



INDIA
GHG
PROGRAM

Promoting profitable, sustainable
and competitive businesses.



Corporate Value Chain (Scope 3)

Accounting & Reporting Standard

History of GHG Protocol

The Greenhouse Gas Protocol was launched in 1998 by



WORLD
RESOURCES
INSTITUTE



wbcsd

Multi-stakeholder collaboration of businesses, NGOs, governments and others

Vision:

Empowering the world to avoid and respond to climate change through the wide use of internationally accepted greenhouse gas standards and practices.

Mission:

GHG Protocol provides the foundation for comprehensive measurement and management strategies to reduce emissions and drive more efficient, resilient, and profitable businesses and organizations.

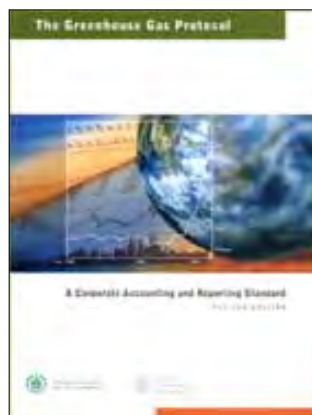
Outreach of GHG Protocol



Current set of Standards



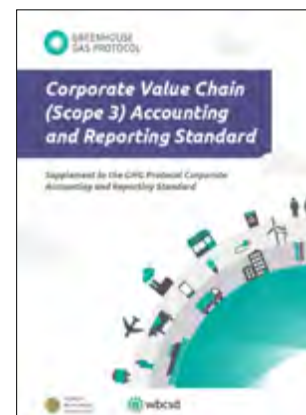
Project Accounting
Protocol &
Guidelines



Corporate Accounting
& Reporting
Standards



Product Lifecycle
Accounting &
Reporting



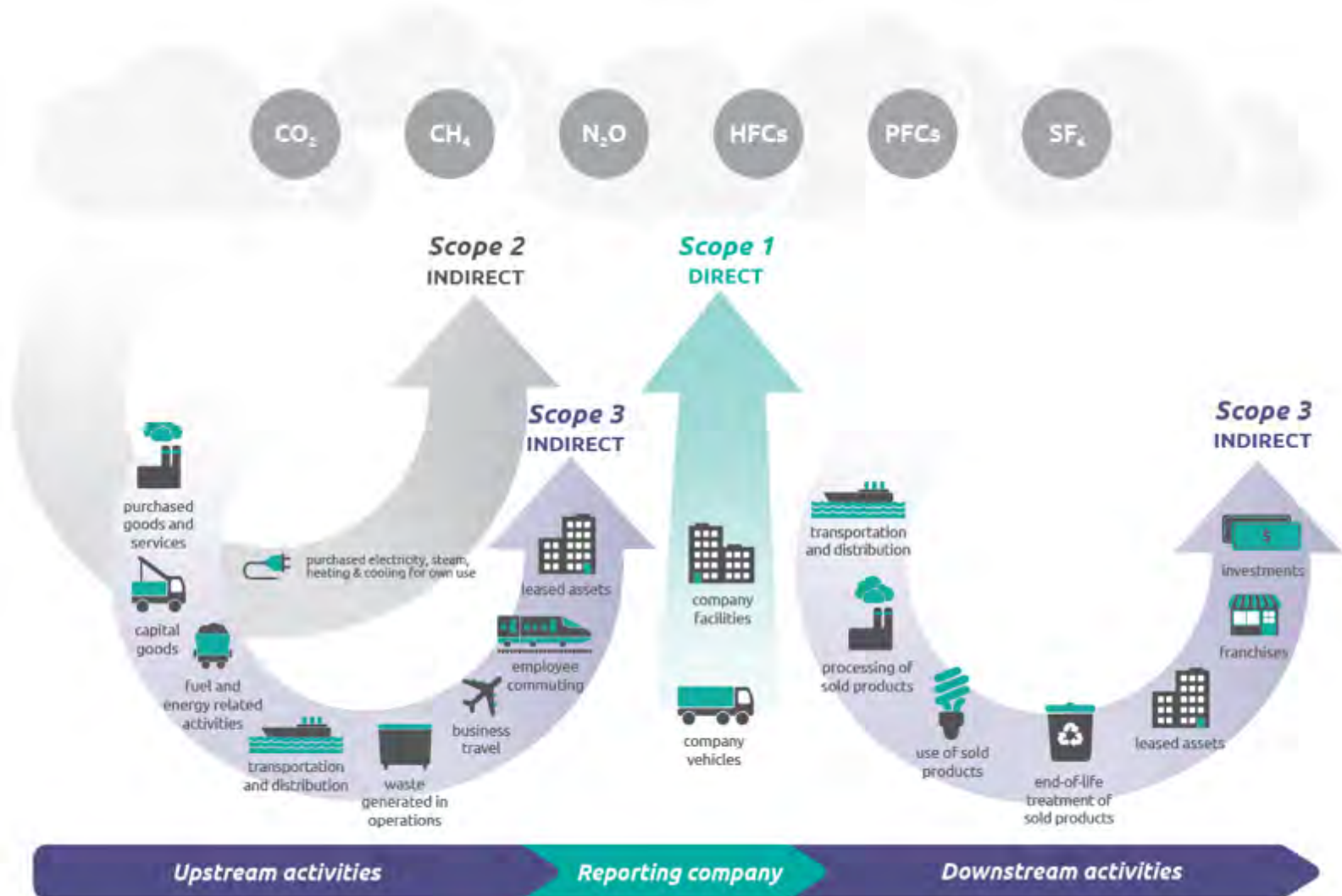
Corporate Value Chain
(Scope 3) Accounting



