Getting Started with GHG Emissions

A Corporate Guide

ESG Risk Viewer

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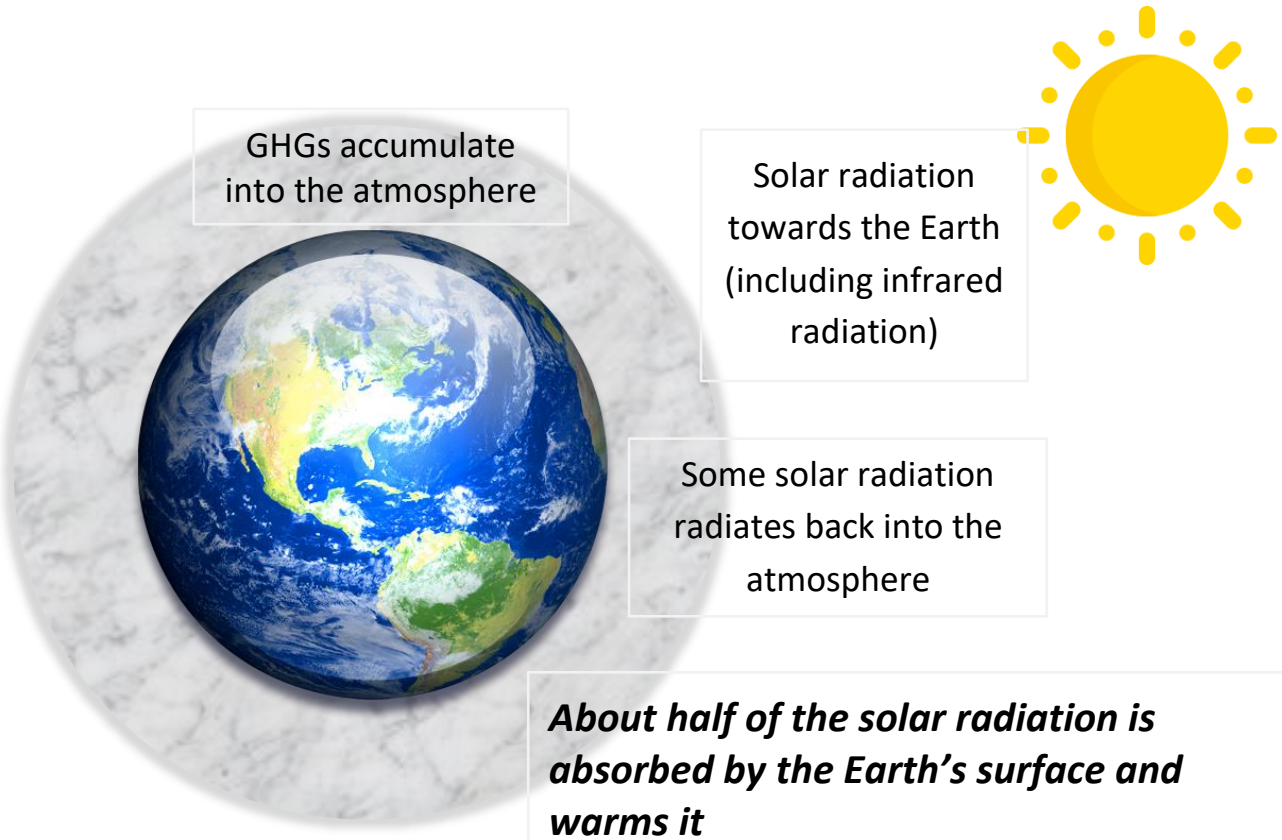
THE SCIENCE

The Greenhouse Effect

A greenhouse gas is a gas which absorbs infrared radiation from the Sun in the form of heat.

