# Capital Markets Workshop

## GHG Emissions and Financed Emissions

2 June 2022

**Stephanie Zega**
**South Pole**

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# Introducing your workshop host

**Stephanie Zega**

**Managing Consultant, Climate Strategies**

South Pole

## About Stephanie

Stephanie is a Managing Consultant with South Pole based in Jakarta, specializing in climate strategies. She has extensive experience in conducting GHG Accounting for organisations, products, and events in accordance with the GHG Protocol and ISO standards. She has also assisted a wide range of clients to receive carbon neutral certifications and develop emission reduction strategies.

Prior to South Pole, Stephanie worked as a graduate researcher at Carnegie Mellon University, focusing on atmospheric science and air quality studies. She holds an MSc in Chemical Engineering from Carnegie Mellon University and BSc in Chemical Engineering from Purdue University.

# Today’s agenda

1. Introduction
2. Why our carbon footprint matters
3. GHG accounting in a nutshell
4. GHG accounting process for business
5. Emission profile examples

# Who we are

A **profit-for-purpose** company founded in 2006 that enables corporates, capital markets, and the public sector to reduce their impact on **climate change**, while mitigating risk and creating value on their **sustainability journeys**.

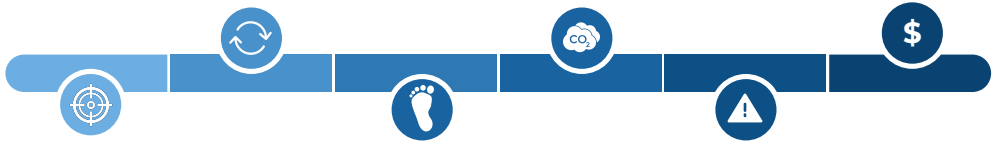
## South Pole Climate Solutions

Support along the entire corporate sustainability journey

**Renewable Energy**
Sourcing and planning

**Project Development**
Reduce or compensate for your footprint through offsetting & insetting

**Funds & Platforms**
for innovative climate finance



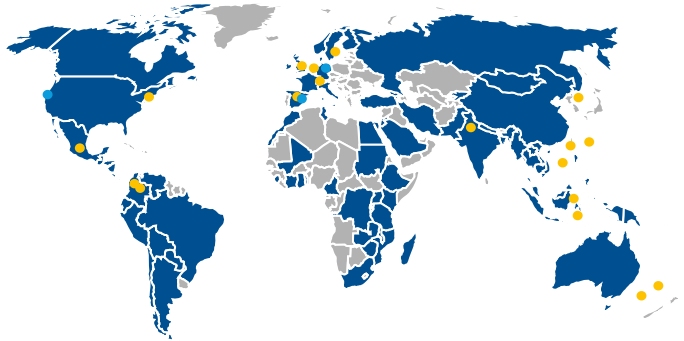
**Strategic Advisory**
to guide decision-making, targets, and goal-setting

**Footprinting & Lifecycle Analysis**
to quantify climate impact

**Climate Risk**
assessments and planning for corporate resiliency

## Global Impact - Local Reach

Our staff of 950+ employees in over 28 offices & representations around the world includes engineers, consultants, scientists, project developers, and finance experts.




msc
ups
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Hilton
jetBlue
Johnson & Johnson
L'ORÉAL
adidas
SAP
McKinsey & Company
Interface
Tetra Pak
procuenca
CLIMATE COUNCIL
Verified Carbon Standard
COMPANIES
I·C·L·E·I Local Governments for Sustainability
CARBON PROJECTS
GOVERNMENTS
Our ecosystem of clients & partners
Gold Standard
CLIMATE KIC AUSTRALIA
USAID FROM THE AMERICAN PEOPLE
Climate, Community & Biodiversity Standards
CarbonGreen AFRICA
KFW
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THE PARADIGM PROJECT
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Department for International Development
American Carbon Registry
NON-PROFITS
FINANCIAL
C40 CITIES
CLIMATE ACTION RESERVE
AFD AGENCE FRANÇAISE DE DÉVELOPPEMENT
CONSERVATION INTERNATIONAL
IDB
IUCN
THE WORLD BANK
CPIC COALITION FOR PRIVATE INVESTMENT IN CONSERVATION
ADB ASIAN DEVELOPMENT BANK
CDP

# Why our carbon footprint matters

**Magnolios Conservation, Colombia**
Landmark community action to protect Colombia's critically endangered magnolias

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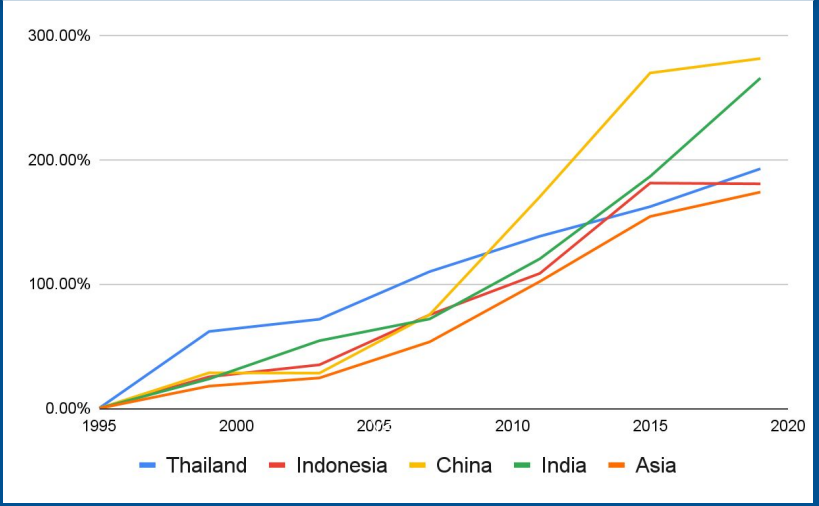
# A Global Issue

**Asian Carbon Dioxide Emissions Increase by Nation**

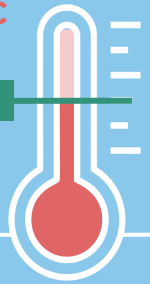



United Nations' scientists have indicated we have **8 years** to **cut global greenhouse gas emissions** before reaching the **point of no return**

## Climate Targets

Global greenhouse gas emissions must be cut to reach **net zero emissions** by **2050**, avoiding the current global warming trajectory of **3.5°C**

**Limiting warming to** **1.5°C** will mitigate worst effects of climate change



## Climate Status: Thailand

- Thailand's emissions rose by ~200% between 1990-now, with the highest increase being the energy sector.
- Surface temperatures increasing from **0.2 to 0.3** of a degree Celsius per decade.
- The government's climate target of 20% below **business-as-usual** in 2030 is not in line with a 1.5°C Pathway, instead projected for a 4°C increase.