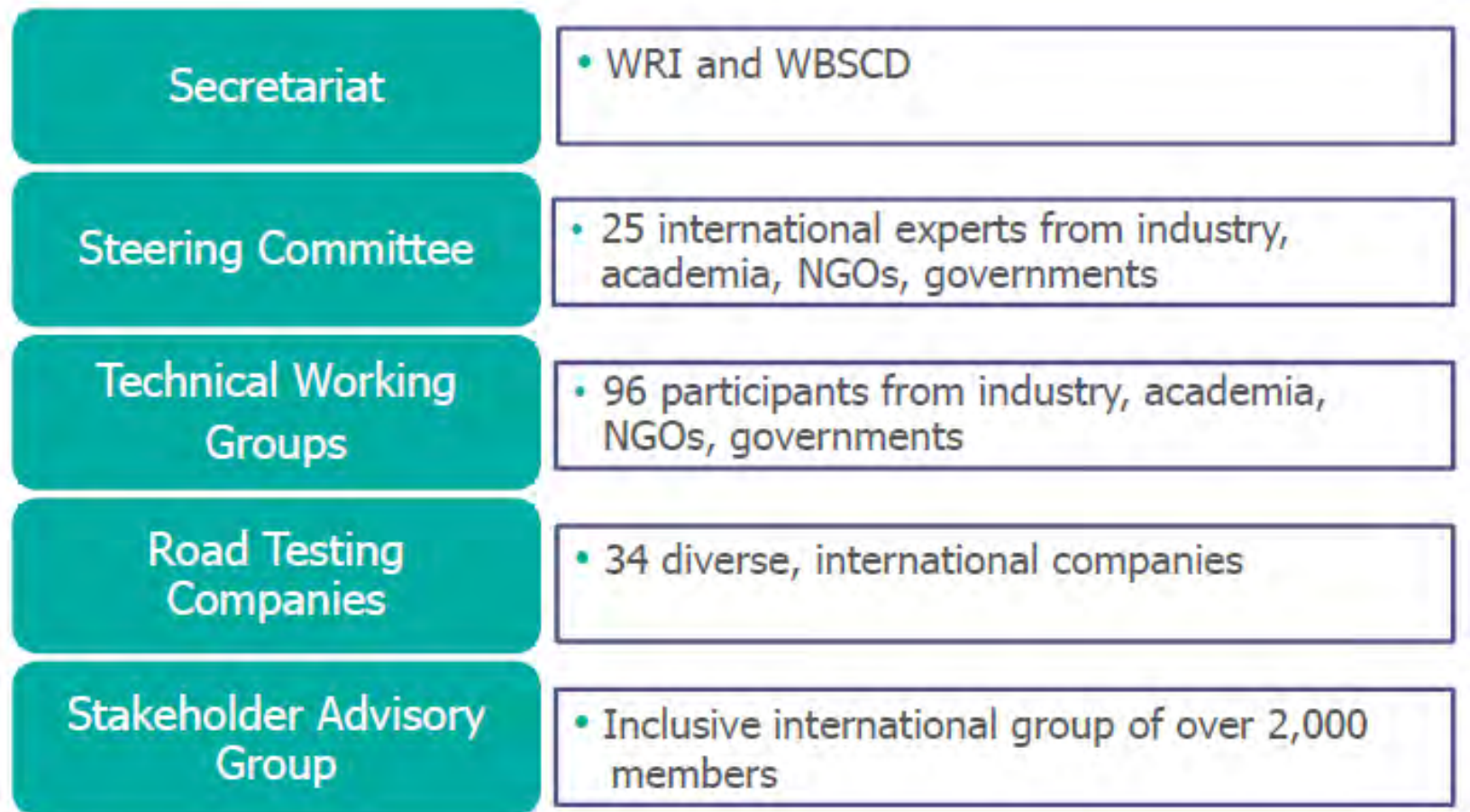
Scope 2 Guidance

Scope 3 Emissions Across the Value Chain

Scope 3: Emissions across the value chain



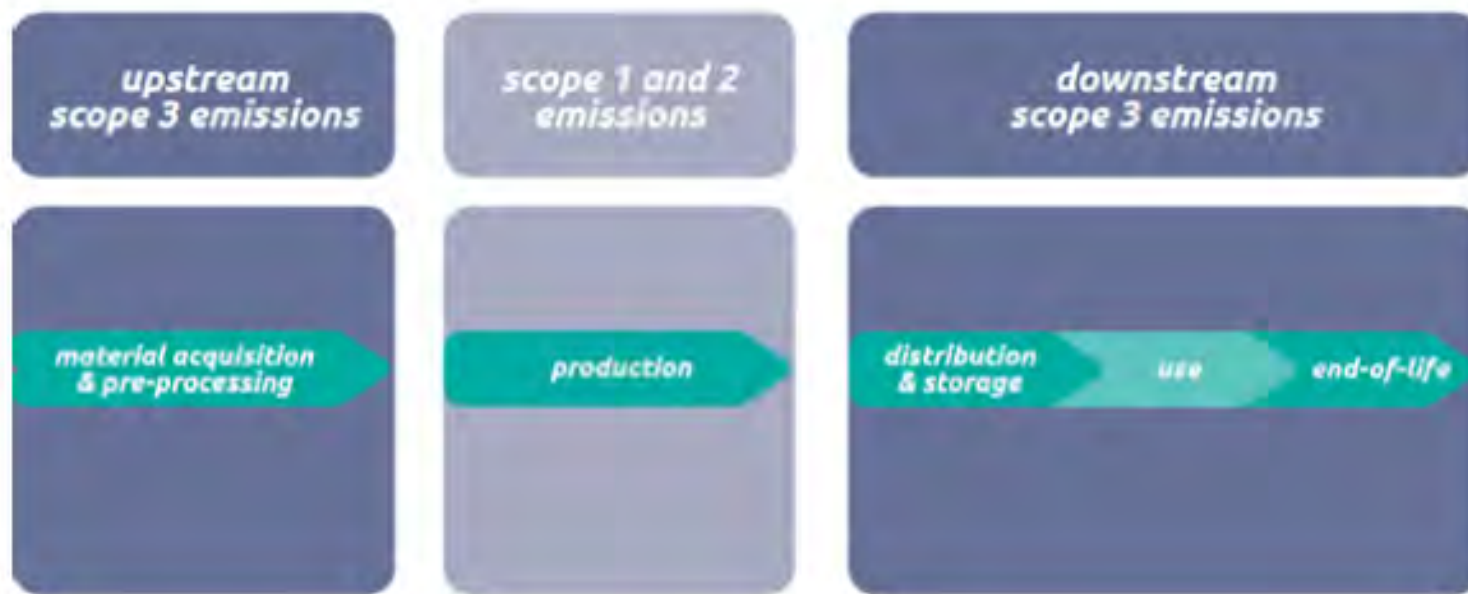
How was the Scope 3 Standard developed






Purpose of Scope 3 standard

1. To help companies prepare a **true and fair scope 3 GHG inventory** in a cost-effective manner, through the use of standardized approaches and principles
2. To help companies **develop effective strategies for managing and reducing** their scope 3 emissions and associated risks and opportunities
3. To support **consistent and transparent public reporting** of corporate value chain emissions according to a standardized set of reporting requirements

How the GHG Protocol Standards work together



-  **scope 1 and 2 emissions required by the Corporate Standard**
-  **scope 3 emissions required by the Scope 3 Standard**
-  **product life cycle emissions required by the Product Standard**

Appropriate Comparisons using the Standard

We recommend the use of the standard to;

1. Track performance of one company over time
2. Comparing across companies based on
 - Level of Transparency
 - Completeness of Inventory
 - Level of Supplier Engagement
 - Quality of Data used
 - Ambition of reduction goals and related efforts



Key Guiding Principles to Scope 3 Accounting

- Average time taken for road test companies to complete their scope 3 inventory was approximately 3 months for one full-time employee
- Key GHG Accounting Principles to consider Relevance, Completeness, Consistency, Transparency and Accuracy of the inventory/data to be compiled
- Standard Terminology as below;
 1. Shall – Required
 2. Should – Recommended
 3. May - Optional

GHGs covered

Companies **shall** account for the following emissions;

- carbon dioxide (CO₂)



- methane (CH₄)



- nitrous oxide (N₂O)



- sulfur hexafluoride (SF₆)



- perfluorocarbons (PFCs)

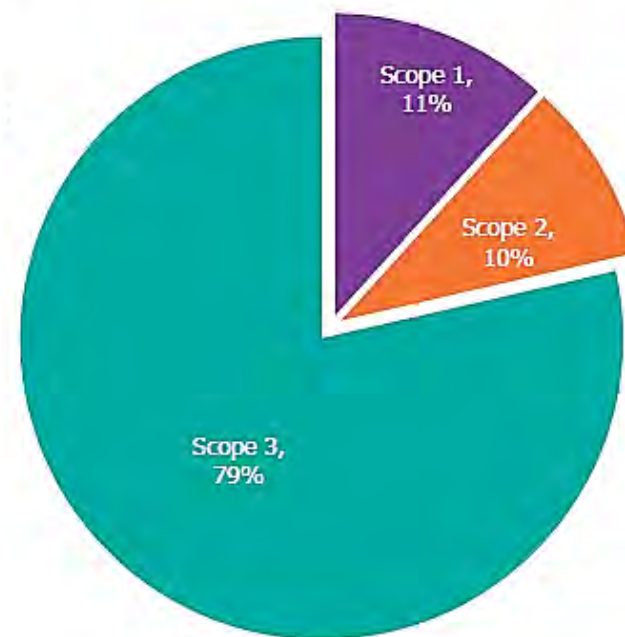


- hydrofluorocarbons (HFCs)



Why Scope 3 emissions are important?

- Scope 3 is often the largest source of emissions, so focusing only on Scope 1 and 2 emissions could exclude significant emission sources and sinks, thus risks and opportunities
- From Road tests, Scope 3 emissions accounted for an average 79% of the companies total emissions



Identify business risks and opportunities

Identify GHG reduction opportunities

Engage value chain partners

Report publicly

Identification of Business Risks & Opportunities...

Kraft Foods: collecting scope 3 data

- Focused on achieving a complete Scope 3 inventory to support strategic decision making
- Used industry-average life cycle data
- Found that scope 3 comprise more than 90% of the company's emissions
- Kraft Foods plans to continuously improve the quality of its GHG inventory to better understand the company's influence on climate change

**"Think of carbon as waste —
somewhere there is
inefficiency."**

**Dan Petit , Associate Sustainability
Director**



***The company is now trying to work
with a few high-emission areas for
reductions, such as helping cocoa
producers in Ghana increase crop
yields while minimizing use of
carbon-intensive fertilizer***

Identification of Business Risks

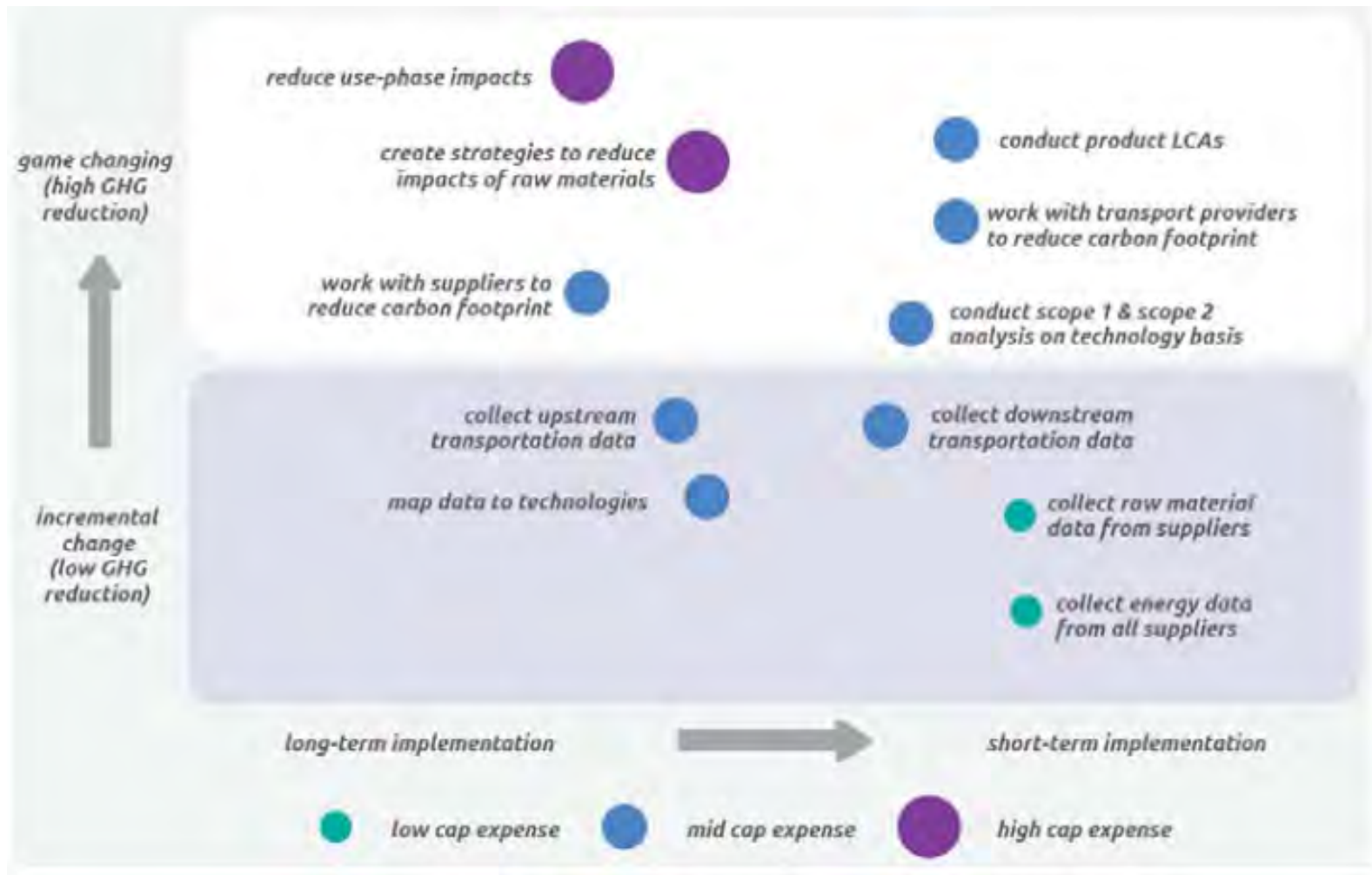
nationalgrid

The company wanted to;

1. Understand the **risks and opportunities associated with emissions across the value chain**
2. Consider the environmental impact in investments and other business decisions through internalization of carbon costs and assessment of benefits
3. Work with customers and value chain partners to drive GHG reductions while providing transparency & accountability



Identification of Scope 3 Reduction Opportunities...