- Solar radiation powers the climate system
- Some solar radiation is reflected by the Earth and the atmosphere
- About half of the solar radiation is absorbed by the Earth's surface and warms it
- Infrared radiation is emitted from the Earth's surface

> *"The greenhouse effect: some of the infrared radiation from the Sun passes through the atmosphere, but most is absorbed and re-emitted in all directions by greenhouse gas molecules and clouds. The effect of this is to warm the Earth's surface and the lower atmosphere".*
>
> *(The British Geological Survey)*



GHGs REPORTING: KEY STEPS

1	Determine your Organisational Boundaries	Straightforward for an organisation which own 100% of the assets it operates. It reports on the impacts from everything that is owned and operated. Different approach for more complex structures
2	Determine your Operational Boundaries	Made up of all activities causing GHG emissions linked to the organisation's operations, broken down by categories: direct emissions and indirect emissions
3	Determine the Reporting Period and Base Year	The reporting period is the period over which activity data is collected, typically 12 months. The organisation can use its first year of reporting as a base year
4	Collect Activity Data and Calculate	Efforts to collect the best quality data should be focused on the most important sources of emission. The calculation is done using emission factors, documented GWP and verifiable activity data.
5	Report	Depending on the organisation's context, it should report in compliance with existing regulations, or voluntarily
6	Establish a Transition Plan	Review actions implemented and the results obtained. Define a trajectory and strategic objectives

1 Organisational Boundaries

Simple business structure

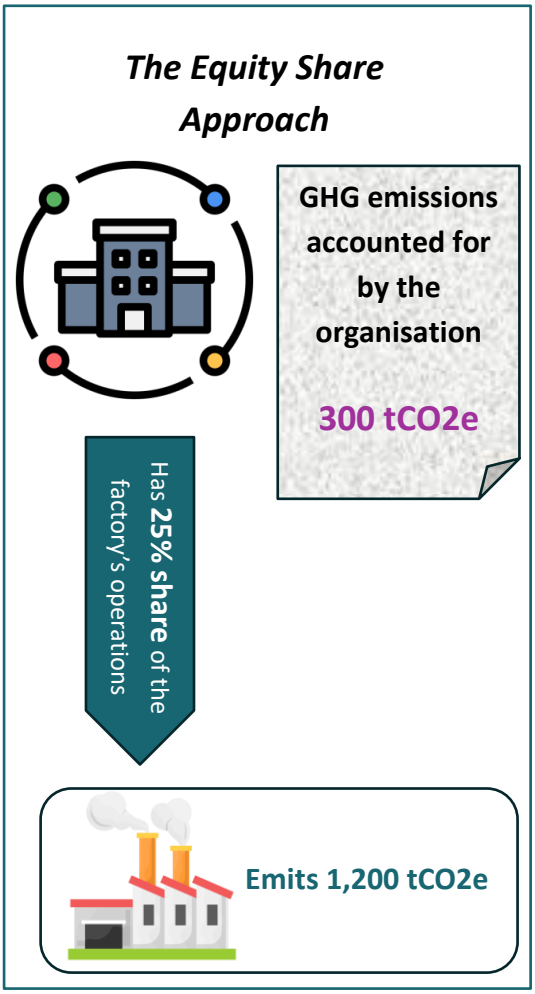
The organisation which owns 100% of the assets it operates reports on the impacts from everything that is owned and operated.

Complex business structure

Two approaches to determining the organisational boundaries.

- **The Equity Share Approach**
  Installations and equipment are included in the organisation's boundary according to its equity share in the operations.