Source: https://ourworldindata.org/co2-emissions, IPCC climate science report (2021), Climate Action Tracker

# Climate Change 101

1

Burning fossil fuels
- **Driving / flying**
- **Making goods**
- **Growing food**
- **Generating power**

produce greenhouse gases (GHGs), such as carbon dioxide, into the atmosphere

2

These gases trap the sun's heat in the atmosphere, **warming the planet** and altering the earth's climate over time (aka "climate change")

## Thailand GHG Emissions

(By Sector in 2018)

- 61% Energy
- 17% Industry
- 16% Agriculture
- 3% LULUC & Forestry
- 3% Waste

# General reasons to do GHG accounting

## Business goal served by GHG accounting

### Managing GHG risks and identifying reduction opportunities

- Identifying risks associated with GHG constraints
- Identifying cost effective reduction opportunities
- Setting GHG targets, measuring and reporting progress

### Public reporting and participation in voluntary GHG programs

- Voluntary stakeholder reporting of GHG emissions, such as the SBTi Net Zero & TCFD
- Eco-labelling and GHG certification

### Participating in mandatory reporting programs

- Participating in government reporting programs

### Participating in GHG markets

- Supporting internal GHG trading programs
- Participating in external cap and trade allowance trading programs
- Calculating carbon taxes

### Recognition for early voluntary action

- Providing information to support “baseline protection” and/or credit for early action

# How well are Thai companies accounting for emissions?

**64**

Thai companies disclosed to CDP in 2021 with emissions totalling over 674m tCO2e

**70%**

Reported Scope 1 emissions only

**61%**

Reported Scope 1+2 emissions

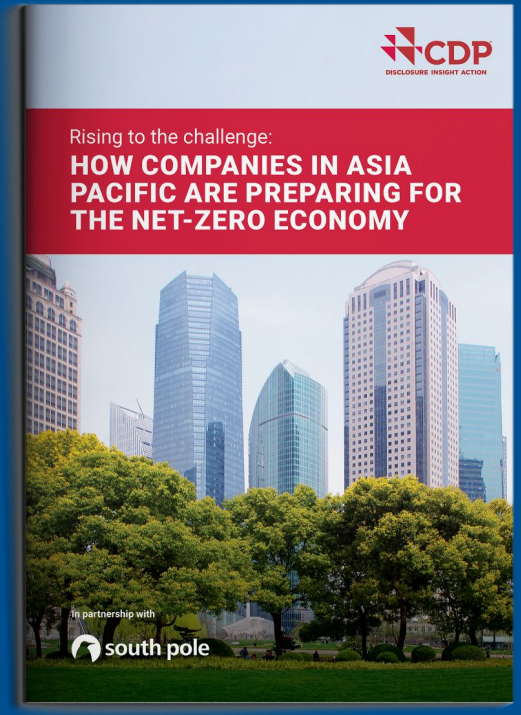
**34%**

Reported Scope 1+2 and at least 1 category of Scope 3

**25%**

Reported Scope 1+2 and all relevant Scope 3 categories

# Read more in 2021 CDP report




*Link*

# GHG Accounting in a nutshell

**Bac Lieu Wind Farm, Vietnam:** located on South Vietnam's Mekong Delta, the Bac Lieu wind farm delivers clean wind electricity to the national power grid. It is the first large-scale coastal wind power project in Vietnam, generating approximately 320,000 MWh of renewable wind energy per year and mitigating carbon emissions.

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# Carbon footprint

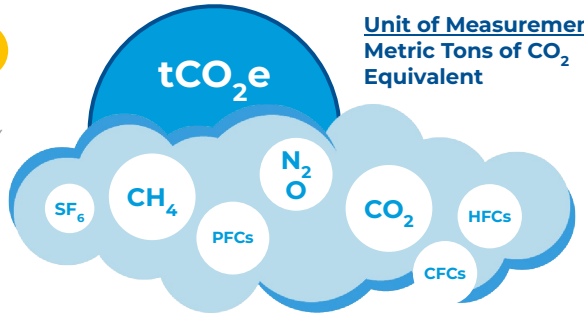
**Carbon Footprint:** The total amount of greenhouse gases emitted by an activity or organization over time, measured in tons of carbon dioxide equivalent ($tCO_2e$)

A **carbon footprint** is calculated by multiplying:

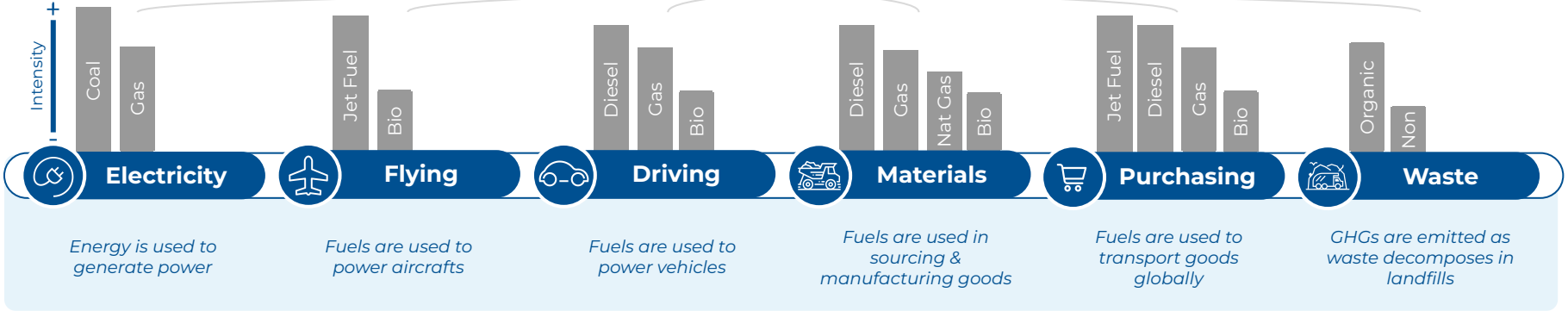
**Activity Data** X **Emission Factor**

*Total energy or fuel consumed* | *Amount of emissions produced per unit of energy*