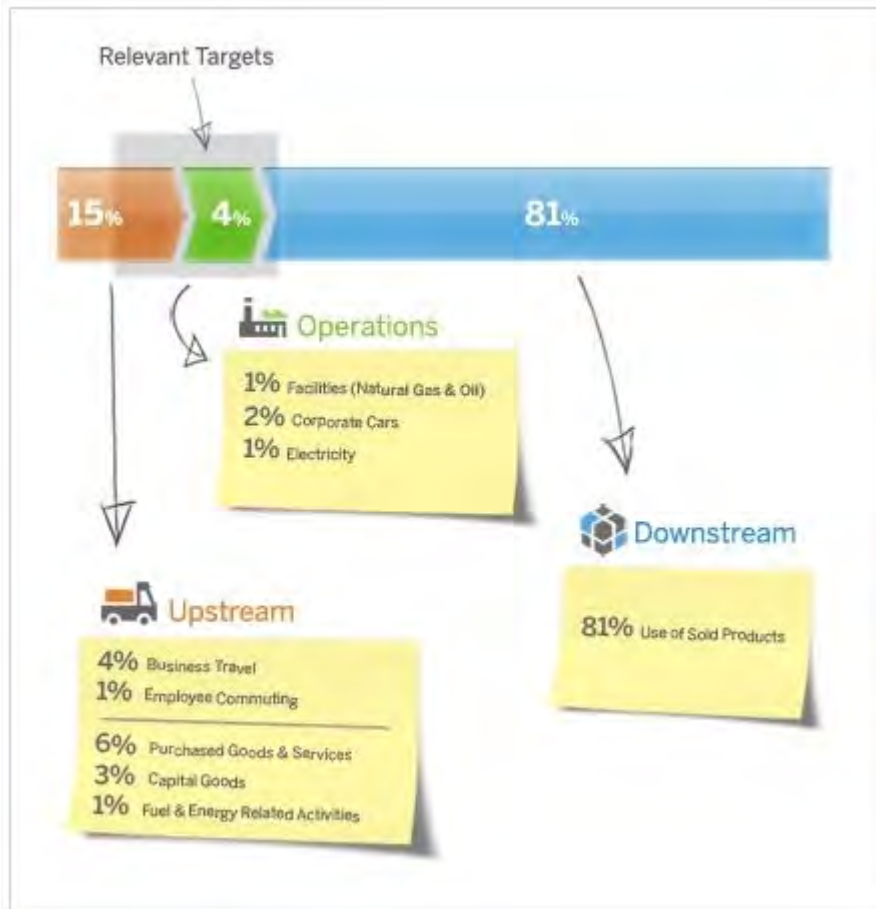
Identification of Scope 3 Reduction Opportunities...



Found that use of sold products is most significant impact

Three part strategy based on findings of scope 3 assessment:

1. Design software so that it runs on fewer servers and requires less energy
2. Work closely with hardware providers to help increase hardware efficiency
3. Working with our customers to optimize the running of their data centers



Engagement with Value Chain...



ABENGOA

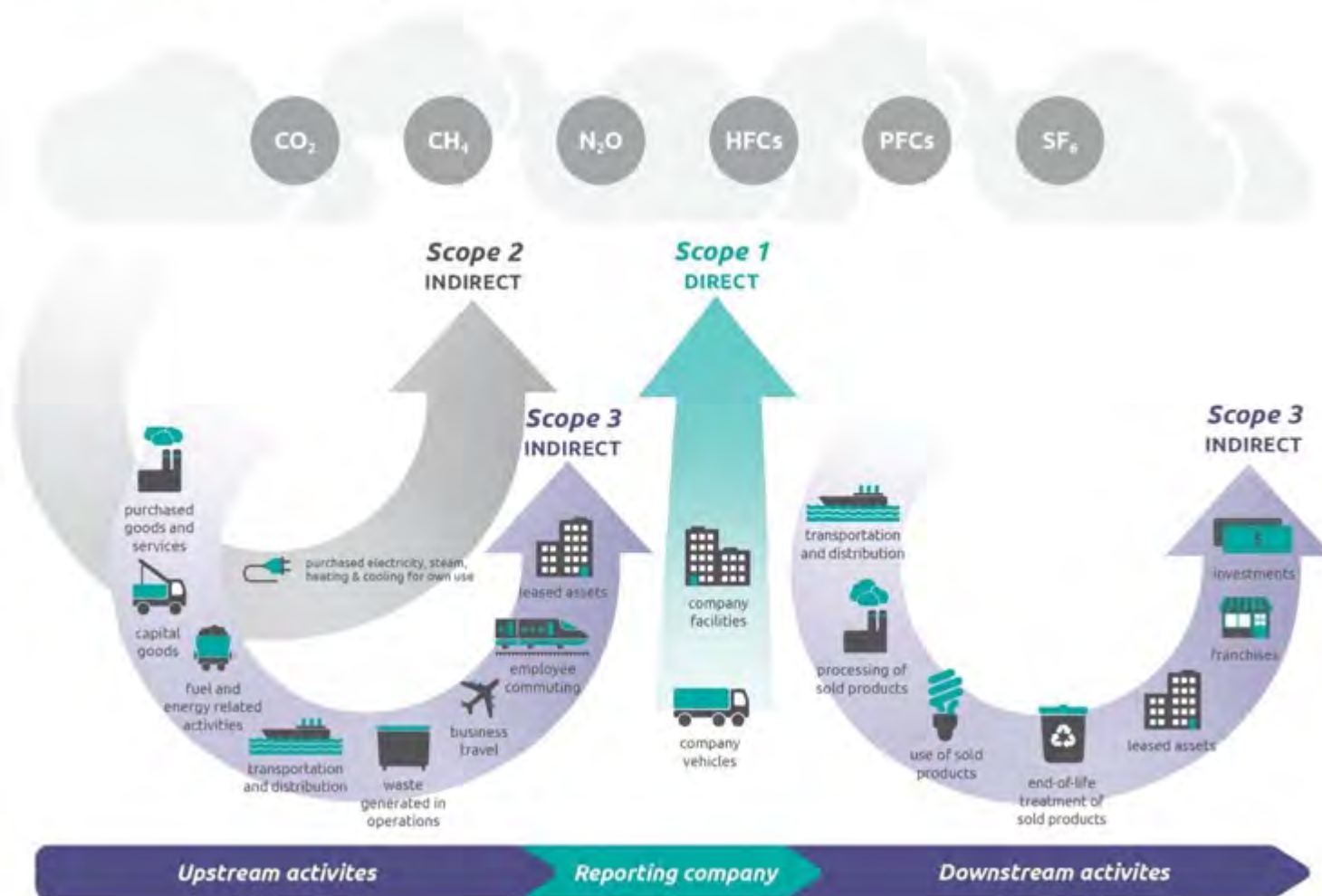
The company engages closely with its suppliers to encourage broader GHG measurement & management by requiring suppliers to;

1. Use a GHG reporting system
2. Verify emissions data by third party
3. Adhere to the company's Social Responsibility Code of Conduct

In doing this, Abengoa trains its suppliers, shares templates and tools etc.

