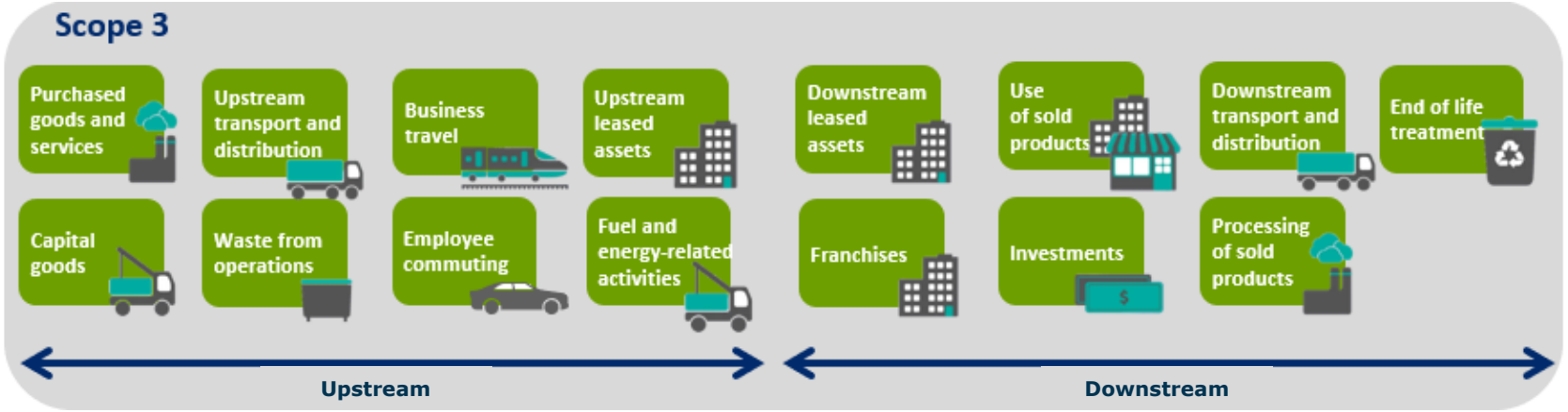
# Calculation of Scope 3 emissions
## Greenhouse Gas Protocol

Broken down into 15 distinct categories, Scope 3 covers emissions associated with the company's activities that are produced by sources that are not owned or controlled by the company. Although the report of this Scope is currently optional, the **emissions associated with the value chain of companies is increasingly in the spotlight of organizations and investors**, being an essential requirement for the establishment of SBTs and Net Zero objectives.



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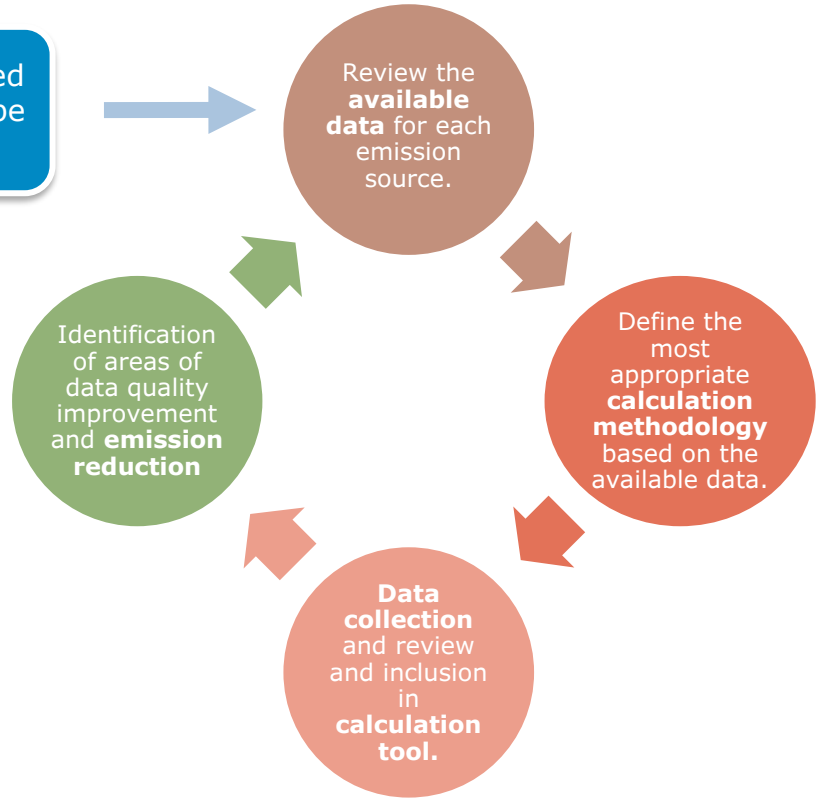
# Calculation of Scope 3 emissions
## Process

