KPMG

GHG emissions reporting

Handbook

December 2025

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Contents

GHG Protocol on the international stage

The GHG Protocol moved to center stage when it was leveraged by both IFRS® Sustainability Disclosure Standards and European Sustainability Reporting Standards. This practical approach was widely lauded – and was followed by the restructuring of the Protocol's governance and the start of a multi-stakeholder project to update the Protocol's standards.

As we head toward the end of 2025, the application issues associated with leveraging – not adopting wholesale – the Protocol's standards are becoming clearer. The standards have been incorporated into reporting frameworks that have broader principles and requirements. And this integration of the standards requires new interpretations that are not relevant when applying the GHG Protocol alone.

As examples, the assessment of materiality in the context of financial reporting is more complex than under the GHG Protocol. And the approach to the acquisition and disposal of businesses in financial reporting is prospective rather than retrospective.

To address many of these interpretive issues, the updates in this edition of our handbook are mainly related to measuring GHG emissions under IFRS Sustainability Disclosure Standards. We also cover recent amendments by the International Sustainability Standards Board and the practical implications for preparers.

As always, we hope this handbook helps to provide you with a foundational understanding of GHG emissions reporting.

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About this publication

The purpose of this handbook is to assist you in understanding the accounting and reporting of GHG emissions in accordance with:

- the standards and guidance of the Greenhouse Gas (GHG) Protocol; and
- IFRS Sustainability Disclosure Standards.

European Sustainability Reporting Standards (ESRS) are not covered in this handbook because the standards are in the process of being amended as part of the European Commission's Omnibus initiative.

The European Financial Reporting Advisory Group (EFRAG) proposed revisions to simplify ESRS that were subject to public comment by September 29, 2025. EFRAG delivered its recommendations on simplified ESRS to the European Commission on 3 December 2025. The Commission will now follow its own due process, including any further revisions to the standards. We will include the amended ESRS in a future edition of this handbook, but in the meantime stay up to date with KPMG's digital hub, Sustainability reporting in the EU.

For finance professionals

This handbook provides an introductory explanation of GHG emissions reporting. It is not intended to be exhaustive or to facilitate an expert level of understanding.

It is written for finance professionals who are more familiar with financial reporting and generally accepted accounting principles. As such, we explain concepts in a way that we think will be the most understandable for this audience.

Organization of this handbook

Beyond the executive summary (chapter 1), each chapter of this handbook comprises the following.

- **A sections**, which focus on the GHG Protocol.
  - These sections form the core discussion in this handbook and explain many of the fundamentals of all GHG emissions reporting, in particular measurement.
  - To the extent the discussion deals with a topic that is different from the approach under IFRS Sustainability Disclosure Standards, it is identified with ♦ and a cross-reference to the relevant discussion under IFRS Sustainability Disclosure Standards.
- **B sections**, which focus on IFRS Sustainability Disclosure Standards and differences from the GHG Protocol.

- While these chapters provide an overview of all requirements under IFRS Sustainability Disclosure Standards, they leverage discussion in the A sections to focus mainly on points of difference.
- Cross-references to the parallel discussion under the GHG Protocol in the A sections are identified with ♦.

Excerpts from the Greenhouse Gas Protocol

This handbook includes a number of excerpts from the standards and guidance of the Greenhouse Gas Protocol. That material was developed by the World Resources Institute and the World Business Council for Sustainable Development.

The GHG Protocol is currently updating its standards. Read more in chapter 2 (Future developments).

December 2025 edition

This edition of our handbook introduces B sections within chapters that focus on IFRS Sustainability Disclosure Standards and differences from the GHG Protocol (see Organization of this handbook). The guidance in these chapters, plus new guidance added to the existing A sections within chapters (GHG Protocol), are identified with **. Updated guidance in the A sections is identified with #.

The Index of changes includes a full listing of significant changes.

References to the literature

Our commentary is referenced to the GHG Protocol standards and/or guidance citing page numbers and to relevant paragraphs in IFRS Sustainability Disclosure Standards and related guidance.

The following are examples of how we reference.

Reference	Short-cut name	Proper title
GHGP-CS	Corporate Standard	A Corporate Accounting and Reporting Standard
GHGP-S2	Scope 2 Guidance	GHG Protocol Scope 2 Guidance
GHGP-S3	Scope 3 Standard	Corporate Value Chain (Scope 3) Accounting and Reporting Standard
GHGP-S3C	Scope 3 Calculation Guidance	Technical Guidance for Calculating Scope 3 Emissions
GHGP-G	Required Gases in Inventories	Required Greenhouse Gases in Inventories
GHGP-PA	Project Standard	The GHG Protocol for Project Accounting

Reference	Short-cut name	Proper title
GHGP-MGS	Mitigation Goal Standard	Mitigation Goal Standard
IFRS S1	IFRS S1	IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information*
IFRS S2	IFRS S2	IFRS S2 *Climate-related Disclosures*
FAQ	ISSB™ GHG Guidance	Greenhouse Gas Emissions – Disclosure requirements applying IFRS S2 *Climate-related Disclosures*
TIG	--	Transition Implementation Group on IFRS S1 and IFRS S2

Because IFRS Sustainability Disclosure Standards leverage only certain parts of the standards and guidance issued by the GHG Protocol (see section 2B.2), to avoid confusion, in the B sections of the chapters we often refer to the 'Corporate Standard' rather than the more generic Protocol (or GHGP).

Abbreviations and terminology

We use the following abbreviations and terminology in this handbook:

The greenhouse gases

CH_4	Methane
CO_2	Carbon dioxide
GHG	Greenhouse Gas
NF_3	Nitrogen Trifluoride
N_2O	Nitrous Oxide
HFCs	Hydrofluorocarbons
PFCs	Perfluorocarbons
SF_6	Sulphur Hexafluoride

Emissions measurement

CO_2e	Carbon Dioxide Equivalent
kWh	Kilowatt Hour (of electricity)
mt	Metric tonnes
MWh	Megawatt Hour (of electricity)
MMBtu	Million Metric British thermal units
t	Tonnes
EEIO	Environmentally-extended input output

GWP	Global Warming Potential

Renewable energy

EAC	Energy Attribute Certificate
GO	Guarantee of origin
PPA	Power Purchase Agreement
REC	Renewable Energy Certificate
T&D	Transmission and Distribution

Organizations relevant to emissions measurement

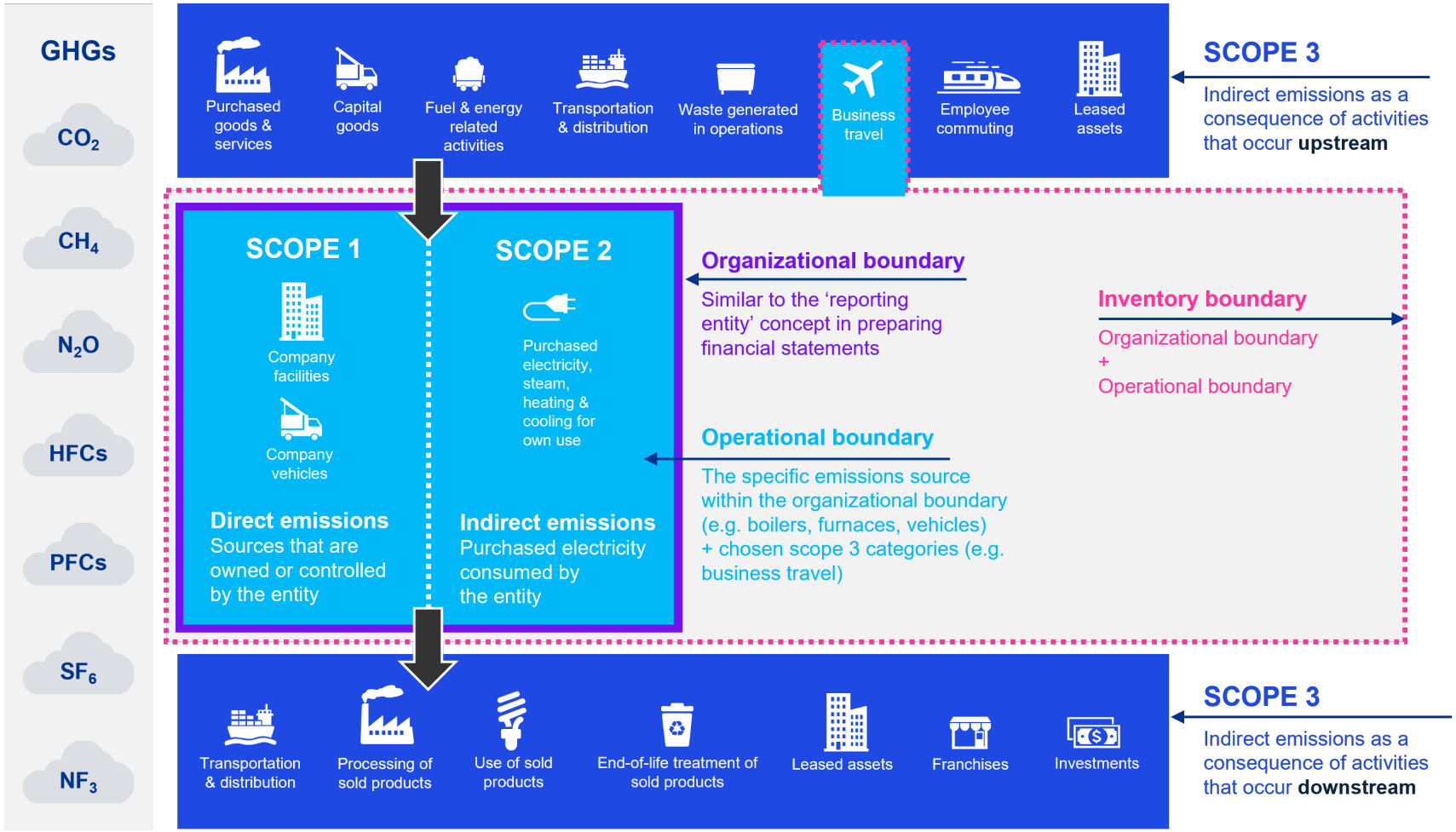
CDP	Carbon Disclosure Project
EPA	Environmental Protection Agency
GHGP	Greenhouse Gas Protocol
GICS©	Global Industry Classifications System
ICVCM	Integrity Council for the Voluntary Carbon Market
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
PCAF	Partnership for Carbon Accounting Financials
SBTi	Science Based Targets initiative
UNFCCC	United Nations Framework Convention on Climate Change
WRI	World Resources Institute
WBCSD	World Business Council for Sustainable Development
WWF	World Wide Fund for Nature

Organizations/standards relevant to emissions disclosures

ESRS	European Sustainability Reporting Standards
ISO	International Organization for Standardization
GHGP	Greenhouse Gas Protocol
IOSCO	International Organization of Securities Commissions
ISSB	International Sustainability Standards Board
SASB	Sustainability Accounting Standards Board (Standards)

1. Executive summary

The following diagram provides a roadmap to the elements of emissions reporting under the GHGP that are discussed in this handbook and contrasted with IFRS Sustainability Disclosure Standards. The diagram illustrates business travel as the only scope 3 category included in the operational boundary and therefore in the inventory boundary.



Foundational concepts

The GHGP is currently the most widely used framework for GHG emissions measurement. It was formed in 1998 as a partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Since that time, the GHGP has released multiple standards and guidance documents, and has become the leading benchmark for measuring and reporting GHG emissions. It is also increasingly leveraged by other reporting frameworks, such as IFRS Sustainability Disclosure Standards and European Sustainability Reporting Standards.

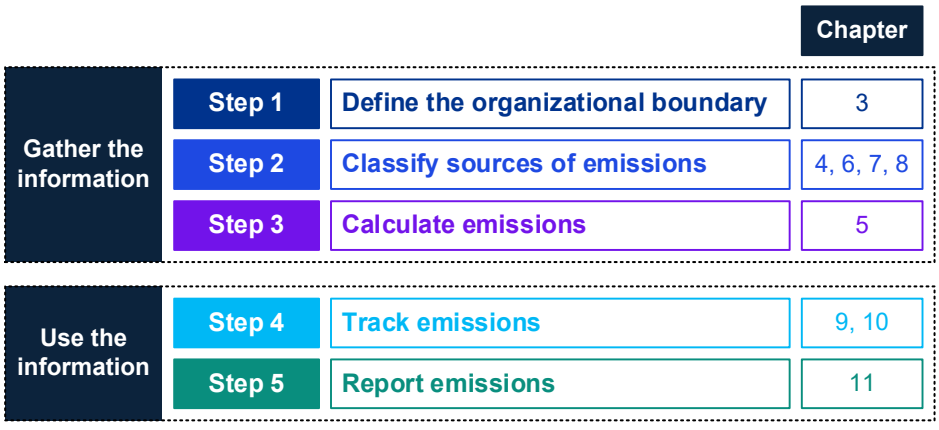
Generally accepted GHG accounting principles guide the accounting and reporting of GHG emissions so that reported information represents a 'true and fair' account of an entity's GHG emissions. These principles are derived in part from generally accepted financial accounting and reporting principles.

- IFRS S1 underpins reporting under all IFRS Sustainability Disclosure Standards, defining the scope and objectives of reporting and providing core content and presentation requirements. IFRS S2 leverages the GHGP by requiring that the measurement of GHG emissions be in accordance with the 2004 version of the Corporate Standard, subject to limited exceptions. The application of the principles in IFRS S1 and the requirements in IFRS S2 differ in certain respects from the GHGP.

Read more: Chapter 2

A step-by-step approach

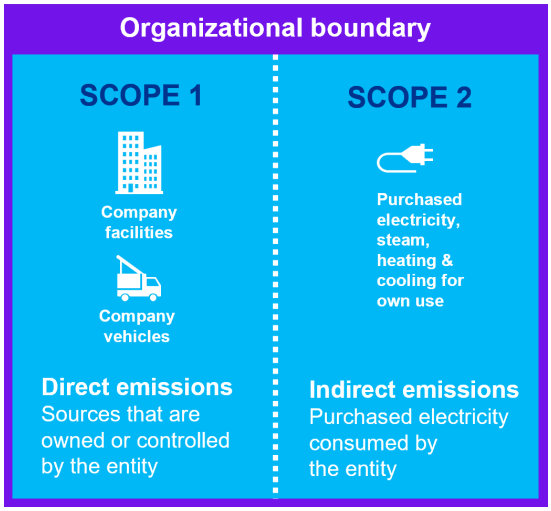
The following diagram organizes the above elements into a linear depiction of how GHG emissions data is gathered and how it is used – with references to the relevant chapters in this handbook.



Step 1: Define the organizational boundary

The first step toward reporting emissions is to determine the organizational boundary. The organizational boundary is similar to the 'reporting entity' concept in preparing a set of financial statements. Once that boundary has been determined, the sources of emissions to be reported can be identified.

The organizational boundary frames the scopes 1 and 2 emissions that fall into the overall inventory boundary.



In setting an organizational boundary, the GHGP allows an entity-level selection of a control approach or an equity share approach. Within the control approach, there is a further option of a financial control or operational control approach.

These approaches drew on accounting standards in effect when the Corporate Standard was developed. There are two factors that contribute to the fact that these approaches cannot simply be equated to the application of financial reporting standards even though the terms are very familiar. First, the standards in effect when the Corporate Standard were developed are different from the standards in place today (not least under IFRS Accounting Standards and US GAAP). Second, the guidance developed by the GHG has largely been applied outside of the finance profession.

- There are differences between IFRS Sustainability Disclosure Standards and the GHGP only in specific, limited areas. IFRS S2 leverages the GHGP by requiring that the *measurement* of GHG emissions be in accordance with the 2004 version of the Corporate Standard, subject to limited exceptions.

Read more: Chapter 3

Step 2: Classify sources of emissions

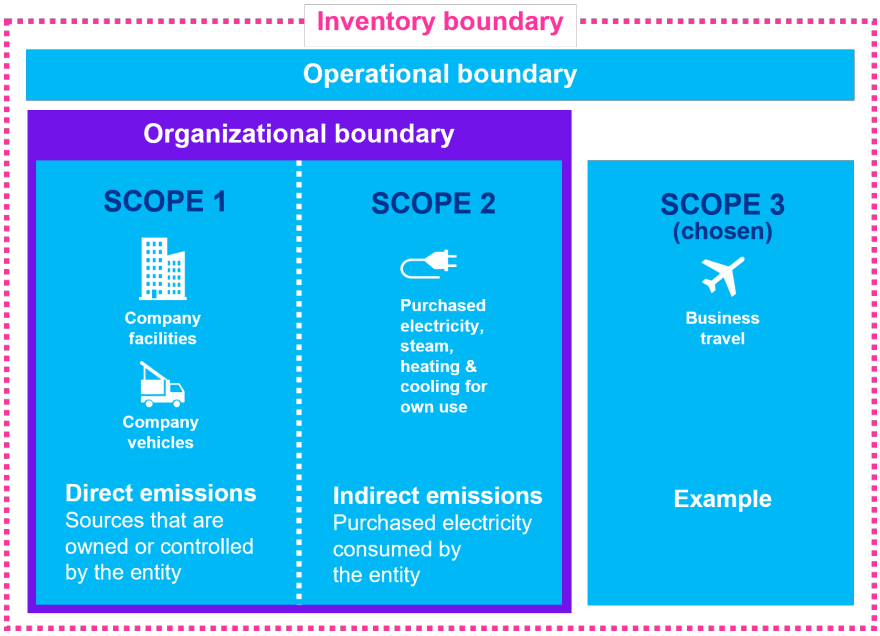
The second step toward reporting emissions is to classify them by source. This comprises two parts:

- define the operational boundary; and
- identify and categorize emissions.

Define the operational boundary

The operational boundary comprises all sources of emissions within the organizational boundary plus scope 3 categories either at the discretion of the entity, or as required by jurisdictional requirements or standards such as IFRS Sustainability Disclosure Standards or ESRS. The following diagram illustrates business travel (but not the other scope 3 categories) being included in the operational boundary.

Together, the organizational boundary and the operational boundary are called the inventory boundary.



Identify and categorize emissions

- **Scope 1:** Scope 1 emissions are direct – i.e. they are from sources that are owned or controlled by the entity – and therefore occur within the organizational boundary.
- **Scope 2:** Like scope 1, scope 2 emissions occur within the organizational boundary. However, unlike scope 1, they are indirect emissions because they do not occur from sources that are owned or controlled by the entity. Rather, they represent purchased electricity that is generated outside the organizational boundary but consumed within the boundary.

- **Scope 3:** Unlike scopes 1 and 2, scope 3 emissions occur outside the organizational boundary. They are indirect emissions – because they do not occur from sources that are owned or controlled by the entity – but are part of an entity's upstream or downstream value chain.

  In addition, they are not required to be reported if an entity is following the Corporate Standard. Instead, an entity can elect to report one or more categories within scope 3 – e.g. business travel and employee commuting.

  Entities that are required, or elect, to report all relevant scope 3 emissions comply with the Scope 3 Standard in addition to the Corporate Standard.

- IFRS 2 does not require the disclosure of scope 2 market-based emissions and instead focuses on the disclosure of qualitative information about contractual instruments.

- Regarding scope 3 emissions, IFRS S2 requires the operational boundary to include scope 3 emissions whereas this is optional in applying the GHGP's Corporate Standard. IFRS S2 includes high-level measurement guidance for scope 3 emissions, which entities are required to follow. While IFRS S2 refers to the Scope 3 Standard for category descriptions, it does not follow the measurement guidance in the Scope 3 Calculation Guidance.

Read more: Chapters 4 (operational boundary), 6 (scope 1), 7 (scope 2) and 8 (scope 3)

Step 3: Calculate emissions

The third step toward reporting emissions is to perform the calculations based on all emissions in the inventory boundary.

Calculations are performed using the following formula.

tCO_2e	=	Activity data	×	Emission factor	×	GWP
Tonnes of CO_2 equivalent		Estimated measure of activity related to a specific emissions source		Factor applied to make varied activities comparable		Multiplier that makes different GHGs comparable

- While the basic formula for calculating GHG emissions is the same under IFRS Sustainability Disclosure Standards and the GHGP, there are differences in the requirements for GWP values.

Read more: Chapter 5

Step 4: Track emissions

The first three steps are focused on gathering the information necessary to create the GHG inventory.

The final two steps are focused on using the GHG emissions inventory. One use is to track emissions over time. This involves two parts:

- develop a base year; and
- set reduction targets.

Develop a base year

A base year is a benchmark that allows an entity to observe trends in emissions information. To maintain consistency, it may be necessary to recalculate the base year, and other historical, emissions. Such recalculations may be triggered by a variety of circumstances – e.g. an acquisition, change in methodology.

Set reduction targets

GHG emissions reduction targets are increasingly used by entities that commit to reduce GHG emissions by a certain amount by a certain year. The terms 'net-zero' and 'carbon neutral' are frequently used to identify a GHG emissions reduction commitment.

Once an entity sets a GHG emissions reduction target, it actions an emissions reduction plan to reduce the gross emissions within its inventory boundary as much as possible. As the GHG emissions reduction plan progresses over time, the entity may plan to purchase offset credits that neutralize residual emissions that cannot be eliminated.

Offset credits are the result of GHG project accounting. The GHGP Project Standard provides guidance for quantifying and reporting GHG reductions from GHG projects. Although this kind of accounting is separate and distinct from the accounting for GHG inventories, there is a connection between the two.

The output of project accounting (offset credit) may be an input into a corporate emissions inventory report if the entity elects to use offset credits. Offset credits are not part of the calculation of gross emissions, but instead are presented separately in an entity's emissions statement.

Corporate emissions inventory		Project accounting
the inventory boundary	**Define**	the assessment boundary
actual emissions for each source within the boundary	**Estimate**	baseline (hypothetical) emissions
all emissions within the boundary	**Total**	difference between baseline emissions and project emissions
purchase carbon credits	**Transact**	sell carbon credits

- IFRS Sustainability Disclosure Standards include requirements to disclose information about any targets the entity has, but they do not include requirements covering how entities set those targets, or what the targets need to be. However, IFRS Sustainability Disclosure Standards do define when entities update historical information disclosed as comparatives, which differs from requirements under the GHGP. In addition, the definition of carbon credits

differs in some respects from the GHGP, and IFRS S2 includes stricter requirements relating to disclosures about carbon credits.

Read more: Chapters 9 (tracking emissions and setting targets) and 10 (offset credits)

Step 5: Report emissions

The last step in the process is to report the information gathered and tracked. The presentation and disclosure requirements of the GHGP differ depending on whether an entity elects to follow just the Corporate Standard (including the Scope 2 Amendment) or is also following the Scope 3 Standard.

- Entities applying IFRS Sustainability Disclosure Standards do not follow disclosure requirements or related guidance from the GHG Protocol. Disclosure requirements relating explicitly to GHG emissions are contained within the metrics and targets section content area of IFRS S2. Industry-specific guidance accompanying IFRS S2 includes additional detail for some industries.

Read more: Chapter 11

2. Foundational concepts

Detailed contents

Item significantly updated in this edition **#**
New item added in this edition ******

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2A. GHG Protocol

2A.1 How the Protocol works

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). Although GHGs occur naturally (e.g. from respiration and decomposition of plants), their release is also associated with certain human activities (referred to as anthropogenic emissions). An increase in GHGs in the atmosphere leads to an increase in average surface temperatures, along with other effects – e.g. ocean acidification, smog pollution, ozone depletion.

Global treaties provide guidelines for countries to develop targets to reduce their GHG emissions at the national level. In particular, the Paris Agreement aims to limit global warming to well below 2 degrees Celsius (above pre-industrial levels) and pursue efforts to limit it to 1.5 degrees Celsius.

GHG emissions reduction targets at the country level are increasingly supported by targets at the corporate level. Setting meaningful targets and tracking progress over time requires the measurement and reporting of GHG emissions.

The GHGP is currently the most widely used framework for GHG emissions measurement. It was formed in 1998 as a partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Since that time, the GHGP has released multiple standards and guidance documents, and has become the leading benchmark for measuring and reporting GHG emissions. It is also increasingly leveraged by other reporting frameworks, such as IFRS Sustainability Disclosure Standards and ESRS.

Section A of this chapter provides some of the history of GHG emissions reporting under the GHGP and a brief introduction to some of the concepts discussed later in this handbook.

2A.2 Background to GHG emissions reporting

Question 2A.2.10#

How did the demand for GHG emissions reporting originate?

Interpretive response: There has been a growing trend, fueled by stakeholder demand and regulatory action, for corporations to report GHG inventories (see Question 2A.3.60).

To develop a corporate GHG inventory, an entity identifies emissions arising from specified sources within a defined boundary and tracks those emissions over time (see the roadmap diagram in the executive summary). This type of reporting, the attribution of GHG emissions to a specific entity, is addressed by the GHGP (see Question 2A.3.10).

The following is a timeline of select historical events that led to the growing demand for corporate GHG reporting, followed by definitions and descriptions.

1990 IPCC released its first report: Human activities contribute to increased emissions that warm the planet.

1994 UNFCCC created: The United Nations agrees on the need to act to limit emissions.

1997 Kyoto Protocol adopted: Certain industrialized nations commit to emissions reductions.

2015 Paris Agreement adopted: A broader group of nations commit to limit warming to 1.5 degrees Celsius.

2020 EU Green Deal adopted: The EU commits to reduce emissions and achieve carbon neutrality, among other items.

2021 SBTi Corporate Net-Zero Standard released: Call for corporations to transition to net zero. See Future developments.

2022 ISO Net Zero Guidelines launched at COP 27: A global standard for net zero planning for actors at the state, regional, city and organizational level. See Future developments.

2025 ISO and GHGP strategic partnership announced: Plan to deliver unified global standards for greenhouse gas emissions accounting. See Future developments.

IPCC: Intergovernmental Panel on Climate Change

The IPCC is a United Nations body responsible for assessing the science related to climate change. See Question 5A.2.30.

UNFCCC: United Nations Framework Convention on Climate Change

The UNFCCC is an international treaty to reduce global warming and cope with the consequences of climate change. While the UNFCCC encouraged industrialized countries to stabilize GHG emissions, the Kyoto Protocol, adopted at a UNFCCC conference, committed them to doing so.

Kyoto Protocol

The Kyoto Protocol is a climate treaty that entered into force in 2005. A group of industrialized countries (signatories) committed themselves to the GHG emissions reductions targets introduced by the Kyoto Protocol. These targets were implemented in rolling emissions reductions commitment periods, with the first period from 2008 to 2012, and the second period from 2013 to 2020.

In the first commitment period, signatories were required to report four specific GHGs (CO_2, CH_4, N_2O and SF_2) and two classes of GHGs (PFCs and HFCs). In the second commitment period, signatories were also required to report NF_3 emissions. See Question 2A.2.20.

The Kyoto Protocol was effectively replaced by the Paris Agreement.

Paris Agreement

The Paris Agreement is an international treaty on climate change. It was adopted by 196 signatories at COP21 in Paris and entered into force on November 4, 2016. Its central aim is to limit global warming to well below 2 degrees Celsius (above pre-industrial levels) and pursue efforts to limit it to 1.5 degrees Celsius. Unlike the Kyoto Protocol, which focused only on industrialized countries, the Paris Agreement calls upon all countries to set emissions reduction targets.

EU Green Deal

The EU Green Deal is a comprehensive strategy aimed at making Europe the first climate-neutral continent by 2050. It is underpinned by the EU Climate Law and directives/regulations such as the Corporate Sustainability Reporting Directive, EU Taxonomy, Corporate Due Diligence Directive, Carbon Border Adjustment Mechanism and EU Deforestation Regulation.

In November 2025, the EU agreed a legally binding 2040 climate target to cut net GHG emissions by 90% compared to 1990 levels, with at least 85% delivered through domestic reductions and up to 5% via high-quality international credits. A 2035 target of 66 to 72.5% reductions has been set as a midpoint.