Emissions across the value chain

Figure [1.1] Overview of GHG Protocol scopes and emissions across the value chain



Overview of scope 3 categories

- There are **15 distinct scope 3 categories**
- The categories provide a systematic framework to organize, understand and report on the diversity of scope 3 activities within a corporate value chain



- Categories are mutually exclusive (i.e., no double counting)

Companies are required to report scope 3 emissions by scope 3 category

Scope 3 categories 1 – 8: Upstream Activities



1. Purchased Goods & Services

- All upstream (i.e., cradle-to-gate) emissions from the production of products purchased or acquired by the reporting company in the reporting year
- Products include both goods (tangible products) and services (intangible products)



Examples of Purchased Goods & Services

Emissions that occur in the production of purchased products and services

For example, a clothing manufacturer purchases cotton to make shirts

Cradle-to-gate emissions of the cotton would be included in this category of scope 3 emissions

The cradle-to-gate emissions of the cotton includes all emissions that occur in the life cycle of the cotton (e.g. growing, processing, etc.) up to the point of receipt by the reporting company



2. Capital Goods

- All upstream (i.e., cradle-to-gate) emissions from the production of capital goods purchased or acquired by the reporting company in the reporting year
- ***Definition of capital goods:*** Final products that have an extended life and are used by the company to manufacture the product, provide a service, or sell, store, and deliver merchandise



Examples of Capital Goods

- ***Capital goods can include:*** Equipment, machinery, buildings, facilities, and vehicles



- If there is ambiguity over whether a good is a capital good (category 2) or a purchased good (category 1), then companies **should follow their own accounting procedures** (and be sure to **avoid double counting**)

3. Fuel- and Energy-related Activities

- Emissions related to the production of fuels and energy purchased and consumed by the reporting company in the reporting year that are not included in scope 1 or scope 2



Examples of Fuel- and Energy-related Activities

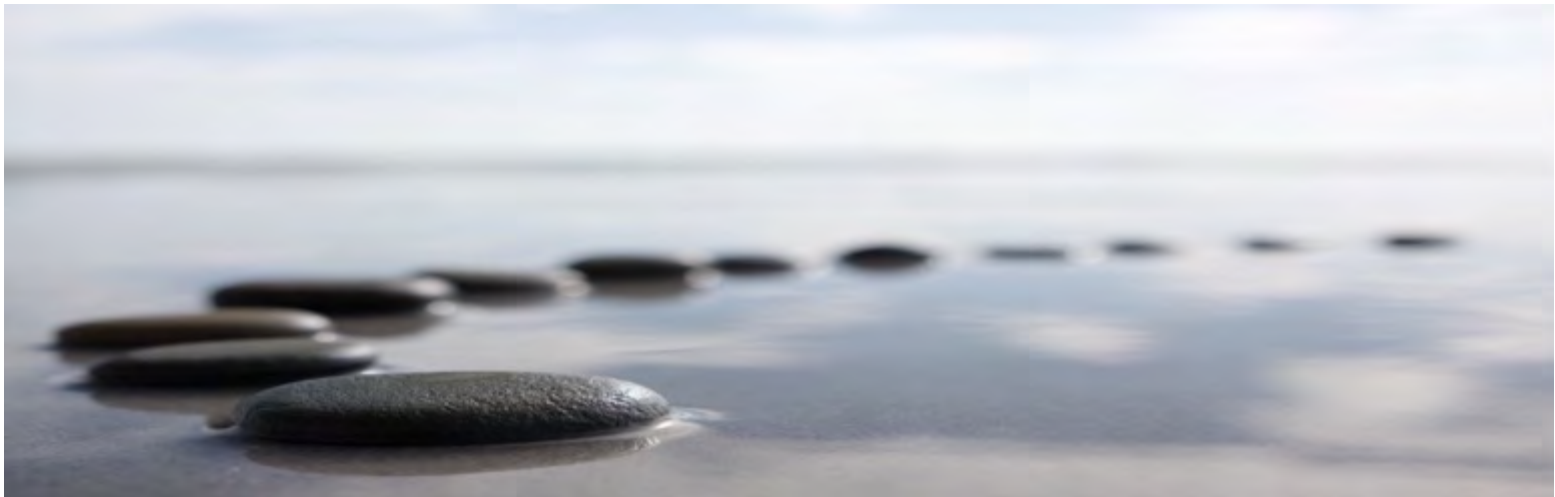
This includes four activities:

1. Upstream emissions of purchased fuels
2. Upstream emissions of purchased electricity
3. Transmission & distribution losses
4. Generation of purchased electricity that is sold to end users

4. Upstream Transportation & Distribution

Inbound and outbound logistics including:

- Third-party transportation & distribution of products purchased by the reporting company in the reporting year, between a company's Tier 1 suppliers and its own operations
- Transportation of products sold in the reporting year (paid for by the reporting company)



Examples of Upstream Transportation & Distribution

Upstream Transportation and distribution may include:

Air transport



Rail transport



Road transport



Marine transport



Storage in warehouses,
distribution centers and
retail facilities



5. Waste Generated in Operations

- Emissions from third-party disposal and treatment of waste that is generated in the reporting company's owned or controlled operations in the reporting year



Examples of Waste Generated in Operations

Operational emissions of waste/wastewater management companies, including:

- Disposal in a landfill
- Disposal in a landfill with landfill-gas-to energy (LFGTE)
- Recovery for recycling
- Incineration
- Composting
- Waste-to-energy (WTE) or energy-from-waste (EfW)
- Wastewater treatment

Recycling upstream or downstream: avoid double counting

6. Business Travel

- Emissions from the transportation of employees for business-related activities in vehicles owned or operated by third parties



Examples of Business Travel

Operational emissions of transportation suppliers (e.g. airlines), including:

- Air, rail and bus travel



- Automobile travel (e.g. business travel in rental cars or employee-owned vehicles other than employee commuting to and from work)
- Other modes of travel
- Companies may optionally include emissions from business travelers staying in hotels



7. Employee Commuting

- Emissions from the transportation of employees **between their homes and their worksites**
- Companies may include emissions from **teleworking**



8. Upstream Leased Assets

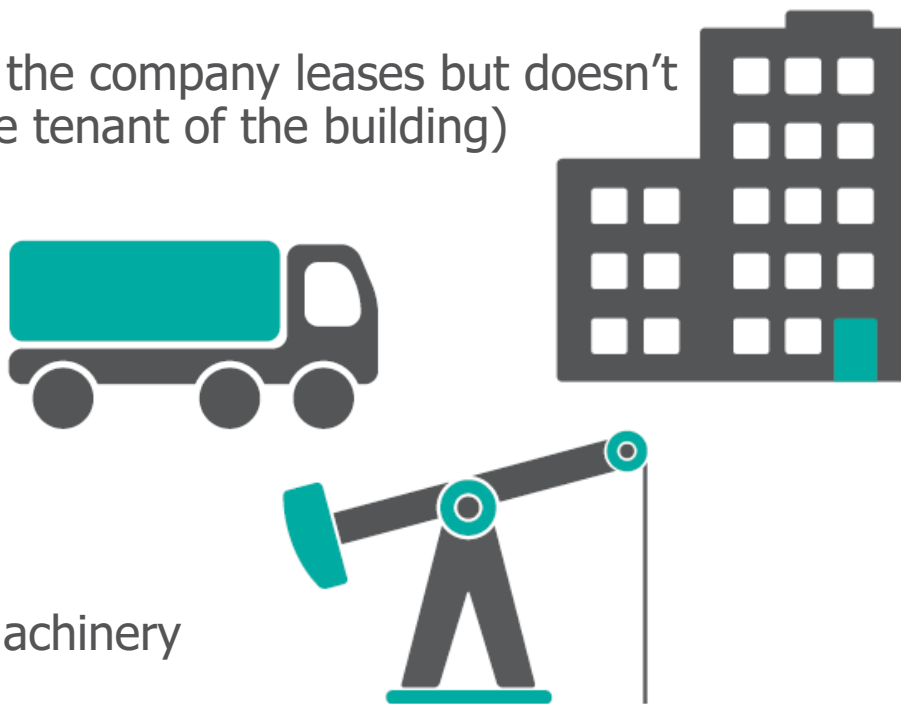
- Emissions from the operation of leased assets not included in lessee's scope 1 and 2
- **Definition of leased asset:** the right to use an asset through a contract with the owner of the asset



Examples of Upstream Leased Assets

Operational emissions of lessors, including:

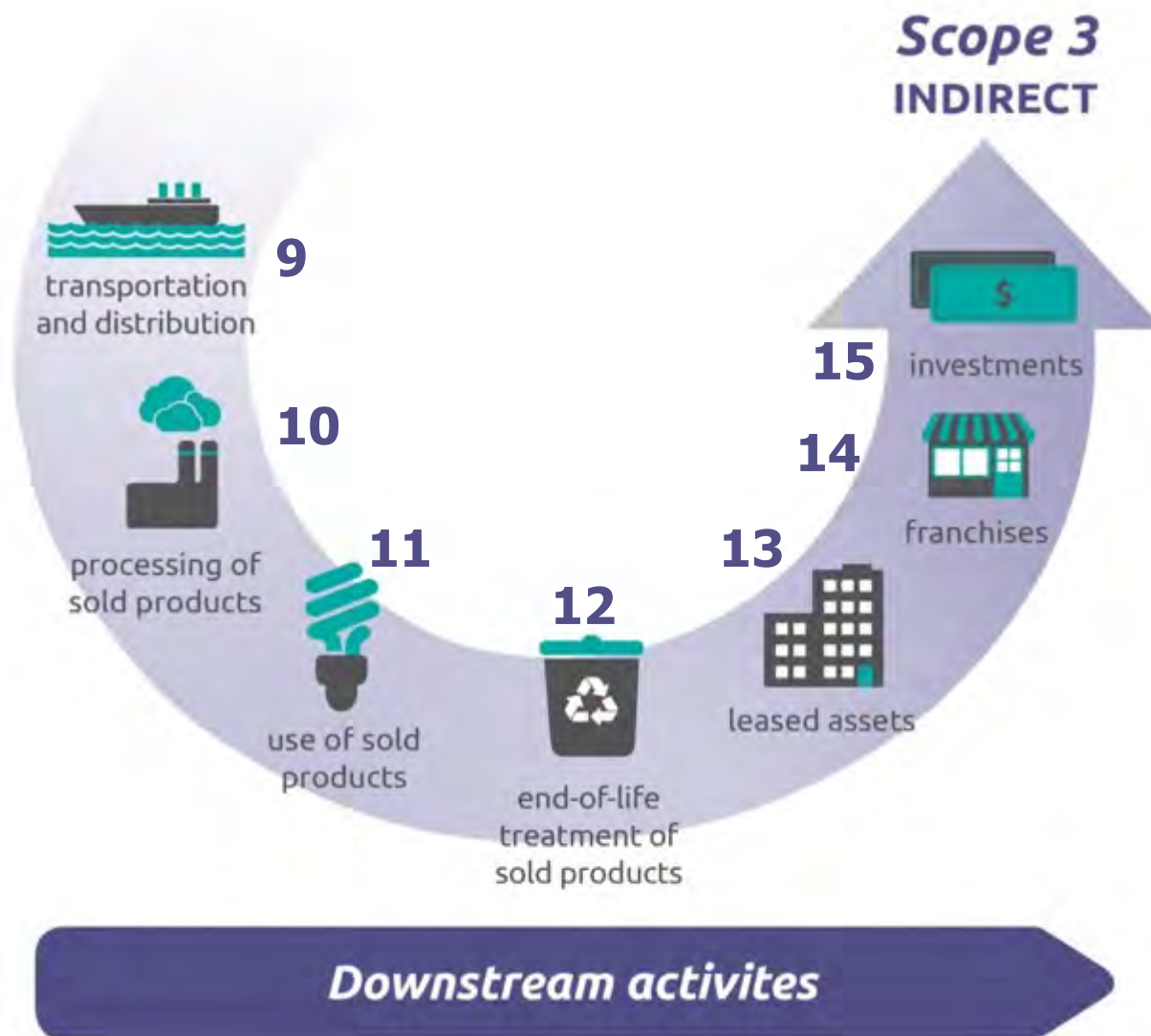
- Office buildings that the company leases but doesn't own (reported by the tenant of the building)
- Vehicles that the company leases but does not own (reported by the company that operates the vehicles)
- Equipment or machinery