Each fuel type (coal, gas, etc.) emits different amounts of carbon dioxide into the atmosphere per unit used, known as its **energy intensity**




**Unit of Measurement:**
**Metric Tons of $CO_2$ Equivalent**




*Energy is used to generate power*

*Fuels are used to power aircrafts*

*Fuels are used to power vehicles*

*Fuels are used in sourcing & manufacturing goods*

*Fuels are used to transport goods globally*

*GHGs are emitted as waste decomposes in landfills*

# The GHG Protocol

## Introduction

The Greenhouse Gas (GHG) Protocol is the **most widely used GHG accounting standards in the world**. They are designed to provide **requirements and guidance** for companies and other organizations preparing a GHG emissions inventory. There are 2 main standards for companies and organizations: the **Corporate Standard** and **Corporate Value Chain (Scope 3) Standard**.


### Background

- The Corporate Standard was launched in 1998
- The Corporate Value Chain (Scope 3) Standard was launched in 2011
- Published by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD)
- Built on the experience and knowledge of multi-stakeholders, which includes hundreds of experts from businesses, NGOs, governments and accounting associations.

### Content coverage

- GHG accounting principles
- Setting boundaries
- Tracking emissions over time
- Calculating emissions
- Managing inventory quality
- Accounting for reductions
- Reporting
- Verification
- Target setting

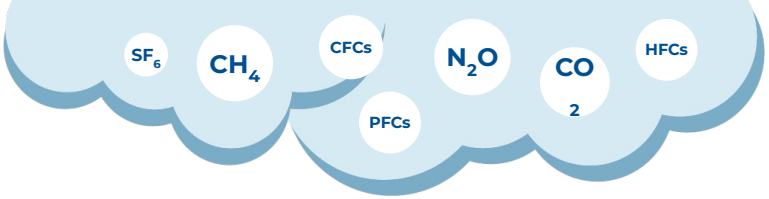
The TCFD states, related to the Metrics and Targets elements, that "***GHG emissions should be calculated in line with the GHG Protocol methodology*** *to allow for aggregation and comparability across organizations and jurisdictions.*" (TCFD, 2021)

# The GHG Protocol principles

| | |
|---|---|
| **Relevance** | Ensure the **GHG inventory** appropriately **reflects** the **GHG emissions** of the company and serves the **decision-making needs** of users |
| **Completeness** | Account for and report on **all GHG emission sources and activities** within the chosen inventory boundary. |
| **Consistency** | Use **consistent methodologies** to allow for meaningful comparisons of emissions over time. **Transparently document** any changes to the data, inventory boundary, methods, or any other relevant factors in the time series. |
| **Transparency** | Address **all relevant issues** in a factual and coherent manner, based on a clear audit trail. **Disclose any relevant assumptions** and make appropriate references to the accounting and calculation methodologies and data sources used. |
| **Accuracy** | Ensure that the quantification of GHG emissions is **systematically** neither over nor under actual emissions, as far as can be judged, and that **uncertainties are reduced** as far as practicable. |