Review of which activities are included in each Scope and category of Scope 3.



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# Calculation of Scope 3 emissions
## Process – Focus on the first steps

**Objective: To determine which emission sources to include and how to categorize emissions.**

Complying with Net Zero will require good data quality to track performance: for this reason, it is essential to understand from now on **what data needs to be collected** in the future to be prepared.

The initial scope assessment should be structured in such a way as to enable companies to understand:

- **Relevance of each category** to the company
- Which **sources** should be included in each category
- **Calculation status** of the category (if this is not the first calculation of scope 3).
- The **type of data** that would ideally be used to calculate each relevant category, and alternative data that can be used to fill gaps.



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# Calculating Carbon Footprints
## Methodology

**GHG EMISSIONS** =

### ACTIVITY DATA

**Definition:** quantitative measure of the activity that produces a GHG emission.

**Description:** represents the activities carried out by the company, for example, kWh of electricity consumed.

**Data type:** Primary or secondary

×

### EMISSION FACTORS

**Definition:** coefficient that relates GHG activity data to GHG emission.

**Description:** factor representing GHG emissions per unit of relevant activity, eg, kg CO2e per kWh of electricity consumption.

**Inventories of GHG emission factors:**
Examples:
- Economic data: CEDA database
- Physical data: Ecoinvent database
- Distance data: UK DEFRA database

*In order to reduce uncertainity, these databases should be chosen taking into account **geographical** and **temporal** context.

# Scope 3 categories

## UPSTREAM

| | |
|---|---|
| **CATEGORY 1** | Goods and services purchased |
| **CATEGORY 2** | Capital goods |
| **CATEGORY 3** | Fuel and energy-related activities (not included in scope 1 or scope 2) |
| **CATEGORY 4** | Upstream transport and distribution |
| **CATEGORY 5** | Waste generated in operations |
| **CATEGORY 6** | Business travel |
| **CATEGORY 7** | Employee commuting |
| **CATEGORY 8** | Upstream leased assets |

## DOWNSTREAM

| | |
|---|---|
| **CATEGORY 9** | Downstream transport and distribution |
| **CATEGORY 10** | Processing of products sold |
| **CATEGORY 11** | Use of products sold |
| **CATEGORY 12** | End-of-life treatment of products sold |
| **CATEGORY 13** | Downstream leased assets |
| **CATEGORY 14** | Franchises |
| **CATEGORY 15** | Investments |

# Category 1&2: Purchased Good & Services and Capital Goods - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Spend data** | **Economic** input-output modelling – We use the CEDA database (Knowledge Base) |
| **Spend + supplier emissions data** | Using **supplier public data** to apportion emissions using the revenue for large suppliers (e.g. if Company X makes up 50% of their supplier's revenue then 50% of supplier's emissions will be apportioned) |
| **Goods/ services specific data** | Use EcoInvent or similar database to get **weight-based** emission factors for most material products. Non-material spend categories can use the economic input-output approach |
| **Supplier primary data** | Supplier specific emissions data on the goods/ services purchased. (e.g. Microsoft are asking many suppliers for **LCA**'s to be done on materials for their products)<br>Getting granular primary data will require engaging directly with the supply chain. |

# Category 1& 2: Purchased Good & Services and Capital Goods - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Goods/ services specific data | Supplier Primary data |
| **Non Material** | Spend data | Spend data | Spend data |

# Category 3: Fuel & Energy Related - Data Quality & Roadmap

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Primary Energy Consumption** | The company should have energy data that they have used to calculate their scope 1+2 data. Use WTT + T&D emission factors to calculate this category |