This category is only applicable to companies that operate leased assets

Perspective of:	Scope 3 Activity:	Category:

Downstream Activities



9. Downstream Transportation and Distribution

- Third-party transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer, including retail and storage (not paid by the reporting company)



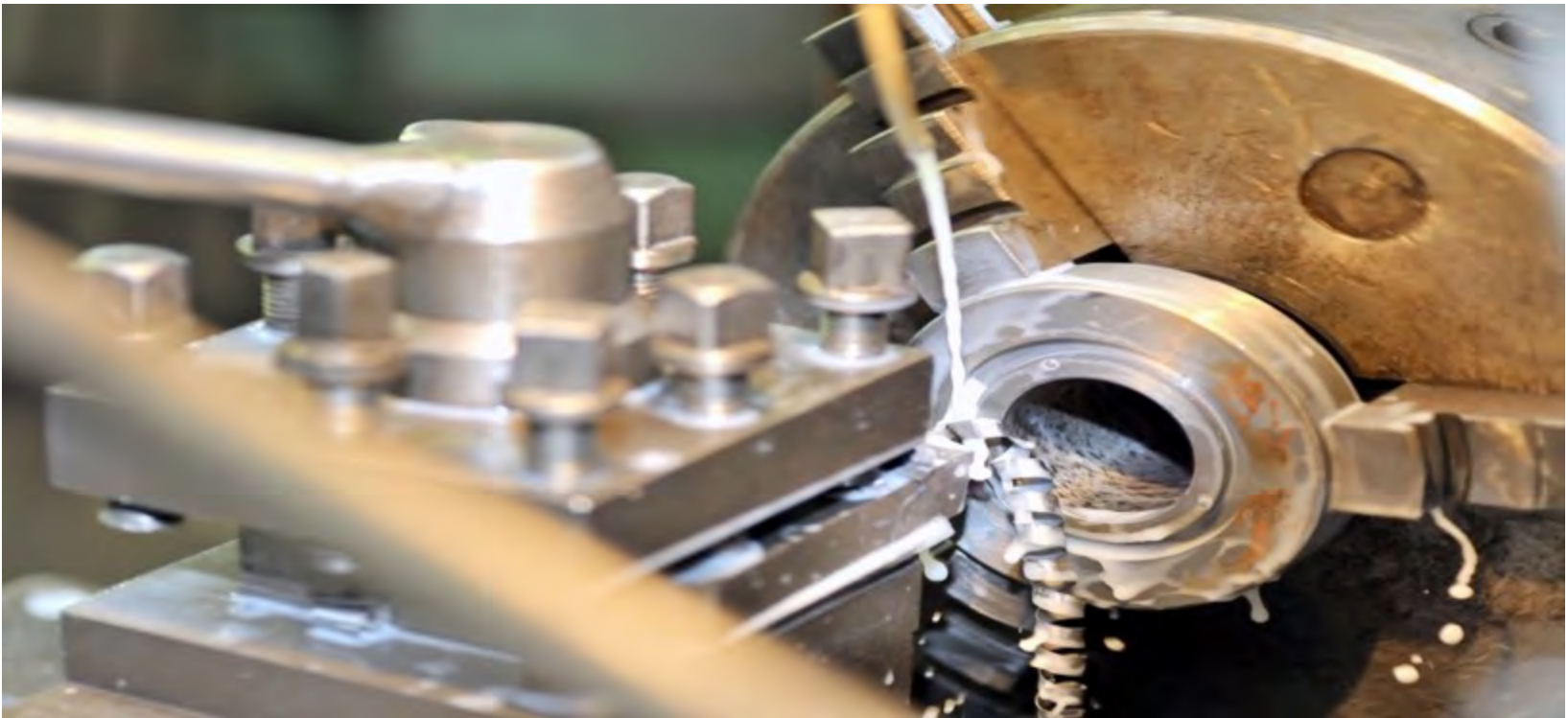
Operational emissions of **transportation company, third-party logistics provider, retailer**

- Transportation and distribution of sold products
- Warehousing of sold products
- Retail of sold products
- **Optional:** The life cycle emissions associated with manufacturing vehicles, facilities or infrastructure

Category 9 includes transportation and distribution related emissions that occur **after** the reporting company pays to produce and distribute its products (not paid by reporting company).

10. Processing of Sold Products

- Processing of intermediate products sold in the reporting year by downstream companies (e.g., manufacturers)



Examples of Processing of Sold Products

Emissions of *Downstream companies that occur during processing*

- A motor is an intermediate product that becomes part of an automobile (a final product)
- A company that manufactures motors sells them to an automaker as components of cars
- A company that manufactures motors would account for emissions from assembling automobiles (by the automaker) in this category

11. Use of Sold Products

- Emissions from the use of goods and services sold by the reporting company in the reporting year by end users



Examples of Use of Sold Products

Emissions of Customers

Required: Direct use phase emissions

1. Products that directly consume energy (fuels or electricity) during use, such as: cars, aircraft, buildings, appliances, electronics



2. Fuels and feedstocks

3. Greenhouse gases and products that contain greenhouse gases that are emitted during use



Optional: Indirect use phase emissions

Products that indirectly consume energy (e.g. apparel, food, pots and pans, soaps and detergents)



12. End of Life Treatment of Sold Products

- Waste disposal/treatment of products sold by the reporting company (in the reporting year) at the end of their life
- Requires assumptions about the end-of-life treatment methods used by consumers



Examples of End-of-life Treatment of Sold Products

Emissions of **Waste/wastewater management companies**

- Disposal in a landfill
- Disposal in a landfill with landfill-gas-to energy (LFGTE)
- Recovery for recycling
- Incineration
- Composting
- Waste-to-energy (WTE) or energy-from-waste (EfW)
- Wastewater treatment

Recycling upstream or downstream: avoid double counting

13. Downstream Leased Assets

- Operations of leased assets owned by the reporting company and not included in their scope 1 and 2



Examples of Downstream Leased Assets

Emissions of **lessees**, occurring during operation of **leased assets**, including:

- Office building that the company **owns and leases to a tenant** (reported by the owner of the building)
- Vehicles that the company **owns and leases to other companies** (reported by the owner of the vehicle)
- Equipment or machinery that the company **owns and leases to other companies**



This category is only applicable to companies that own assets that are leased to others

14. Franchises

- Emissions from the operation of franchises not included in franchisor's scope 1 and 2 (reported by franchisor)



14. Examples of Franchises

- Franchises include:

- Chain retail facilities



- Chain restaurants



This category is only applicable to franchisors (companies that own franchises)

15. Investments

- Emissions associated with the reporting company's investments in the reporting year, not already included in scope 1 or scope 2
- Applicable to investors and companies that provide financial services



Examples of Investments

Operational emissions of **company receiving investment**

- Equity investments
- Debt investments
- Project finance
- Managed investments and client services

Primarily for private financial institutions (e.g., commercial banks), but also relevant to public financial institutions (e.g., multilateral development banks, export credit agencies, etc.)

