ESG EXPLAINER

REALPAC

GHG Accounting

FUNDAMENTALS

OVERVIEW

Climate change is real and greenhouse gases (GHGs) are the root cause. To address climate change, we need to understand and manage our GHG emissions. Buildings are the source of approximately a third of GHG emissions globally, and consequently there is growing investor, regulatory, and competitive pressure for the real estate industry to account for, and to dramatically reduce these emissions. This Explainer provides an overview of GHG accounting for commercial real estate entities.

PRINCIPLES

Entities account for their GHG emissions in a GHG Inventory. An entity's GHG Inventory is driven by applying a set of core GHG accounting principles as outlined below.

Relevance	Ensure the GHG inventory appropriately reflects the emissions of the entity and serves the decision making needs of users (both internal and external).
Completeness	Account for and report on all relevant GHG emissions within the chosen GHG inventory boundary.
Consistency	Use consistent methodologies to allow for meaningful performance tracking of emissions over time.
Transparency	Disclose all relevant assumptions, references and calculation methodologies used.
Accuracy	Ensure quantified emissions are neither over nor under actual emissions as far as practicable.

Source: GHG Protocol (adapted)

GHG ACCOUNTING DEFINITIONS

Greenhouse Gases (GHGs)
Gases that trap heat in the atmosphere; for the purposes of GHG accounting these include: carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF_6).

GHG Inventory
A quantified list of an entity's greenhouse gas emissions and sources.

Scope 1 Emissions
Direct emissions from operations that are owned or controlled by the reporting entity.

Scope 2 Emissions
Indirect emissions from the generation of purchased or acquired electricity, steam, heating or cooling consumed by the reporting entity.

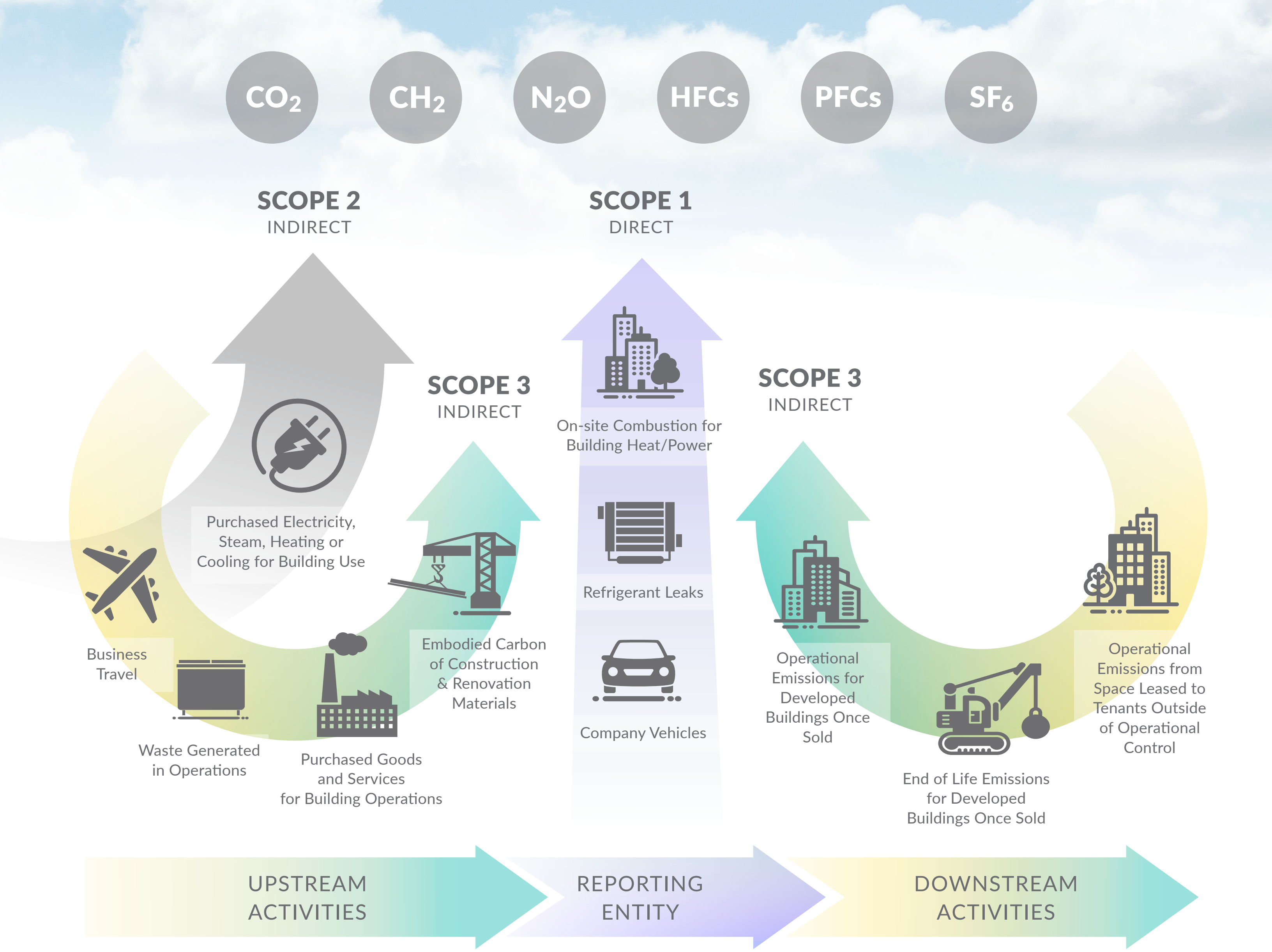
Scope 3 Emissions
Indirect emissions (not included in Scope 2) that occur in the value chain of the reporting entity, including both upstream and downstream emissions.