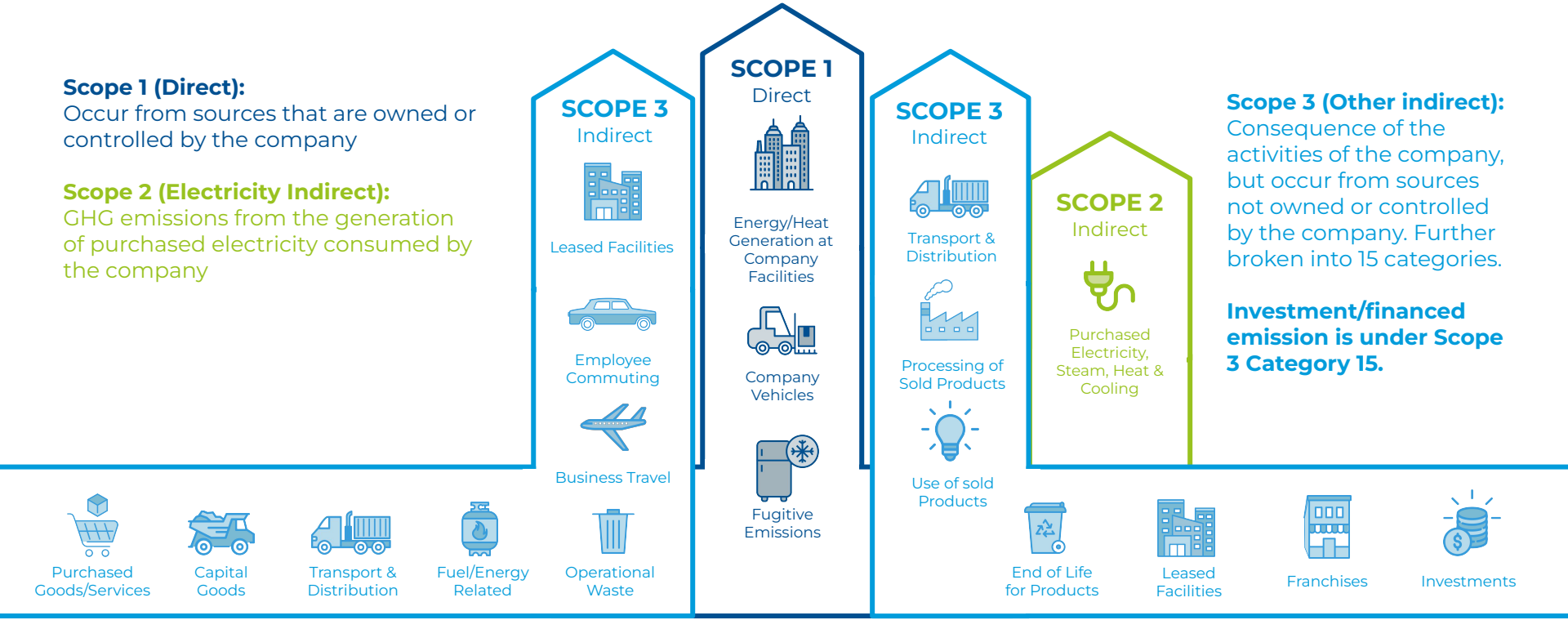
# Methodology

## The GHG Protocol




**Scope 1 (Direct):**
Occur from sources that are owned or controlled by the company

**Scope 2 (Electricity Indirect):**
GHG emissions from the generation of purchased electricity consumed by the company




**Scope 3 (Other indirect):**
Consequence of the activities of the company, but occur from sources not owned or controlled by the company. Further broken into 15 categories.

**Investment/financed emission is under Scope 3 Category 15.**

# What are financed emissions?

Investment emissions (category 15) include the operation of investments in the reporting year, not included in Scope 1 or Scope 2

**Required by GHG Protocol**

- Equity investments
- Debt investments (with known use of proceeds)
- Project finance

**Recommended by GHG Protocol**

- Debt investments (without known use of proceeds)
- Managed investments and client services
- Other investments or financial services

A **carbon footprint** is calculated by multiplying:

**Energy Used** X **Emission Factor**

A **carbon footprint** of investments is calculated by multiplying:

**Investees' emissions** X **Attribution factor**

Emissions from investments should be allocated to the reporting company based on the reporting company's **proportional share of investment in the investee.**

**Investee's emissions include its Scope 1 and 2 emissions,** which should be calculated according to the GHG Protocol.

The Principles for Carbon Accounting Financial (**PCAF**) standard provides more detailed calculations steps to assess investment emissions. It is aligned with the GHG Protocol.


Portfolio emissions of global financial institutions are on average 700x larger than direct emissions.*
#TimeToGreenFinance
*Per organization reporting financed emissions

# Applicable programs and standards

### ISO 14064-1

ISO 14064 is an international standard for quantifying and reporting greenhouse gas emissions. It is an important reference for conducting a GHG inventory for an organization and quantifying GHG emissions for the inventory.

### GHG Protocol

GHG Protocol establishes comprehensive global standardized frameworks to measure and manage greenhouse gas (GHG) emissions from private and public sector operations, value chains and mitigation actions.

### PCAF

The Principles for Carbon Accounting Financial (PCAF) standard provides more detailed calculations steps to assess investment emissions. It is aligned with the GHG Protocol.