Equity Investments

- **Includes equity investments in:**
 - Subsidiaries
 - Associate companies
 - Joint ventures
- **Accounting approach:**
 - Account for proportional scope 1 and scope 2 emissions from the investments that occur in the reporting year

Debt Investments (with known use of proceeds)

Corporate debt holdings includes

Bonds; Convertible bonds prior to conversion; Commercial loans

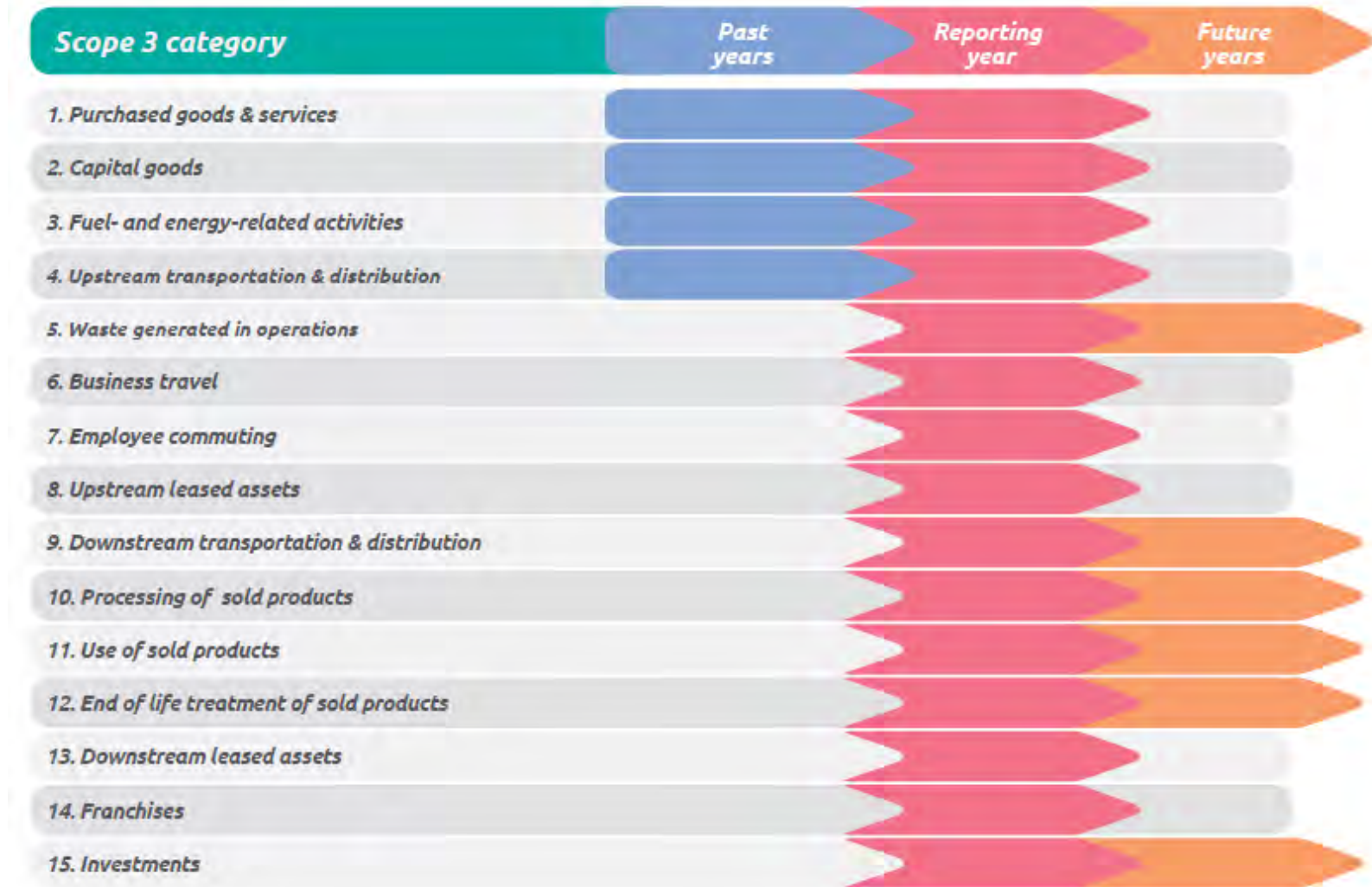
Project Finance includes long term financing of projects as equity or debt investor (e.g. infrastructure and industrial projects)

Accounting approach:

- Account for proportional scope 1 and scope 2 emissions that occur in the reporting year
- Account for total projected lifetime emissions scope 1 and 2 emissions of projects separately from scope 3

Only applicable when the use of the investment is known, such as for a particular power plant

Time Boundary of Scope 3 Categories



Transportation & Distribution Across the Value Chain

Transportation and distribution activity in the value chain

Scope and scope 3 category

Transportation & Distribution Across the Value Chain

Transportation and distribution activity in the value chain

Scope and scope 3 category



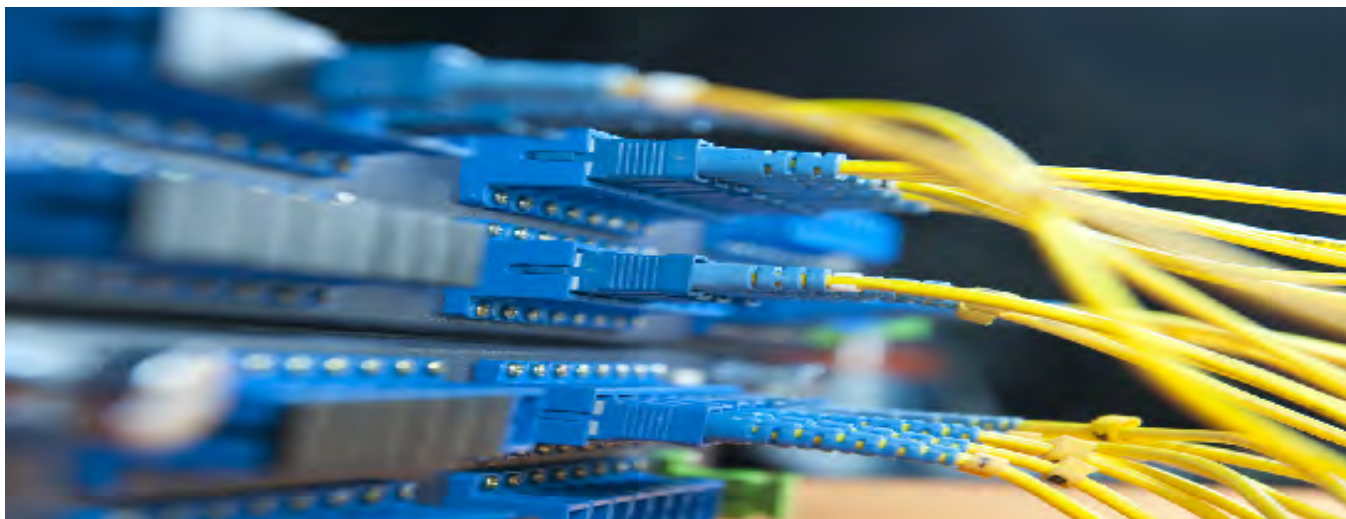
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Strengthening/ Widening Scope 3 accounting

The Data Collection Process



Approaches to Screening

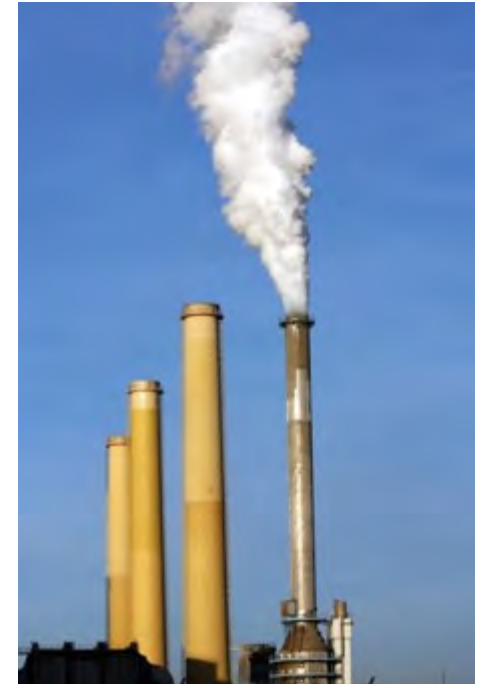
Rank activities in value chain map by:

- magnitude of GHG emissions (emissions-based screening)
- financial spend and/or revenue (financial screening)
- other criteria relevant to the company and stakeholders



Emissions-based screening

- This involves estimating emissions using activity data and reasonable assumptions, combined with secondary data
- Reasonable assumptions can be used in the absence of readily available activity data (e.g. estimating the number of business flights taken by the company)
- Types of secondary data that can be used:
 - Environmentally-extended input output (EEIO) data
 - Cradle-to-gate emission factors



Emission factors from secondary databases and **activity data** coupled with **plausible assumptions** used to estimate emissions from each category

Examples of Italcementi's screening methods:

Category	Estimation method
Category 1 (Purchased goods and services)	Production volume used to estimate main inputs (limestone, clinker, aggregates, nitric acid used in laboratories). Average emission factors applied to inputs
Category 3 (Fuel- and Energy-related activities)	Total corporate entity production volume coupled with Ecoinvent electricity consumption per productivity
Category 4 (Upstream Transportation & Distribution)	Ecoinvent transportation data for cement and concrete purchased goods applied to corporate entity productivity
Category 5 (Waste generated in operations)	Ecoinvent waste generated data for cement and concrete production applied to Corporate entity productivity.
Category 6 (Business Travel)	Long haul flights each month and 100km drive each week for 50% of total number of Corporate entity employees