SBTi: Science Based Targets initiative

In collaboration with CDP (formerly, Carbon Disclosure Project), the United Nations Global Compact, the WRI and the WWF, the SBTi was the first organization to introduce a comprehensive framework that enables entities in the private sector to set science-based emissions reduction targets. When a target is ‘science-based’, it is consistent with the goals of the Paris Agreement. See Question 9A.3.40.

Future developments**
Net-zero standards

ISO Net Zero Guidelines

In addition to its ISO 1406X family of standards, ISO launched its Net Zero Guidelines at COP27 in 2022. Unlike other ISO Standards, the Net Zero Guidelines are free to download and available in six languages. The Guidelines aim to complement voluntary initiatives and facilitate alignment to encourage comparability between net zero targets. They provide guiding principles and recommendations to enable a common, global approach.

Science-based targets initiative (SBTi) developments

In November 2025, SBTi released a second draft of its revised Corporate Net-Zero Standard for public consultation, which closed on December 12. The revised standard is expected to be released at the end of 2026 with the following transitional arrangements.

- Entities setting new targets could continue to do so under the current standard until December 31, 2027. From January 1, 2028 all entities would be required to use the updated standard.
- Entities with existing commitments would reference the version of the standard that was in effect at the time of submission.
- Existing near-term targets would remain valid until the end of the target time frame.

Question 2A.2.20
What are the main GHGs that are tracked?

Interpretive response: The Kyoto Protocol identified seven GHGs that nations would track and report. The seven main GHGs, and their predominant anthropogenic (human-caused) sources, are identified in the following table.

Gas	Predominant anthropogenic sources
Carbon dioxide (CO_2)	• combustion of fossil fuels • forest clearing and other biomass burning • cement production
Methane (CH_4)	• agricultural processes – e.g. wetland rice cultivation • enteric fermentation in animals • decomposition of animal waste • decomposition of municipal solid waste • distribution of natural gas and petroleum

Gas	Predominant anthropogenic sources
	• by-product of coal mining and incomplete fossil fuel combustion
Nitrous oxide (N_2O)	• production of nitrogen-fixing crops and forages • use of synthetic and manure fertilizers • manure deposition by livestock • fossil fuel combustion, especially mobile combustion • wastewater treatment and waste incineration • biomass burning
Hydrofluorocarbons (HFCs)	• air conditioning • refrigeration • aerosol propellants • fire extinguishers and solvents
Perfluorocarbons (PFCs)	• aluminum and semiconductor chip manufacturing
Sulphur hexafluoride (SF_6)	• leakage from electrical switchgear • magnesium casting and smelting processes • use in semiconductor manufacture
Nitrogen trifluoride (NF_3)	• manufacture of semiconductors, certain types of solar panels and chemical lasers

The GHGP requires entities to measure and report the emissions of these seven GHGs. See Question 11A.3.30 and Appendix A.

In our experience, CO_2, CH_4 and N_2O are likely the most prominent GHGs emitted by an entity. The remaining GHGs are less likely to be prominent for the following reasons.

- **SF_6** is primarily used by the electric power industry to manage the high voltages in the transmission system, including circuit breakers, gas-insulated substations and other switchgear used between generating stations and customer load centers.
- **NF_3** is primarily released as process emissions from semiconductor and other electronic production. It is likely relevant to the electronics industry, but unlikely relevant to most other entities.
- **HFCs and PFCs** are considered ‘classes of GHGs’ because they are composed of other gases. HFCs are molecules composed of carbon, fluorine and hydrogen; PFCs are molecules composed of carbon and fluorine. All are human-made and not produced by any processes other than human activities.

Question 2A.2.30
What are the sources of GHG emissions?

Interpretive response: To help entities make informed decisions about their emissions, the GHGP distinguishes between direct and indirect emissions sources and categorizes these sources into three scopes. [GHGP-CS.27-29]

Scope	Category	Description	Examples
Scope 1	Direct	Sources that are owned or controlled by the entity	Boilers, furnaces, vehicles
Scope 2	Indirect: electricity	Purchased electricity consumed by the entity	Electricity, steam, heat, cooling (collectively referred to as 'electricity')
Scope 3	Indirect: other	Consequence of activities of the entity that occur from sources not owned or controlled by the entity	Extraction and production of purchased materials, transportation of fuels, use of sold products and services

Scopes 1 and 2 are GHG emissions that are owned or controlled by an entity; scope 3 emissions are a consequence of the activities of the entity (upstream or downstream) but occur from sources not owned or controlled by it.

Scope 3 is further broken down into 15 categories (e.g. processing of sold products, use of sold products, end-of-life treatment of sold products), which are discussed in chapter 8.

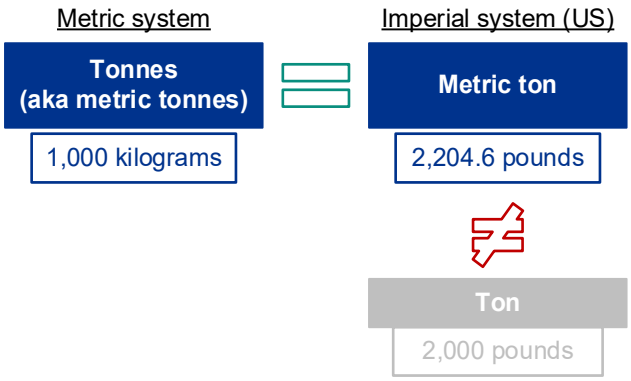
The intent of these categorizations is to provide insights for entities to make informed decisions about their emissions – e.g. target-setting, cost reduction, improved efficiencies – and is integral to the reporting of GHG emissions (see chapter 11).

Question 2A.2.40
What is the unit for measuring GHG emissions?

Interpretive response: GHG emissions are measured in tonnes. The tonne, a unit of mass based on the metric system, is equal to 1,000 kilograms (or about 2,204.6 pounds). A tonne may also be referred to as a metric tonne.

In the US, which uses the imperial system, a tonne is known as a 'metric ton'. This is different from the term 'ton', which in the US refers to 2,000 pounds.

The following diagram summarizes this information.



The terms ‘tonne’, ‘metric tonne’ and ‘metric ton’ may be used interchangeably. Throughout this handbook, we refer to tonnes of carbon dioxide equivalent (tCO_2e). This concept is further discussed in chapter 5.

CO_2e may also be expressed as million metric tonnes of CO_2e. This is similar to the financial statement concept of presenting numbers in thousands. This concept will not be used throughout this handbook, but readers should be aware of it for regulatory or jurisdictional reporting purposes.

2A.3 The role of the GHGP

Question 2A.3.10
What is the GHGP?

Interpretive response: The GHGP is currently the most widely used framework for GHG emissions measurement. The following table provides further information about its purpose and content.

What is it?	An international set of standards, guidance, tools and training designed to deliver a consistent method of measuring, reporting and managing GHG emissions.
When was it created?	Formed in 1998; with updates made over the years.
Where did it originate?	A partnership between the WRI and the WBCSD.
Who uses it?	Private and public sector entities.
How is it used?	To measure and manage GHG emissions associated with individual products or entire value chains.

Why is it useful?	Provides a data-driven approach to help entities identify which activities in their value chains generate the most emissions, thereby supporting global reduction of emissions.

Question 2A.3.20
What guidance is available under the GHGP?

Interpretive response: The GHGP has developed two standards and numerous guidance documents to support the measurement and reporting of GHG emissions. The following table outlines the GHGP documents that are relevant to this handbook.

Issued	Amended	Title	Purpose
2001	2004 2013 2015	A Corporate Accounting and Reporting Standard	Provide requirements and guidance for entities preparing a GHG inventory.
2005	N/A	Project Accounting	Provide principles, concepts and methods for quantifying and reporting GHG reductions from climate change mitigation projects.
2011	2013	Corporate Value Chain (Scope 3) Accounting and Reporting Standard	Provide a methodology for entities to assess their entire value chain emissions impact and identify where to focus reduction activities.
2013	N/A	Technical Guidance for Calculating Scope 3 Emissions	Provide detailed technical guidance on relevant calculation methods for scope 3 emissions.
2013	N/A	Required Greenhouse Gases in Inventories[1]	Amend requirements regarding the GHGs to include in inventories, as well as how the emissions of those GHGs should be reported within inventories.
2014	N/A	Mitigation Goal Standard	Provide an accounting and reporting standard for national and subnational GHG reduction goals.
2015	N/A	Scope 2 Guidance[1]	Provide standardized guidance on how entities measure emissions from purchased or acquired electricity, steam, heat and cooling.

Note:
1. Issued as an amendment to the Corporate Accounting and Reporting Standard (Corporate Standard).

Section 11A discusses considerations around reporting in accordance with the above standards.

The GHGP also provides other standardized frameworks (e.g. Global Protocol for Community-Scale Greenhouse Gas Inventories, Product Life Cycle Accounting and Reporting Standard) that are outside the scope of this handbook.

Future developments#
GHGP and ISO developments

GHGP update project

Updates to the GHGP Standards are taking place over five years with the objective of modernizing and strengthening the standards. Several consultations are planned to address different standards.

In 2024, the GHGP Secretariat established the governance structure that is overseeing the update process, comprising an Independent Standards Board and Steering Committee. The approved workplans are being carried out by four Technical Working Groups. Materials developed by these bodies are uploaded to the GHGP website in a documents repository so that stakeholders can stay informed of the process.

As of mid-December 2025, we expect the following timeline to completion.

Workstream	Proposals	Final	Reference
Corporate Standard	Mid-2026	2027	Below
Scope 2	First batch October 2025	2027	Section 7A.4
Action and market instruments	2027	2028	Section 7A.4
Scope 3	Late 2026	2027	Section 8A.2
Land sector and removals	--	Q1 2026	Section 9A.3

The Corporate Standard is undergoing a holistic review and update, including consideration of the following:

- the stated objectives of the Corporate Standard, as well as the GHG accounting and reporting principles (see Question 2A.3.30);
- whether and how to change organizational boundary options and consolidation approaches (see section 3A);

- updates to accounting concepts and terminology – e.g. joint ventures (see Question 3A.4.20) and lease arrangements (see section 4A.3);
- whether scope 3 emissions reporting should be required by the Corporate Standard (see Question 4A.2.10); and
- providing additional guidance on justifiable exclusions from reporting (see Question 4A.2.10).

The GHGP is expected to release a public consultation on its proposals in mid-2026 with a final standard being released in 2027. More information is available in the GHGP's documents repository related to standards development.

ISO-GHG partnership

In September 2025, ISO and the GHGP announced that they intend to combine their existing portfolios of standards and co-develop new standards for GHG emissions measurement and reporting. More information is available on the GHGP's website.

Question 2A.3.30

What are the generally accepted GHG accounting principles?

Interpretive response: Generally accepted GHG accounting principles guide the accounting and reporting of GHG emissions so that reported information represents a 'true and fair' account of an entity's GHG emissions. These principles are derived in part from generally accepted financial accounting and reporting principles. [GHGP-CS.6-9]

Excerpt from Corporate Standard [p 7]

GHG accounting and reporting shall be based on the following principles:

RELEVANCE	Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users – both internal and external to the company.
COMPLETENESS	Account for and report on all GHG emission sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.
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. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the reported information.

There can be significant differences in emission sources, activities and operations across all corporate emissions inventories. The GHGP does not seek to anticipate or address the array of uniquely complex situations that may arise. Instead, its principles are intended to guide judgmental decisions so that the outcomes are unbiased, relevant to end users and transparently communicated.

It may not always be possible to apply all the principles equally. For example, an entity may sacrifice some level of accuracy to develop a more complete inventory, or vice versa. Decisions like this are guided by the entity's reasons for developing the inventory.

- These accounting principles differ in some respects from the foundational concepts under IFRS Sustainability Disclosure Standards. See section 2B.3.

Question 2A.3.40
How are GHG emissions estimated?

Interpretive response: GHG emissions may be measured using direct emissions measurement – e.g. source-specific emission tests or continuous emissions monitoring. Because this method does not require the use of estimates, there is minimal uncertainty. However, this method is not always feasible – e.g. it may be unavailable or prohibitively expensive. As a result, it is common for emissions to be estimated.

Within each of the three scopes outlined in the GHGP, there are activities (e.g. electricity consumption, transportation) that contribute to the release of GHGs. The underlying data for these activities (e.g. meter invoice, mileage record) is unique to each activity type. For example, a meter invoice might show MWh of electricity usage and a mileage record might show the types of vehicles and the actual distance traveled.

To make varied activities comparable (e.g. convert different units of measure), GHG emissions are estimated by applying an emission factor to the corresponding activity data.

An emission factor is a calculated ratio (e.g. MWh per metric tonne (mt) of CO_2) relating GHG emissions to a proxy measure of activity (e.g. tonnes of fuel consumed, tonnes of product produced) at an emission source. [GHGP-CS.42]

The formula to estimate emissions of a certain GHG for a certain activity is:

Metric tonnes (mt) of gas = Activity data × Emission factor

Example 2A.3.10
Direct measurement of GHG emissions

Power Generator directly measures scope 1 CO_2 emissions at its facilities using a continuous emissions monitoring system that continuously measures CO_2 emitted into the atmosphere.

The use of this system relieves the need for Power Generator to gather activity data and emission factors for calculating the scope 1 emissions CO_2 at those facilities.

Question 2A.3.50
How are emissions from different GHGs reported in a comparable way?

Interpretive response: To make the various GHGs (e.g. CH_4, N_2O) comparable for reporting purposes, the concept of carbon dioxide equivalent (CO_2e) was introduced. This is a measure that converts amounts of other GHGs to the equivalent amount of carbon dioxide (CO_2). The conversion factor is known as Global Warming Potential (GWP).

GWP reflects the varied ability of GHGs to trap heat in the atmosphere. Each GHG is assigned a GWP representative of its heat trapping ability relative to that of CO_2. A higher GWP value means that more infrared radiation will be absorbed by the gas and more energy will be added to the atmosphere, leading to more warming.

The formula to calculate reported emissions is as follows:

tCO_2e = Metric tonnes of a gas × GWP of the gas

Metric tonnes of each gas is used for consistency purposes.

GWP values are determined by the IPCC. See Question 5A.2.30.

Question 2A.3.60
What is a GHG inventory?

Interpretive response: A GHG inventory is in effect a listing (or accounting) of all GHG emissions within an entity's inventory boundary. As illustrated in the roadmap diagram in the executive summary, an entity's inventory boundary comprises:

- all GHG emissions within its organizational boundary (see section 3A.2); plus
- GHG emissions outside its organizational boundary that it elects to include in its broader operational boundary (see section 4A.2).

The purpose of a GHG inventory is to enable decision-making that supports the entity's GHG objectives. An entity may have one or many objectives for developing a GHG inventory. The following are some examples: [GHGP-CS.10]

- manage GHG risks and identify reduction opportunities;
- strengthen stakeholder relationships by reporting and participating in voluntary GHG programs;
- meet mandatory reporting requirements; and/or
- participate in GHG markets, whether mandatory or voluntary.

Developing a GHG inventory is a judgmental process guided by the GHG principles and the entity's GHG objectives. If an entity has multiple GHG objectives, it may need to consider whether the GHG inventory should be tailored to each objective.

2A.4 Project accounting

Question 2A.4.10
What is GHG project accounting?

Interpretive response: GHG project accounting is the quantification and reporting of GHG reductions from climate change mitigation projects (GHG projects). Such projects can result in: [GHGP-PA.5]

- decreases in GHG emissions – e.g. using wind, solar and geothermal energy sources as alternatives to natural gas or coal power plants; or
- increases in removals and/or storage of GHG emissions – e.g. planting forests to absorb GHG emissions and sequestering carbon in underground storage.

The GHGP Project Standard provides guidance on this kind of accounting, which is separate and distinct from the accounting for GHG inventories that is the focus of this handbook. However, project accounting is a key component of emissions reductions programs and its role is discussed in section 10A.2.

Question 2A.4.20
What are the GHG project accounting principles?

Interpretive response: The same principles that underpin GHG corporate inventories (see Question 2A.3.30) also guide decision-making in the accounting, quantification and reporting of project-based GHG reductions. These principles are relevance, completeness, consistency, transparency and accuracy. [GHGP-PA.23-24]

GHG project accounting also incorporates the added principle of 'conservativeness', which calls for the use of conservative assumptions, values and procedures where uncertainty is high. The intention of this principle is that GHG reductions are not overestimated. [GHGP-PA.24]

2B. IFRS Sustainability Disclosure Standards**

2B.1 Comparison to the GHGP**

IFRS S1 underpins reporting under all IFRS Sustainability Disclosure Standards, defining the scope and objectives of reporting and providing core content and presentation requirements. It requires the disclosure of material information on all sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects – not just those related to GHG emissions or climate.

Certain requirements and reliefs available in IFRS S1 and S2 may vary, depending on the jurisdiction or exchange on which an entity is listed.

IFRS S2 replicates the core content requirements of IFRS S1 and expands on them with climate-specific reporting requirements – including related to the disclosure of GHG emissions. The application of IFRS S2 is supported by:

- industry-specific guidance based on the SASB Standards; and
- educational materials, including on the disclosure of GHG emissions.

IFRS S2 leverages the GHGP by requiring that the *measurement* of GHG emissions be in accordance with the 2004 version of the Corporate Standard, subject to limited exceptions.

The relationship between IFRS S1 and IFRS S2, and between the standards and the GHGP is explained in sections 2B.2 and 2B.3.

2B.2 Relationship between the standards and the GHGP**

Question 2B.2.10**

Are IFRS S1 and IFRS S2 both relevant for reporting GHG emissions?

Interpretive response: Yes. IFRS S1 and IFRS S2 are designed to be applied together. The fundamental principles and concepts in IFRS S1 underpin all reporting under IFRS Sustainability Disclosure Standards – including information about GHG emissions required by IFRS S2. Therefore, the application of IFRS S2 works in conjunction with IFRS S1, and entities need to follow the foundational concepts in IFRS S1 in addition to the specific requirements in IFRS S2 that take precedence over the GHGP. [IFRS S1.5, BC6, IFRS S2.BC5-6]

The practical relevance of this hierarchy for measuring GHG emissions is in resolving measurement conflicts between the GHGP and IFRS Sustainability Disclosure Standards. The areas of potential conflict between the standards and the GHGP are introduced in section 2B.3 and discussed throughout this handbook in more detail.

Question 2B.2.20**
What GHG emissions are disclosed under IFRS S2?

Interpretive response: IFRS S2 requires the disclosure of absolute gross scope 1, 2 and 3 emissions: [IFRS S2.29(a)(i), B20]

- including the seven constituent greenhouse gases identified in the Kyoto Protocol (see Question 2A.2.20); and
- expressed as metrics tonnes of CO_2 equivalent (tCO_2e).

For scopes 1 and 2 emissions, an entity is not permitted to exclude data unless it determines the information would be immaterial. See Question 2B.3.30.

For scope 3 emissions, IFRS S2 includes the following reliefs that are discussed in-depth in chapter 8.

- The entity is required to use "all reasonable and supportable information available at the reporting date without undue cost or effort." See Question 2B.3.40. [IFRS S2.B39]
- In rare cases, it may be 'impracticable' for an entity to measure some or all of its scope 3 emissions "after making every reasonable effort to do so." Identifying which scope 3 emissions to disclose is discussed in section 8B.2. [IFRS S2.B57]

In addition, an entity is not required to disclose scope 3 emissions in the year of adoption of IFRS S2. [IFRS S2.C4(b)]

Question 2B.2.30**
How does IFRS S2 leverage the Corporate Standard?

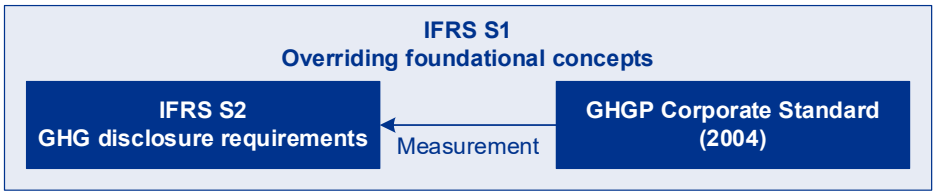
Interpretive response: IFRS S2 leverages the Corporate Standard for measuring GHG emissions but includes its own disclosure requirements. There are limited measurement exceptions that are discussed in Questions 2B.2.50 and 2B.2.60. This is different from the way in which IFRS S2 leverages the Scope 3 Standard. See Question 2B.2.40.

IFRS S2 specifies that the 2004 version of the Corporate Standard is used for measurement. It does not refer to subsequent amendments that were made to

the Corporate Standard, in particular the Scope 2 Guidance; Question 7B.2.30 discusses the implications. [IFRS S2.29(a)(ii)]

If there is any conflict between IFRS S2 and the Corporate Standard, entities follow the requirements of IFRS S2. For example, IFRS S2 requires the measurement and disclosure of scope 3 GHG emissions if material, whereas this is optional under the Corporate Standard (see Question 4A.2.60). Similarly, if there is any conflict between IFRS S1 and the Corporate Standard, entities follow the requirements of IFRS S1 (see section 2B.2).

The following diagram summarizes this hierarchy.



In practice, this means that entities need to take care when measuring emissions following the Corporate Standard to ensure they fully comply with the requirements of IFRS S1 and IFRS S2. The B sections in each chapter of this handbook focus mainly on these points of difference.

Question 2B.2.40**
How does IFRS S2 leverage the Scope 3 Standard?

Interpretive response: IFRS S2 refers to the Scope 3 Standard for its definitions of the 15 categories of scope 3 emissions. However, entities do not otherwise use the Scope 3 Standard for measuring or disclosing scope 3 emissions. Instead, IFRS S2 includes its own measurement guidance for scope 3 emissions. See section 8B.

Question 2B.2.50**
What if the entity is subject to different measurement requirements by a jurisdiction or exchange?

Interpretive response: An entity is not required to follow the measurement guidance in the Corporate Standard if an alternative methodology is required by a jurisdiction or exchange on which the entity is listed. For example, under Japanese environmental regulations, large emitters are required to report GHG emissions to the environment ministry in accordance with criteria that are similar, but not identical, to the GHGP. In this case, the entity can use the alternative method for as long as the jurisdictional or exchange requirement applies. [IFRS S2.29(a)(ii), B24]

Limitations on applying the exemption

This exemption does not allow an entity to omit disclosure of part of its scope 1, scope 2 or scope 3 emissions, even if partial disclosure is permitted by its jurisdiction or exchange on which it is listed. [IFRS S2.B25]

An entity using the exemption still follows the scope 3 measurement framework in IFRS S2 – i.e. prioritizing inputs and assumptions based on certain characteristics that promote a more faithful representation. Use of the exemption does not override use of that framework. See Question 8B.3.10. [IFRS S2.B41]

Partial jurisdictional or exchange requirement

We believe the exemption may be applied even if only part of the entity (e.g. a subsidiary or subgroup) is subject to a jurisdictional or exchange requirement that differs from measurement under the Corporate Standard. It is not only available when the whole group or the group's parent is subject to the requirement. The ISSB has confirmed this interpretation in recent amendments to IFRS S2, which may be early adopted; see Forthcoming requirements.

Where part of an entity is subject to a jurisdictional or exchange requirement and the entity makes use of the exemption, this means it will consolidate information measured on a mixed basis: the part(s) of the group subject to a jurisdictional and/or exchange requirement will follow that, while the remainder of the group follows the Corporate Standard. As a result, the group will not claim that it has complied with the Corporate Standard.

Forthcoming requirements**

IFRS S2 jurisdictional relief

In December 2025, the ISSB issued amendments to clarify certain aspects of IFRS S2. The amendments, which comprise a series of reliefs from the application of IFRS 2, are effective for annual reporting periods beginning on or after January 1, 2027, but may be adopted early.

The amendments include the following change that clarifies when entities can use a method other than the Corporate Standard to measure GHG emissions.

What's required?	What's the impact?
• An entity may use a GHG emissions measurement method required by a local regulator or stock exchange instead of the Corporate Standard, but only for the part of the company to which the local requirements apply.	• A parent entity applying IFRS S2 may consolidate GHG information from across its group that is prepared using different measurement methods (as required by local regulators or stock exchanges). • This amendment reduces duplicate reporting for groups with subsidiaries

What's required?	What's the impact?
	in jurisdictions with differing measurement requirements.

Question 2B.2.60**
What if the entity applied a different measurement approach before applying IFRS S2?

Interpretive response: An entity is not required to follow the measurement guidance in the Corporate Standard if it is:

- reporting under IFRS S2 for the first time; and
- used a different method in the preceding period.

In this case, the entity can use the previous method in its first report under IFRS S2 and as comparatives for that period in subsequent reporting periods. [IFRS S2.C4(a)]

As written, this exception relates only to measurement and does not allow an entity to omit disclosure of part of its scope 1 or scope 2.

An entity using this exemption still follows the scope 3 measurement framework in IFRS S2 – i.e. prioritizing inputs and assumptions based on certain characteristics that promote a more faithful representation of an entity's emissions. See section 8B.3. [IFRS S2.B41]

Question 2B.2.70**
Does IFRS S2 leverage the GHGP project accounting?

Interpretive response: No. The GHG project accounting described in section 2A.4 is a key component of emissions reductions programs but is not relevant to the measurement of GHG inventories at the corporate level.

2B.3 IFRS S1 foundational concepts**

As discussed in Questions 2B.2.10 and 2B.2.30, if there is any conflict between IFRS S1 and the Corporate Standard, an entity follows the requirements of IFRS S1. This section introduces some of the foundational concepts in IFRS S1 that differ (or may appear to differ) from the Corporate Standard, with references to more in-depth discussion in later chapters.

Question 2B.3.10**
How is the scope of reporting determined?

Interpretive response: IFRS S1 requires sustainability-related financial disclosures to be for the same reporting entity as the related financial statements. This means that information is provided about the same consolidated group or reporting entity. [IFRS S1.20, B38]

The organizational boundary

In measuring GHG emissions, the organizational boundary determines which entities and activities are included in measuring scopes 1 and 2 emissions.

IFRS S2 requires the entity to choose one of the organizational boundaries in the Corporate Standard for measuring its GHG emissions. The IFRS Sustainability Educational Material on GHG disclosure requirements explains this approach as follows: [FAQ 6]

- IFRS S1 specifies the overall reporting entity about which sustainability-related information is disclosed; and
- IFRS S2 specifies the approach to measuring GHG emissions within the overall framework of the reporting entity, which determines which emissions are reflected in scopes 1 and 2 versus scope 3.

This explicit requirement in IFRS S2 takes precedence over any different conclusion that might be reached in simply applying the reporting entity concept in IFRS S1. [IFRS S2.B27]

The organizational boundary is discussed in-depth in chapter 3, which highlights differences from the financial statements.

Acquisition or disposal of a business

IFRS S2 has no specific guidance on how to deal with the acquisition or disposal of a business, and therefore the general guidance on the reporting entity in IFRS S1 applies.

Consistent with the treatment in the financial statements under IFRS Accounting Standards, this means that acquired businesses become part of the reporting entity on the date that control is obtained, and businesses disposed of are removed from the reporting entity on the date that control is lost. See discussion in Question 9B.3.10. [FAQ 13]

♦ Unlike IFRS Sustainability Disclosure Standards, the significant acquisition or disposal of a business is accounted for retrospectively under the Corporate Standard. See Question 9A.2.30.

Question 2B.3.20**
What is the reporting period?

Interpretive response: IFRS S1 requires an entity to report sustainability-related financial disclosures for the same period and at the same time as its annual financial statements. [IFRS S1.64]

IFRS S2 acknowledges the practical difficulties that might arise if entities in the reporting entity's value chain (e.g. suppliers) have a different reporting period. In that case, the reporting entity is permitted to measure its scope 3 emissions using data based on those different reporting periods. The conditions and disclosures related to this exception are discussed in Question 11B.2.40 and estimates in general are discussed in section 8B.3. [IFRS S2.B19]

- Unlike IFRS Sustainability Disclosure Standards, the Corporate Standard does not include a specific reporting period exception for entities in the value chain.