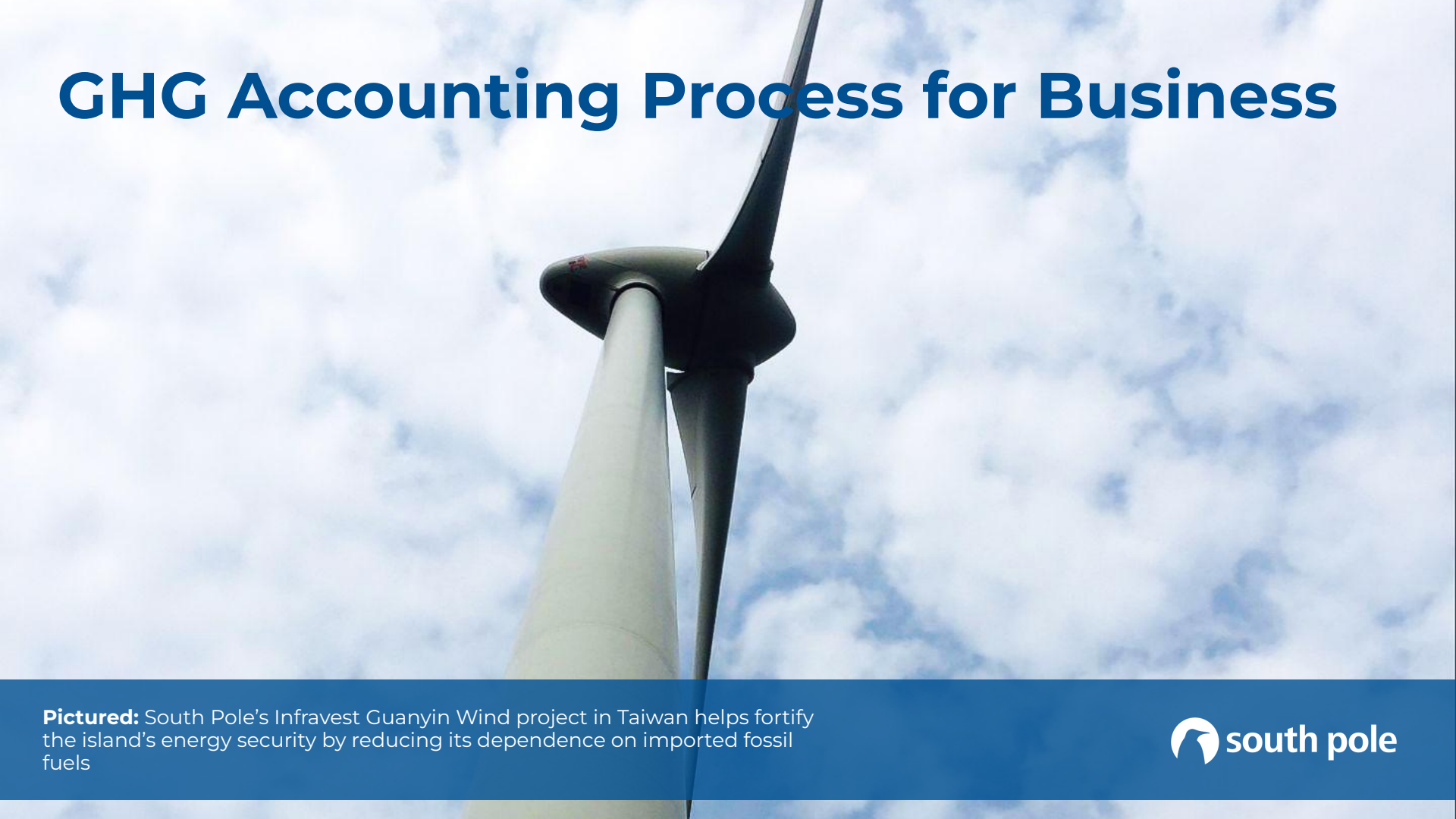
### TCFD

The Task Force for Climate-related Financial Disclosures (TCFD) developed a framework to help public companies and other organizations more effectively disclose climate-related risks and opportunities through their existing reporting processes.

### SBTi's Net Zero

The Science-based Target Initiative (SBTi)'s Net Zero standard is the most ambitious and robust pathway for companies wishing to reduce emissions aligned with science and set a Net Zero target.

# GHG Accounting Process for Business



**Pictured:** South Pole's Infravest Guanyin Wind project in Taiwan helps fortify the island's energy security by reducing its dependence on imported fossil fuels

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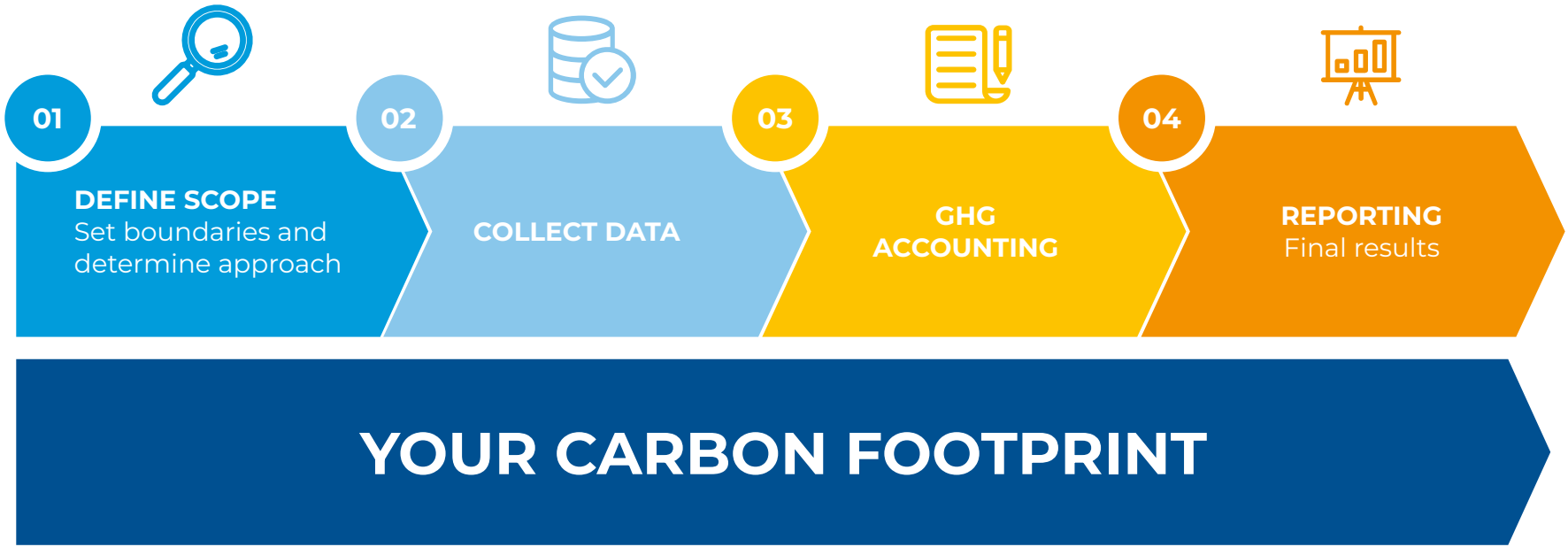
# The GHG Accounting Process



# 1. Setting boundaries

## Organisational boundaries

Defining the organizational boundary is a **key step** in corporate GHG accounting. This step determines which operations are included in the company's organizational boundary and which activities should be reported as direct or indirect emissions. Two distinct approaches can be used to determine the boundary of the **organisation's direct emissions: the equity share** and **the control approaches**.

### 1 Equity shares

Under the equity share approach, a company accounts for GHG emissions from operations **according to its share of equity** in the operation.

**GHG Accounting: % owned**

### 2 Control approach

Under the control approach, a company accounts for **100% of the GHG emissions from operations over which it has control**. It does not account for GHG emissions from operations in which it owns an interest but has no control. Control can be defined as:

- **Financial control**: based on the reporting company's ability to direct an operation's financial and operational policies with a view to gaining economic benefits from its activities.
- **Operational control**: based on the reporting company's ability to introduce and implement operating policies at the operation.