Emissions-based screening

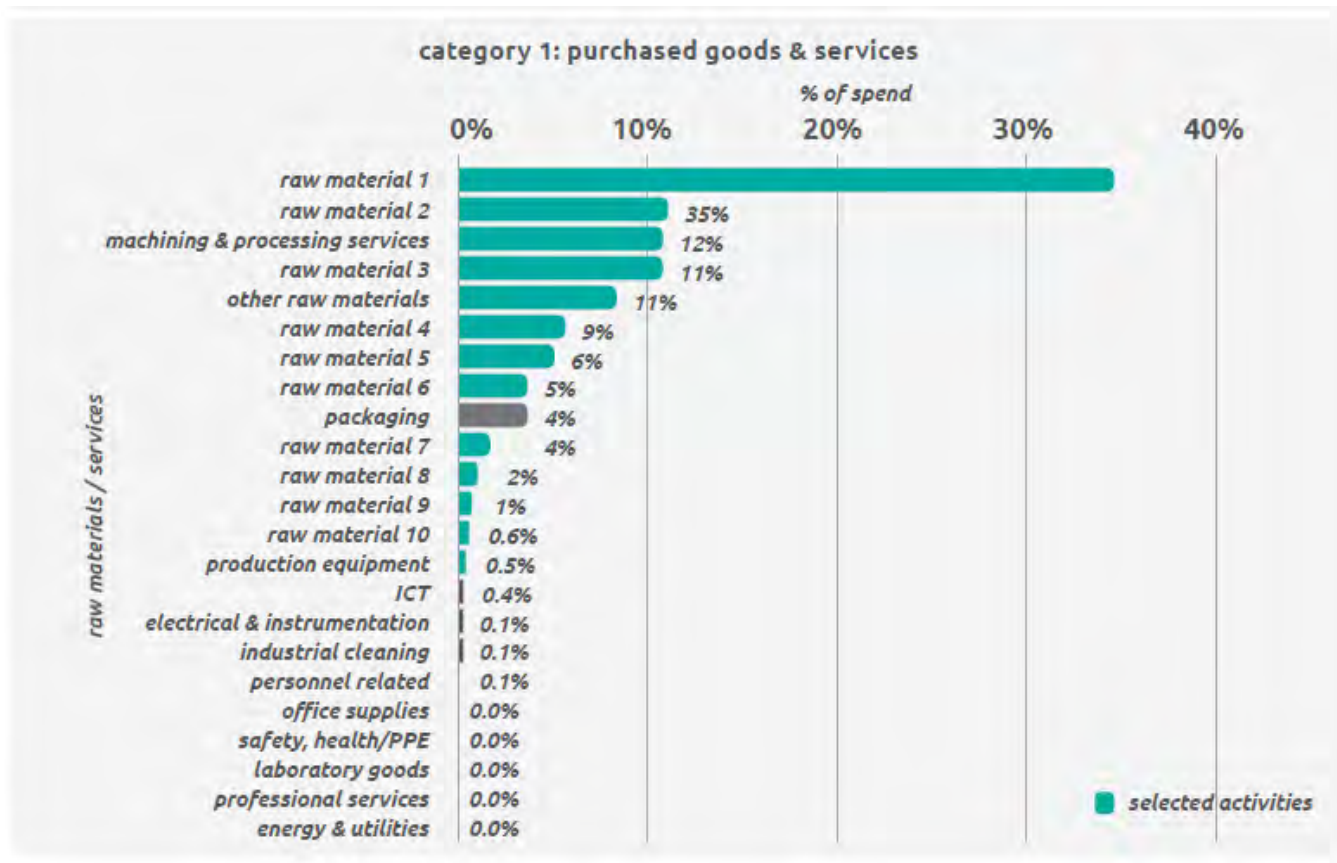
Case study: Italcementi

Screening results:

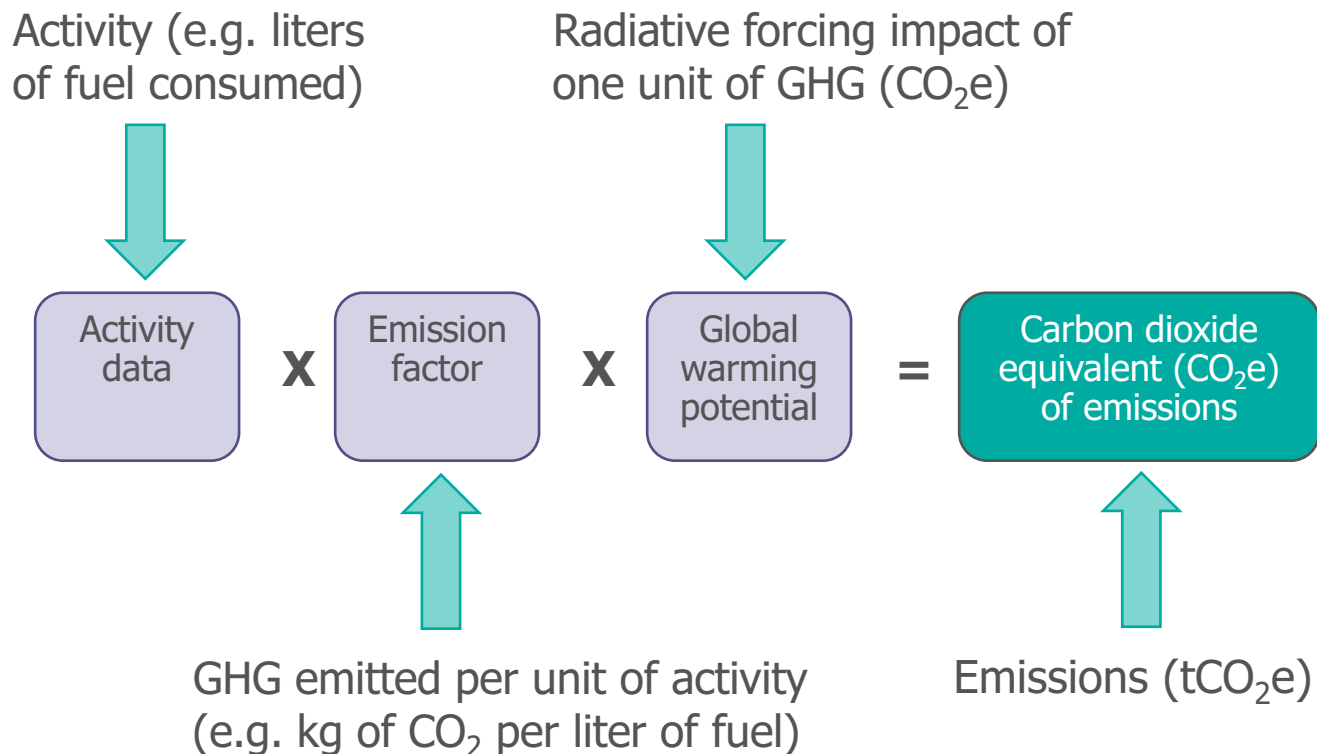
Category	Estimated Contribution to Total Scope 3
Purchased goods	70%
Fuel- and energy related emissions	14%
Transportation & distribution upstream	8%
Transportation & distribution downstream	7%
Business Travel	1%
Employee Commuting	1%
End-of-Life Treatment of Products	0%
Waste Generated in Operations	0%
Capital goods/Use of Product/Franchises/Leased assets/Investments	N/A

Case study: AkzoNobel

AkzoNobel used financial screening in order to prioritize data collection efforts within category 1, by grouping purchased goods by type and ranking the groups by expenditure



Components of an Emission Calculation



Examples of Activity Data

- Liters of fuel consumed
- Kilowatt-hours of electricity consumed
- Kilograms of material consumed
- Kilometers of distance traveled
- Hours of time operated
- Square meters of area occupied
- Kilograms of waste generated
- Kilograms of product sold
- Quantity of money spent



Examples of emission factors

- kg CO₂ emitted per liter of fuel consumed
- kg CO₂ emitted per kWh of electricity consumed
- kg PFC emitted per kg of material consumed
- t CO₂ emitted per kilometer traveled
- kg SF₆ emitted per hour of time operated
- g N₂O emitted per square meter of area
- g CH₄ emitted per kg of waste generated
- kg HFC emitted per kg of product sold
- kg CO₂ emitted per unit of currency spent



NOTE: All emission factors used to calculate scope 3 emissions should be cradle-to-gate emission factors (except for energy emission factors used for scope 3 category 3 – see next slide)

Companies may use two types of data:

- **Primary data**

- Data from specific activities within a company's value chain (i.e., asking suppliers/customers for their emissions data)

- **Secondary data**

- Data that is not from specific activities in a company's value chain (industry average)
 - EEIO database, financial data, proxy data

Choose data sources based on your goals for the scope 3 inventory

Note: Many companies will use a combination of primary and secondary data

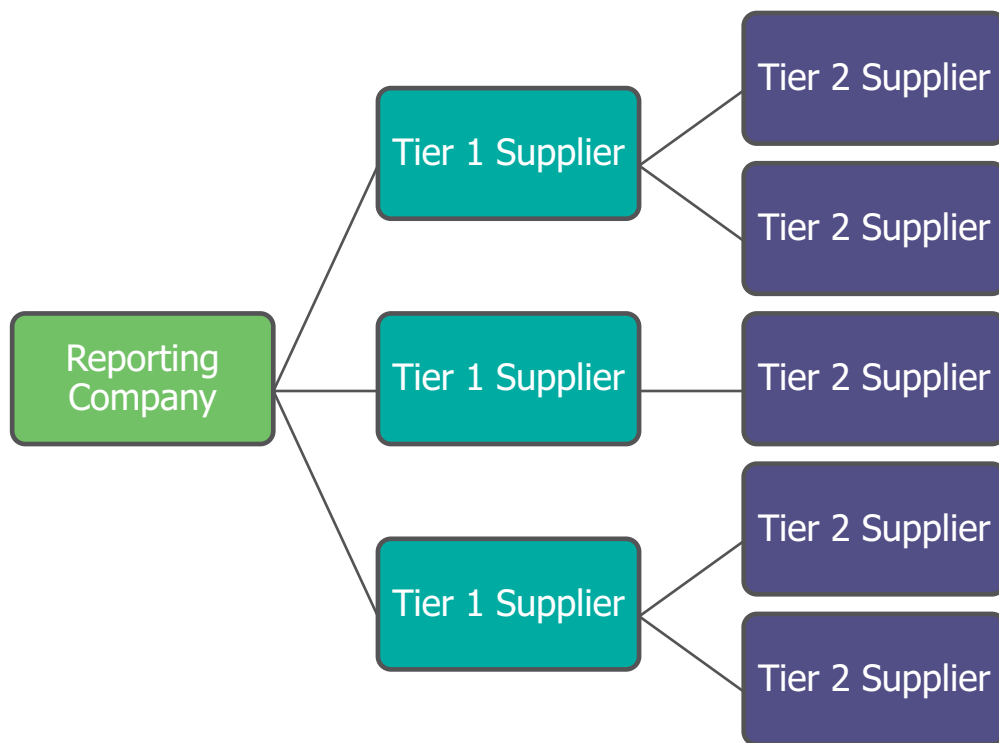
Guidance for Collecting Primary Data

Companies should collect energy or emissions data from suppliers for priority scope 3 activities