Question 2B.3.30**
How is materiality assessed?

Interpretive response: The concept of materiality is pervasive and applies to all information reported under IFRS Sustainability Disclosure Standards, including GHG emissions. It drives the volume, type and precision of information being reported. [IFRS S1.17, B13]

The following are examples of materiality judgments an entity may need to make in the context of GHG emissions:

- deciding what to include in its emissions inventory (i.e. part of measurement of emissions); and
- deciding what to disclose about the emissions measured (i.e. disclosure of emissions information).

Information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions. In making that determination, an entity exercises judgment, considering quantitative and qualitative factors reflecting its specific circumstances and users' information needs. There is no predetermined threshold for determining what is material. [IFRS S1.18, BC68]

To learn more about assessing materiality under IFRS Sustainability Disclosure Standards, see KPMG's how-to guide, Materiality for sustainability reporting.

See also section 8B.2 for discussion of materiality specifically in the context of scope 3 emissions.

- Unlike IFRS Sustainability Disclosure Standards, materiality is not a separate accounting principle under the Corporate Standard (see Question 2A.3.30). For

example, the GHGP includes a 'significance threshold' for recalculations (see Question 9A.2.40).

Question 2B.3.40**
What effort is required in estimating GHG emissions?

Interpretive response: IFRS S1 introduces the concept of preparing certain sustainability-related financial disclosures based on "reasonable and supportable information that is available at the reporting date, without undue cost or effort." [IFRS S1.B8-B10, BC10-BC17]

- **'Reasonable'** means there is a reasonable basis for using the information and it is relevant to what is being reported.
- **'Undue cost or effort'** means that an entity is not required to undertake an exhaustive search for information. Instead, it considers all information that is reasonably available and cannot disregard any information it has or is aware of. The entity considers factors such as its degree of exposure, skills, capabilities and resources, and the potential benefits of the resulting information.

IFRS S2 leverages the concept in its scope 3 measurement framework. In measuring scope 3 emissions, an entity uses "all reasonable and supportable information that is available at the reporting date, without undue cost or effort." The scope 3 measurement framework is discussed in-depth in section 8B.3. [IFRS S2.B39]

♦ Unlike IFRS Sustainability Disclosure Standards, the Corporate Standard does not include specific relief based on undue cost of effort. Instead, the principles of the GHGP contemplate a trade-off between completeness and accuracy in achieving a balance in reporting (see Question 2A.3.30).

Question 2B.3.50**
To what extent should data and assumptions be consistent with the financial statements?

Interpretive response: To the extent possible, the data and assumptions used in preparing sustainability-related financial disclosures are consistent with the financial statements; significant differences are disclosed. [IFRS S1.23, B42(c)]

For example:

- An entity may sell whole-of-life warranty contracts for its products. Assumptions made for the financial statements about the length of the warranty contracts need to be consistent with related assumptions used

when calculating scope 3 emissions from use of sold products (see section 8A.13).

- The GHG emissions for scope 3-category 2 (capital goods) are recognized in the period that the goods are purchased, whereas the asset is capitalized in the financial statements and depreciated over its estimated useful life. In this example, the assumptions underlying the GHG emissions versus financial accounting would not be consistent.

♦ Unlike IFRS Sustainability Disclosure Standards, the Corporate Standard does not require specific consideration of the assumptions made in preparing the financial statements. However, we do not expect significant differences in practice because all assumptions used in measuring GHG emissions are required by both frameworks to be relevant.

Question 2B.3.60**
How are events after the reporting date considered?

Interpretive response: Consistent with IFRS Accounting Standards, sustainability-related financial disclosures are updated for information about conditions that existed at the reporting date that is received: [IFRS S1.67]

- after the reporting date; but
- before the sustainability disclosures are authorized for issue.

For GHG emissions, this can be particularly relevant when the entity relies on third-party data. See Question 5B.2.40 for how this applies to selection of emission factors.

♦ Unlike IFRS Sustainability Disclosure Standards, the Corporate Standard does not include specific guidance on events after the reporting date. In our experience, application of the accounting principles in the Corporate Standard (see Question 2A.3.30) allows entities to apply judgment based on specific information and other facts and circumstances to determine whether information needs to be updated. For example, Question 5A.2.70 discusses emission factors that may be updated after the reporting date.

3. Organizational boundary

Detailed contents

Item significantly updated in this edition #
New item added in this edition **

3A.4 Financial control approach

Questions

3A.4.10 Does the financial control approach align with the reporting entity for financial statement purposes? **

3A.4.20 How is the financial control approach applied when there is joint financial control? #

Example

3A.4.10 Reporting joint venture emissions under financial control #

3B. IFRS Sustainability Disclosure Standards **

3B.1 Comparison to the GHGP **

3B.2 Select requirements of IFRS S2 **

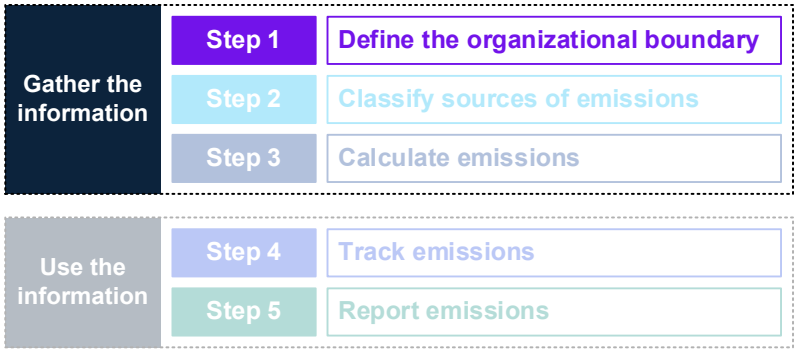
Question

3B.2.10 What organizational boundary approaches are permitted under IFRS S2? **

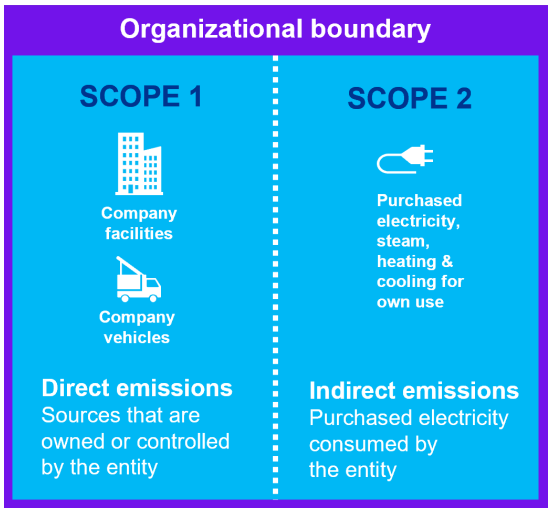
3A. GHG Protocol

3A.1 How the Protocol works

The first step toward reporting emissions is to determine the organizational boundary.



The organizational boundary is similar to the 'reporting entity' concept in preparing a set of financial statements. Once that boundary has been determined, the sources of emissions to be reported can be identified. The following excerpt from the roadmap diagram in the executive summary highlights the organizational boundary as framing the scopes 1 and 2 emissions that fall into the overall inventory boundary.



In setting an organizational boundary, the GHGP allows an entity-level selection of a control approach or an equity share approach. Within the control approach, there is a further option of a financial control or operational control approach.

3A.2 Determining the organizational boundary

Question 3A.2.10
What is the organizational boundary?

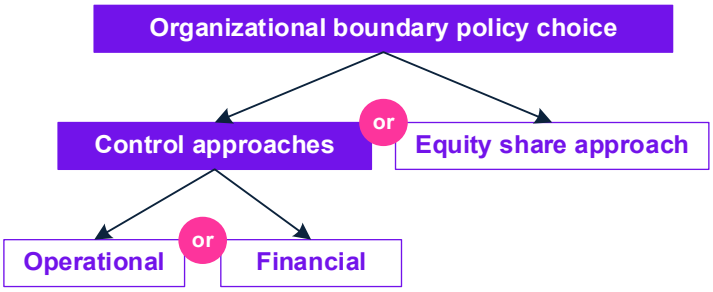
Interpretive response: The organizational boundary determines which emission-producing activities are owned or controlled by the entity and therefore included in reporting its scopes 1 and 2 emissions. [GHGP-CS.100]

It is similar to the 'reporting entity' concept in preparing financial statements.

In setting an entity's organizational boundary, the GHGP allows three choices (see Question 3A.2.20). The choice made by an entity is equivalent to an accounting policy election in preparing financial statements.

Question 3A.2.20
What approaches are available in setting the organizational boundary?

Interpretive response: In setting an organizational boundary, the GHGP allows an entity-level selection of a control approach or an equity share approach. Within the control approach, there is a further option of a financial control or operational control approach. [GHGP-CS.17]



Under the control approaches (operational or financial), an entity accounts for 100% of the emissions over which it has control and does not account for any of the emissions over which it does not have control. Under the equity share approach, an entity reflects the GHG emissions consistent with its percentage of economic interest. [GHGP-CS.17]

These approaches drew on accounting standards in effect when the Corporate Standard was developed. There are two factors that contribute to the fact that these approaches cannot simply be equated to the application of financial reporting standards even though the terms are very familiar. First, the standards in effect when the Corporate Standard were developed are different from the standards in place today (not least under IFRS Accounting Standards and US

GAAP). Second, the guidance developed by the GHG has largely been applied outside of the finance profession. This has led to diversity in practice, including around the application of financial control. See section 3A.4.

The following table depicts key considerations under each approach. [GHGP-CS.17-18]

	Control		
	Operational	**Financial**	**Equity share**
Include operations…	over which the entity has full authority regarding operating policies.	if the entity can direct the policies with a view to gaining economic benefits.	based on the entity's share of economic interest.
Key question	Does the entity introduce and implement the underlying operating policies?	Can the entity direct financial and operating policies of the operation?	Does the entity have significant influence or financial control over the operation's policies?

An entity may have operational control even though it does not have financial control. For example, an entity may have operational control over an equity accounted investee over which it does not have financial control.

Having operational control does not imply that an entity has the authority to make all decisions concerning an operation – e.g. large capital expenditures. Often, decisions will require approval from parties with financial control. However, operational control does mean that an entity has the authority to introduce and implement *operating* policies. [GHGP-CS.18]

Under the equity share approach, the economic substance of an entity's connection to the business takes precedence over its formal ownership structure, such that the emissions accounted for reflects the entity's economic interest. [GHGP-CS.17]

Question 3A.2.30
How is the organizational boundary approach chosen?

Interpretive response: Entities have flexibility in choosing an organizational boundary approach. The decision generally aligns with the entity's objectives in applying the GHGP, but there is no specific requirement.

Because the approach supports the entity's intended GHG inventory applications, it is important to understand upfront the type of information needed from the inventory. The best approach is one that allows an entity to analyze its emissions in a way that is consistent with its reasons for conducting the inventory in the first place – e.g. reporting requirements.

To meet different goals, an entity may develop more than one inventory using different approaches. However, it is not appropriate to mix approaches in a single inventory. Consistent application of a single approach leads to time-series consistency (see Question 9A.2.10) and reduces – but does not eliminate – the likelihood of double counting amongst multiple entities with a shared asset (see Example 3A.2.20).

Question 3A.2.40

Which boundary approach is most common in practice?

Interpretive response: In our experience, the operational control approach is most common. Usually, operational control is chosen when an entity believes it is most responsible for emissions within its operational control. An entity may also believe these are the operations where it has the most influence over reducing emissions.

Question 3A.2.50

Does the organizational boundary prevent double counting?

Interpretive response: No. Double counting occurs when two different entities include the same emissions in their respective inventories.

Although the GHGP is designed to prevent double counting of emissions between different entities within scopes 1 and 2, it can still occur in certain scenarios. For example, when two or more entities share ownership of an operation but choose different organizational boundary approaches. [GHGP-CS.20]

Double counting can be avoided if the entities coordinate their choice of approach, but generally this is not practical.

Avoiding double counting is important for trading schemes and certain mandatory government reporting schemes, which are outside the scope of this handbook. [GHGP-CS.20]

However, for many entities applying the GHGP, the goal is to accurately gather an inventory of emissions to facilitate a strategy to reduce them. Therefore, double counting between entities is often less important.

Question 3A.2.60#

Do the organizational boundary approaches align with the reporting entity for financial statement purposes?

Interpretive response: It depends. The descriptions of operational control, financial control and equity share in the GHGP may vary from the definitions used in financial reporting standards. While there could be alignment between the consolidation approach used for emissions accounting and the financial statements, this outcome may be more by coincidence than design, and an analysis of an entity's circumstances would be required.

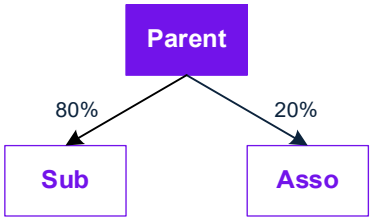
To achieve maximum alignment, an entity can adopt the financial control approach and make a policy choice to align to the greatest extent possible with current financial reporting practice. For further discussion, see section 3A.3 for operational control and section 3A.4 for financial control.

Example 3A.2.10#

Organizational boundary approaches

Scenario 1: Single-level consolidation

Parent has the following ownership interests in Subsidiary and Associate (or equity method investee).



These investees are classified as follows in the financial statements and for purposes of the GHGP.

	Sub	Asso
Ownership interest	80%	20%
Financial statement classification	Subsidiary	Associate
GHGP entity type	Subsidiary	Associate
Operational control?	Yes	Yes

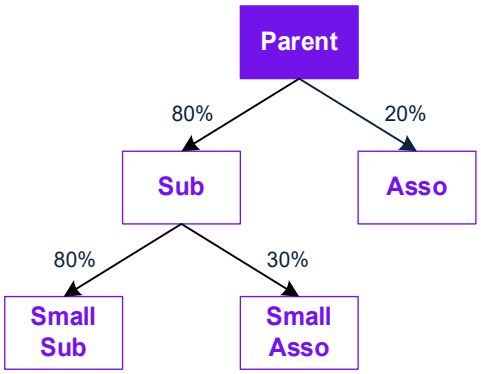
Parent accounts for GHG emissions from Associate differently depending on the chosen organizational boundary approach.

Approach	Sub	Asso
Equity share	80%	20%

Approach	Sub	Asso
Financial control	100%	0%
Operational control	100%	100%

Scenario 2: Multi-level consolidation

Parent also has an ownership interest in Small Subsidiary and Small Associate (or equity method investee) through Subsidiary.



These additional investees are classified as follows in the financial statements and for purposes of the GHGP.

	Small Sub	Small Asso
Subsidiary's ownership interest	80%	30%
Financial statement classification	Subsidiary	Associate
GHGP entity type	Subsidiary	Associate
Operational control?	Yes	No

From the perspective of Parent, the following GHG emissions for the investees would be reported under each organizational boundary approach.

Approach	Small Sub	Small Asso
Equity share[1]	64%	24%
Financial control	100%	0%
Operational control	100%	0%

Note:

1. The equity share portion of emissions is calculated as Parent's ownership interest of Subsidiary (80%) multiplied by each of the Subsidiary's ownership interests – Small Sub (80%) and Small Asso (30%).

Example 3A.2.20
Double counting emissions

Hotelier and Partner both have ownership in Hotel with a 60%, 40% ownership structure. Hotelier also has operational control over Hotel, which had GHG emissions of 20,000 tCO_2e during the year.

The organizational boundary approach chosen by Hotelier is operational control, and therefore it includes 100% of Hotel's emissions in its inventory. Partner chooses the equity share approach and it includes 40% of Hotel's emissions.

Both entities are accounting for Hotel's emissions, which means that 140% of Hotel's emissions are being recognized. Therefore, Hotel's emissions are double counted and overrepresented across the two entities based on their selected organizational boundary approaches.

	Hotelier	Partner	Total
Hotel ownership	60%	40%	
Operational control?	Yes	No	
Organizational boundary approach	Operational control	Equity share	
% Hotel emissions reported	100%	40%	140%
Reported emissions (tCO_2e)	20,000	8,000	28,000

3A.3 Operational control approach#

Excerpt from Corporate Standard [p 18]

Operational Control. A company has operational control over an operation if the former or one of its subsidiaries (see Table 1 for definitions of financial accounting categories) has the full authority to introduce and implement its operating policies at the operation. This criterion is consistent with the current accounting and reporting practice of many companies that report on emissions from facilities, which they operate (i.e., for which they hold the operating license). It is expected that except in very rare circumstances, if the company or one of its subsidiaries is the operator of a facility, it will have the full authority to introduce and implement its operating policies and thus has operational control.

Under the operational control approach, a company accounts for 100% of emissions from operations over which it or one of its subsidiaries has operational control.

It should be emphasized that having operational control does not mean that a company necessarily has authority to make all decisions concerning an operation. For example, big capital investments will likely require the approval of all the partners that have joint financial control. Operational control does mean that a company has the authority to introduce and implement its operating policies.

Question 3A.3.10**
How is operational control assessed?

Interpretive response: There is no prescribed method to determine operational control. What is assessed as 'operating policies' and the level of control/ autonomy that is required to have the 'full authority to implement' such policies needs to be determined based on the specific facts and circumstances of an operation. This analysis is likely to differ depending on the industry, the contractual arrangements and nature of an asset or activity.

Question 3A.3.20 discusses indicators that may be useful in assessing operational control.

Question 3A.3.20**
What indicators are relevant when considering whether operational control exists?

Interpretive response: In many cases, it will be straightforward to assess which entity has operational control – i.e. the authority to introduce and implement operating policies. For example, there is a default presumption of operational control for the holder of an operating license. In other cases, however, it may not be clear and further analysis will be needed.

We believe the indicators in the following table may be useful when considering whether operational control exists.

In addition, if different operating policies are controlled by different parties such that determining the holder of operational control is unclear, we believe that one acceptable approach is to place greater weight on factors that would affect the emissions generated by the asset or activity, compared to factors that would not influence emissions.

We believe an entity should apply its approach consistently and disclose its policy, if material.

Indicator / Considerations	Explanation
Default presumption of operational control: Holder of a license or permit to operate	The GHGP specifically mentions holding the operating license as a situation in which the holder (the operator) has operational control, except in rare cases. Therefore, the GHGP creates a default presumption that the operator has operational control, which would require sufficient evidence to rebut. [GHGP-CS.18] Licenses may be issued by regulatory authorities or by the asset owner to operate an asset. In our experience, this indicator is often relevant to highly emissions-intensive activities.
Ability to set and enforce policies to comply with health, safety and environmental standards	To comply with health and safety or environmental regulations, an entity will need to implement relevant policies and procedures at the locations where it operates. This may be an indicator of operational control.
Responsibility for compliance with regulations	An operation may require annual compliance with a set of laws or regulations – e.g. compliance with EU Emissions Trading Scheme (ETS) reporting. Responsibility for compliance with laws and regulations is commonly accompanied by the ability to implement the relevant policies that affect whether the entity achieves compliance.
Direction of staff	An entity may employ staff to initiate, run and oversee an activity at an operation. This may be an indicator of operational control, particularly when responsibilities include determining the nature of the job description and tasks for employed staff, and the performance standards to which staff are required to adhere.
Maintenance and refurbishment	This may be an indicator of operational control when an entity is responsible for identifying and determining the maintenance and refurbishment activities at a facility, rather than solely carrying out the maintenance actions.
Design	An entity may have influence over the design and technical specifications of an asset that is being built for the entity to lease; this may indicate operational control.
Emissions target setting	An entity may publish externally a set of emissions reduction targets that include the emissions generated by an asset. Progress against the reduction targets is externally reported on an annual basis and monitored by external stakeholders. In isolation, setting emissions reduction targets would not automatically provide the authority to implement or introduce operating policies. However, setting targets may influence the emissions generated. Therefore, this indicator may be useful in

Indicator / Considerations	Explanation
	assessing control but is unlikely to be determinative on its own.

Example 3A.3.10**

Assessing operational control – possession of an operating license

Hotel is expanding its operations by developing a new beachfront resort. As part of the development, Hotel constructs a combined heat and power (CHP) plant on the property to supply electricity and hot water to the resort. Local regulations require an operating permit for the CHP plant due to its emissions and safety considerations.

Hotel contracts Energy Ops, a specialist energy services company, to operate and maintain the CHP plant. Under the agreement, Energy Ops is responsible for obtaining and holding the required environmental operating permit from the local authority. Energy Ops manages all day-to-day operations, maintenance and compliance activities related to the plant.

Hotel reviews the arrangement to determine whether it has operational control over the CHP plant for GHG reporting purposes.

- The operating permit is issued to Energy Ops, not Hotel.
- Energy Ops is responsible for ensuring compliance with all regulatory requirements and for the plant's daily operation.
- Hotel does not have authority to direct the operational policies or procedures of the plant.

Because Energy Ops holds the operating permit, it is presumed to have operational control over the CHP plant. Hotel considers whether there is evidence that would rebut that presumption, but concludes there is none; it has no authority over any operational policies or procedures related to the plant.

Question 3A.3.30**

Are factors used in assessing operational control the same as those used to assess control in accounting standards?

Interpretive response: No. Operational control is a concept unique to GHG emissions accounting and is not used in accounting standards. Therefore, we believe it is not necessary to consider accounting principles, particularly those introduced after the GHGP was created, to be compliant with the operational control approach under the GHGP.

Notwithstanding this interpretation, we believe that certain principles used in accounting standards may be useful to consider alongside other indicators of operational control as part of the assessment of whether the entity can introduce or implement its operating policies. For example, an entity may choose to consider 'how and for what purpose' decisions in lease accounting (IFRS 16 under IFRS Accounting Standards or ASC 842 under US GAAP) as additional indicators of operational control.

Where an entity does choose to consider accounting principles when determining operational control, this should be in the context of assessing whether the entity has the 'authority to introduce and implement operating policies' rather than accounting considerations, such as whether or not it has financial control over an asset.

Example 3A.3.20**
Accounting for assets when there is no operational control

Hotel follows the operational control approach to determining its organizational boundary. Hotel leases a surplus office building to Company.

Hotel's GHG accounting vs financial statements

Hotel determines that it does not have operational control over the building during the lease term. However, following applicable accounting standards, it does not derecognize the asset from its financial statements during the lease term.

Because Hotel does not have operational control over the building, it does not account for the related GHG emissions in its organizational boundary (scopes 1 and 2) and instead accounts for the emissions as part of scope 3 (downstream leased assets – see Question 8A.15.10).

As illustrated in the following table, this creates a difference between Hotel's GHG accounting and its financial statements.

	Emissions tCO_2e			Financial statements $'000
	Scope 1	Scope 2	Scope 3	Property, plant and equipment
Hotel	0	0	2,000	5,000

Company's GHG accounting vs financial statements

Company determines that it has operational control over the building during the lease term. Therefore, it includes the related scopes 1 and 2 emissions in its organizational boundary. Following applicable accounting standards, Company also recognizes a leased asset in its financial statements (right-of-use asset).

As illustrated in the following table, this outcome means that Company has alignment between the building included in its GHG organizational boundary and its financial statements.

	Emissions tCO_2e			Financial statements $'000
	Scope 1	Scope 2	Scope 3	Leased asset
Company	1,000	1,000	0	3,000

Question 3A.3.40

How is the operational control approach applied when there is joint financial control?

Interpretive response: When there is joint financial control, each party (e.g. joint venture partner) assesses whether it has the 'full authority to direct the operating policies of the operation'. This is an 'all-or-nothing approach' to assessing if either party (or none) has operational control.

If no party with joint financial control has operational control in its own right, none of the jointly controlling partners report any emissions from the operation within scopes 1 and 2.

Example 3A.3.30

Reporting joint venture emissions using operational control

Owner 1 and Owner 2 each have 50% ownership interest and joint financial control in Joint Venture.

The following table illustrates how Joint Venture's scopes 1 and 2 emissions are reported in two scenarios.

Scenario	Owner 1	Owner 2
Operational control approach; Owner 1 has operational control	100%	0%
Operational control approach; neither Owner has operational control	0%	0%

Because each entity chooses its own approach, double counting can occur (see Question 3A.2.50).

3A.4 Financial control approach#

Question 3A.4.10**
Does the financial control approach align with the reporting entity for financial statement purposes?

Interpretive response: No, not necessarily. We believe that while an entity may choose to align its reporting boundary under the financial control approach with its financial statements, it is not required to do so.

There is current diversity in practice in how the financial control approach is applied. This is driven by two key factors.

- The standards in effect when the Corporate Standard was developed are different from the standards in place today (not least under IFRS Accounting Standards and US GAAP).
- The guidance developed by the GHGP has largely been applied outside of the finance profession.

One acceptable approach is to apply the language and examples of the Corporate Standard without considering current financial reporting standards. This may lead to differences from the reporting boundary used in the financial statements. For example, guidance in the Corporate Standard on joint financial control is based on classifications of joint arrangements in the context of long since superseded accounting models under IFRS Accounting Standards.

Another acceptable approach is to align with current financial accounting to the extent possible. This takes into account that the objective of the financial control approach set out in the Corporate Standard was to align with International Accounting Standards in effect at the time. Therefore, aligning with current accounting standards, to the extent they do not conflict with the GHGP, is consistent with that objective. [GHGP-CS.18]

One implication arising from a difference between the reporting boundaries for the financial statements and GHG emissions is that there will be a lack of comparability and connectivity between the two. For example, there could be a discrepancy between the numerator and denominator in certain intensity metrics such as GHG emissions per unit of revenue. For that reason, in our experience, many entities using the financial control approach choose to align their reporting boundary with their current financial accounting to the extent possible.

Question 3A.4.20#
How is the financial control approach applied when there is joint financial control?

Interpretive response: The Corporate Standard explains that when the financial control approach is applied, an entity accounts for its emissions from

entities that are under joint financial control based on the equity share approach – i.e. based on its economic interest. [GHGP-CS.18]

However, the supporting guidance that explains application of this principle is based on long-superseded International Accounting Standards, referring to joint ventures and partnerships that are today equity accounted in the financial statements. In that case, the GHG emissions of the investee are excluded from the organizational boundary in the same way as associates (equity-method investees). [GHGP-CS.19]

In our experience, there is diversity in how the Corporate Standard is interpreted because of changes in financial reporting practice and definitions since the Corporate Standard was originally developed in 2004. As a result, we believe it is acceptable to treat equity-accounted joint ventures in the same way as associates (equity-method investees).

Investees that are subject to proportional consolidation (e.g. joint operations under IFRS Accounting Standards) continue to be proportionally consolidated based on the equity share approach. [GHGP-CS.19]

Example 3A.4.10#
Reporting joint venture emissions under financial control

Owner 1 and Owner 2 each have 50% ownership interest and joint financial control in Joint Venture. They apply the equity method (equity accounting) in their respective financial statements.

The following table illustrates how Joint Venture's emissions are reported using different interpretations of the financial control approach outlined in Question 3A.4.20.

Scenario	Owner 1	Owner 2
Using equity share when there is joint financial control, regardless of current financial reporting	50%	50%
Following current financial reporting	0%	0%

Note: This example assumes that the entity uses the equity method to account for the joint venture. If it uses accounting standards that require or allow proportional consolidation for joint ventures, or the arrangement is a joint operation and therefore proportionally consolidated, each partner would include the equity share.

3B. IFRS Sustainability Disclosure Standards**

3B.1 Comparison to the GHGP**

Regarding the organizational boundary, there are differences between IFRS Sustainability Disclosure Standards and the GHGP only in specific, limited areas. IFRS S2 leverages the GHGP by requiring that the *measurement* of GHG emissions be in accordance with the 2004 version of the Corporate Standard, subject to limited exceptions.

These exceptions apply when:

- the entity is subject to different measurement requirements by a jurisdiction or exchange (see Question 2B.2.50); or
- the entity applied a different measurement approach before its adoption of IFRS S2 (see Question 2B.2.60).