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Primary Energy Consumption | Primary Energy Consumption | Primary Energy Consumption |
| **Non Material** | Primary Energy Consumption | Primary Energy Consumption | Primary Energy Consumption |

# Category 4: Upstream Transport - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Spend data** | **Economic** input-output modelling – We use the CEDA database (Knowledge Base) |
| **Distance based method** | Either use:<br><br>**Total distance** covered by 3rd party logistics companies broken down by **transportation mode** |
| **Fuel data** | Data for inbound and outbound flows, request for data to show how much **tonnage** inbound and outbound. Breakdown into air, sea, road and rail<br><br>Determining the **amount of fuel consumed** (i.e., scope 1 and scope 2 emissions of transport providers) and applying the appropriate emission factor for that fuel |
| **Supplier primary data** | **Supplier specific** reports on emissions and distance data |



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# Category 4: Upstream Transport - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Distance or fuel based data | Supplier primary data |
| **Non Material** | Best available data or spend data | Best available data or spend data | Best available data or spend data |

# Category 5: Waste from operations - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Spend data** | **Economic** input-output modelling – We use the CEDA database (Knowledge Base) |
| **Primary waste data** | Total **waste by type of material** (glass, plastics, etc)<br><br>**Destination and treatment** for each of these materials to be tracked (reuse, recycling, landfill, incineration etc.)<br><br>This is the ideal collection of data – it is likely that many clients will not yet have full coverage but should be working towards it |
| **Waste treatment company primary data** | **Waste treatment company specific** reports on emissions per managed waste type |

# Category 5: Waste from operations - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Primary waste data | Waste treatment company primary data |
| **Non Material** | Best available data or spend data | Best available data or spend data | Best available data or spend data |

# Category 6: Business Travel - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Spend data** | **Economic** input-output modelling – We use the CEDA database (Knowledge Base) |
| **Business travel survey** | Sample **survey** within the company to estimate business **travel frequency, travel types** |
| **Primary travel data** | **Flights**: Use destination/ origin of trip (mileage) and ticket class<br><br>**Hotel Nights**: Number of nights per country<br><br>**Trains and taxi:** Use destination/ origin of trip (mileage)<br><br>**Vehicle Business travel**: Mileage recorded by employees |

# Category 6: Business Travel - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Primary travel data (Flights & Mileage Prioritised) | Primary Data for: Flights, Mileage, trains, Hotel stays |
| **Non Material** | Best available data or spend data | Best available data or spend data | Best available data or spend data |

# Category 7: Employee Commuting & WFH - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Benchmark data** | Commuting model based on **national/regional statistics** |
| **Primary Data (Survey)** | Commuting + WFH **survey** to base emissions on. It is unlikely you will ever get 100% primary data coverage for this category |

# Category 7: Employee Commuting & WFH - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Distance data (small sample survey and WFH Emissions) | Distance data (large sample survey and WFH Emissions) |
| **Non Material** | Best available data or commuting model | Best available data or commuting model | Best available data or commuting model |

# Category 8: Upstream leased assets - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Spend data** | **Economic** input-output modelling – We use the CEDA database (Knowledge Base) |
| **Benchmark data** | Estimating emissions for each asset based on **average data using benchmarks** (eg. M3 floor space etc.) |
| **Asset or lessor specific data** | Using site **specific energy data** to calculate emissions |

# Category 8: Upstream leased assets - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Asset or lessor specific data | Asset or lessor specific data |
| **Non Material** | Best available data or benchmark data | Best available data or benchmark data | Best available data or benchmark data |

# Category 9: Downstream Transport - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Spend data** | **Economic** input-output modelling – We use the CEDA database (Knowledge Base) |
| **Distance based method** | Either use:<br><br>**Total distance** covered by 3rd party logistics companies broken down by **transportation mode** |
| **Fuel data** | Data for inbound and outbound flows, request for data to show how much tonnage inbound and outbound. Breakdown into air, sea, road and rail<br><br>Determining the **amount of fuel consumed** (i.e., scope 1 and scope 2 emissions of transport providers) and applying the appropriate emission factor for that fuel |
| **Supplier primary data** | **Supplier specific** reports on emissions and distance data |

# Category 9: Downstream Transport - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Distance or fuel based data | Supplier primary data |
| **Non Material** | Best available data or spend data | Best available data or spend data | Best available data or spend data |