Source: GHG Protocol (adapted)

BOUNDARY

The GHG Inventory boundary determines which emissions are accounted and reported by the entity. There are two types: **(1)** Operational boundaries and, **(2)** Organizational boundaries. They apply to real estate entities in the following ways:

1. Operational Boundaries The boundaries that determine the direct and indirect emissions associated with operations owned or controlled by the reporting entity.



Notes:

(1) Emissions span different time horizons and are spread across a wide range of activities. Some are annual or recurring, while others occur at different points in time across an asset's life cycle. Useful life emissions include purchased goods and services, and use of sold products.

(2) Scope 3 emissions included above are typically the most material categories for real estate entities and are not intended to be exhaustive. See GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting standard for further details.

(3) Image source – GHG Protocol (adapted).

2. Organizational Boundaries The boundaries that determine the operations owned or controlled by the reporting entity.

Equity Share	Control
Accounts for GHG emissions from operations according to its share of equity in the operation.	Accounts for GHG emissions from operations over which it has control. Control can be defined in operational or financial terms.*

Reporting Options	Owner / Investor	Asset Manager	Property Manager
Equity Share	●		
Operational Control	●	●	●
Financial Control	●	●	

***Notes:**

(1) Operational control - is where the entity has the authority to introduce and implement its operating policies of the operation.

(2) Financial control - is where the entity has the ability to direct the financial and operating policies of the operation.

DEFINITIONS

Owner/Investor
Entity that has an ownership interest in the real estate asset (including development activities).

Asset Manager
Entity primarily responsible for driving capital planning decisions for real estate assets.

Property Manager
Entity primarily responsible for driving operations decisions and executing capital projects.

METRICS & REPORTING

There are two core GHG emissions performance metrics as follows:

Absolute	Total GHG emissions, in kg/tons of carbon dioxide equivalent (CO_2e).
Intensity	Absolute GHG emissions divided by square footage (CO_2e/sqf.)

Real estate entities typically report on their portfolio GHG emissions performance in one or more of the following ways:

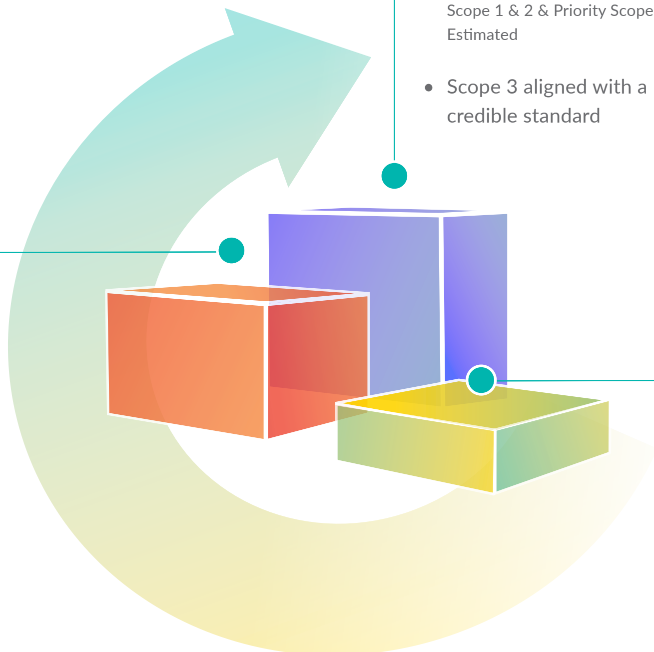
Whole Entity

By Region

By Asset Class

PERFORMANCE SPECTRUM

A credible approach to GHG Accounting requires consideration of Scope 1, 2 and 3 emissions at a portfolio level and places a priority on measured, actual data over estimated data wherever possible.



Advanced

- Organizational Boundary (Whole Portfolio)
- Operational Boundary
  Scope 1 & 2 & Priority Scope 3
  Estimated
- Scope 3 aligned with a credible standard

Intermediate

- Organizational Boundary (Whole Portfolio)
- Operational Boundary
  Scope 1 & 2 & Priority Scope 3
  Estimated

Beginner

- Organizational Boundary (Partial Portfolio)
- Operational Boundary (Scope 1 & 2)

CORE STANDARDS

GREENHOUSE GAS PROTOCOL	GRESB	PCAF Partnership for Carbon Accounting Financials
The GHG Protocol is an internationally accepted set of standards for greenhouse gas accounting and reporting. The GHG Protocol Corporate Accounting and Reporting Standard is an entity level methodology for quantifying and reporting on GHG emissions. The Corporate Value Chain (Scope 3) Accounting and Reporting Standard compliments the Corporate Standard and provides guidance on how to account for Scope 3 emissions.	GRESB Real Estate Standard and Reference Guide requires entities report GHG emissions at an asset level which are then aggregated at a portfolio level.	PCAF is an approach to assess and disclose GHG emissions associated with loans & investments, known as financed emissions. Accounting and Reporting of GHG Emissions from Real Estate Operations provides technical guidance for financial institutions (banks and investors) for their real estate asset managers and companies.

Leadership.
Influence.
Impact.

REALPAC

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This Explainer was developed in collaboration with REALPAC members and will be periodically reviewed and updated. Contact Darryl Neate for further questions or details.