In other respects, the guidance in section 3A applies to the application of IFRS S2.

3B.2 Select requirements of IFRS S2**

Question 3B.2.10**
What organizational boundary approaches are permitted under IFRS S2?

Interpretive response: An entity may choose any one of the approaches to setting the organizational boundary in the Corporate Standard – i.e. operational control, financial control or equity share. Question 2B.3.10 explains this approach in more depth. [IFRS S2.B27]

An entity discloses its chosen approach, the reasons for that choice and how it enables an understanding of the entity's performance in relation to climate-related risks and opportunities, including progress toward any climate-related targets. [IFRS S2.27, B27(a)-(b)]

The choice of approach is permitted despite the fact that IFRS S2 defines the 'reporting entity' as being consistent with the financial statements, and these approaches may not align fully with the financial statements (see Question 3A.2.60).

As explained in Question 2B.3.10, the organizational boundary is an intrinsic part of the measurement approach in applying the Corporate Standard, and unless exemptions apply, entities are required to use the Corporate Standard to measure emissions for the 'reporting entity' as a whole.

4. Operational boundary

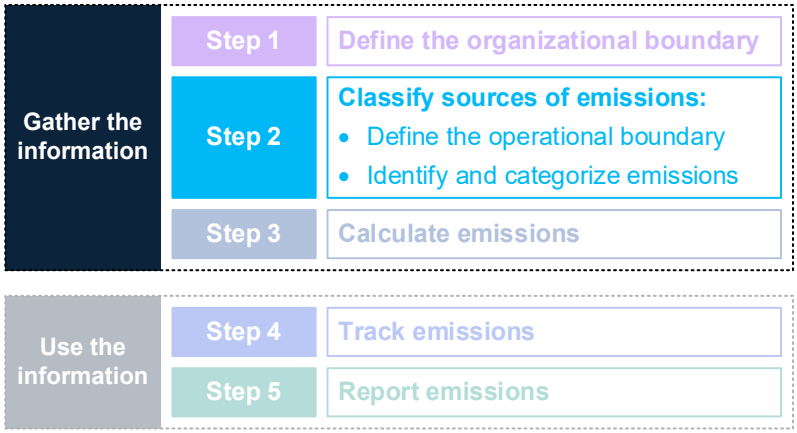
Detailed contents

Item significantly updated in this edition #
New item added in this edition **

4A. GHG Protocol

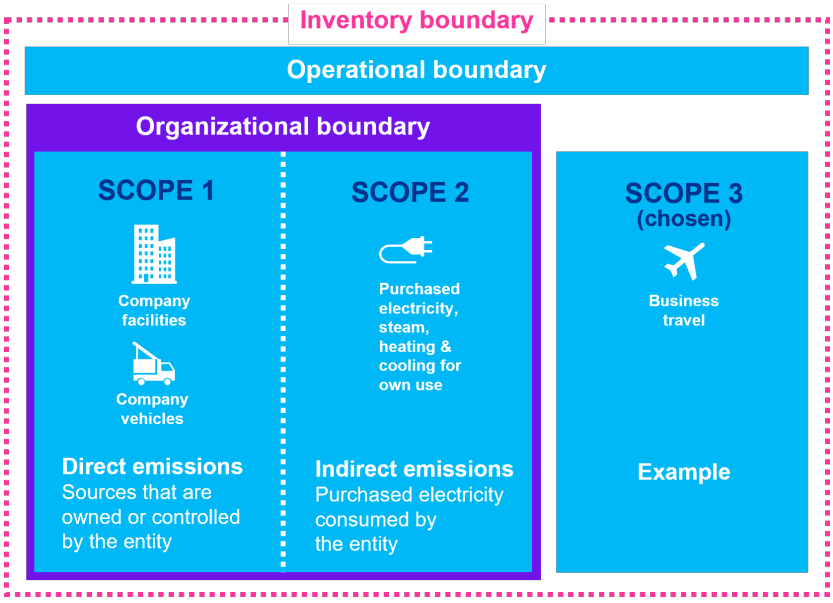
4A.1 How the Protocol works

The second step toward reporting emissions comprises two parts. This chapter discusses the operational boundary.



The operational boundary comprises all sources of emissions within the organizational boundary plus certain scope 3 categories. Following the Corporate Standard, one or more scope 3 categories are included at the discretion of the entity; however, all categories must be considered to comply with the Scope 3 Standard.

The following excerpt from the roadmap diagram in the executive summary illustrates business travel (but not the other scope 3 categories) being included in the operational boundary. Together, the organizational boundary and the operational boundary are called the inventory boundary.



4A.2 Defining the operational boundary

Excerpt from Corporate Standard [p 26]

Setting operational boundaries

An operational boundary defines the scope of direct and indirect emissions for operations that fall within a company's established organizational boundary. The operational boundary (scope 1, scope 2, scope 3) is decided at the corporate level after setting the organizational boundary. The selected operational boundary is then uniformly applied to identify and categorize direct and indirect emissions at each operational level. The established organizational and operational boundaries together constitute a company's inventory boundary.

Question 4A.2.10
What is the operational boundary?

Interpretive response: The operational boundary determines the direct and indirect emissions associated with operations owned or controlled by the entity. The entity identifies which operations and sources cause direct (see Question 4A.2.30) and indirect emissions (see Question 4A.2.40) and decides which indirect (scope 3) emissions to include. [GHGP-CS.100]

Once an entity has determined its organizational boundary (see section 3A.2), it then:

- defines its operational boundary – i.e. determines which, if any, scope 3 emissions to include in its emissions inventory; and
- identifies and categorizes the emissions-generating activities to include in its scope 1, 2 and 3 emissions.

♦ Under IFRS S2, the reporting of scope 3 emissions is not optional. See Question 4B.2.10.

Question 4A.2.20#
What is the inventory boundary?

Interpretive response: As illustrated in the roadmap diagram in the executive summary, an entity's inventory boundary comprises:

- all GHG emissions within its organizational boundary (see chapter 3); plus
- GHG emissions outside its organizational boundary that it elects to include in its broader operational boundary or is required to include by applicable local regulation or standards such as IFRS Sustainability Disclosure Standards.

The inventory boundary may vary from entity to entity depending on the scope 3 categories the entity includes in its operational boundary.

♦ Under IFRS S2, the reporting of scope 3 emissions is not optional. See Question 4B.2.10.

Question 4A.2.30
What are direct GHG emissions?

Interpretive response: Direct GHG emissions are emissions from sources that are owned or controlled by the entity. These are known as scope 1 emissions. See section 6A.2. [GHGP-CS.25]

Question 4A.2.40
What are indirect GHG emissions?

Interpretive response: Indirect GHG emissions are emissions that are a consequence of the activities of the entity but occur at sources owned or controlled by another entity. Indirect GHG emissions are further subdivided into scope 2 and scope 3. [GHGP-CS.25]

- **Scope 2** accounts for indirect emissions from the consumption of purchased or acquired electricity, heat, steam or cooling (see section 7A.2). [GHGP-S2.34]
- **Scope 3** includes all emissions not within an entity's scopes 1 and 2 organizational boundary but within the entity's value chain. Scope 3 emissions are identified as upstream or downstream emissions. [GHGP-S3.29]
  - **Upstream** emissions are indirect GHG emissions related to the purchase of goods and/or services.
  - **Downstream** emissions are indirect GHG emissions related to the use of products and/or services.

The Scope 3 Standard categorizes scope 3 emissions into 15 distinct categories. The categories are designed to be mutually exclusive, resulting in no double counting between categories or scopes 1 and 2 emissions.

The following table is a list of the 15 categories. [GHGP-S3.32]

Upstream	Downstream
1. Purchased goods and services 2. Capital goods 3. Fuel- and energy-related activities (not included in scope 1 or 2) 4. Upstream transportation and distribution 5. Waste generated in operations 6. Business travel 7. Employee commuting 8. Upstream leased assets	9. Downstream transportation and distribution 10. Processing of sold products 11. Use of sold products 12. End-of-life treatment of sold products 13. Downstream leased assets 14. Franchises 15. Investments

Chapter 8 discusses each category.

Question 4A.2.50#
How is the operational boundary chosen?

Interpretive response: An entity determines, on the basis of its business goals and obligations, and applicable local regulation, whether to account for: [GHGP-CS.25]

- scope 1 and scope 2 emissions only; or
- some or all of the scope 3 categories relevant to its operations in addition to its scopes 1 and 2 emissions (see Question 4A.2.60).

♦ Under IFRS S2, the reporting of scope 3 emissions is not optional. See Question 4B.2.10.

Question 4A.2.60**
Which scope 3 categories are included in the operational boundary?

♦ Under IFRS S2, the reporting of scope 3 emissions is not optional and therefore this question is not relevant. See Question 4B.2.10.

Interpretive response: The following steps may guide an entity in determining which scope 3 categories to include in its inventory. [GHGP-CS.30-31]

1. Understand the value chain and identify the associated GHG sources.
2. Determine which scope 3 categories are relevant in terms of size, contributions to GHG risk exposure, stakeholder attention or potential emissions reductions.
3. Identify partners that contribute potentially significant amounts of GHGs along the value chain – e.g. customers, product manufacturers, energy providers.
4. Quantify scope 3 emissions – e.g. estimate the relative magnitude to support an entity in selecting the categories to include in its inventory boundary.

To determine which scope 3 categories to include in the inventory, the entity may consider reporting requirements or relevance of categories in terms of size, risk exposure, stakeholder attention or potential emissions reductions. Data availability and reliability is also a consideration. The GHGP does not provide any materiality threshold that allows for the exclusion of emissions from any particular source or activity. In our experience, given the possibility of insufficient data quality (e.g. due to lack of data or prohibitive cost of gathering data), entities need to find the balance between inventory quality and completeness.

In our experience, common scope 3 categories included in corporate GHG inventories are purchased goods and services (category 1), business travel (category 6) and employee commuting (category 7). In particular, categories 6 and 7 represent a common starting point for many entities because the underlying activity data tends to be more readily available and easily accessible than some of the other categories. The categories that represent the greatest risks and priorities will vary by sector.

The example in Appendix B illustrates how select scope 3 categories might be presented.

Example 4A.2.10
Choosing an operational boundary (within scope 3)

♦ Under IFRS S2, the reporting of scope 3 emissions is not optional and therefore this example is not relevant. See Question 4B.2.10.

Hotel has already identified the emissions-generating activities to include in its operational boundary for the purposes of determining scopes 1 and 2 emissions. Hotel is now determining the categories of scope 3 emissions to include in its operational boundary.

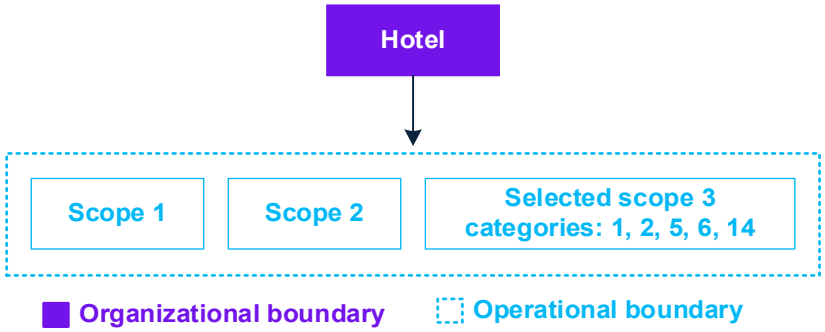
Hotel prioritizes scope 3 data collection efforts toward activities expected to have the most GHG emissions and offer the highest reduction opportunities. Based on its value chain understanding, Hotel ranks each scope 3 activity from highest expected emissions to lowest expected emissions.

In addition to the expected amount of emissions, Hotel uses the following factors to help determine which scope 3 categories to voluntarily include in its inventory boundary.

- Higher priority scope 3 emissions sources are those Hotel could influence reductions through:
  - changes to sourcing decisions and using fewer resources – e.g. switching vendors for purchased goods, services and capital goods;
  - product design changes – e.g. switching shampoo containers from small disposable plastic bottles to large refillable pumps; or
  - employee incentive programs – e.g. business travel, commuting.
- Lower priority scope 3 emissions sources are sources that are extraneous to Hotel's corporate emissions goals.

As a result of its assessment, Hotel selects the following scope 3 categories to include in its inventory because it has the greatest ability to influence reductions in these areas:

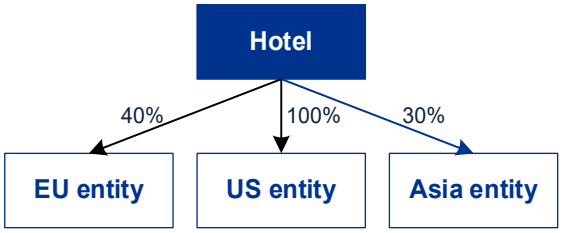
- Category 1: Purchased goods and services
- Category 2: Capital goods
- Category 5: Waste generated in operations
- Category 6: Business travel
- Category 14: Franchises.



Example 4A.2.20
Relationship between the organizational and operational boundaries

Hotel has the following ownership interest in three investees.

- Hotel has a 100% ownership interest in the US entity.
- The EU and Asia entities are operated by an affiliated luxury brand.

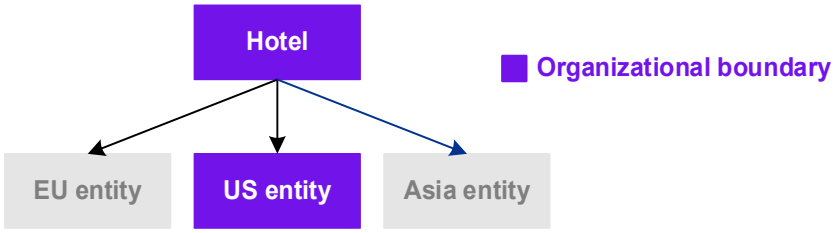


To develop its GHG inventory boundary, Hotel first defines its organizational boundary, then defines its operational boundary and finally identifies the relevant emissions to include.

Step 1: Organizational boundary

Hotel determines its organizational boundary using the operational control approach (see section 3A.3).

- Hotel has operational control over the US entity and therefore includes it in its organizational boundary.
- Hotel does not have operational control over the EU or Asia entities and therefore does not include them in its organizational boundary.



Step 2(a): Operational boundary

Hotel is required to include scopes 1 and 2 emissions in its operational boundary.

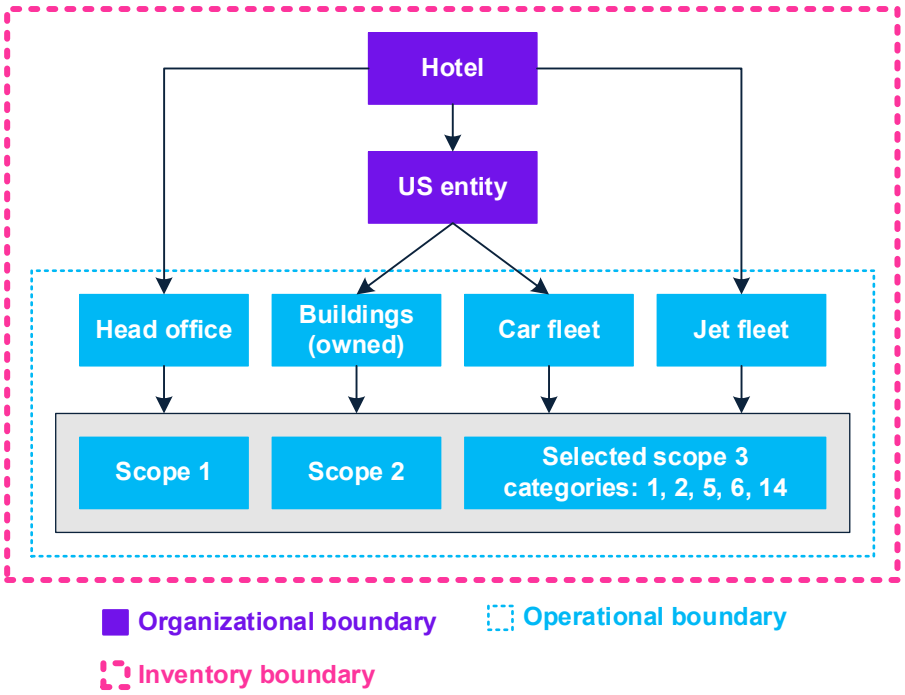
In addition, Hotel voluntarily decides to include the following scope 3 categories in its operational boundary: purchased goods and services (category 1), capital goods (category 2), waste generated in operations (category 5), business travel (category 6) and franchises (category 14).

Step 2(b): Identify and categorize emissions

Based on the organizational and operational boundaries, Hotel and the US entity have identified the following sources of emissions.

- Hotel owns and operates its head office building and a fleet of jets for executive travel.
- US entity owns and operates a building and a fleet of vehicles for employee travel.

As a result, the following depicts Hotel's operational boundary and shows the inventory boundary as the organizational and operational boundaries together.



Although EU entity and Asia entity are not part of Hotel's organizational boundary, they may be part of Hotel's value chain. For example, the EU entity sells its own branded mattresses, linens and bath products to US entity for use in its hotels. To the extent such relationships are within Hotel's selected scope 3 categories, emissions related to those relationships will be included in Hotel's operational boundary.

4A.3 Contractual arrangements, including leases

Question 4A.3.10
What are the operational boundary considerations for contractual arrangements?

Interpretive response: The classification of scopes 1, 2 and 3 emissions for contractual arrangements (e.g. leased assets, outsourcing, franchises) depends on the entity's chosen approach for setting the organizational boundary (see chapter 3). [GHGP-CS.31-32]

If, based on the chosen approach, the entity excludes certain contractual arrangements from its organizational boundary – e.g. because it has chosen the operational control approach and it does not have operational control over certain franchises – the entity may still include the emissions from those contractual arrangements in scope 3. [GHGP-CS.31-32]

Question 4A.3.20#

How are lease arrangements considered within the operational boundary?

Interpretive response: To determine how emissions from leased assets are accounted for in an entity's GHG inventory, the Scope 3 Standard provides the following guidance: [GHGP-S3 p124]

1. Understand the types of leases relevant to the entity – finance or capital leases, and operating leases.
2. Determine whether the emissions associated with the leased assets are categorized as scope 1, 2 or 3 by the entity.

Emissions from leased assets are only classified as scope 3 if the selected organizational approach (equity or control) does not apply to them. [GHGP-CS.29]

The following table, adapted from the Scope 3 Standard, illustrates lease agreements and boundaries. While this is more detailed than the guidance in the Corporate Standard, the principles are consistent. [GHGP-CS p31, GHGP-S3.124-125]

	Type of lease arrangement	
	Financial/capital lease	**Operating lease**
Equity share or financial control approach used	**Lessee** has ownership and financial control. • Emissions associated with fuel combustion are scope 1. • Emissions associated with use of purchased electricity are scope 2. **Lessor** does not have ownership or financial control. • Emissions associated with fuel combustion and use of purchased electricity are scope 3 (downstream leased assets).	**Lessee** does not have ownership or financial control. • Emissions associated with fuel combustion and use of purchased electricity are scope 3 (upstream leased assets). **Lessor** has ownership and financial control. • Emissions associated with fuel combustion are scope 1. • Emissions associated with use of purchased electricity are scope 2.
Operational control approach used	**Lessee** has operational control. • Emissions associated with fuel combustion are scope 1. • Emissions associated with use of purchased electricity are scope 2. **Lessor** does not have operational control. • Emissions associated with fuel combustion and use of purchased electricity are	**Lessee** has operational control. • Emissions associated with fuel combustion at sources in the leased space are scope 1. • Emissions associated with use of purchased electricity are scope 2.[1] **Lessor** does not have operational control. • Emissions associated with fuel combustion and use of

	Type of lease arrangement	
	Financial/capital lease	**Operating lease**
	scope 3 (downstream leased assets).	purchased electricity are scope 3 (downstream leased assets).[2]

Notes:

1. If an entity is able to demonstrate that it does not have operational control over a leased asset held under an operating lease (see section 3A), it may report emissions from the leased asset as scope 3, with appropriate disclosure.
2. If an entity is able to demonstrate that it has operational control over an asset leased to another entity under an operating lease (see section 3A), it may report emissions from fuel combustion as scope 1 and emissions from the use of purchased electricity as scope 2, with appropriate disclosure.

In our experience, there is some diversity in practice regarding the interpretation of this guidance, not least because the leasing standards under both IFRS Accounting Standards and US GAAP (IFRS 16 and ASC 842, respectively) have been updated and leases (subject to some exceptions) are generally now on-balance sheet.

Following the approach set out above requires a lessee to assess whether every lease is an operating or finance lease – a distinction that is not included in current leasing standards for most lessees. Therefore, we believe that an alternative approach that aligns where relevant with current IFRS Accounting Standards or US GAAP (IFRS 16 or ASC 842, respectively) would also be acceptable. This alternative approach is discussed in Question 4A.3.30.

Question 4A.3.30**

Can lease arrangements be considered in the context of current accounting standards?

Interpretive response: As explained in Question 4A.3.20, there is diversity in practice in how emissions from leased assets are included within the operational boundary under the GHGP.

We believe the approach set out below is also appropriate and could be applied. This approach is grounded in current lease accounting standards rather than standards that have long since been superseded and avoids the need for a lessee to assess every lease under those superseded standards. [GHGP-CS p31]

Following this alternative approach, the treatment of emissions relating to a leased asset depends on the organisational boundary chosen.

	Lessee	
	Leased asset recognized on-balance sheet	**Leased asset *not* recognized on-balance sheet[1]**
Equity share or financial control approach	**Lessee** has financial control. • Emissions associated with fuel combustion are scope 1. • Emissions associated with use of purchased electricity are scope 2.	**Lessee** does not have financial control. • Emissions associated with fuel combustion and use of purchased electricity are scope 3 (upstream leased assets; see section 8A.10).
Operational control approach	**Lessee** has operational control.[2] • Emissions associated with fuel combustion are scope 1. • Emissions associated with the use of purchased electricity are scope 2.	

Notes:

1. While the majority of leases are recognized on-balance sheet under IFRS 16 and ASC 842, there are exceptions (e.g. short-term leases, and low-value leases under IFRS 16) which could give rise to emissions. In such cases, further analysis may be required. In addition, there are other accounting frameworks where leases remain off-balance sheet.
2. If a lessee is able to demonstrate that it does not have operational control over a leased asset held under an operating lease (see section 3A.3), it may report emissions from the leased asset as scope 3, with appropriate disclosure.

	Lessor	
	Finance lease	**Operating lease**
Equity share or financial control approach	**Lessor** does not have financial control. • Emissions associated with fuel combustion and the use of purchased electricity are scope 3 (downstream leased assets).	**Lessor** has financial control. • Emissions associated with fuel combustion are scope 1. • Emissions associated with use of purchased electricity are scope 2.
Operational control approach	Lessor does not have operational control. • Emissions associated with fuel combustion and use of purchased electricity are scope 3 (downstream leased assets; see section 8A.15).[1]	

Note:

1. If a lessor is able to demonstrate that it has operational control over an asset leased to another entity under an *operating lease* (see section 3A.3), it may report emissions from fuel combustion as scope 1 and emissions from the use of purchased electricity as scope 2, with appropriate disclosure.

Example 4A.3.10**
Emissions related to leases

Hotel leases leisure facilities from PropertyCo.

- Hotel applies IFRS 16 and recognizes a right-of-use asset for the facilities.
- PropertyCo determines that the arrangement is an operating lease and does not derecognize the asset in its financial statements.

Both Hotel and PropertyCo, in their separate analyses, assess that Hotel has operational control over the facilities during the term of the lease.

Approach	Hotel in $MTCO_2e$	PropertyCo in $MTCO_2e$
Financial control or equity share[1]	Scope 1: 100 Scope 2: 100 Scope 3: 0	Scope 1: 100 Scope 2: 100 Scope 3: 0
Operational control	Scope 1: 100 Scope 2: 100 Scope 3: 0	Scope 1: 0 Scope 2: 0 Scope 3: 200

Note:

1. The financial control and equity share approaches result in double counting of emissions from the asset. This mirrors the fact that both entities recognize an asset for the facilities in their financial statements.

4A.4 Biogenic emissions#

Question 4A.4.10
What are biogenic emissions?

Interpretive response: GHG inventories account for emissions from both biogenic (e.g. wood) and non-biogenic (e.g. fossil fuels such as oil, gas and coal) sources.

Biogenic emissions are CO_2 emissions from the combustion or biodegradation of biomass. Biomass is any material or fuel produced by biological processes of living organisms – e.g. plant material, landfill gas. [GHGP-S2.100]

Although biomass can produce fewer GHG emissions than fossil fuels, it still produces GHG emissions. Biogenic materials are increasingly used as a resource for energy generation. For example, a biomass heating system may use wood chips and pellets to heat a building. [GHGP-S2.57]

Question 4A.4.20#

Are biogenic emissions part of the operational boundary?

Interpretive response: Yes, biogenic emissions are part of an entity's operational boundary. However, their nature differs from other CO_2 emissions and the GHGP includes specific presentation requirements.

Burning biomass emits carbon that is part of the biogenic carbon cycle (e.g. releases carbon that was absorbed by plants and will be absorbed by them again) while burning fossil fuels releases carbon that has been in the ground for millions of years (e.g. releases in a short amount of time a significant amount of carbon which took millennia to form). [GHGP-S2.57]

The burning of biomass also produces CH_4 and N_2O. These gases are included in the emissions inventory in the usual way because they are not part of the biogenic carbon cycle. [GHGP-S2.57]

The CO_2 element of the gases emitted from the combustion of biomass are required to be reported separately from the scopes (see Appendix A).

Example 4A.4.10

Presenting biogenic emissions

Hotel prepares its GHG inventory for scope 1 direct emissions and presents them by fuel source: natural gas and biomass (e.g. wood pellets). As a direct source under Hotel's control, biomass combustion emissions are a direct source of emissions so the CH_4 and N_2O emissions are included in scope 1.

Hotel presents all CO_2 emissions from this direct source separately as biogenic emissions. Scope 1 presentation includes all gases (CO_2, CH_4 and N_2O) except for biogenic emissions sources, which requires separate presentation of the CO_2 component of this fuel source as shown in the table.

All measures in tCO_2e	Totals[2]	Natural gas	Biomass
Scope 1	214.6	212.4	2.2
Biogenic emissions	375.0	--	375.0
Emissions	**589.6**	**212.4**	**377.2**

Notes:

1. This example does not demonstrate the unit conversion calculation (e.g. converting pounds to tonnes; see Question 5A.2.20) or the GWP conversion calculation (e.g. converting CH_4 to CO_2e; see Question 2A.3.50).
2. Emissions are calculated as MMBtus (energy requirement) × Emission factor. Each fuel source presented produced 4,000 MMBtus.

4B. IFRS Sustainability Disclosure Standards**

4B.1 Comparison to the GHGP**

Regarding the operational boundary, IFRS S2 requires entities to follow guidance in the Corporate Standard to determine sources of direct and indirect emissions, unless the entity is required to use a different method by a jurisdictional authority or exchange. See Question 2B.2.50.

IFRS S2 requires the operational boundary to include scope 3 emissions whereas this is optional in applying the Corporate Standard. See Question 4B.2.10.

In addition, IFRS S2 has no guidance on the presentation of biogenic emissions whereas the Corporate Standard requires the presentation of direct biogenic emissions separate from the scopes. See Question 4B.2.20.

In other respects, the guidance in section 4A, including in relation to lease arrangements (see Questions 4A.3.20 and 4A.3.30), applies equally under IFRS S2.

4B.2 Select requirements of IFRS S2**

Question 4B.2.10**
What operational boundary is required by IFRS S2?

Interpretive response: IFRS S2 requires the reporting of both direct and indirect emissions, classified as scope 1, scope 2 and scope 3. [IFRS.S2.29(a)]

Like the GHGP, an entity first determines its organizational boundary (see Question 3B.2.10) and then defines its operational boundary. The entity then identifies and categorizes the emissions-generating activities to include in its scope 1, 2, and 3 emissions.