Companies should first identify relevant tier 1 suppliers

Companies are required to report the percentage of emissions calculated using supplier data

Collecting Primary Data from Tier 1 and/or Tier 2 Suppliers

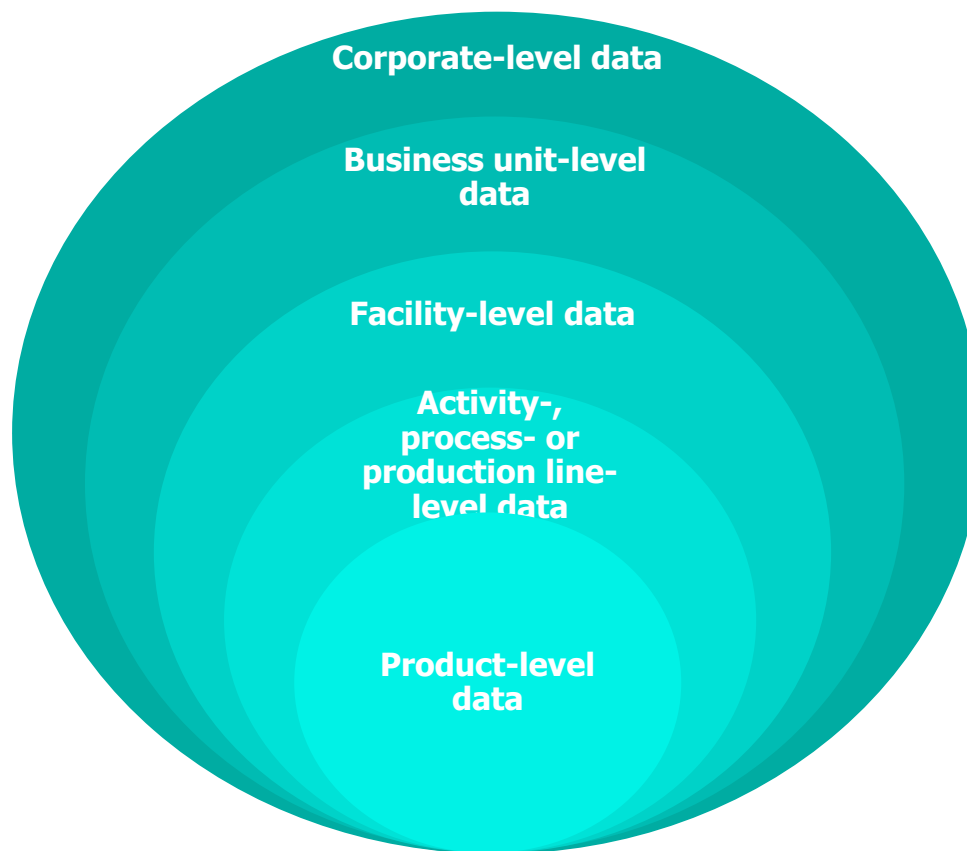


Primary Data – What should you ask suppliers for?

- **Type of data**
 - Product life cycle data
 - Scope 1 and 2 emissions data for supplier
 - Activity data
 - Estimates of upstream emissions
- **Level of data**
 - As granular and specific as possible
 - Avoids need for allocation
 - Especially important to obtain from diversified suppliers

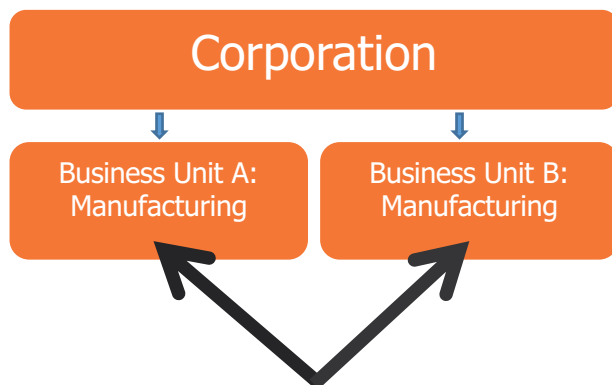


Levels of Data Specificity



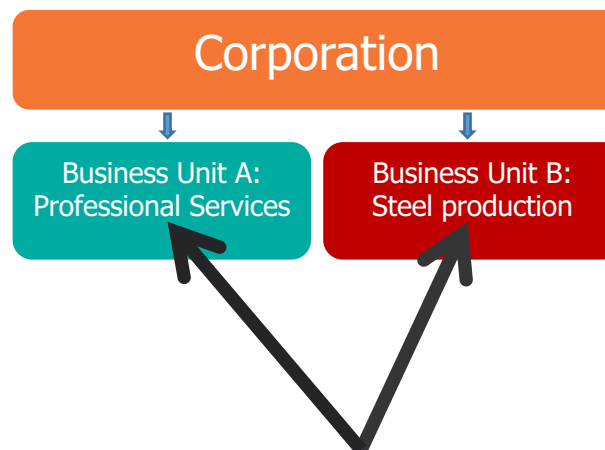
Determining Appropriate Data Type

Supplier A. Homogenous Supplier



Supplier A's business units are similar, so corporate level data might be a reasonable reflection of emissions from a product that a company purchased from this supplier

Supplier B. Diversified Supplier



Supplier B's business units have very different GHG intensities, so corporate level data would not accurately reflect emissions from a product or service that a company purchased from this supplier

Key:



Challenges of Collecting Scope 3 Data

1. **Reliance on value chain partners** to provide data
2. **Lesser degree of influence** over data collection and management
3. **Lesser degree of knowledge** about data types, data sources, and data quality
4. Broader need for **secondary data**
5. Broader need for **assumptions and modeling**

Guidance for collecting primary data

Case study: Levis

Levis designed questionnaire to collect readily available data from a sample of tier 1 and 2 suppliers



1. Questionnaire was sent to a sample of tier one suppliers (cut/sew/finish) and tier two suppliers (mills)
2. Asked for details of materials and energy used in processing, and waste
3. Responses were aggregated, averaged and modeled using the SimaPro LCA modeling software



Guidance for collecting primary data

nationalgrid

Challenge: Lack of transparency

Case Study:

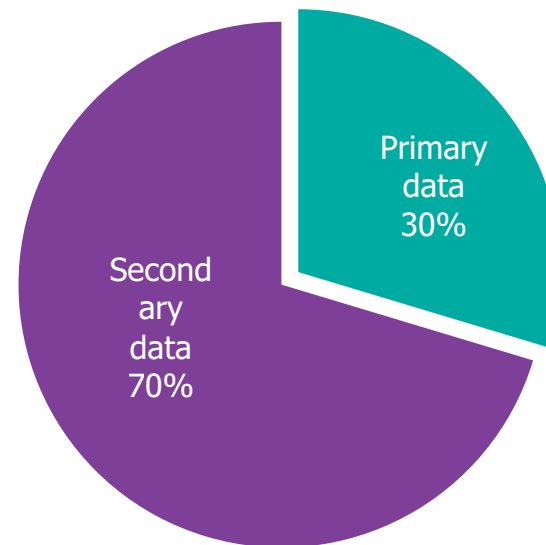
Sense check supplier data:

1. National Grid compared supplier provided data with supplier emissions using Defra factors
2. Where comparable, replaced Defra emission calculation with supplier provided data
3. Where there were discrepancies, National Grid investigated what the supplier had included in the data it provided



Using a combination of calculation methods

- Road test companies used a mixture of primary and secondary data
- On average 30% of emissions was calculated using primary data, and 70% was calculated using secondary data
- The range was 94% primary data to 0% primary data





Case Study: Levi's

- Levi's used a mix of primary and secondary data
- Inventory was 45% primary data and 55% secondary data

Category	Data type
Raw Materials Extraction & Processing	Secondary
Tier Two Suppliers (mills)	Primary
Tier One Suppliers (cut/sew/finish)	Primary
Distribution	Primary
General Transport & Logistics	Secondary
Product Retail	Primary
Product Use	Secondary
Product Disposal	Secondary
Corporate Emissions/Travel/Employee Commuting	Primary

Method

- Used **industry average life cycle inventory data** from various public and commercial sources
- Matched emissions factors with its **own internal data on activities and purchases**

Justification

- Allowed Kraft to understand its total scope 3 emissions with **reasonable accuracy, cost, and speed**, and with the ability to update as more precise secondary data became available
- Using secondary data fit Kraft's needs given that a large portion of its purchased commodities are produced in a global market where **tracking the agricultural source of origin is challenging**

Scope 3 Inventory – An Iterative Process



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