**GHG Accounting:**
**If yes - 100%**
**If no - 0%**

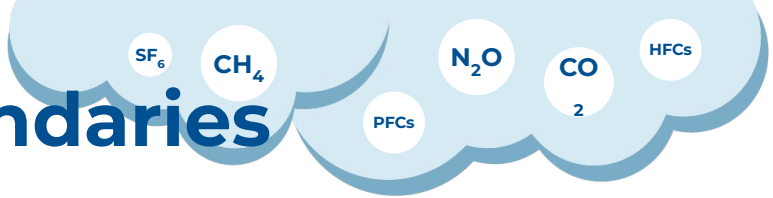
### Consolidation of approach

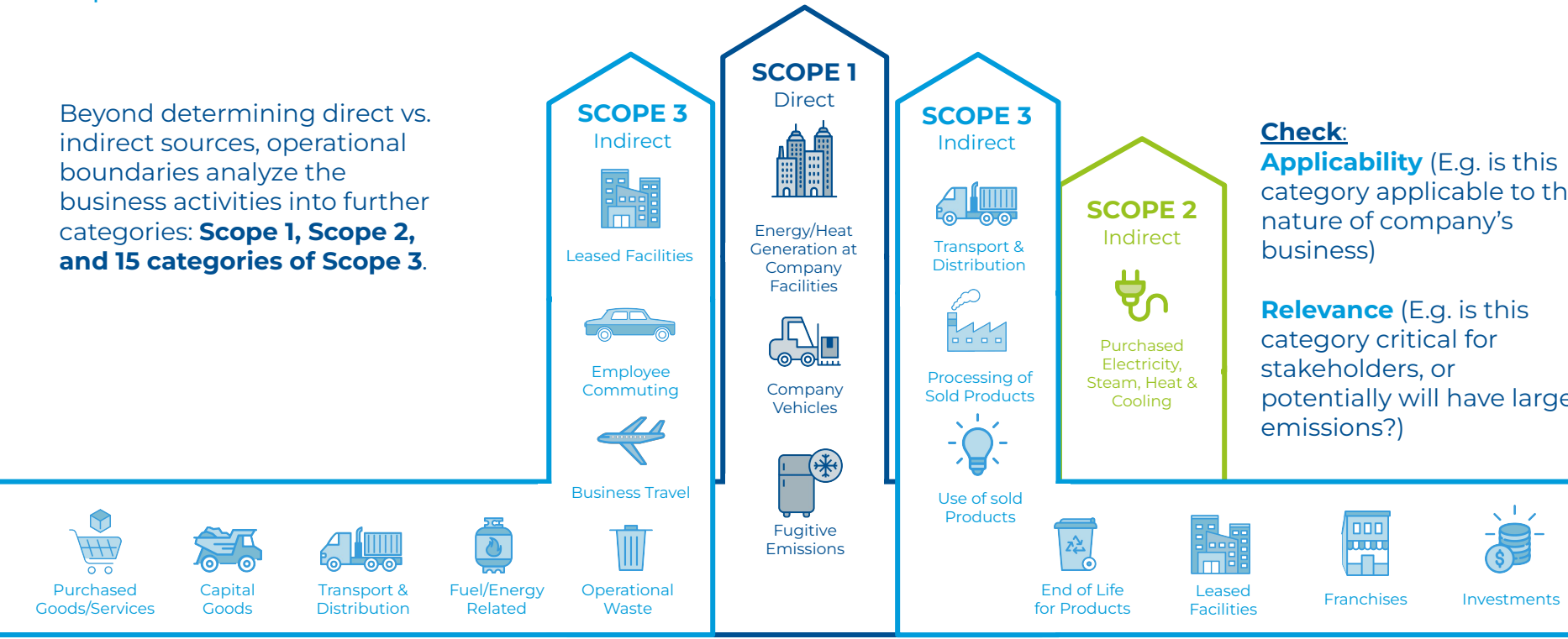
- Based on the **GHG Protocol**, the organisational boundary should be determined by the parent company.
- Once the consolidation approach has been decided, **all business units** under parent company should **apply the same approach**.

# 1. Setting Boundaries

## Operational boundaries

Beyond determining direct vs. indirect sources, operational boundaries analyze the business activities into further categories: **Scope 1, Scope 2, and 15 categories of Scope 3**.




**Check**:

**Applicability** (E.g. is this category applicable to the nature of company's business)

**Relevance** (E.g. is this category critical for stakeholders, or potentially will have large emissions?)

# 2 & 3. Data collection & GHG accounting

## Build your inventory

| | | |
|---|---|---|
| **Data types** | **Primary data**<br>is actual consumption data provided by company, its suppliers, customers or other organisations relevant to its activities. | **Secondary data**<br>includes industry and national average data as well as statistics. |
| **Data needed** | **Activity data**<br>is the values representing the human activities that contribute to generating GHG emissions. | **Emission factor**<br>is the emission intensity of specific activities, reported in the units of emissions per activity data. |
| | **Possible sources**: financial report, record of purchases, supplier data, etc. | **Possible sources**: public database, licensed database, Government data, supplier data, etc. |
| | Example of **primary activity data** is the electricity consumption obtained from actual electricity bills. | Example of **primary emission factor** is the emission factor calculated directly from physical measurements in the lab (extremely hard to get). |
| | Example of **secondary activity data** is the average electricity consumption per office floor area obtained from a national database. | Example of **secondary emission factor** is from Government-published fuel emission factor. List of credible database can be found on the GHG Protocol website. |

# 2 & 3. Data collection & GHG accounting

## Build your inventory

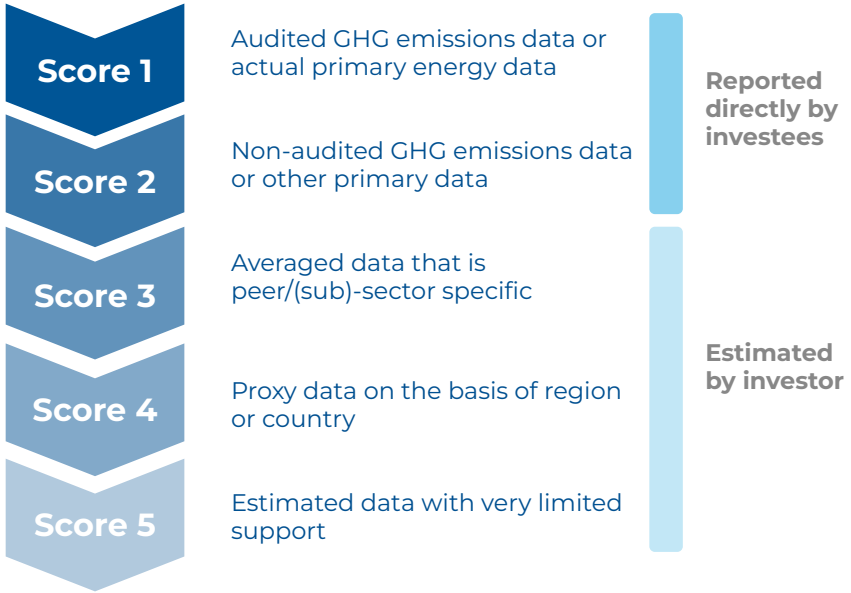
### Common challenges

- Data from suppliers are often not uniform, data are also often not readily available due to poor recording
- Data depth is too low → many assumptions have to be developed hence decrease the accounting quality
- Multiple data "owners" which creates conflicts in data assessment