- Unlike IFRS Sustainability Disclosure Standards, the disclosure of scope 3 emissions is optional under the Corporate Standard. See Question 8A.2.15.

Question 4B.2.20**
Are biogenic emissions part of the operational boundary under IFRS S2?

Background: Biogenic emissions are explained in Question 4A.4.10.

Interpretive response: Yes, biogenic emissions are part of an entity's operational boundary notwithstanding that their nature differs from other CO_2 emissions.

IFRS S2 includes no specific requirement to report biogenic emissions separately from the scopes. However, we believe that if material, biogenic emissions should be disclosed.

We believe the lack of specific presentation guidance in IFRS S2 allows an entity to adopt either of the following approaches for reporting biogenic emissions.

- **Approach 1:** Include in scope 1 and/or scope 2 emissions (as appropriate) – i.e. as part of total scope 1 and/or scope 2 emissions, and disaggregate as a subtotal within scope 1 and/or scope 2 emissions, if material.
- **Approach 2:** Present as a separate line item alongside total scope 1 and scope 2 emissions.

♦ Unlike IFRS Sustainability Disclosure Standards, under the Corporate Standard, direct biogenic emissions are required to be presented separately from the scopes (i.e. Approach 2 above) and indirect biogenic emissions are recommended (but not required) to be presented separately. See Question 4A.4.10.

Example 4B.2.10**
Reporting biogenic emissions under IFRS Sustainability Disclosure Standards

This example contrasts with Example 4A.4.10 under the GHGP.

Hotel prepares its GHG inventory for scope 1 direct emissions and presents them by fuel source: natural gas and biomass (e.g. wood pellets). Biomass combustion emissions are a direct source of emissions under Hotel's control.

In both of the following scenarios, the related CH_4 and N_2O emissions are included in scope 1.

Scenario 1: Biogenic CO_2 emissions included in scope 1

Following Approach 1 in Question 4B.2.20, Hotel includes its CO_2 emissions from biomass in scope 1. Hotel disaggregates biogenic CO_2 emissions because it concludes the information is material.

All measures in tCO_2e	Totals	Natural gas	Biomass
Scope 1	**589.6**	**212.4**	**377.2**
Of which biogenic CO_2 emissions	375.0	--	375.0

Scenario 2: Biogenic CO_2 emissions excluded from scope 1

Following Approach 2 in Question 4B.2.20, Hotel excludes its CO_2 emissions from biomass from scope 1 and discloses the amount separately.

All measures in tCO_2e	Totals	Natural gas	Biomass
Scope 1	**214.6**	**212.4**	**2.2**

Out-of-scope emissions in tCO_2e	375.0

5. Emissions calculations

Detailed contents

New item added in this edition **

Example

5B.2.10 Emission factor selection **

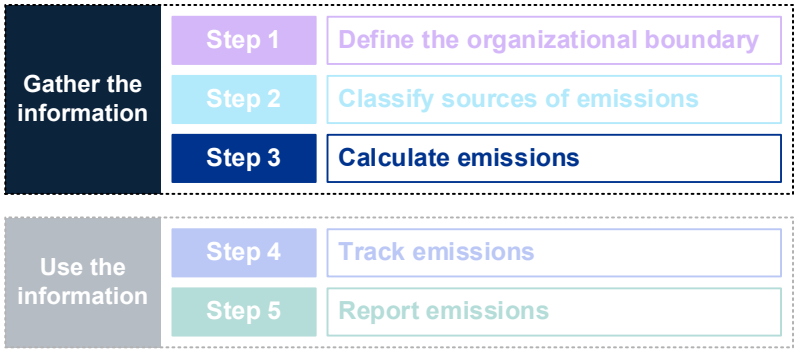
Forthcoming requirements

GWP values **

5A. GHG Protocol

5A.1 How the Protocol works

The third step toward reporting emissions is to perform the calculations based on all emissions in the inventory boundary.



This chapter provides an overview of how the calculations are performed, explaining the components of the following formula:

tCO_2e	=	Activity data	×	Emission factor	×	GWP
Tonnes of CO_2 equivalent		Estimated measure of activity related to a specific emissions source		Factor applied to make varied activities comparable		Multiplier that makes different GHGs comparable

This chapter provides context for the discussion in chapters 6 to 8, which explain how to identify and measure the emissions in scopes 1 and 2, and in the 15 categories within scope 3.

5A.2 Components of the calculation

Question 5A.2.10
What are the steps in identifying and calculating GHG emissions?

Interpretive response: There are five steps in identifying and calculating an entity's GHG emissions. [GHGP-CS.41-47]

1. Identify GHG emissions sources in the inventory boundary and categorize them as scope 1, 2 or 3 (see chapters 6 to 8). The following categories of sources typically produce GHG emissions. [GHGP-CS.41]

Stationary combustion	Combustion of fuels in stationary equipment – e.g. furnaces, boilers, heaters
Mobile combustion	Combustion of fuels in transportation devices – e.g. automobiles, airplanes
Process emissions	Emissions from physical or chemical processes – e.g. aluminum smelting
Fugitive emissions	Intentional and unintentional releases – e.g. equipment leaks

2. Select a calculation approach – e.g. direct measurement or estimation using an emission factor (see Question 2A.3.40).
3. Collect data and choose emission factors (see Question 5A.2.65).
4. Apply calculation tools – either cross-sector or sector-specific tools. [GHGP-CS.42-43]
5. Roll-up individual data (e.g. facilities, countries, business divisions) to corporate level. This is done using a centralized or decentralized approach. [GHGP-CS.45-47]

Question 5A.2.20
What is the formula for estimating GHG emissions?

Interpretive response: When direct measurement is unavailable (see Question 2A.3.40), GHG emissions (tonnes per CO_2 equivalent) are estimated for each gas within each scope using the following formula:

$$\mathbf{tCO_2e = Activity\ data \times Emission\ factor \times GWP}$$

Activity data is the estimated measure of activity related to a specific emissions source, and emission factors are applied so that varied activities can be compared.

Emission factors may be provided in various units – e.g. pounds CO_2 per MWh, kilograms of CO_2 per mile. Therefore, there may be an additional step in this calculation that involves a conversion factor – e.g. to convert pounds to tonnes.

These concepts are discussed in relation to each scope or category (scope 3) in the following sections or Questions.

	Activity data	Emission factors
Scope 1	Section 6A.2	Section 6A.2
Scope 2	Question 7A.2.40	Question 7A.2.50 (location-based) Question 7A.3.10 (market-based)
Scope 3	Question 8A.2.40	Question 8A.2.50

Questions 2A.3.50 and 5A.2.40 discuss the selection of GWP values, which convert different GHGs into the equivalent of CO_2. GWP values are determined by gas regardless of scope.

- IFRS S2 includes more restrictive guidance on selecting emission factors and GWP values. See Questions 5B.2.10 and 5B.2.30.

Example 5A.2.10
Estimating emissions

Hotel determines there are sources within its organizational boundary that emit direct emissions of CO_2, CH_4 and N_2O. Hotel estimates total scope 1 emissions using the following formula.

Gas	Activity Data		Emission Factor		GWP		Total
CH_4	AD	×	EF	×	GWP	=	tCO_2e
						+	
CO_2	AD	×	EF	×	GWP	=	tCO_2e
						+	
N_2O	AD	×	EF	×	GWP	=	tCO_2e
						=	
					Total Scope 1		**tCO_2e**

Hotel repeats this formula to estimate emissions for scope 2 (market-based and location-based) and scope 3 (for each category within its chosen operational boundary).

Question 5A.2.30
What is a GWP value?

Interpretive response: To reflect the varied ability of GHGs to trap heat in the atmosphere, each GHG is assigned a GWP representative of its heat trapping ability relative to CO_2 (which has a GWP of 1).

A higher GWP value means that more infrared radiation will be absorbed by the gas and more energy will be added to the atmosphere, leading to more warming. For example, in the sixth IPCC assessment report, the 100-year GWP was 27 for CH_4 (non-fossil), 29.8 for CH_4 (fossil) and 273 for N_2O. This is because both gases trap more heat than CO_2 and N_2O traps more than CH_4.

By assigning GWP values, the emissions impacts of different GHGs are comparable.

GWPs are calculated over certain time periods, typically 20, 100 and 500 years.

As updated scientific estimates become available, the IPCC periodically updates GWP values with each of its scientific assessment reports. The following table summarizes a timeline of the IPCC's assessment report updates and where the GWP values can be found within each report.

Assessment report	Report title	Reference to GWP table
Sixth	Climate Change 2021: The Physical Science Basis	Chp 7, Table 7.15
Fifth	Climate Change 2013: The Physical Science Basis	Chp 8, Table 8.A.1
Fourth	Climate Change 2007: The Physical Science Basis	Chp 2, Table TS.2
Third	Climate Change 2001: The Scientific Basis	Chp 6, Table 6.7
Second	Climate Change 1995: The Science of Climate Change	Chp 2, Table 2.9

For each IPCC assessment report, there is a corresponding synthesis report intended to synthesize and integrate materials contained in the assessment reports and other special reports. The Sixth Synthesis Report was released in March 2023.

Question 5A.2.40
Which GWP values are used?

Interpretive response: The GHGP provides the following guidelines on choosing GWP values. [GHGP-G.1]

Required

- Use 100-year GWP values from the IPCC
- Use GWPs from a single assessment report for any one inventory
- Report the source of the GWP values

Encouraged

- Use GWP values from the most recent assessment report – currently the sixth assessment report
- Use the same GWPs for the current inventory period and the base year

In applying the GHGP, entities may deviate from the above if necessary. For example, if GWPs for a particular gas are not provided in the chosen assessment report, the entity may find it necessary to use multiple reports. Disclosure of GWP values is required (see Appendix A).

Entity usage of GWP values may depend on jurisdictional requirements.

♦ IFRS S2 includes more restrictive guidance on selecting GWP values. See Question 5B.2.10.

Question 5A.2.50
What is uncertainty in a GHG inventory?

Interpretive response: Uncertainty is a measure of data quality. Uncertainties associated with GHG inventories can be categorized as follows. [GHGP-CS.54-55]

- **Scientific uncertainty** arises when the science of the actual emission is not completely understood – e.g. GWPs involve scientific uncertainty.
- **Model estimation uncertainty** refers to the uncertainty associated with the mathematical equations used to estimate GHG emissions – e.g. statistical models.
- **Parameter estimation uncertainty** refers to the uncertainty associated with quantifying the parameters used as inputs into estimation models – e.g. activity data and emission factors.

In our experience, most entities focus on estimating parameter uncertainty because the estimation of scientific uncertainty and model uncertainty is highly

technical. The GHGP has developed supplementary guidance and calculation tools to support 'uncertainty assessments'. [GHGP-CS.56]

These assessments provide feedback on inventory quality. By understanding the uncertainties inherent in GHG emissions data, the entity may assess appropriate use of data and identify opportunities to improve data collection.

The example in Appendix B includes disclosure related to the use of estimates and estimation uncertainties.

- IFRS Sustainability Disclosure Standards include guidance and disclosure requirements relating to the use of estimates and estimation uncertainty. See Question 8B.3.20.

Question 5A.2.60

Does the GHGP allow for any exclusions?

Interpretive response: Yes. Entities are required to disclose any specific exclusions of sources, facilities and/or operations from their reported emissions. [GHGP-CS.63]

Consistent with the completeness principle (see Question 2A.3.30), an inventory includes all relevant emissions sources within the chosen organizational boundary. Consistent with the transparency principle (see Question 2A.3.30), an entity transparently documents and justifies any instances where emissions have not been estimated or are estimated at an insufficient level of quality – e.g. due to lack of data, prohibitive cost of gathering data.

If an entity is unable to obtain certain data, the entity may disclose and justify such exclusions and still report in accordance with the GHGP. See Appendix A.

- IFRS S2 includes guidance on materiality that could affect whether information can be excluded. See Question 2B.3.30.

Question 5A.2.65

What are the attributes to consider when selecting an emission factor?

Interpretive response: There are a number of attributes to consider when selecting an emission factor. The following are highlighted in the GHGP's Scope 3 Standard (see chapter 8) but have general applicability. [GHGP-S3.76]

Technology	Time	Geography	Completeness	Reliability
Degree to which the emission	Degree to which the actual time or	Emission factor developed	Data from all relevant sites over an	Emission factor has been

Technology	Time	Geography	Completeness	Reliability
factor reflects the actual technology used – e.g. power generated by source such as coal, solar, wind, natural gas, nuclear, biomass or hydroelectric.	age of the activity is represented – e.g. emission factor is current relative to current year activity.	from activity in the same or similar area as the data – e.g. country or site.	adequate time period to even out normal fluctuations - e.g. measurements and activity cover the full period, inclusion of all relevant emission sources, comprehensive data collection, consideration of all operational phases.	developed using a reliable methodology – e.g. sound statistical and scientific review followed, peer-reviewed studies, consistency with international standards.

While the scope 2 location-based method of calculating emissions requires the use of the grid-average in the respective location of operations (see Question 7A.2.50), the selection of the emission factor may still involve an evaluation of the time period of the emission factor (e.g. grid-average for a specific year, calendar quarter, month), geography (e.g. national, regional, other jurisdictional division), and whether the emission factor's development followed a process that was reliable and resulted in a complete dataset. [GHGP-S2.47]

- IFRS S2 includes guidance that companies must choose emission factors that best represent the entity's activity. See Question 5B.2.30.

Example 5A.2.15
Selecting an emission factor

Hotel has multiple office locations across the US and uses eGRID emission factors to calculate its GHG emissions under the location-based method, selecting the regional eGRID emission factor relevant to each office location – Chicago and Los Angeles – for the year ended March 31, 2024. Regional information is recommended by the US EPA for accurately representing emissions from power consumed at that location.

The January 2024 eGRID data for a specific region reflects the 2022 power generation mix (e.g. coal, nuclear, hydro, solar, gas). The emission rates for the relevant regions and the national average are presented below to illustrate the impact of changing power generation mix between periods.

Hotel location	eGRID Region *lbs/MWh of CO_2e*	2023	2024	2025
Chicago	RFCW	1,052.5	1,005.9	916.1
Los Angeles	CAMX	533.6	499.3	430.0
	National	857.0	827.5	770.9

By using the regional factors instead of the national average, Hotel has used an emission factor that more closely reflects the local energy power generation sources and technologies, leading to more precise and reliable reporting.

Question 5A.2.70
Are the latest available emission factors required for calculating GHG emissions?

Interpretive response: We believe an entity may develop a reasonable policy for the frequency of updating the emission factors required for calculating its GHG emissions that balances the following:

- the conceptual principle of achieving sufficient accuracy to support the integrity of the reported information (see Question 2A.3.30); with
- the practical need to allow sufficient time for the data required for calculations to be incorporated into the underlying systems.

Although the GHGP recommends using the latest available emission factors (data) at the date of publishing GHG emissions, it does not require them. In addition, the GHGP strives to achieve 'sufficient' rather than 'absolute' accuracy. [GHGP-CS.7, 62]

Therefore, because using the latest available emission factors could result in practical difficulties – e.g. continuous monitoring for emission factor updates until the GHG report is issued – we believe an entity may develop a reasonable policy (e.g. annual update of emission factors) and apply that policy consistently.

♦ IFRS S2 has more specific requirements than GHGP on updating metrics for information (such as emission factors) received after the period end but before the reporting date. See Questions 2B.3.60 and 5B.2.40.

Example 5A.2.20
Updating emission factors

Hotel is calculating GHG emissions for the year ended December 31, 2025, which will be published in April 2026. Hotel has determined that EPA eGRID factors and UK Department for Energy Security and Net Zero emission factors are the most appropriate.

Hotel applies the following policy, which it discloses in its GHG emissions report: "Emission factors are updated in October each year based on the latest available factors."

This policy of updating emission factors in the last quarter of the year allows Hotel time to embed the latest inputs into its calculations. Practically, this means that Hotel will use the following in calculating GHG emissions for the year ending December 31, 2025.

Source	Date published	Rationale for use
EPA eGRID factors	January 2025 (based on 2023 data)	Representative of the most up-to-date inputs as of October 2025
UK Department for Energy Security and Net Zero emission factors	June 2025	Website indicates they should be used for calculating 2025 GHG emissions

Question 5A.2.80

Can an emission factor be used that includes additional gases and radiative forcing impacts?

Interpretive response: Yes. Aviation activities are an example of where emission factors may include direct effects from fuel consumption and additionally incorporate radiative forcing of the indirect effects of aviation (non-CO_2 emissions such as water vapor, contrails and NO_x). Emission factors with indirect effects are optional for calculating emissions from air travel or transport. [GHGP-S3C.53]

These factors may be significantly higher (e.g. by 70%) and have greater scientific uncertainty. The chosen emission factor is disclosed in following the Scope 3 Standard (see Appendix A), and if one with indirect effects is used in the base year, an emission factor of the same type is used in subsequent periods to avoid distorting emission trends; see section 9A.2 on tracking emissions over time.

5B. IFRS Sustainability Disclosure Standards**

5B.1 Comparison to the GHGP**

While the basic formula for calculating GHG emissions is the same under IFRS Sustainability Disclosure Standards and the GHGP, there are differences in the following components.

- The IFRS S2 guidance on GWP values is stricter than the GHGP, although relief is provided for jurisdictional or exchange requirements. See Questions 5B.2.10 and 5B.2.20.
- There are differences in the articulation of certain requirements relating to emission factors, although this will not necessarily give rise to differences in practice. See Questions 5B.2.30 and 5B.2.40.

In other respects, the guidance in section 4A applies to the application of IFRS S2.

5B.2 Select requirements of IFRS S2**

Question 5B.2.10**
Which GWP values are required?

Interpretive response: IFRS S2 requires entities to use GWP values based on a 100-year time horizon from the latest IPCC assessment available at the reporting date. [IFRS S2.B21]

This requirement:

- applies when an entity directly measures its GHG emissions and needs to convert the measurements into CO_2 equivalent values; and
- does *not* apply if the entity uses emission factors that have already converted the seven constituent gases into CO_2 equivalent values (see Question 5B.2.20).

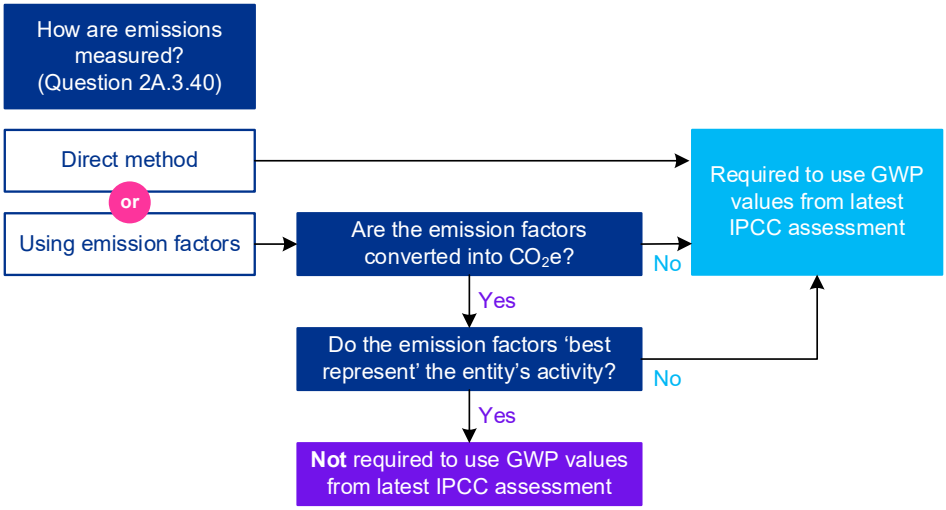
In December 2025, the ISSB amended IFRS S2 to extend the jurisdiction relief to the selection of GWP values, with early adoption permitted. See Forthcoming requirements.

♦ Unlike IFRS Sustainability Disclosure Standards, the Corporate Standard encourages use of the most recent assessment report for determining GWP values but does not require it. See Question 5A.2.40.

Question 5B.2.20**
Are there any exceptions from using GWPs from the latest IPCC assessment?

Interpretive response: Yes. An exception arises when an entity identifies that the emission factors that 'best represent' its activities incorporate GWPs different from those in the latest IPCC assessment (see Question 5B.2.10). In this situation, the entity is not required to adjust its measurement of emissions to use GWP values from the latest IPCC assessment available at the reporting date. [IFRS S2.B22]

The following flowchart summarizes when entities are required to use GWP values from the latest IPCC assessment under IFRS S2.



However, this exception is not available when different GWPs (i.e. not from the latest assessment) are required by a local jurisdiction or stock exchange, and the entity has taken the jurisdictional exemption (see Question 2B.2.50). This means that the entity may be required to prepare a second set of emissions data for the purpose of complying with IFRS S2. [TIG 2024-09 AP5]

To overcome this restriction, in December 2025 the ISSB amended IFRS S2 to extend the jurisdiction relief to the selection of GWP values, with early adoption permitted. See Forthcoming requirements.

Question 5B.2.30**
Which emission factors are required?

Interpretive response: If an entity uses emission factors to estimate its GHG emissions, IFRS S2 requires it to use the emission factors that 'best represent' the entity's activity. It also requires an entity to prioritize emission factors that are relevant to the jurisdiction in which it operates or where the emissions-generating activities occur. [IFRS S2.B22, B51]

The entity is then required to disclose information to enable users to understand which emission factors are used. [IFRS S2.B29]

- Unlike IFRS Sustainability Disclosure Standards, the Corporate Standard does not include a specific requirement that emission factors 'best represent' the entity's activity. However, in our experience, application of the general attributes in Question 5A.2.65 is likely to achieve the same outcome.

Example 5B.2.10**
Emission factor selection

Hotel has multiple office locations across the US and uses eGRID emission factors to calculate its GHG emissions under the location-based method for its US-based offices.

As part of its recent European expansion, Hotel opens an office in Vienna, Austria. When calculating scope 2 location-based emissions for the Austrian office, Hotel determines that the 'Umweltbundesamt' emission factors produced by the Austrian government are most relevant to the Austrian jurisdiction in which the office is operating.

Source	Used for which offices	Rationale for use
EPA eGRID factors	US offices	Best represent office location-based electricity emissions for US offices
Austrian Umweltbundesamt emission factors	Austrian office	Best represent office location-based electricity emissions for the Austrian office

Question 5B.2.40**
Are the latest available emission factors required for calculating GHG emissions?

Interpretive response: Yes. However, if the effect of updating from a previous version is not material, the update is not required.

IFRS S1 includes general guidance on updating estimates when new information is received about conditions that existed at the reporting period-end (see Question 2B.3.60). [IFRS S1.67]

Because emission factors are based on retrospective information, they are generally captured by this requirement. This means that entities are required to update emission factors until the disclosures are issued unless:

- the change would not be material;
- the issuing body specifically indicates the period for which the emission factors should be used (e.g. UK Department for Energy Security and Net Zero); or
- an emission factor was not determined based on a lag in the underlying data – i.e. it incorporated data from after the entity's reporting date.

This may be practically challenging. However, because emission factors are commonly released at the same time each year, entities can monitor when updated emission factors are due to be released and consider any effect on reporting processes.

♦ Unlike IFRS Sustainability Disclosure Standards, the Corporate Standard does not include specific guidance on events after the reporting date. In our experience, application of the accounting principles in the GHGP (see Question 2A.3.30) allows entities to apply judgment based on the specific information and other facts and circumstances. In this context, Question 5A.2.70 discusses emission factors that may be updated after the reporting date.

Forthcoming requirements**
GWP values

In December 2025, the ISSB issued amendments to clarify certain aspects of IFRS S2. The amendments, which comprise a series of reliefs from the application of IFRS 2, are effective for annual reporting periods beginning on or after January 1, 2027, but may be adopted early.

The amendments include the following change that will allow entities to use alternative GWP values in certain circumstances.

What's required?	What's the impact?
• An entity is permitted to use the GWP values required by its local	• An entity no longer needs to use two different sets of GWP values to meet

What's required?	What's the impact?
regulator or stock exchange instead of GWP values from the latest IPCC assessment for the part of the entity to which the local requirements apply.	both IFRS S2 and local jurisdictional requirements. • However, an entity is still required to disclose the measurement approach, inputs and assumptions used to measure its GHG emissions, which may include: – the GWP values used; and – if applicable, why it has not used the GWP values from the latest IPCC assessment. • The relief is available when the relevant regulator or stock exchange requires the company to use alternative GWP values.

6. Scope 1 emissions

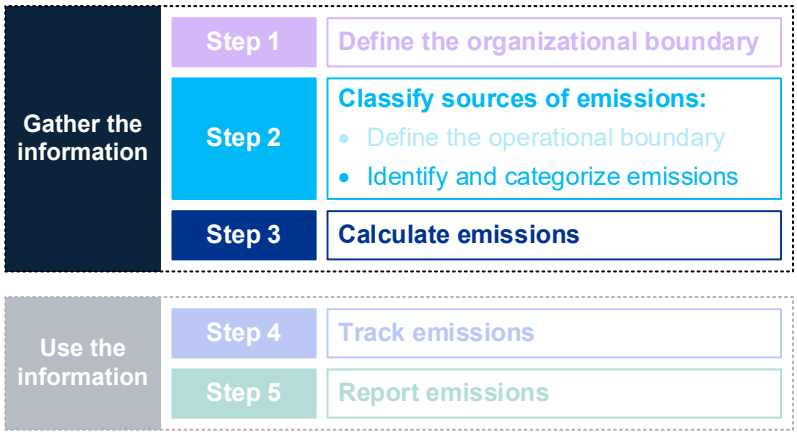
Detailed contents

New item added in this edition **

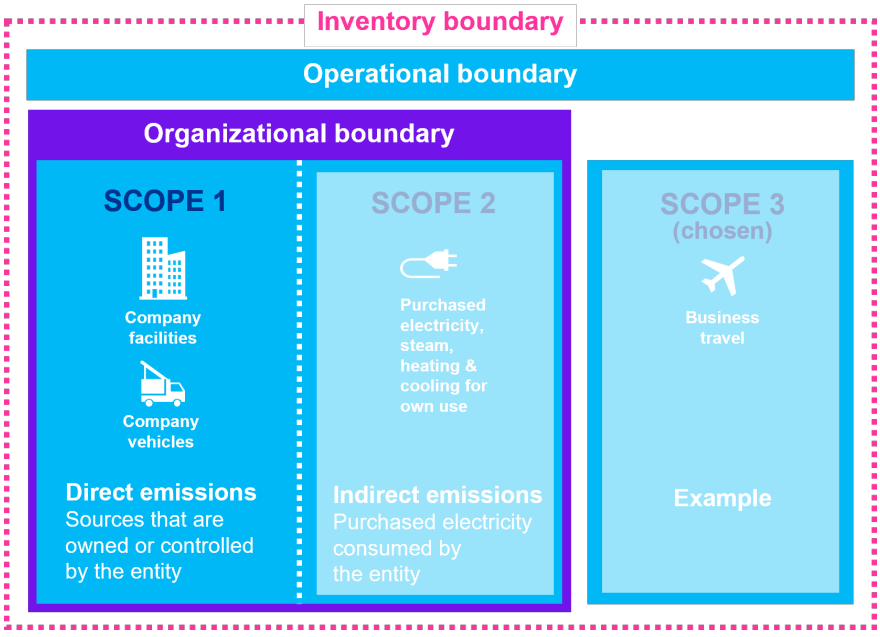
6A. GHG Protocol

6A.1 How the Protocol works

Having provided an overview of how emissions are calculated in chapter 5, this chapter looks more closely at scope 1 emissions: what they are in the context of identifying and categorizing emissions (part of Step 2) and calculating emissions (Step 3).



Unlike scopes 2 and 3, scope 1 emissions are direct – i.e. they are from sources that are owned or controlled by the entity – and therefore occur within the organizational boundary.