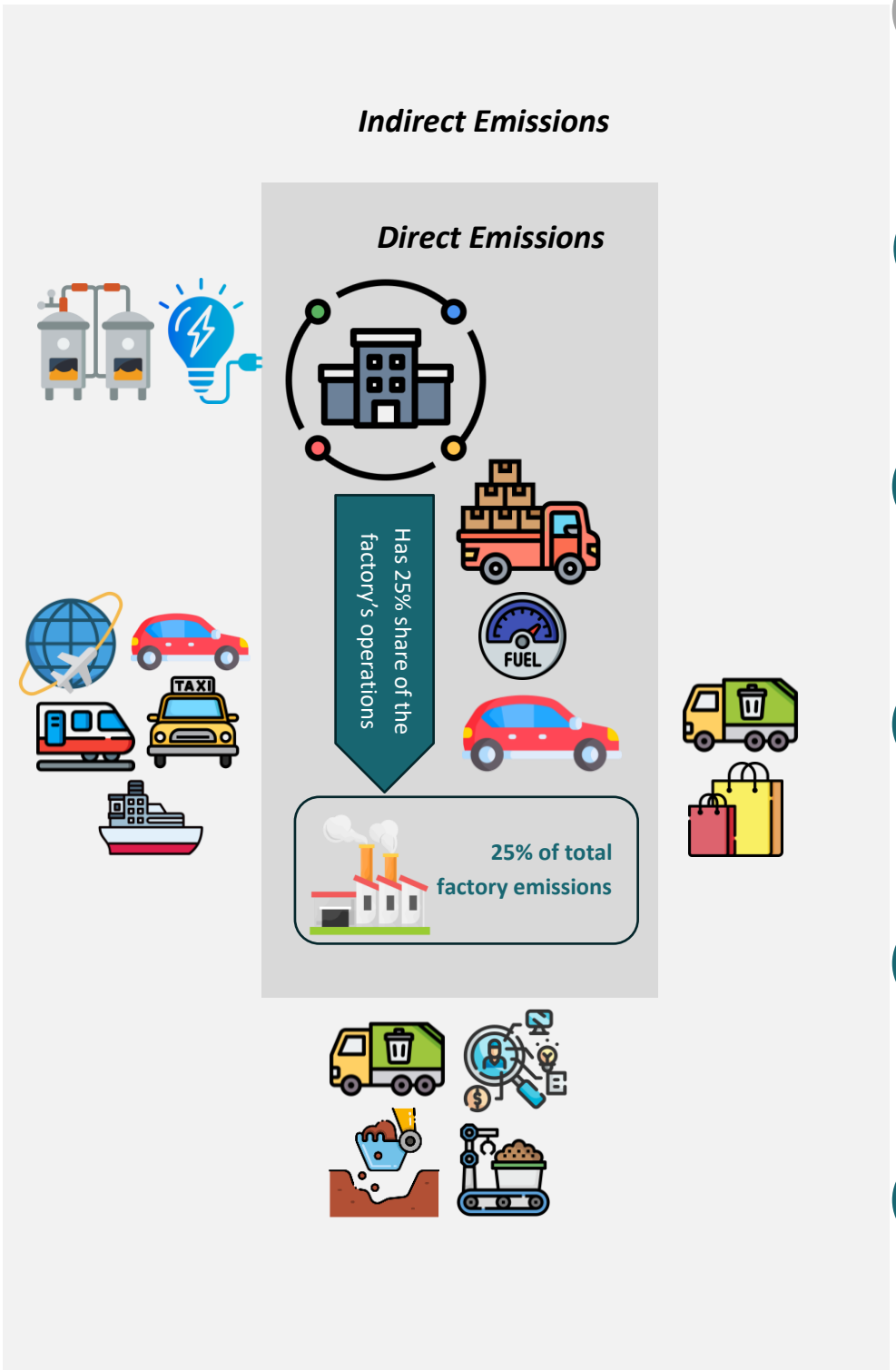
- **The Control Approach**
  The organisation account for 100% of emissions from operations under its "control", irrespective of the equity share.
    - *Financial Control* - ability to direct an operation's financial and operational policies
    - *Operational Control* - authority to introduce and implement operating policies



The organisation defines its boundaries either by the operational control approach, or by the financial control approach and it indicates this choice its report.

2 Operational Boundaries

Under the "*polluter pays principle*", emissions caused or resources used directly by the organisation fall under its **direct** responsibility; all other emissions are **indirect**.



1. Direct emissions of GHG
2. Indirect emissions linked to energy
3. Indirect emissions linked to transportation
4. Indirect emissions linked to purchases
5. Indirect emissions linked to sales
6. Other indirect emissions n.e.c

3 Reporting Period and Base Year

The **reporting period** is the period (typically a year) covered by the activity data collected for the preparation of the GHG emissions report.

The **base year** is a fixed year which, unless necessary, remains the same for one financial year of GHG emissions reporting to another.

It is established during the first year of reporting. Each new year's GHG emissions calculations must be compared to that of the reference year.