# Category 10: Processing of sold products- Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Benchmark data** | Estimating emissions for processing of sold intermediate products based on **average secondary data**, such as average emissions per process or per product |
| **Customer Primary Data** | **Fuel and electricity used and the amount of waste** generated from processing of sold intermediate products by the third party and applying the appropriate emission factors |

# Category 10: Processing of sold products - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Benchmark Data with energy data for key customers | Customer energy data for all material customers |
| **Non Material** | Best available data or benchmark data | Best available data or benchmark data | Best available data or benchmark data |

# Category 11: Use of sold products - Data Quality

| | Data Availability | Recommended Calculation Approach |
|---|---|---|
| **Direct Use Phase (Required)** | **Estimated energy usage of product** | **Lifetime expectancy** of the product and **number of products sold** is mandatory<br><br>Use product data with relevant emission factors to calculate |
| | **Modelled energy usage of product** | |
| **Indirect Use Phase (Optional to report)**<br><br>**Indirect are emissions caused when not using the product e.g. energy required to wash clothing purchased** | **Average use in scenarios** | Model typical use-phase profile over the lifetime of the product and multiplying by relevant emission factors |

# Category 11: Use of sold products - Roadmap Guidance

| Direct Use Phase | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Modelled data for material products | Modelled data for all products |
| **Non Material** | Best available data | Estimate energy usage of products and lifetimes | Estimate energy usage of products and lifetimes |

| Indirect Use Phase | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Estimate energy usage of products and lifetimes | Modelled data for all products |
| **Non Material** | Do not need to calculate | Do not need to calculate | Do not need to calculate |

# Category 12: End of life treatment of sold products - Data Quality

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Waste treatment by destination** | **Mass of sold products** broken down by **waste treatment type** and **material type**<br><br>Use relevant emission factors to calculate |
| **Mass of sold products and packaging** | |

# Category 12: End of life treatment of sold products - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Mass of products by material type | Mass of products by material type along with likely waste treatment destinations |
| **Non Material** | Best available data | Mass of products sold | Mass of products sold |

# Category 13: Downstream leased assets - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
| --- | --- |
| **Benchmark data** | Estimating emissions for each asset based on **average data using benchmarks** (eg. M3 floor space etc.) |
| **Asset or lessor specific data** | Using **site specific energy data** to calculate emissions |

# Category 13: Downstream leased assets - Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Asset or lessor specific data | Asset or lessor specific data |
| **Non Material** | Best available data or benchmark data | Best available data or benchmark data | Best available data or benchmark data |

# Category 14: Franchises- Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Benchmark data** | Estimating emissions for each asset based on **average data using benchmarks** (eg. M3 floor space etc.) |
| **Asset or lessor specific data** | Using **site specific energy data** to calculate emissions |

# Category 14: Franchises- Roadmap Guidance

| | Year 1 (Current Year) | Years 2-3 | Years 4-10 |
|---|---|---|---|
| **Material** | Best available data | Asset or lessor specific data | Asset or lessor specific data |
| **Non Material** | Best available data or benchmark data | Best available data or benchmark data | Best available data or benchmark data |

# Category 15: Investments - Data Quality

Increasing Data granularity

| Data Availability | Recommended Calculation Approach |
|---|---|
| **Spend data (Earnings Before Interest Taxes, Depreciation and Amortization)** | **Economic** input-output modelling – We use the CEDA database (Knowledge Base) using the equity % share |
| **Equity Share** | Using supplier **public data** to apportion emissions using the equity % share |

# Plan for Zero
## Quality vs Reduction

Companies' roadmap for addressing Scope 3 emissions must strike a balance between having **confidence in emissions data in order to start implementing reduction opportunities** and ensuring that best practices are taken at the data quality level in order to monitor the impact of these reduction initiatives.

| Reduction Method | Spend based | Industry based | Specified by supplier |
|---|---|---|---|
| Reduced spending | ✓ | ✓ | ✓ |
| Material changes | ? | ✓ | ✓ |
| Change in material % | ✗ | ? | ✓ |
| Selection of providers | ✗ | ✗ | ✓ |

Confidence in emission reduction claims and target tracking



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