6A.2 Identifying and measuring scope 1 emissions

Question 6A.2.10
What are scope 1 emissions?

Interpretive response: Scope 1 emissions are emissions from sources that are owned or controlled by the entity. They are principally the result of the following types of activities undertaken by the entity. [GHGP-CS.25, 27]

Activities	Source of emissions
Generation of electricity, heat or steam	Combustion of fuels in stationary sources – e.g. boilers, furnaces, turbines
Physical or chemical processing	Manufacture or processing of chemicals and materials – e.g. cement, aluminum, waste processing
Transportation of materials, product, waste and employees	Combustion of fuels in entity-owned or controlled mobile combustion sources – e.g. trucks, trains, ships, airplanes, buses, cars
Fugitive emissions	Intentional or unintentional releases – e.g. equipment leaks from joints; HFC emissions during the use of refrigeration and air conditioning equipment; methane leakages from gas transport

Emissions associated with the sale of own-generated electricity to another entity are not deducted/netted from scope 1 (see section 7A.2). [GHGP-CS.27]

Excerpt from Corporate Standard [p 41]

Identify scope 1 emissions

Process emissions are usually only relevant to certain industry sectors like oil and gas, aluminum, cement, etc.

Manufacturing companies that generate process emissions and own or control a power production facility will likely have direct emissions from all the main source categories.

Office-based organizations may not have any direct GHG emissions except in cases where they own or operate a vehicle, combustion device, or refrigeration and air-conditioning equipment.

Example 6A.2.10
Identifying scope 1 emissions

During the year, Hotel operated one jet for executive travel. This jet operates on kerosene jet fuel, which, as it burns, emits CO_2, CH_4 and N_2O. Because this jet is owned and operated by Hotel, the emissions from the fuel burned in this asset are reported as scope 1 emissions.

Occasionally, Hotel executives travel for business on commercial jets that are not owned or operated by Hotel. Hotel includes these emissions in scope 3-category 6 (business travel). See section 8A.8.

Question 6A.2.20
How are scope 1 emissions calculated?

Interpretive response: Following the standard formula (see Question 5A.2.20), scope 1 emissions are calculated based on activity data and emission factors. For many entities, scope 1 emissions are calculated based on the purchased quantities of commercial fuels – e.g. natural gas, heating oil. [GHGP-CS.42]

The Environmental Protection Agency (EPA) provides guidance on calculating scope 1 emissions related to stationary combustion, mobile combustion and fugitive emissions. Based on this guidance, an entity may gather activity data from the following sources.

Type	Description	Activity data
Stationary combustion	Fuel burned in buildings or equipment owned or operated by the entity – e.g. boilers	Fuel measurement system data, fuel purchase records – e.g. monthly utility bills
Mobile combustion	Fuel purchased for owned or leased vehicles (see Question 4A.3.20) and mobile equipment – e.g. cars	Fuel type, fuel use, distance traveled, fuel economy, vehicle type, emissions control technology and/or model year
Fugitive emissions	Chemicals released from air conditioning, refrigeration or fire suppression equipment owned or controlled by the entity	Inventory records, purchase records, repair reports, service records, disposal records

The GHGP website provides calculation tools that can be used by entities at their discretion. For example, the stationary combustion tool provides default fuel and national average electricity emission factors. The mobile combustion tool provides emission factors for road, air, water and rail transport. [GHGP-CS.44]

Example 6A.2.20
Calculating scope 1 emissions

Continuing Example 6A.2.10, to calculate the scope 1 emissions associated with its corporate jet, Hotel gathers the following information.

Activity data	Per fuel receipts, the volume of fuel combusted is 120,000 gallons
Emission factor	Per the EPA, the jet fuel emission factor is 9.75 kg CO_2/gal
Calculation of CO_2 emissions	Activity data × Emission factor = tCO_2e
	120,000 gallons × 9.75 kg CO_2e/gal × 0.001 t/kg = **1,170 tCO_2e**
	Because the fuel combusted is already measured in CO_2, the GWP is 1 and therefore not included in the above formula (see Question 5A.2.30). The factor applied here of 0.001 mt/kg is converting kgs to tonnes.

Hotel performs a similar calculation to determine the amount of CH_4 and N_2O emissions associated with the corporate jet. For these GHGs, Hotel adjusts the formula to multiply by the appropriate GWP to convert the CH_4 and N_2O emissions to CO_2e.

6B. IFRS Sustainability Disclosure Standards**

IFRS S2 requires the disclosure of absolute gross scope 1 emissions, measured using the Corporate Standard, unless exceptions apply (see Question 2B.2.50).

Regarding scope 1 emissions, the guidance in section 6A applies to the application of IFRS S2.

7. Scope 2 emissions

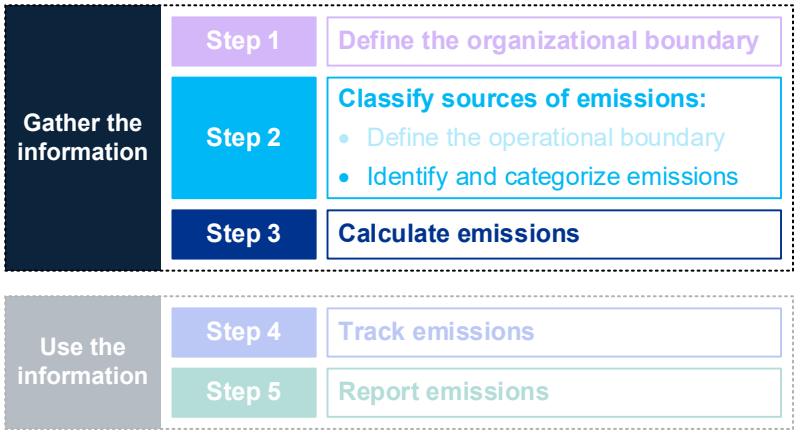
Detailed contents

New item added in this edition **

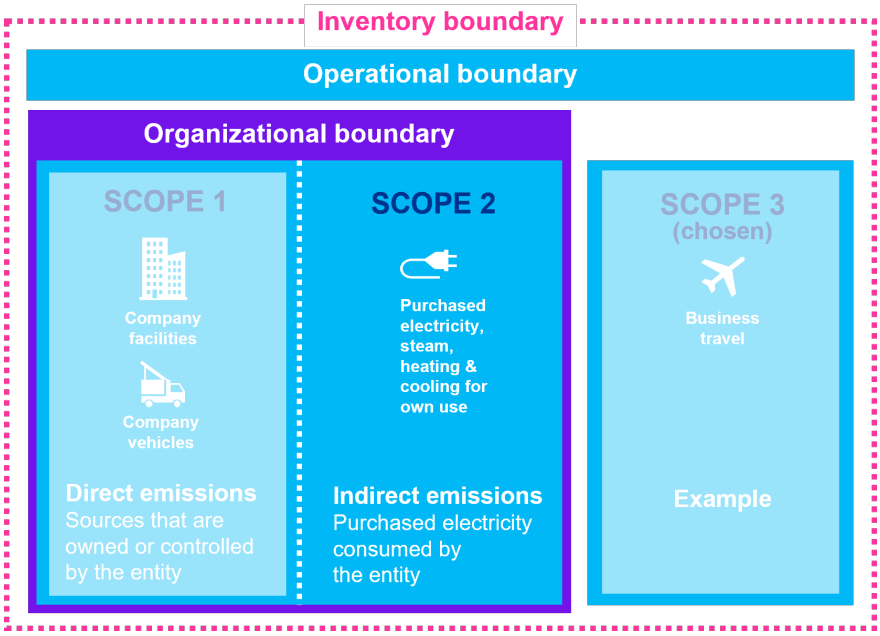
7A. GHG Protocol

7A.1 How the Protocol works

This chapter is structured similarly to chapter 6 (scope 1 emissions). Having provided an overview of how emissions are calculated in chapter 5, this chapter looks more closely at scope 2 emissions: what they are in the context of identifying and categorizing emissions (part of Step 2) and calculating emissions (Step 3).



Like scope 1, scope 2 emissions occur within the organizational boundary. However, unlike scope 1, they are indirect emissions because they do not occur from sources that are owned or controlled by the entity. Rather, they represent purchased electricity (including steam, heat or cooling) that is generated outside the organizational boundary but consumed within the boundary.



7A.2 Identifying and measuring scope 2 emissions

- IFRS S2 does not refer to the Scope 2 Guidance, which was issued as an amendment to the GHG Corporate Standard. However, it is nonetheless relevant in measuring scope 2 emissions. See Question 7B.2.30.

Question 7A.2.10
What are scope 2 emissions?

Interpretive response: As defined in the GHGP, scope 2 is an indirect emissions category that includes GHG emissions from the generation of purchased or acquired electricity, steam, heat or cooling consumed by the entity. [GHGP-S2.34]

These emissions are considered an indirect emissions source because they are a consequence of activities of the entity but physically occur at sources owned or controlled by another entity. In other words, scope 2 captures the emissions associated with energy generated by a third-party electricity generator or utility but consumed within the entity's organizational boundary. [GHGP-S2.6]

As noted in the GHGP, almost all entities generate indirect emissions due to the purchase of electricity for use in their processes or services. For many entities, purchased electricity represents one of the largest sources of GHG emissions. [GHGP-CS.27, 41]

Question 7A.2.20
How is energy generation and distribution classified into the different scopes?

Interpretive response: Energy is either transferred via direct line transfer or the grid. There are four components of the energy grid.

- Individual generators – e.g. coal power plant, solar panel farm
- Transmission lines – e.g. power lines, underground power cables
- Distribution network – e.g. from transformers to homes and businesses
- Energy consumer.

The transmissions lines and distribution network are collectively referred to as the 'transmission and distribution' (T&D) system. The T&D system is often owned by the utility. When energy is transferred via the grid, losses may occur during T&D. [GHGP-CS.27-28]

The emissions associated with the four components of the energy grid are recorded in the different scopes by the following entities.

Generator	In scope 1, the energy generator accounts for GHG emissions from energy generation.

Utility company	In scope 2, the utility accounts for GHG emissions associated with energy lost during T&D.
Consumer	In scope 2, the energy consumer accounts for GHG emissions from the consumption of energy obtained from another entity – e.g. the utility. In scope 3, an end user may also report indirect emissions associated with T&D losses (see section 8A.5).

In scope 3, an entity accounts for other upstream emissions associated with the production and processing of upstream fuels – e.g. exploration, drilling, flaring. See section 8A.5. [GHGP-CS.28]

Example 7A.2.10
Accounting for emissions from the generation, sale and purchase of electricity

The following example has been adapted from the GHGP. [GHGP-CS.28-29]

Generator owns a coal power generation plant and sells the electricity to Utility, a utility that owns and controls the T&D system. Hotel purchases the electricity for consumption in its own operations.

The following table illustrates how the transactions are classified into scopes 1, 2 and 3. Each of the three entities report the emissions associated with the electricity generation, but they do so in different scopes.

	Generator	Utility	Hotel
	(a power generator)	(a utility)	(energy consumer)
Transactions			
Produced	500 MWh		
Sold	-500 MWh		
Purchased		500 MWh	
Consumed		-50 MWh (T&D)	
Sold		-450 MWh	
Purchased			450 MWh
Consumed			-450 MWh
Reporting[1]			
Scope 1 (100 tCO_2e)	100 tCO_2e (produced)		
Scope 2 (100 tCO_2e)		10 tCO_2e (T&D)	90 tCO_2e (purchased)
Scope 3[2] (100 tCO_2e)		90 tCO_2e (sold)	10 tCO_2e (upstream T&D)

Notes:

1. Reported tCO_2e are calculated using an emission factor of 0.2 MWh/tCO_2e (see Question 5A.2.20). This emission factor is used for simplicity.
2. The reporting of emissions associated with upstream T&D losses is optional for the end user (Hotel).

Question 7A.2.30

What are the methods of accounting for scope 2 emissions?

Interpretive response: There are two methods used to account for an entity's purchased energy:

- one that represents local electricity production and may be more closely tied to physical energy consumption, referred to as the location-based method; and
- another that depicts a version of energy consumption that takes contractual decisions into account, referred to as the market-based method.

The market-based method may or may not be tied to physical energy consumption. It is in this method that a decision to purchase renewable energy, for example, becomes relevant.

Location-based method

The location-based method reflects the average emissions intensity of grids on which energy consumption physically occurs. It is useful for understanding: [GHGP-S2.26]

- GHG intensity of grids where operations occur;
- aggregate GHG performance of energy-intensive sectors; and
- risks and opportunities aligned with local grid resources and emissions.

Market-based method

The market-based method reflects emissions from electricity that entities have purposefully chosen (see Question 7A.3.20). It is useful for understanding: [GHGP-S2.26]

- individual corporate procurement actions;
- opportunities to influence electricity suppliers and supply; and
- risks and opportunities conveyed by contractual relationships.

According to the Scope 2 Guidance, both methods are presented because they illustrate changes to grid emissions over time (location-based method) and how much zero-emission energy an entity is signaling it is willing to buy (market-based method). Over time, this shows whether the differential between these two methods is shrinking or growing. [GHGP-S2.7, 27]

♦ IFRS S2 does not require the market-based method (see Question 7B.2.20).

Question 7A.2.40
What activity data supports scope 2 emissions?

Interpretive response: According to the Scope 2 Guidance, energy consumption activity data includes all energy purchased and/or acquired and consumed: [GHGP-S2.44]

- from an external organization; or
- from owned and/or operated generation facilities where energy attributes have been sold or transferred.

Both the location- and market-based methods calculate emissions using the same activity data. However, the two methods tell different stories about that activity data.

The most precise activity data is metered electricity consumption or utility bills specifying consumption in MWh or kilowatt hour (kWh) units. If this type of data is not available, estimations are used. [GHGP-S2.44]

Example 7A.2.20
Estimating energy consumption

Hotel leases 4,000 square feet of space in a 10,000 square foot office building that is fully occupied. There is no metering available to calculate Hotel's own energy consumption.

Upon inquiry with the landlord, Hotel determines that energy consumption during the year for the entire building is 9,000 MWh. From this, Hotel estimates its energy consumption as follows.

Usage rate	4,000 sq ft / 10,000 sq ft = 40%
Energy consumption	40% × 9,000 MWh = 3,600 MWh

Question 7A.2.50
Which emission factors are used to calculate scope 2 location-based emissions?

Interpretive response: The location-based method uses mostly grid-average emission factors. They represent the average of all GHG emissions associated with the quantity of electricity generation produced from facilities within a specified geographic boundary. [GHGP-S2.53]

The Scope 2 Guidance provides a hierarchy of location-based method emission factors, starting with regional or subnational emission factors (e.g. eGRID, UK

Department for Energy Security and Net Zero) and moving to national production emission factors (e.g. IEA). [GHGP-S2.47]

7A.3 Market-based emissions

- This section is relevant to IFRS S2 adopters only if they elect to present market-based emissions. See Question 7B.2.20.

Question 7A.3.10
When does the market-based method apply?

Interpretive response: While disclosure of scope 2 emissions under the location-based method is always required, entities assess whether the market-based method is an additional requirement.

The market-based method applies to entities with any operations in markets providing product or supplier-specific data (e.g. emission factors) in the form of 'contractual instruments' (e.g. RECs, GOs, PPAs) that meet the Scope 2 Quality Criteria (see Question 7A.3.30). [GHGP-S2.8]

If a multi-regional entity has any operations within its organizational boundary where the market-based method applies, the market-based method is calculated for the entity's entire inventory. For those regions that do not have any market instruments to apply, that region's location-based emissions measurement is also included as the market-based emissions. [GHGP-S2.44]

The market-based method is not relevant if no operations in the entity's organizational boundary are located in markets with contractual instruments (e.g. RECs, PPAs, supplier-specific rates, residual mix factor) available, or where no instruments within those systems meet the Scope 2 Quality Criteria (see Question 7A.3.30). In this case, only the location-based method (e.g. grid-average emission factors) is used to calculate scope 2 emissions.

Question 7A.3.20
Which emission factors are used to calculate scope 2 market-based emissions?

Interpretive response: The market-based method derives emission factors from contractual instruments. Certain types of contractual instruments (e.g. renewable energy certificates or power purchase agreements) may convey an emission factor of zero.

Contractual instruments represent choices – e.g. choosing a retail electricity supplier, a specific generator or a differentiated electricity product – that are

conveyed through agreements between the purchaser and the provider. Contractual instruments may differ from the underlying energy flows in the grid – e.g. may not necessarily represent the emissions caused by the purchaser's consumption of electricity. [GHGP-S2.26]

These contractual instruments only convey a claim to use the emission factor associated with a certain amount of renewable electricity generation (see Question 7A.4.10). They do not change how renewable electricity is physically delivered or consumed.

Markets differ as to what contractual instruments are commonly available or used by entities to purchase energy or claim specific attributes about it, but they may include the following.

- **Energy attribute certificates** (EACs) represent certain information (or attributes) about the energy generated but do not represent the energy itself. Examples include renewable energy certificates (RECs) and guarantees of origin (GOs). See Question 7A.4.10. [GHGP-S2.80]
- **Contracts** allow a consumer, typically larger industrial or commercial entities, to form an agreement with a specific energy generator. One example is power purchase agreements. See Question 7A.4.30. [GHGP-S2.55]
- **Supplier/utility emission rates** are provided by the electricity retailer and measure the GHG intensity of delivered electricity. [GHGP-S2.55]
- **Residual mix** is essentially an emission factor from which all renewable components have been removed. For entities without any of the above contractual instruments, the residual mix provides an emission factor for use in a market-based method calculation. [GHGP-S2.106]

While many contractual instruments under the market-based method represent a zero emission rate from renewable energy (e.g. RECs), the market-based method also includes other contractual instruments representing fossil fuel or mixed-resource emission factors (e.g. supplier emission rates). [GHGP-S2.63]

The following table, adapted from the Scope 2 Guidance, illustrates the hierarchy of data from which market-based emission factors may be derived. Entities can still apply the market-based method even if they do not have contractual data for every site. Any data in this hierarchy – including using location-based grid average emission factors in the absence of contractual information – is acceptable. [GHGP-S2.48]

Emission factors	Precision
Energy attribute certificates	Higher
Contracts	
Supplier/utility emission rates	
Residual mix	
Other grid-average emission factors	Lower

All of the contractual instruments in the hierarchy must meet Scope 2 Quality Criteria (see Question 7A.3.30).

Residual mix

The residual mix factor is used when an entity cannot apply emission factors from any of the other contractual instruments – e.g. EACs, contracts, supplier- or utility-specific. The residual mix factors are essentially location-based grid-average emission factors, but with all the RECs, certificates and other attributes within the market boundary removed. And so the residual mix represents the non-renewable components of the grid.

This means the residual mix factor will typically be higher in the emissions calculation than the grid average. This is because renewable energy attributes are not double counted in the residual mix factor – e.g. the grid-average emission factor is lowered by its inclusion of renewable energy attributes that may have been claimed by certain users of the grid.

A residual mix factor may not be available in every market. The GHGP requires entities to disclose such absence transparently. See Appendix A. [GHGP-S2.22]

Example 7A.3.10

Using location-based emission factors in the absence of contractual information

Hotel and Restaurant operate within the same electricity grid, which is supplied by coal and natural-gas power plants.

They each consumed the same amount of electricity during the year. Hotel consumed electricity generated from its local power grid while Restaurant consumed electricity generated from a solar farm near its location.

Location-based scope 2 emissions

Hotel and Restaurant both apply the same grid-average emission factor and therefore calculate the same scope 2 location-based emissions. This is because when consumption of energy is equal, the entities' physical locations drive the measurement.

Market-based scope 2 emissions

To calculate market-based emissions, Restaurant uses an emission factor of zero, based on the fact that it chose to purchase offsite renewable electricity and the associated REC conveyed an emission factor of zero. Therefore, Restaurant's scope 2 market-based emissions are zero.

Because Hotel operates in a market where contractual instruments are available, it will calculate scope 2 market-based emissions. Hotel has no energy attribute certificates (e.g. RECs) or contracts (e.g. PPAs) and there are no supplier- or utility-specific emission rates and no residual mix factor available.

Therefore, Hotel calculates scope 2 market-based emissions using the same grid average emission factor used to calculation scope 2 location-based emissions. In this case, the calculated scope 2 emissions according to the market-based method are identical to the location-based calculation. Hotel discloses the lack of availability of a residual mix factor.

Question 7A.3.30
What are the Scope 2 Quality Criteria?

Interpretive response: The Scope 2 Quality Criteria are designed to maintain the integrity of contractual instruments. They represent the minimum features necessary to implement the scope 2 market-based method in a consistent way that is capable of producing accurate results and prevents double counting. [GHGP-S2.63]

The following tables depicts the Scope 2 Quality Criteria (adapted from the Scope 2 Guidance). [GHGP-S2.60, 63-65]

All contractual instruments need to meet the following Scope 2 Quality Criteria.

Criteria	Considerations
Convey (either directly or implicitly) the direct GHG emission rate attribute associated with the unit of electricity produced.	Implicit claims may be evidenced through attestations from each owner in the chain of custody.
Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation.	It is typical to check with the electricity supplier or relevant policy-making bodies to ensure certificates are claimed, paired or retired in compliance with applicable jurisdictional or program requirements.
Be tracked and redeemed, retired or canceled by or on behalf of the entity.	Retirement may be verified via a tracking system, an audit of contracts, third-party certification or other disclosure registries, systems or mechanisms.
Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied.	In our experience, an entity may develop and disclose a policy.
Be sourced from the same market in which the entity's electricity-consuming operations are located and to which the instrument is applied.	Regulatory authorities and/or bodies responsible for certificates may establish the boundaries in which certificates may be traded and redeemed, retired or canceled.

All **utility-specific emission factors** need to:

Be calculated based on delivered electricity, incorporating certificates sourced and retired on behalf of customers.	This may be verified via receipt of the REC or third-party certifications.

All **contract-sourced emission factors** need to:

Be transferred to the entity only.	This may be verified via receipt of the REC or third-party certification.

Entities using contractual instruments in the market-based method need to:

Use an adjusted, residual mix characterizing the GHG intensity of unclaimed or publicly shared electricity.	See chapter 11 for disclosure considerations.

If contractual instruments do not meet the Scope 2 Quality Criteria, and no other market-based method data are available, location-based data are used. [GHGP-S2.76]

Question 7A.3.40
Can a location-based emission factor be used in a market-based method calculation?

Interpretive response: It depends. A grid-average emission factor may only be used for calculating scope 2 market-based emissions when there is no product, supplier-specific or residual mix data available. While the Scope 2 Quality Criteria (see Question 7A.3.30) permit the use of a range of inputs, unadjusted grid-average emission factors (e.g. location-based emission factors) are permitted only in the event a residual mix factor is not available. The absence of a residual mix is required to be disclosed (see Question 7A.3.20). [GHGP-S2.8, 56-57]

7A.4 Renewable energy

Question 7A.4.10
What is a renewable energy attribute?

Interpretive response: Renewable energy consists of (1) power and (2) environmental attributes (e.g. energy attribute certificates) that may be sold together (bundled) or separately (unbundled).

The following table explains these terms. [GHGP-S2.100, 107]

	Definition	Example
Bundled	Energy attribute certificate traded with underlying energy produced.	A wind farm generates one MWh of power and sells the electricity itself at a market rate to the local grid, bundled with one corresponding certificate at a separately determined price sold to a consumer operating on the same grid.
Unbundled	Energy attribute certificate is separate, and may be traded separately, from the underlying energy produced.	A wind farm generates one MWh of power and sells the electricity itself at a market rate to the local grid, while separately selling the corresponding certificate to a consumer in another region operating on a different grid.

Renewable energy certificates

RECs are tradeable instruments that represent the clean energy attributes (e.g. zero emissions) of renewable energy (e.g. solar, wind, hydropower, geothermal). RECs typically represent the environmental attributes (e.g. emission factor) from one MWh of electricity produced by a renewable energy source.

By accounting for and assigning ownership to the attributes of renewable energy generation and use, RECs allow energy buyers to distinguish between renewable and non-renewable energy sources. As a result, REC owners can claim renewable energy from a specific source.

Each REC is uniquely identified and includes data such as where it was generated, when it was generated and by what source. When the owner of a REC makes a renewable energy claim (e.g. claims the zero emission factor in the scope 2 market-based method calculation) based on that REC, it is then retired and is no longer a tradeable asset. Question 7A.3.30 further discusses REC retirement and Scope 2 Quality Criteria.

Question 7A.4.20

How do consumers purposefully choose their electricity?

Interpretive response: Consumers of grid-supplied electricity cannot connect electricity use to its generation – i.e. they cannot directly or physically distinguish the energy generation facilities that are supplying their consumption at any given point in time. Contractual instruments allow an entity to claim energy produced from renewable sources as its own – even when it did not physically consume the MWh produced. The renewable energy attributes (e.g. zero emissions) are issued per MWh produced regardless of whether the underlying energy is consumed by the entity. [GHGP-S2.79]

The market-based method is based on the contractual purchase of electricity bundled with contractual instruments (physical consumption is tied to renewable energy attribute) or contractual instruments on their own (synthetic 'consumption' of renewable energy only). See Question 7A.4.10.

Example 7A.4.10
Unbundled RECs

A restaurant in Boston, Massachusetts powers its operations with local grid-supplied electricity. The restaurant used 60,000 MWh of electricity during the year.

A Texas wind farm is supplying renewable energy to the local Dallas grid. It is also receiving RECs for each MWh of electricity generated and selling those RECs to buyers around the country.

The Boston restaurant purchases 60,000 MWh worth of RECs from the Texas wind farm. The RECs convey an emission factor of zero and therefore in the Boston restaurant's calculation of scope 2 market-based emissions, it applies an emission factor of zero to the consumption of 60,000 MWh of electricity. As a result, the scope 2 market-based emissions for the Boston restaurant are zero.

Question 7A.4.30
What is a power purchase agreement?

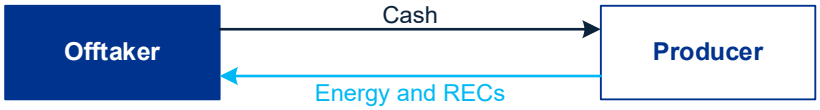
Interpretive response: As defined in the Scope 2 Guidance, a power purchase agreement (PPA) is a type of contract that allows a consumer, typically large industrial or commercial entities, to form an agreement with a specific energy-generating unit. The contract itself specifies the commercial terms, including delivery, price and payment terms. In many markets, these contracts secure a long-term stream of revenue for an energy project. [GHGP-S2.106]

Two main types of PPA are prevalent in the renewable energy marketplace: physical PPAs and virtual PPAs.

Physical PPA

A physical PPA is an agreement for the purchase and sale of energy between a consumer buyer (also known as an 'offtaker') and energy generator (also known as a 'producer'). In renewable energy, PPAs typically have either fixed or variable per-unit pricing, where variable prices are linked to an underlying energy index. Contract quantities may be equal to all or a portion of the energy generated by the renewable energy project. RECs corresponding to generation of the qualifying renewable energy may or may not be transferred as part of a bundled sale.

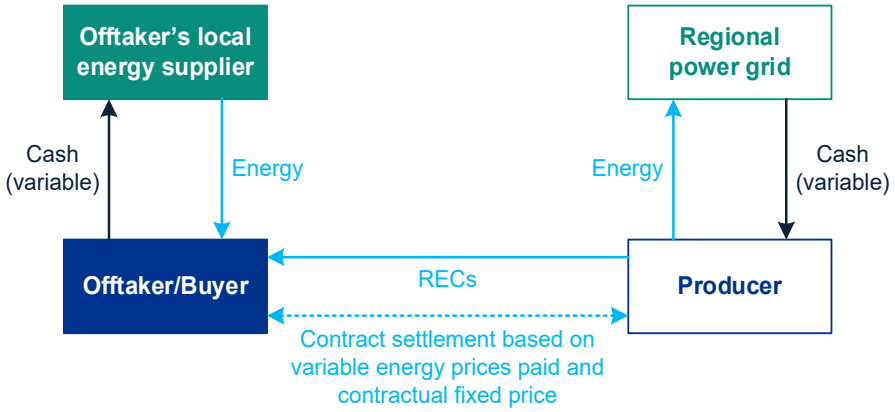
A renewable energy project may be located on or off the offtaker's premises. The producer may deliver energy directly to the offtaker through transmission lines connected to the offtaker's facilities, or indirectly through the regional power grid.