First year of reporting

	Year 1 (base year)
Scope 1	
Scope 2	
Scope 3	

Second year of reporting

	Year 1 (base year)	Year 2
Scope 1		
Scope 2		
Scope 3		

Third year of reporting

	Year 1 (base year)	Year 2	Year 3
Scope 1			
Scope 2			
Scope 3			

Fourth year of reporting

	Year 1 (base year)	Year 3	Year 4
Scope 1			
Scope 2			
Scope 3			

4 Activity Data and Calculations

To carry out an assessment of greenhouse gas emissions, it is necessary to

- identify the sources of greenhouse gases, for each category;
- collect activity data for each of these sources at the right level of aggregation; and
- multiply these activity data by the emissions or removal factors in order to obtain the total amount of greenhouse gas emissions or removals.

For indirect emissions (categories 2 to 6), it is recommended to rely on sectoral benchmarks in order to determine the relevant emissions sources for the organisation.

As indicated in the guidelines of the Intergovernmental Panel on Climate Change (IPCC) and ISO 14064-1, several methods of assessing GHG emissions are possible:

- calculation;
- measurement; or
- combination of measurement and calculation.

Approach	Details	Data Required
Measurement	Multiplication of direct quantities of gas emitted by their respective Global Gas Warming Potential (GWP) $GHG\ (tCO2e) = Quantity\ of\ gas\ emitted\ x\ GWP$	• Direct quantity of gas emitted: Result of measurements of gaseous effluents (flow, concentrations); and • Global Gas Warming Potential (GWP).
Calculation	Multiplication of activity data by an emission factor $GHG\ (tCO2e) = Activity\ data\ x\ Emission\ factor$	• Activity data; and • Emissions factors.

The most commonly used approach is that based on calculation via the use of emission factors, documented GWP and verifiable activity data.

5 Reporting

A Few Examples…

The **International Sustainability Standards Board Standards (IFRS S2)** requires organisations in scope to disclose information about climate-related risks and opportunities that is useful to primary users of general-purpose financial reports in making decisions.

The **UK's Streamlined Energy and Carbon Reporting (SECR)** requires organisations in scope to report on energy use and carbon emissions in their annual reports**.**
Organisations in scope include

- quoted companies;
- large unquoted companies (including charitable companies); and
- large Limited Liability Partnerships (LLPs).

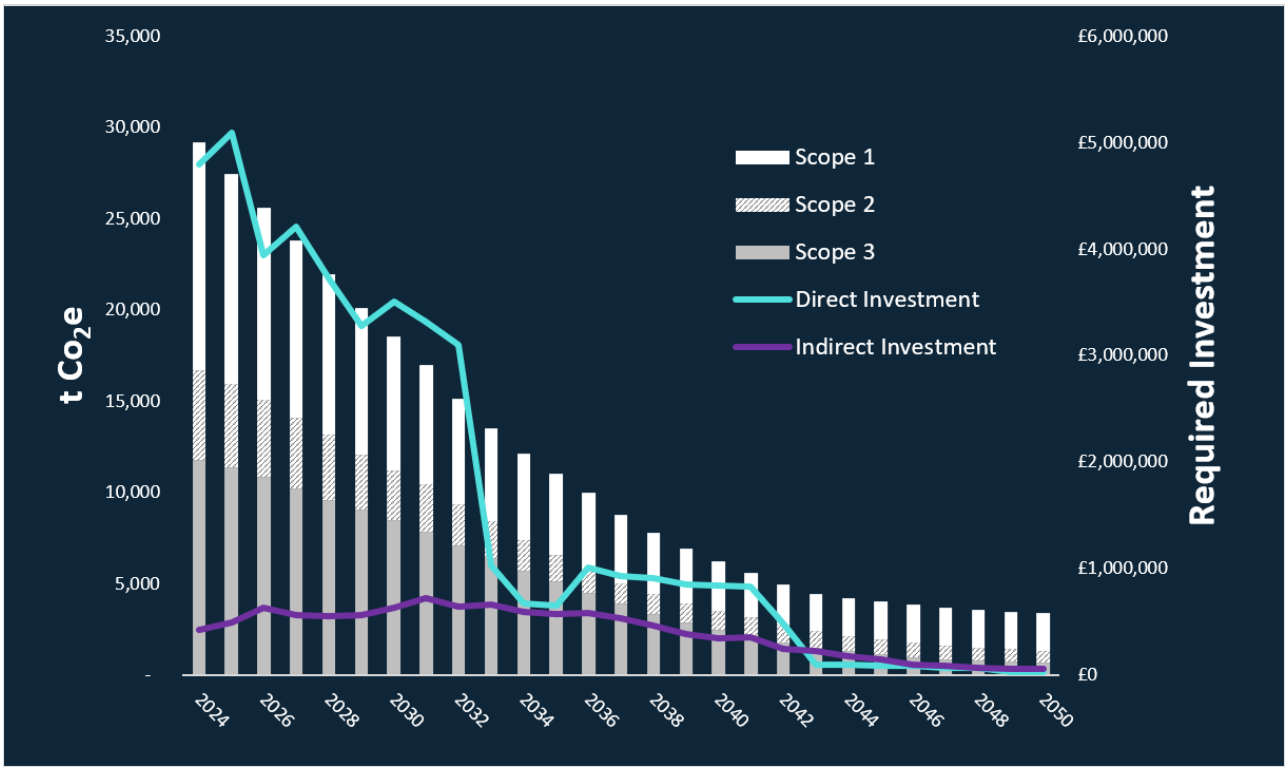
The **European Sustainability Reporting Standards (E1)** requires organisations in scope to report on climate change information which will enable users of sustainability statements to understand, amongst others