**Several actions that can be taken:**

- Ensure data storage and management
- Focus to obtain primary data from major category, for smaller category, secondary data can be used
- Start conversations with suppliers/consumers/investees to increase awareness of the company's climate ambition early on

### Data quality hierarchy for investments



# 4. Reporting

## Disclose the final company footprint

### GHG report shall include

In accordance with the GHG Protocol Corporate Standard, a public GHG report shall include the following information:

- Company description, reporting period covered, any exclusions of sources or operations
- Organizational boundary, consolidation approach, operational boundaries (if scope 3 included, list activity types covered), calculation methodologies
- Base year and emissions profile over time
- Total Scope 1 and 2 emissions (independent of any offsets, allowances, etc.), emissions of all 7 GHGs separately
- Context for any base year recalculations

### TCFD recommendations

Organizations should provide their Scope 1 and Scope 2 GHG emissions independent of a materiality assessment, and, if appropriate, Scope 3 GHG emissions and the related risks. The Task Force strongly encourages all organizations to disclose Scope 3 GHG emissions.

The report should:

Be based on **best available data** at time of publication

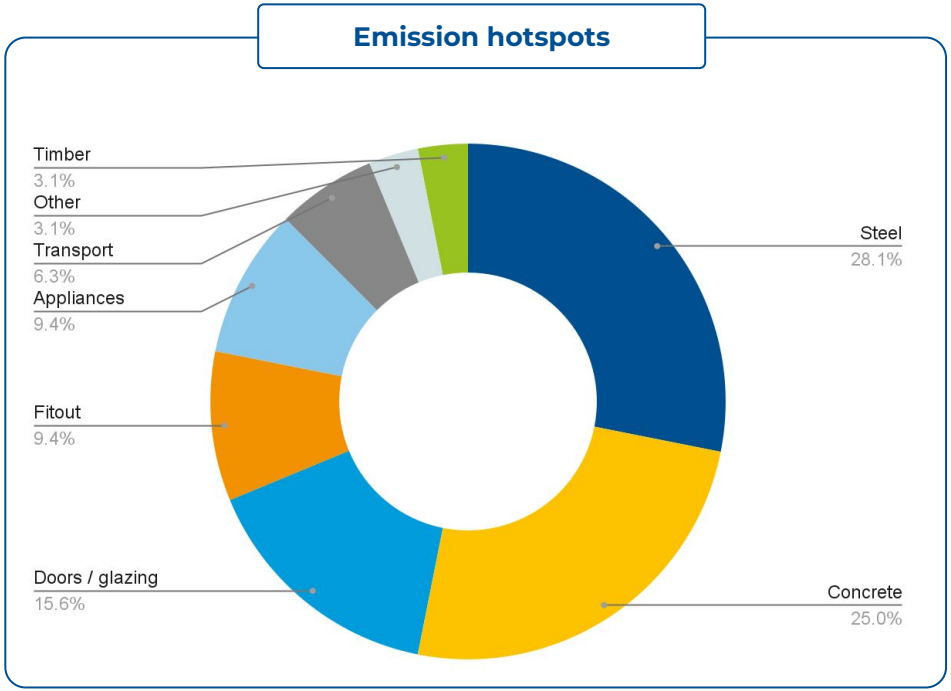
Acknowledge **limitations**

**Communicate** any identified past errors

Include **company's gross emissions separately** from any GHG trades/offsets

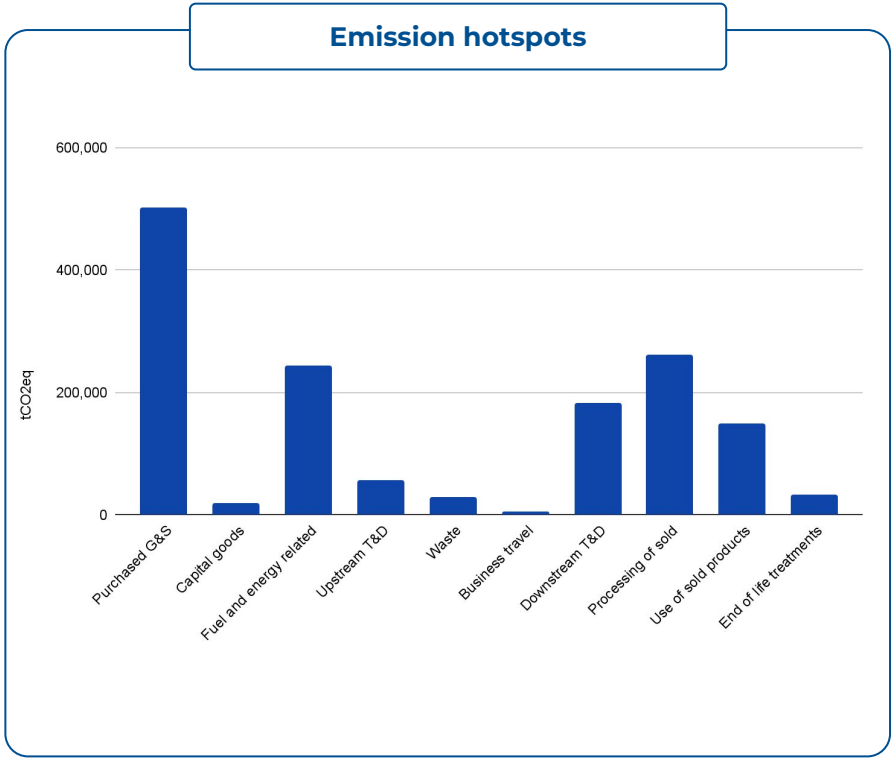
# Construction industry

- The main hotspot for construction industries are from **Scope 3** mainly from **procurement of steel and concrete** to construct buildings' foundations and roofings.
- The other significant emission sources come from **fitout** (cladding, painting, finishing, and insulation) and **appliances**
- Emissions from **timber and transporting material** are comparably smaller