Virtual PPA

A virtual PPA (also known as a financial PPA), is an arrangement between a producer and a buyer in which the buyer pays a fixed price per unit of generated energy in exchange for a floating (market) price. The contract is periodically settled net in cash and energy is not physically delivered to the buyer.

Most virtual PPAs result in the transfer of the corresponding RECs to the buyer at settlement. Virtual PPAs create an opportunity for the buyer to receive the corresponding RECs without committing to take delivery of physical power.



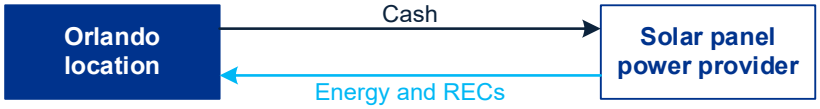
Example 7A.4.20
Identifying physical and virtual PPAs

Hotel operates a hotel in Orlando with a physical PPA in place and a hotel in Chicago with a virtual PPA in place. In both cases, Hotel receives the RECs associated with the energy generation and calculates its scope 2 market-based emissions by applying the emission factor from the RECs (see Question 7A.4.10) to the associated amount of energy consumption.

The distinction between the PPA and virtual PPA affects whether the energy is physically delivered to Hotel, but it does not affect the transfer of the REC and its corresponding treatment in Hotel's emissions disclosures.

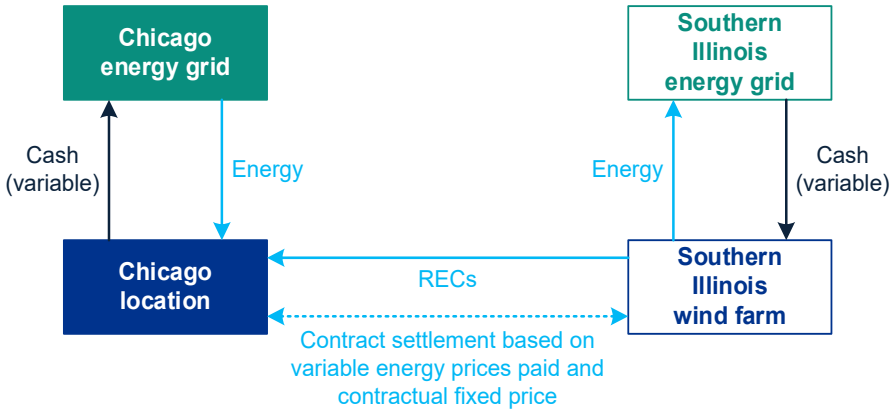
Hotel's Orlando location with a physical PPA in place

Hotel contracted with a third-party developer to build on-site solar panels in an arrangement that is not a lease. Hotel receives energy and the associated RECs from the solar panel generation. Per the PPA contract, Hotel pays the third-party developer a fixed price for the energy.



Hotel's Chicago location with a virtual PPA in place

The agreement is with a wind farm in southern Illinois that generates energy for a different grid than the one on which Hotel operates. Hotel pays the wind farm for each unit of generated energy. Hotel does not physically receive the associated energy, but it does receive the associated RECs.



Future developments**
GHGP update project

As part of the GHG's update project (see section 2A), in October 2025 the GHGP launched two public consultations, with comments due by January 31, 2026. They focus on two distinct but interrelated areas:

- updates to the Scope 2 Guidance; and
- electricity-sector 'consequential methods'.

Scope 2 Guidance

The proposed revisions retain the existing dual location- and market-based reporting concepts, but introduce significant changes that aim to enhance accuracy, transparency and scientific integrity across both.

The proposals would require more precise reporting of electricity use and emissions that would reflect when and where power is generated and consumed. This could require companies to adjust their energy procurement, and emissions accounting and reporting practices. In practical terms, energy attribute certificates purchased by entities to manage their market-based emissions may no longer qualify under these proposals and new types of certificates would need to become available. Read more in KPMG's article.

A second public consultation on scope 2 topics will follow in 2026, with final publication of the new standard expected in 2027.

Consequential electricity-sector emissions impacts

A subgroup of the Scope 2 Technical Working Group, comprising electricity-sector experts, is tasked with recommending how organizations can quantify and report GHG impacts from their electricity actions. This type of GHG accounting is referred to as 'consequential' or project accounting.

Consequential accounting estimates the impacts or changes to GHG emissions resulting from specific projects, actions or interventions. These effects are compared to a baseline scenario without the intervention. This type of assessment is particularly important in the electricity sector because it may help to identify projects that will have the greatest potential to reduce emissions.

This consultation includes materials that will inform the workstream on the Action and Market Instruments Standard that is under development. The GHGP is expected to release a public consultation on its proposals in 2027 with a final standard being released in 2028.

More information is available on the GHGP's website.

7B. IFRS Sustainability Disclosure Standards**

7B.1 Comparison to the GHGP**

IFRS S2 requires disclosure of absolute gross scope 2 emissions, measured using the Corporate Standard unless exemptions apply (see Question 2B.2.50).

Unlike the GHGP, IFRS 2 does not require the disclosure of market-based emissions and instead focuses on the disclosure of qualitative information about contractual instruments. See Questions 7B.2.10 and 7B.2.20.

In addition, although the Scope 2 Guidance was an amendment to the Corporate Standard, it was issued in 2015 and therefore is not part of the 2004 edition of the Corporate Standard that is leveraged by IFRS S2. Question 7B.2.30 discusses the implications.

7B.2 Select requirements of IFRS S2**

Question 7B.2.10**
What measures of scope 2 emissions are required?

Interpretive response: IFRS S2 requires entities to account for scope 2 emissions using the location-based method but does not leverage the Scope 2 Guidance (see Question 7B.2.20). [IFRS S2.29(a)(i)(2)]

In addition, entities need to provide information about any contractual instruments that are necessary to inform users' understanding of the entity's scope 2 emissions. The term 'contractual instruments' refers to any type of contract between an entity and another party that confirms the way in which an amount of sold or purchased energy has been generated (see section 7A.4). For example, Power Purchase Agreements (PPAs), Energy Attribute Certificates (EACs) and Guarantees of Origin. [IFRS S2.29(a)(v), B31]

Information about contractual instruments is required only if relevant arrangements are in place and the information could help inform users' understanding of the entity's scope 2 emissions. In our experience, such information could include the following. [IFRS S2.B30]

- **Instrument labels:** The specific certification and what is being certified – e.g. Green-e certificates against a set of named standards.
- **Energy generation facility features:** e.g. energy resource type, and facility location and age.

- **Policy context:** e.g. the existence of supplier quotas and cap and trade schemes that may be relevant.
- **Amount of energy:** The amount of energy within the reporting period the contractual instruments relate to.

Question 7B.2.20**
Are market-based emissions required?

Interpretive response: No. Market-based emissions are not required under IFRS S2. However, an entity is not precluded from disclosing market-based scope 2 emissions as part of the information presented about contractual instruments.

If an entity does disclose market-based scope 2 emissions:

- such disclosure is in addition to – not in place of – the required disclosures about contractual instruments (see Question 7B.2.10); and
- the measurement approach, inputs and relevant assumptions need to be disclosed in the same way as for other GHG emissions. [IFRS S2.29(a)(iii)(1)]

Question 7B.2.30**
Can entities use the GHGP Scope 2 measurement guidance?

Interpretive response: Yes. Although IFRS S2 does not refer to the GHGP Scope 2 guidance, we believe entities can use this guidance to measure scope 2 emissions. The Scope 2 Guidance provides useful clarifications for measuring location-based emissions (see section 7A), as well as market-based scope 2 emissions if an entity choose to disclose that information (see Question 7B.2.20).

However, if entities follow the Scope 2 Guidance, they still need to comply with all requirements in IFRS Sustainability Disclosure Standards and therefore those Standards take precedence when there is a conflict (see Question 2B.2.30).

In our experience, all entities will need to consider some aspects of the Scope 2 Guidance. This is because IFRS S2 requires 'location-based' scope 2 emissions disclosure, which is terminology only introduced in the Scope 2 Guidance. The Scope 2 Guidance defines and provides more clarity about the location-based methodology in addition to introducing market-based emissions.

For example, the Corporate Standard states that scope 2 emissions are calculated using supplier-specific, local grid or other published emission factors. It was the Scope 2 Guidance that amended the Corporate Standard (see

Question 2A.3.20) and introduced supplier-specific emission factors as part of the market-based emission factor hierarchy and local grid factors as part of the location-based emission factor hierarchy.

8. Scope 3 emissions

Detailed contents

New item added in this edition **

Forthcoming requirements

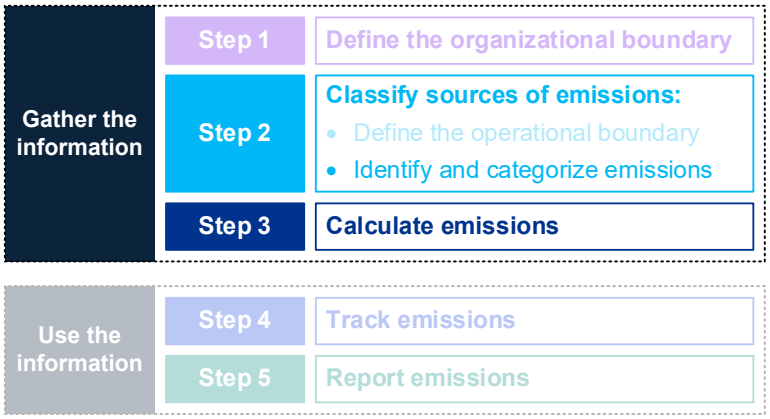
Category 15 disclosures **

GICS classification system **

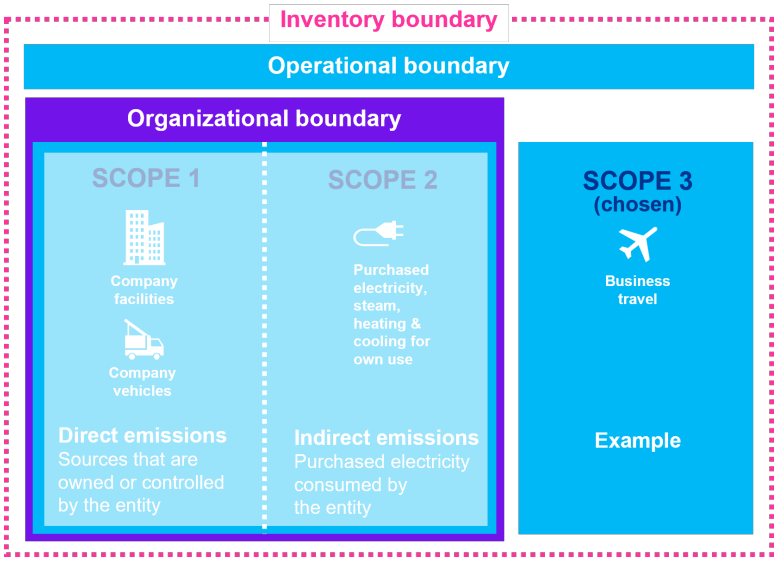
8A. GHG Protocol

8A.1 How the Protocol works

This chapter is structured similarly to chapters 6 and 7 (scopes 1 and 2 emissions). Having provided an overview of how emissions are calculated in chapter 5, this chapter looks more closely at scope 3 emissions and the 15 categories: what they are in the context of identifying and categorizing emissions (part of Step 2) and calculating emissions (Step 3).



Unlike scopes 1 and 2, scope 3 emissions occur outside the organizational boundary. They are indirect emissions that are part of an entity's upstream or downstream value chain. In addition, they are not required to be reported if an entity is following the Corporate Standard alone. Instead, an entity can elect to report one or more categories within scope 3 – e.g. business travel.



Many entities that are required (or elect) to report relevant scope 3 emissions comply with the Scope 3 Standard in addition to the Corporate Standard.

8A.2 Identifying and measuring scope 3 emissions

Question 8A.2.10
What are scope 3 emissions?

Interpretive response: An entity's scope 3 emissions include all emissions up or down its value chain that are not already included in scopes 1 and 2 as part of the organizational boundary.

Scope 3 emissions often represent the majority of an entity's total GHG emissions. Increasingly, stakeholders are directing more pressure on entities to account for GHG emissions in their value chains and portfolios to manage and identify climate-related risks and opportunities.

The following table is a list of the 15 scope 3 categories, each of which is discussed in this chapter. [GHGP-S3.32]

Upstream	Downstream
1. Purchased goods and services 2. Capital goods 3. Fuel- and energy-related activities (not included in scope 1 or 2) 4. Upstream transportation and distribution 5. Waste generated in operations 6. Business travel 7. Employee commuting 8. Upstream leased assets	9. Downstream transportation and distribution 10. Processing of sold products 11. Use of sold products 12. End-of-life treatment of sold products 13. Downstream leased assets 14. Franchises 15. Investments

Question 8A.2.15**
What is the minimum boundary for scope 3 emissions?

Interpretive response: Within each scope 3 category, certain types of emissions are required, whereas other types of emissions are optional; for example, emissions related to employee commuting (category 7) may exclude emissions related to employees working from home (see section 8A.9). The required emission types comprise the minimum boundary for reporting under the Scope 3 Standard.

The minimum boundary was introduced to ensure that major activities – judged at the time the Corporate Standard was introduced (see Question 2A.3.20) – are included in the scope 3 inventory. It also aims to help companies understand the

limits of what needs to be disclosed – e.g. highlighting when disclosure can be limited to the scope 1 and 2 emissions of value chain partners, or when full life cycle emissions are required. [GHGP-S3.31-32]

Scope 3 categories may be excluded to the extent they are not relevant or significant to the GHG inventory. In that case, an entity discloses the justification for the exclusion. However, omitting a significant scope 3 category precludes a basis of presentation that is in accordance with the Scope 3 Standard, regardless of the underlying rationale. [GHGP-S3.60]

- IFRS S2 does not differentiate between mandatory and optional types of scope 3 emissions. An entity uses judgment to determine what to include within its scope 3 emissions. See Question 8B.2.20.

Question 8A.2.20
Are leased assets included in scope 3 emissions?

Interpretive response: The inclusion in scope 3 of emissions from leased assets (as a lessor or a lessee) depends on the approach chosen for an entity's organizational boundary (see Questions 4A.3.20 and 4A.3.30). To the extent such emissions are included in scope 3, they will be in either:

- category 8 (upstream leased assets) – see section 8A.10; or
- category 13 (downstream leased assets) – see section 8A.15.

Question 8A.2.30
What periods of activity data are used to calculate scope 3 emissions?

Interpretive response: An entity's scope 3 emissions for a reporting year are based on the activity of the entity occurring in that reporting year. [GHGP-S3.32]

For some scope 3 activities, emissions related to the entity's activity will occur in the same year as the entity's reporting year. However, for some activities, emissions related to the entity's activity in the current year may have occurred in the past (e.g. when a purchased product was manufactured) or will occur in the future (e.g. when a customer uses a sold product). [GHGP-S3.32]

These past and/or future year emissions are included in the entity's scope 3 emissions in the reporting year in which the entity's activity occurs – e.g. when it purchases a product. [GHGP-S3.32]

The following table shows each scope 3 category and the years in which emissions occur even though they will be measured in the entity's reporting year. [GHGP-S3.33]

Scope 3 category	Past years	Reporting year	Future years
1. Purchased goods & services			
2. Capital goods			
3. Fuel- and energy-related activities			
4. Upstream transportation & distribution			
5. Waste generated in operations			
6. Business travel			
7. Employee commuting			
8. Upstream leased assets			
9. Downstream transportation & distribution			
10. Processing of sold products			
11. Use of sold products			
12. End of life treatment of sold products			
13. Downstream leased assets			
14. Franchises			
15. Investments			

- See Question 8B.3.70 for further discussion on periods of activity under IFRS S2.

Example 8A.2.10
Scope 3 time boundaries

The following examples illustrate two scenarios where the past and/or future year emissions are included in the entity's scope 3 emissions in the reporting year in which the entity's activity occurs.

Scenario 1: Past years' emissions

Retailer purchases aged whiskey from Supplier, with whiskey production taking approximately 12 years.

Retailer accounts for all emissions associated with the production of the whiskey (from all 12 years of production) as scope 3 emissions in the reporting year in which it purchases the whiskey.

Scenario 2: Future years' emissions

Building Manager sends 85% of the waste from operations to the landfill. The waste sent to the landfill during the reporting year may slowly release CO_2 from degradation of the waste over 10 years.

Building Manager accounts for all expected future emissions (for the next 10 years) associated with the waste sent to the landfill as scope 3 emissions in the reporting year in which the waste is sent to the landfill.

Question 8A.2.40
What activity data supports scope 3 emissions?

Interpretive response: There are two types of data that an entity can use to calculate scope 3 emissions.

- **Primary data** may be provided directly from suppliers or other value chain partners and include specific activity-related data or actual emissions. It can be costly to obtain and difficult to verify the quality of data provided by a supplier. [GHGP-S3.71]
- **Secondary data** is general data that's available, such as industry-average data. This type of data is used to estimate scope 3 emissions when primary data is unavailable. The disadvantage is that it may lack accuracy as to the specific activities of the entity. [GHGP-S3.71]

An entity will likely use a combination of primary and secondary data to calculate scope 3 emissions. Data selection is heavily dependent on the entity's business goals – e.g. primary data may be most useful for tracking performance against GHG reduction goals, while secondary data may be most useful for identifying emissions hot spots. [GHGP-S3.74-75]

Other instances in which secondary data may be used include activities: [GHGP-S3.75]

- that are not prioritized based on initial estimation methods – e.g. activities expected to be insignificant in size, activities over which the entity has little influence, activities with minimal financial significance;
- for which primary data is not available – e.g. supplier is unable to provide data; or
- for which the quality of secondary data is higher than primary data – e.g. supplier is unable to provide data of sufficient quality.

Available data likely has varying levels of detail and granularity. The Scope 3 Standard encourages collecting data from suppliers that is as specific as possible to the product or service purchased. The standard outlines a data hierarchy ranked in order of specificity (see excerpt below). [GHGP-S3.79]

Data not collected at product-level specificity may require an allocation of emissions. Regardless, the data collection process for calculating scope 3 emissions will likely need reviewed each reporting period in an effort to improve data quality over time; this is acknowledged in the Scope 3 Standard. [GHGP-S3.65, 79]

- IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions. See section 8B.3.

Excerpt from Scope 3 Standard [p 80]

Levels of data (ranked in order of specificity)

Data type	Description
Product-level data	Cradle-to-gate[1] GHG emissions for the product of interest
Activity-, process- or production line-level data	GHG emissions and/or activity data for the activities, processes, or production lines that produce the product of interest
Facility-level data	GHG emissions and/or activity data for the facilities or operations that produce the product of interest
Business unit-level data	GHG emissions and/or activity data for the business units that produce the product of interest
Corporate-level data	GHG emissions and/or activity data for the entire corporation

1 Cradle-to-gate GHG emissions include all emissions that occur in the life cycle of purchased products, up to the point of receipt by the reporting company (excluding emissions from sources that are owned or controlled by the reporting company. [GHGP-S3.85]

Example 8A.2.20
Primary and secondary data

The following examples illustrate two scenarios where either primary or secondary data may be better suited to the activity type.

Scenario 1: Primary data

An airline provider includes in a booking confirmation the expected tCO_2e for an individual for a purchased flight based on the size of aircraft and distance. This is primary data because it is provided directly from the supplier.

Scenario 2: Secondary data

A car manufacturer purchases steel from various suppliers, none of which have available data associated with steel production emissions. The manufacturer estimates purchased steel emissions by applying an industry-average emission

factor to the amount of steel purchased. This is secondary data because it is not provided directly from the supplier.

Question 8A.2.50
What emission factors are used for scope 3?

Interpretive response: Scope 3 emissions include a wide range of activities and therefore an inventory preparer can expect a wide range of applicable emission factors. The following table adapted from the Scope 3 Standard provides some examples. [GHGP-S3.68]

Activity data	Emission factor
Liters of fuel consumed	kgCO_2e per liter of fuel consumed
Kilowatt-hours of electricity consumed	kgCO_2e per kWh of electricity consumed
Hours of time operated	kgCO_2e per hour of time operated
Kilogram of product sold	kgCO_2e per kg of product sold
Quantity of money spent	kgCO_2e per unit of currency spent

Throughout this chapter, we provide various illustrative examples. For simplicity, we have used emission factors that portray tCO_2e per unit of activity – e.g. tCO_2e per mile, tCO_2e per tonne of product. Therefore, these illustrative examples do not demonstrate the unit conversion calculation (e.g. converting pounds to tonnes; see Question 5A.2.20) or the GWP conversion calculation (e.g. converting CH_4 to CO_2e; see Question 2A.3.50).

The GHGP Scope 3 Calculation Guidance includes further details on the types of emission factors available. For example, life cycle emission factors or cradle-to-gate emission factors are used for calculating emissions associated with a material or product, while life cycle emission factors or combustion emission factors are used for calculating emissions associated with energy. [GHGP-S3C.14]

A detailed discussion of these emission factors is outside the scope of this handbook, but it should be emphasized that a key component of emission factors used in the scope 3 calculation is that they often have a life cycle or 'cradle-to-gate' component. Questions 8A.2.30 and 8A.2.40 discuss how past year and future year emissions are incorporated into the scope 3 calculation.

♦ IFRS S2 has alternative guidance on selecting emission factors. See Question 5B.2.30.

Question 8A.2.60
What are environmentally-extended input output (EEIO) models?

Interpretive response: As defined by the Scope 3 Standard, EEIO models estimate energy use and/or GHG emissions from production and upstream supply activities of different sectors and products. These models are typically based on the allocation of national GHG emissions to groups of finished products. [GHGP-S3.66]

The result of applying such a model is an EEIO emission factor that can be used by an entity to calculate an estimate of scope 3 emissions for an industry or product. [GHGP-S3.66]

When using an EEIO emission factor, the spend data may need to be converted to the currency of the emission factor (e.g. from Euros to USD) and adjusted to account for inflation impacts since the development of the EEIO emission factor. This is because the EEIO emission factor quantification is done using the hindsight of actual emissions information within a defined time period for both the industry emission information and economic measures (e.g. revenue). In our experience, the process to gather the data to develop the emission factors can be time consuming. [GHGP-S3C.17]

Example 8A.2.30
Applying the EEIO method

Hotel purchases $50,000 of bespoke furniture for its guest rooms in 2025. The emissions associated with production of the furniture are included in scope 3-category 2.

Hotel uses a software tool with emission factor data based on 2018 information (i.e. 2018 emissions per US$ spend), which is the latest available dataset. The 2018 emission factor for the furniture was 0.06 tCO_2e /US$. Cumulative inflation between 2018 and 2025 is 15%.

To make the application of the emission factor from 2018 stated on the same basis, Hotel adjusts the market value of the 2025 spend activity data from 2025 US$ to 2018 US$ as follows:

2025 spend	Cumulative inflation since 2018	2025 spend adjusted to 2018 value	Emissions of furniture
$50,000	15%	50,000 × (1/(1 + 0.15)) = $43,500	(43,500 × 0.06) = 2,610 tCO_2e

Question 8A.2.70**
What is ‘scope 3 of scope 3’?

Interpretive response: An entity’s scope 3 emissions include the direct scope 1 or indirect scope 2 emissions of another entity. However, in some instances it is also relevant to include the indirect scope 3 emissions of the other entity. These emissions are often referred to as ‘scope 3 of scope 3’.

For example, an entity may include the following in its scope 3-category 4 emissions (see section 8A.6):

- scope 1 and scope 2 emissions of upstream transportation and distribution; plus
- life cycle emissions associated with the vehicles that are being used for the provision of transportation and distribution – part of ‘scope 3 of scope 3’.

The term is most commonly used in relation to category 15 investments (see section 8A.17).

Future developments**
GHGP update project

As part of the GHG’s update project (see section 2A), the Scope 3 Standard is undergoing a holistic review and update, including the following:

- tightening the optional components of scope 3 categories (see Question 8A.2.15);
- providing stricter requirements related to data sources, assumptions and uncertainty ranges;
- introducing greater integration of scope 3-category 15 with the PCAF methodology (see Question 8A.17.30); and
- clarifying that scope 3 emissions should be reported gross of credits, which should be disclosed separately (see Question 10A.3.50).

The GHGP is expected to release a public consultation on its scope 3 proposals in 2026 with a final standard being released in 2027. More information is available in the GHGP’s document repository related to standards development.

8A.3 Category 1: Purchased goods and services

Question 8A.3.10
What are purchased goods and services emissions (category 1)?

Interpretive response: Scope 3-category 1 accounts for emissions related to the production of products (both goods and services) purchased or acquired by the entity during the reporting year. [GHGP-S3.38]

The category includes all upstream emissions (cradle-to-gate) of a product up to the point of purchase by an entity (see Question 8A.2.30). [GHGP-S3.38]

Emissions can be differentiated between purchases of production-related products (e.g. materials, components) and non-production-related products (e.g. office furniture, office supplies, IT support). [GHGP-S3.38]

The following table identifies emissions that may be related to purchased products, but which are not included in scope 3-category 1.

Emissions source	Classification	Reference
Use of purchased goods by the entity	Scope 1 or 2	Chapters 6 and 7
Purchased capital goods	Scope 3-category 2 (purchased capital goods)	Section 8A.4
Transportation and distribution of purchased goods	Scope 3-category 4 (upstream transportation and distribution)	Section 8A.6

Question 8A.3.20
How are purchased goods and services emissions calculated?

Interpretive response: There are four methods used to calculate scope 3 emissions from purchased goods and services. [GHGP-S3C.21]

Calculation method	Description
Supplier-specific	Product-level cradle-to-gate data
Hybrid	Supplier-specific data and secondary data to fill gaps
Average-data	Mass (or other unit) × emission factor
Spend-based	Cost × emission factor

A single method or a combination of methods can be used to calculate emissions. [GHGP-S3C.13]

Data availability will likely determine which methods are most appropriate. See Question 8A.2.40.

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

Example 8A.3.10
Calculating purchased goods and services emissions using the supplier-specific method

Hotel decides to repaint the walls of its lobby as part of an ongoing renovation. The emissions associated with the production of the purchased paint are included in scope 3-category 1.

Using the supplier-specific method, the formula to calculate emissions associated with purchased goods and services during the reporting period is:

Activity data: Σ (quantities of goods purchased)
×
Supplier-specific product emission factor of purchased good or service

To perform this calculation, Hotel gathers the following information.

Type	Source	Data	Unit
Activity data	Purchased paint	50	tonnes
Supplier emission factor	Direct from supplier	0.1	tCO_2e per tonne

Based on this data, emissions are calculated as:

Activity data × Emission factor = tCO_2e
50 tonnes × 0.1 tCO_2e per tonne = **5 tCO_2e**

Example 8A.3.20**
Using a combination of methodologies to report complete categories

Hotel performs an analysis of its purchased goods and services so that it can start collecting relevant information to calculate its category 1 emissions.

It finds that 90% of purchases relate to food ingredients that are used in the preparation of meals and sold at restaurants across its hotel chain. The

remaining 10% of purchases relate to a large number of smaller transactions spread across a large number of suppliers.

Based on its research, Hotel anticipates that the food ingredients will represent the majority of its scope 3-category 1 emissions. Over several reporting periods, it works with suppliers to develop supplier-specific emission factors that it uses in conjunction with the weights of ingredients purchased to calculate emissions.