- how the organisation affects climate change; and
- the organisation's past, current, and future mitigation efforts in line with the Paris Agreement and limiting global warming to 1.5°C.

6 Transition Planning

The **European Sustainability Reporting Standards (E1-1)** requires an organisation in scope to disclose its transition plan for climate change mitigation. This is to enable an understanding of the organisation's past, current, and future mitigation efforts to ensure that its strategy and business model(s) are compatible with the transition to a sustainable economy, and with the limiting of global warming to 1.5 °C.

Example carbon reduction plan, including financing



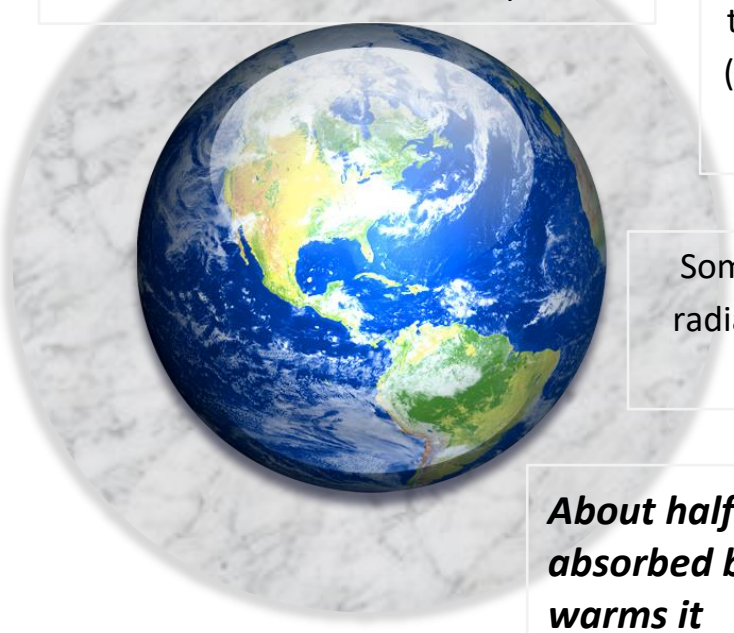
Source: *ESG Risk Viewer's model*

THE GREENHOUSE EFFECT

The Greenhouse Effect and your Organisation

GHGs **directly or indirectly caused by your organisation's** activities accumulate into the atmosphere

Solar radiation towards the Earth (including infrared radiation)



Some solar radiation radiates back into the atmosphere

About half of the solar radiation is absorbed by the Earth's surface and warms it

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