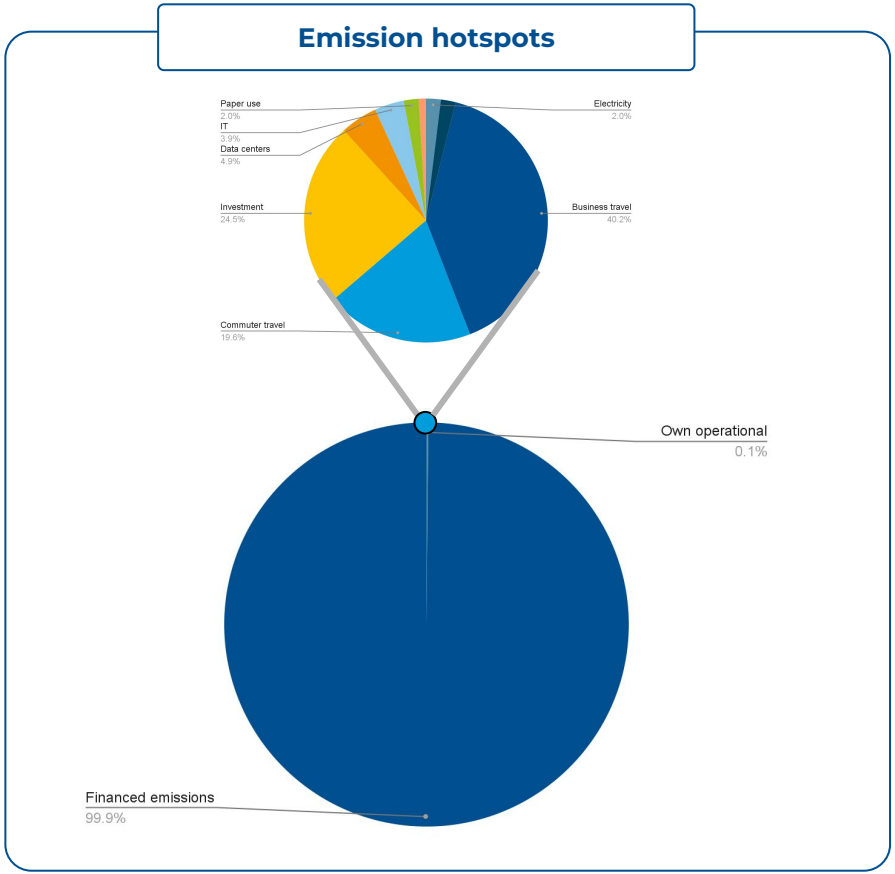
# Retail industry

- **Retail industries** are type of business which usually has a significantly **higher Scope 3** compared to Scope 1 and Scope 2
- **Purchased goods and services** usually dominates the emission profile of retail industry, mainly from the **procurement of products**, **intermediates and/or raw materials**
- Depending on the **electricity source**, fuel and energy related emission might be high
- Depending on the **type of business**, either **upstream or downstream** transportation would also be significant
- **Processing of sold products** might be high if retailers offer many **intermediate products**. On the other hand, if it offers many **finished products**, the **use of sold products** emission might be materialistic



# Financial industry

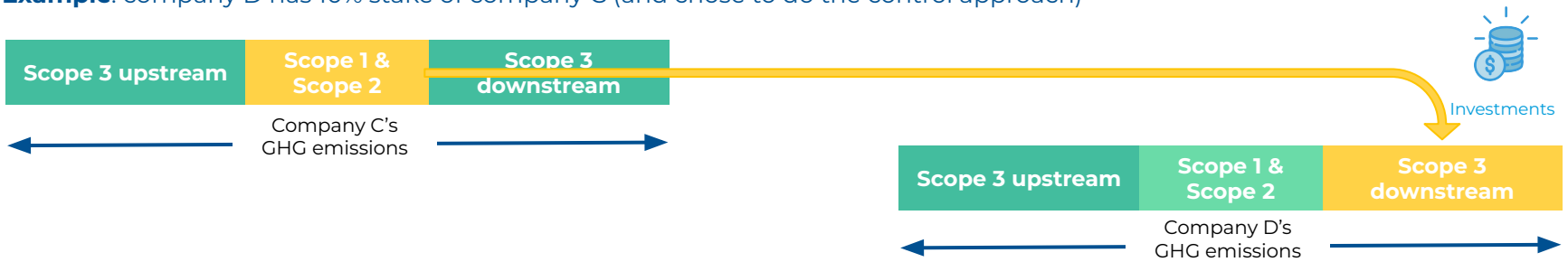
- Financial industry usually has **lower Scope 1** compared to other industries. The Scope 3 mainly becomes the highest emission source
- Emissions from **business travel and commuter travel** are significant due to the high activity within this sector
- Uniquely, based on CDP's reports on 2021, **finance sectors' financed emissions** (portfolios) are over **700 times greater** than its own operation



# The interlink of corporate inventories

**Example**: company A, a fresh tomato distributor, provide supplies to company B, a tomato sauce producer.


**Example**: company D has 10% stake of company C (and chose to do the control approach)




**With the way the GHG Protocol was designed, there is bound to be double-counting in Scope 3 emissions between corporates as we are all interlinked with each other.**


THE CLIMATE IS CHANGING
ARE YOU?
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