Hotel believes that the remaining 10% of purchases will represent a small proportion of emissions. However, in the absence of a calculated or estimated value, Hotel is unable to conclude on this.

Because of the large range of suppliers that contribute to the estimated 10% of purchases, Hotel categorizes the remaining spend value into different groups and obtains secondary data emission factors to calculate emissions using the spend-based method.

8A.4 Category 2: Capital goods

Question 8A.4.10
What are capital goods emissions (category 2)?

Interpretive response: Scope 3-category 2 accounts for emissions related to the production of capital goods purchased or acquired during the reporting year. Capital goods are likely used to manufacture a product, provide a service, or sell, store and deliver merchandise. [GHGP-S3.39]

The category includes all upstream emissions (cradle-to-gate) of a capital good up to the point of purchase by an entity (see Question 8A.2.30). [GHGP-S3.39]

Assets that are typically depreciated or amortized in financial accounting, such as fixed assets or plant, property and equipment, are examples of capital goods. [GHGP-S3.39]

Purchased goods that are not identified as capital goods are included in only category 1 to avoid double counting.

The following table identifies emissions that may be related to capital goods, but which are not included in scope 3-category 2.

Emissions source	Classification	Reference
Use of capital goods	Scope 1 or 2	Chapters 6 and 7
Purchased goods (that are not capital goods)	Scope 3-category 1 (purchased goods and services)	Section 8A.3

Example 8A.4.10
Identifying capital goods emissions

Hotel purchases new king-sized mattresses for deluxe rooms, which it capitalizes and will depreciate over five years for financial reporting purposes.

The production of each mattress is performed in a single factory and includes materials such as cotton, steel coils, plastic and foam. Hotel includes in scope 3-category 2 the emissions associated with factory production and the life cycle emissions of each material used in production.

Question 8A.4.20
How are capital goods emissions calculated?

Interpretive response: The calculation methods for scope 3-category 2 are consistent with category 1. See Question 8A.3.20.

8A.5 Category 3: Fuel- and energy-related activities

Question 8A.5.10
What are fuel- and energy-related activities emissions (category 3)?

Interpretive response: Scope 3-category 3 accounts for emissions related to the production of fuels and energy purchased and consumed during the reporting year, which are not included in scopes 1 or 2. [GHGP-S3.41]

The category includes all upstream emissions (cradle-to-gate) related to activities up to the point of purchase by an entity (see Question 8A.2.30). [GHGP-S3.41]

There are typically three activities that end users of fuel and purchased electricity may need to consider. [GHGP-S3.41]

- **Upstream emissions of purchased fuels.** Extraction, production and transportation of fuels consumed by the entity.
- **Upstream emissions of purchased electricity.** Extraction, production and transportation of fuels consumed in the generation of electricity, steam, heating and cooling that is consumed by the entity.
- **Transmission and distribution (T&D) losses.** Generation of electricity, steam, heating and cooling that is lost in a T&D system.

Note: Electricity generated by a power station will not match the energy distributed to consumers because of energy losses in a distribution network resulting from a variety of possible factors – e.g. long distribution lines, deficient network infrastructure. Category 3 includes emissions associated with the loss.

A fourth activity included in category 3, but generally only applicable to utility companies and energy retailers, is the generation of purchased electricity that is subsequently sold to end users. [GHGP-S3.41]

Example 8A.5.10
Identifying fuel- and energy-related activities emissions

The following example illustrates three scenarios of activities that are included in scope 3-category 3.

Scenario 1: Upstream emissions of purchased fuels

Hotel purchases gasoline for consumption in an owned and operated shuttle bus between Hotel and Airport.

- The combustion of the gasoline is included in scope 1 (see section 6A.2).
- The emissions from extraction, production and transportation of the purchased gasoline, supplied by Oil, are included in scope 3-category 3.

Scenario 2: Upstream emissions of purchased electricity

Hotel purchases electricity from an energy grid, which is heavily reliant on coal as an energy source.

- The emissions from burning the coal that generates the purchased electricity are included in scope 2 (see section 7A.2).
- The emissions from mining the coal used in the energy grid are included in scope 3-category 3.

Scenario 3: Transmission and distribution (T&D) losses

Hotel, which is in a remote rural location, purchases electricity from an energy grid. Due to lengthy distribution lines, 4% of energy generated by the power station is lost before reaching consumers.

The emissions from the generation of energy by the power station that are lost (T&D losses) are included in scope 3-category 3.

Note: Example 7A.2.10 illustrates a single set of transactions between a power generator, utility and end consumer, and how the GHG emissions (including T&D losses) are classified between scopes 1, 2 and 3.

Question 8A.5.20
How are fuel- and energy-related activities emissions calculated?

Interpretive response: There are two methods used to calculate scope 3 emissions from fuel- and energy-related activities. [GHGP-S3C.40]

Calculation method	Description
Supplier-specific	Data from energy providers
Average-data	Estimation using secondary data

Each of the three activities (see Question 8A.5.10) has a calculation methodology, as detailed in the GHGP Scope 3 Calculation Guidance, which is outside the scope of this handbook.

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

8A.6 Category 4: Upstream transportation and distribution

Question 8A.6.10
What are upstream transportation and distribution emissions (category 4)?

Interpretive response: Scope 3-category 4 accounts for emissions related to the transportation and distribution of products purchased in the reporting year in vehicles not owned or operated by the entity. The category also includes third-party transportation and distribution services (inbound, outbound and between facilities) purchased by the entity. [GHGP-S3.44]

Emission sources may include air, rail, road and marine transport. Emissions from the storage of purchased products in warehouses, distribution centers and retail facilities can also be a source. [GHGP-S3.44]

The category relates to transportation and distribution with Tier 1 suppliers. Emissions associated with Tier 2 suppliers are included in category 1 (purchased goods and services; see section 8A.3). [GHGP-S3.44]

The following table defines Tier 1 and Tier 2 suppliers. [GHGP-S3.57]

Supplier classification	Description
Tier 1	Entity has a direct purchase order for goods and services

Supplier classification	Description
Tier 2	Tier 1 supplier has a purchase order for goods and services

The following table identifies emissions that may be related to transportation and distribution emissions.

Emissions source	Classification	Reference
Transportation and distribution in vehicles owned or controlled by the entity	Scope 1 or 2	Chapters 6 and 7
Transportation and distribution between Tier 1 and Tier 2 suppliers	Scope 3-category 1 (purchased goods and services)	Section 8A.3
Transportation of fuels and energy consumed	Scope 3-category 3 (fuel- and energy-related emissions not included in scope 1 or 2)	Section 8A.5
Transportation and distribution between Tier 1 supplier and entity	Scope 3-category 4 (upstream transportation and distribution)	This section
Transportation and distribution in vehicles leased by the entity	Scope 3-category 8 (upstream leased assets) or scope 1 or 2	Question 8A.2.20
Transportation and distribution of sold products	Scope 3-category 9 (downstream transportation and distribution)	Section 8A.11

Question 8A.6.20

How are upstream transportation and distribution emissions calculated?

Interpretive response: There are three methods used to calculate scope 3 emissions from upstream transportation and distribution. [GHGP-S3C.51]

Calculation method	Formula
Fuel-based	Fuel consumed × Emission factor
Distance-based	Distance × Emission factor
Spend-based	Cost × Emission factor

A single method or a combination of methods can be used to calculate emissions. [GHGP-S3C.13]

Data availability will likely determine which methods are most appropriate. See Question 8A.2.40.

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

8A.7 Category 5: Waste generated in operations

Question 8A.7.10
What are waste generated in operations emissions (category 5)?

Interpretive response: Scope 3-category 5 accounts for emissions related to third-party disposal and treatment of waste generated from operations in the reporting year. Emissions sources may include landfill disposal, incineration and composting or wastewater treatment. It also includes the transportation of waste in third-party vehicles. [GHGP-S3.44]

The category includes all downstream future emissions of waste sent to the landfill during the reporting year (see Question 8A.2.30). [GHGP-S3.44]

Example 8A.7.10
Identifying waste generated in operations emissions

Property Manager has a service agreement with a waste management entity, which collects accumulated tenant waste from properties on a weekly basis. All waste is sent to the landfill for disposal.

Property Manager includes the emissions associated with the future emissions of waste sent to the landfill during the reporting year in scope 3-category 5.

Question 8A.7.20
How are waste generated in operations emissions calculated?

Interpretive response: There are three methods to calculate scope 3 emissions from waste generated in operations. [GHGP-S3C.73]

Calculation method	Formula
Supplier-specific	Collect waste-specific emission data directly from waste treatment provided
Waste-type-specific	Waste type × Emission factor
Average-data	Total waste per treatment method × Average emission factor

A single method or a combination of methods can be used to calculate emissions. [GHGP-S3C.13]

Data availability will likely determine which methods are most appropriate. See Question 8A.2.40.

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

Example 8A.7.20
Calculating waste generated in operations emissions using the waste-type-specific method

Hotel generates three broad categories of waste: plastic, general waste and paper. Plastic is recycled, generate waste is sent to landfill and paper is incinerated.

Hotel includes in scope 3-category 5 the emissions related to the disposal of these waste categories.

Using the waste-type-specific method, the formula to calculate emissions associated with waste generated in operations during the reporting period is:

Activity data: Σ (waste produced (tonnes or m^3))
×
Waste type and waste treatment specific emission factor (kg CO_2e/tonne or m^3)

To perform this calculation, Hotel gathers the following information.

Waste type	Waste treatment	Data	Source	Data	Unit
Plastic	Recycled	Activity data	Waste Hauler Report	750	Tonnes
		Emission factor	National Emission Factor Report	0.2	tCO_2e / tonne
General waste	Landfill	Activity data	Waste Hauler Report	2,500	Tonnes
		Emission factor	National Emission Factor Report	1.5	tCO_2e / tonne

Waste type	Waste treatment	Data	Source	Data	Unit
Office and mixed paper	Incinerated	Activity data	Waste Hauler Report	20	Tonnes
		Emission factor	National Emission Factor Report	0.4	tCO_2e / tonne

Based on this data, emissions are calculated as:

Activity data × Emission factor = tCO_2e
(750 × 0.2) + (2,500 × 1.5) + (20 × 0.4) = **3,908 tCO_2e**

8A.8 Category 6: Business travel

Question 8A.8.10
What are business travel emissions (category 6)?

Interpretive response: Scope 3-category 6 accounts for emissions related to the transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the entity). Emissions sources may include air, rail, bus, automobiles and hotels. [GHGP-S3.46]

The inclusion in category 6 of emissions from business travelers staying in hotels is optional. These are emissions related to the operations of a hotel during a stay, allocated to an individual or room (based on its size). [GHGP-S3.46]

The following table identifies emissions that may be related to business travel, but which are not included in scope 3-category 6.

Emissions source	Classification	Reference
Entity-owned vehicles	Scope 1 or 2	Chapters 6 and 7
Transportation of employees to and from work	Scope 3-category 7 (employee commuting)	Section 8A.9
Leased vehicles	Scope 3-category 8 (upstream leased assets)	Question 8A.2.20

Question 8A.8.20
How are business travel emissions calculated?

Interpretive response: There are three methods used to calculate scope 3 emissions from business travel. [GHGP-S3C.82]

Calculation method	Formula
Fuel-based	Fuel consumed × Emission factor
Distance-based	Distance × Emission factor
Spend-based	Cost × Secondary (EEIO) emission factor

A single method or a combination of methods can be used to calculate emissions. [GHGP-S3C.13]

Data availability will likely determine which methods are most appropriate and for that reason, the distance-based calculation method is generally the most common. See Question 8A.2.40.

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

Example 8A.8.10
Calculating business travel emissions using the distance-based method

Hotel's executive and corporate events teams, among others, regularly travel for work purposes. Hotel includes the associated emissions in scope 3-category 6.

Using the distance-based method, the formula to calculate emissions associated with business travel during the reporting period is:

Activity data: Σ (distance traveled by vehicle type (vehicle-km or passenger-km))
×
Vehicle-specific emission factor (kg CO_2e/vehicle-km or kg CO_2e/passenger-km)

To perform this calculation, Hotel gathers the following information.

Type	Source	Data	Unit
Activity data	Travel records	3,245,000	miles
Emission factor	National Emission Factor Report	0.000088	tCO_2e per mile

Based on this data, emissions are calculated as:

Activity data × Emission factor = tCO_2e
3,245,000 miles × 0.000088 tCO_2e per mile = **286 tCO_2e**

8A.9 Category 7: Employee commuting

Question 8A.9.10
What are employee commuting emissions (category 7)?

Interpretive response: Scope 3-category 7 accounts for emissions related to the transportation of employees between their homes and worksites. Emissions sources may include air, rail, bus, automobiles and remote working – e.g. employee electricity consumption at their personal residence. [GHGP-S3.46]

This category can optionally include (i.e. they are not required) the following: [GHGP-S3.57]

- employees of other relevant entities that are outside the organizational boundary – e.g. franchises, outsourced operations; and
- consultants, contractors and other individuals who are not employed by the entity but who commute to facilities owned and operated by the entity.

Example 8A.9.10
Identifying employee commuting emissions

The following example illustrates two scenarios of activities that are included in scope 3-category 7.

Scenario 1: Work commute

Hotel's employees commute via local bus service to the office four days a week. The emissions associated with the bus are included in scope 3-category 7.

Scenario 2: Remote work (optional reporting)

Hotel's employees work remotely three days a week. The additional activities resulting from remote work (e.g. heating or air conditioning during the day) are included in scope 3-category 7. However, activities that would occur regardless of an employee working remotely (e.g. refrigeration energy) are not included.

Question 8A.9.20
How are employee commuting emissions calculated?

Interpretive response: There are three methods used to calculate scope 3 emissions from employee commuting. [GHGP-S3C.87]

Calculation method	Formula
Fuel-based	Fuel consumed × Emission factor
Distance-based	Distance × Emission factor
Average-data	Average data on commuting patterns

A single method or a combination of methods can be used to calculate emissions. [GHGP-S3C.13]

Data availability will likely determine which methods are most appropriate (see Question 8A.2.40). Because of the availability of national data on employee commuting patterns in many countries, in our experience the average-data method is common.

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

Example 8A.9.20
Calculating employee commuting emissions using the average-data method

Hotel has 150 employees that commute from their homes to the worksites using personal modes of transport. Hotel includes in scope 3-category 7 the emissions associated with these commutes.

Using the average-data method, the formula to calculate emissions associated with employee commuting during the reporting period is:

Activity data: Σ (total number of employees × % of employees using mode of transport)
×
Round-trip commuting distance (vehicle-m or passenger-m) × working days per year × emission factor of transport mode (kg CO_2e/vehicle-m or kg CO_2e/passenger-m)

To perform this calculation, Hotel gathers the following information.

Type	Source	Data	Unit
Activity data	Headcount	150	Employees
	Regional statistics (average commuting distance round trip)	57	miles

Type	Source	Data	Unit
	Calendar (working days per year, inclusive of holidays and personal days)	230	days
Emission factor	National Emission Factor Report (gasoline car)	0.00021	tCO_2e/m

Based on this data, emissions are calculated as:

Activity data × Emission factor = tCO_2e
(150 employees × 100% × 57 miles × 230) x 0.00021 = **310 tCO_2e**

Question 8A.9.30
Can teleworking emissions be included in category 7?

Interpretive response: Yes. GHGP offers an optional measurement technique for employee teleworking (i.e. work from home or remote work). The suggested method uses an estimated quantity of energy consumed by the employee and the relevant emission factor for the energy source. [GHGP-S3C.8]

8A.10 Category 8: Upstream leased assets

Question 8A.10.10
What are upstream leased asset emissions (category 8)?

Interpretive response: Scope 3-category 8 accounts for emissions that are leased by the entity in the reporting year and not already included in scopes 1 and 2. This category applies to lessees only. [GHGP-S3.47]

The inclusion in scope 3 of emissions from leased assets depends on the approach chosen for an entity's organizational boundary (see Question 4A.3.20). [GHGP-S3.47]

8A.11 Category 9: Downstream transportation and distribution

Question 8A.11.10
What are downstream transportation and distribution emissions (category 9)?

Interpretive response: Scope 3-category 9 accounts for emissions related to transportation and distribution of sold products in the reporting year. This category also includes future emissions from retail and storage (see Question 8A.2.30). [GHGP-S3.47]

Example 8A.11.10
Identifying downstream transportation and distribution emissions

Paper manufactures office paper that is sold at office supply retailers. The office paper is transported from Paper to Retailer using a third-party transportation service. The emissions associated with the transportation and distribution of the paper are accounted for differently depending on whether Paper pays for the transportation.

The following table, adapted from the Scope 3 Calculation Guidance, illustrates how Paper accounts for the scope 3 emissions from the transportation and distribution of sold products. [GHGP-S3C.103]

Scenario	Transportation	Retailer
Paper does not pay for transportation	Scope 3-category 9 (*upstream* transportation and distribution)	Scope 3-category 9 (*upstream* transportation and distribution)
Paper does pay for transportation	Scope 3-category 4 (*downstream* transportation and distribution)	Scope 3-category 9 (*upstream* transportation and distribution)

Question 8A.11.20
How are downstream transportation and distribution emissions calculated?

The calculation methods for category 9 are consistent with category 4. See Question 8A.6.20.

8A.12 Category 10: Processing of sold products

Question 8A.12.10
What are processing of sold products emissions (category 10)?

Interpretive response: Scope 3-category 10 accounts for emissions related to the processing of sold products that require further processing or inclusion in another product once sold before use by the end consumer. [GHGP-S3.47]

The GHGP acknowledges that an entity may sell products to many intermediary third parties, and is therefore unable to estimate emissions associated with processing prior to end use. [GHGP-S3.47]

In such cases, an entity may disclose and justify its exclusion of reporting category 10. [GHGP-S3.60]

Question 8A.12.20
How are processing of sold products emissions calculated?

Interpretive response: There are two methods used to calculate scope 3 emissions from processing of sold products. [GHGP-S3C.107]

Calculation method	Description
Site-specific method	Third-party processing emissions data
Average-data method	Estimation based on secondary data – e.g. average emissions per product

A single method or a combination of methods can be used to calculate emissions. [GHGP-S3C.13]

Data availability will likely determine which methods are most appropriate. See Question 8A.2.40.

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

Example 8A.12.10
Identifying and calculating processing of sold products emissions using the average-data method

Timber sells wood to a bed manufacturer, where the wood is processed to build a bed that is sold to end consumers. Timber obtains from the manufacturer an average emission factor for the production of a bed. Timber includes the emissions associated with the manufacturing and packaging of a bed in scope 3-category 10.

Using the average-data method, the formula to calculate emissions associated with processing of sold products during the reporting period is:

Sum across all intermediate products:

Activity data: Σ (mass of sold intermediate product (kg))
×
Emission factor of processing of sold products (kg CO_2e/kg of final product)

To perform this calculation, Timber gathers the following information.

Type	Source	Data	Unit
Activity data	Manufacturer	450	tonnes
Emission factor	National Emission Factor Report	1.3	tCO_2e / t

Based on this data, emissions are calculated as:

Activity data × Emission factor = tCO_2e
450 tonnes × 1.3 tCO_2e/t = **585 tCO_2e**

8A.13 Category 11: Use of sold products

Question 8A.13.10
What are use of sold products emissions (category 11)?

Interpretive response: Scope 3-category 11 accounts for emissions related to the use of goods and services sold (to end users including consumers and business customers) by the entity in the reporting year. End users include both consumers and business customers that use final products. This includes all lifetime emissions following the point of sale of a product (see Question 8A.2.30). [GHGP-S3.48]

There are two types of emissions from the use of sold products: [GHGP-S3.48]

- **direct use-phase emissions** – e.g. emissions of expected fuel use in the lifetime of planes a manufacturer sells to airline providers; and
- **indirect use-phase emissions** – e.g. emissions associated with energy required for washing and drying clothing a manufacturer sells to consumers.

Entities are required to include direct use-phase emissions in category 11, but the inclusion of indirect use-phase is optional. In addition, it is optional to include emissions associated with the maintenance of sold products during use. [GHGP-S3.48]

Question 8A.13.20
How are use of sold products emissions calculated?

Interpretive response: There are three direct use-phase subcategories under which a sold product may fall. [GHGP-S3C.114]

Subcategory	Examples
Products that directly consume energy	Cars, washing machines, televisions
Fuels and feedstock	Crude oil, coal, biofuels
GHG and products that contain or form GHG that are emitted during use	HVAC, refrigerators, fire extinguishers

To calculate optional indirect use-phase emissions, an entity creates or obtains a typical use-phase profile over the lifetime of the product and multiplies by relevant emission factors. [GHGP-S3C.120]

Each category has a calculation methodology, as detailed in the GHGP Scope 3 Calculation Guidance, which is outside the scope of this handbook.

♦ In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

8A.14 Category 12: End-of-life treatment of sold products

Question 8A.14.10

What are end-of-life treatment of sold products emissions (category 12)?

Interpretive response: Scope 3-category 12 accounts for the emissions related to the end-of-life treatment of sold products sold in the reporting year. [GHGP-S3.49]

Category 12 shares similarities to category 5 (waste generated in operations), with consistent end-of-life treatment methods – e.g. landfill, recycling. See section 8A.7.

Example 8A.14.10

Identifying end-of-life treatment of sold products emissions

Cellphone Manufacturer sells 100 million cellphones during the reporting year, with an expected average lifetime of four years following sale to end consumers.

The cellphone manufacturer predicts consumers will dispose of cellphones via either landfill or a recycling program. The estimated emissions associated with landfill disposal and recycling treatment are included in scope 3-category 12.

Question 8A.14.20

How are end-of-life treatment of sold products emissions calculated?

Interpretive response: The calculation methods for category 12 are consistent with category 5. See Question 8A.7.20.

8A.15 Category 13: Downstream leased assets

Question 8A.15.10
What are downstream leased asset emissions (category 13)?

Interpretive response: Scope 3-category 8 accounts for emissions that are leased by the entity in the reporting year and not already included in scopes 1 and 2. This category applies to lessors only. [GHGP-S3.50]

The inclusion in scope 3 of emissions from leased assets depends on the approach chosen for an entity's organizational boundary (see Question 4A.3.20). [GHGP-S3.50]

8A.16 Category 14: Franchises

Question 8A.16.10
What are franchise emissions (category 14)?

Interpretive response: Scope 3-category 14 accounts for the emissions related to franchise operations that are not otherwise included in scopes 1 or 2. This category applies to franchisors only. [GHGP-S3.51]

A franchisor sells or grants a franchise license to a franchisee for the sale of goods or the operation of a service. The franchisor owns trademarks and business models and receives payments from entities who hold the franchise license. [GHGP-S3.138]

The following table shows how the emissions associated with a franchise are classified by each party. [GHGP-S3.51]

Emissions source	Party	Classification
Franchise operations	Franchisee	Scopes 1 and 2 emissions
	Franchisor	Scope 3-category 14
Franchisor operations	Franchisee	Scope 3-category 1 (purchased goods and services)[1]

Note:
1. Optional under scope 3-category 1.

Question 8A.16.20
How are franchise emissions calculated?

Interpretive response: There are two methods used to calculate scope 3 emissions from franchises. [GHGP-S3C.130]

Calculation method	Description
Franchise-specific method	Collecting site-specific data activity
Average-data method	Estimation based on average statistics (e.g. average emissions per square foot)

A single method or a combination of methods can be used to calculate emissions. Data availability will likely determine which methods are most appropriate. See Question 8A.2.40. [GHGP-S3C.13]

- In our experience, these methods are also relevant under IFRS S2. However, IFRS S2 has alternative guidance on selecting and prioritizing data for scope 3 emissions that must also be considered. See sections 8B.2 and 8B.3.

Example 8A.16.10
Identifying and calculating franchise emissions using the average-data method

Hotel operates a franchise-based model. It grants a franchise license to hotel operators, which includes use of the brand name. Hotel includes the emissions associated with the operations of each hotel using its franchise license in scope 3-category 14.

Using the average-data method, the formula to calculate emissions associated with franchises during the reporting period is:

Sum across building types:

Activity data: Σ (total floor space of building type (m^3))
×
Average emission factor for building type (kg CO_2e/m^3/year)

To perform this calculation, Hotel gathers the following information.

Franchise	Source	Data	Unit	Emission factor (tCO_2e / sq ft)
Franchise A	Floor plan	40,000	sq ft	0.007
Franchise B		50,000		
Franchise C		100,000		

Based on this data, emissions are calculated as:

Activity data × Emission factor = tCO_2e
(40,000 + 50,000 + 100,000) × 0.007 = **1,330 tCO_2e**

8A.17 Category 15: Investments

Question 8A.17.10
What are investment emissions (category 15)?

Interpretive response: Scope 3-category 15 accounts for the emissions related to investments in the reporting year. The category applies to investors and entities that provide financial services. [GHGP-S3.51]

Investments may be included in scope 1 or 2 depending on the organizational boundary applied (see section 3A.2). [GHGP-S3.51]

A common name used in the financial industry for emissions in this category is ‘financed emissions’.

Question 8A.17.20
How are investment emissions calculated?

Interpretive response: Investment emissions are allocated to the entity based on its proportional share of the underlying investment in the investee. [GHGP-S3C.137]

Investments reported in category 15 emissions are identified by choosing a fixed point in time (e.g. December 31) or using a representative average over the course of the reporting year. [GHGP-S3C.137]

Each asset class has a calculation methodology, as detailed in the GHGP Scope 3 Calculation Guidance, which is outside the scope of this handbook.

- IFRS S2 has additional requirements around measurement and disclosure of scope 3-category 15 emissions – see section 8B.4. IFRS S2 also includes general guidance on selecting and prioritizing data for scope 3 emissions that is relevant for category 15 and must also be considered. See sections 8B.2 and 8B.3.

Question 8A.17.30**
What is PCAF?

Interpretive response: The Partnership for Carbon Accounting Financials (PCAF) has published three parts of The Global GHG Accounting and Reporting Standard for the Financial Industry, which provides emission calculation guidance for a wider range of asset classes than the GHGP Scope 3 Calculation Guidance.

- **Part A – Financed emissions** (first published 2019, updated 2022 and 2025[1])

  Provides detailed guidance on measuring and disclosing GHG emissions associated with seven asset classes, including listed equity and corporate bonds, business loans and unlisted equity, project finance, commercial real estate, mortgages, motor vehicle loans and sovereign debt emissions.

- **Part B – Facilitated emissions** (published 2023)

  Focuses on measuring and reporting GHG emissions linked to capital markets issuances – e.g. underwriting and issuance activities.

- **Part C – Insurance-associated emissions** (published 2022, updated 2025[1])

  Covers methodological guidance for GHG emissions related to re/insurance underwriting activities.

  Note 1: See Forthcoming requirements.

The first edition of Part A was reviewed by the GHGP and is in conformance with the requirements of the Scope 3 Guidance. Subsequent editions of Part A are pending GHGP review and approval. Notwithstanding this lag, in our experience, many entities use the PCAF guidance to assist in measuring significant scope 3-category 15 emissions.

Forthcoming requirements**
Updated PCAF Standard

In December 2025, PCAF issued an updated standard comprising the following.

- **Part A – Financed emissions.** Includes new methodologies for use of proceeds structures, securitizations and structured products, sub-sovereign debt, and optional reporting on undrawn loan commitments under IFRS S1 and IFRS S2 (see Question 8B.4.10).
- **Part A supplemental guidance** – Financed Avoided Emissions and Forward-Looking Metrics.

- **Part C – Insurance-associated emissions**. Includes new methodologies for treaty reinsurance and project insurance.

The updates are available for immediate use, but PCAF acknowledges that implementation will take time. Entities following PCAF's methodologies are required to set their own timeline to adoption with clear disclosure about the extent of adoption and clear justifications for any exclusions.

Example 8A.17.10
Identifying and calculating investment emissions

Investment Manager, which primarily provides investment advisory services to clients, has a small portfolio of four investments on its balance sheet at December 31.

Investment Manager obtains investee scopes 1 and 2 emissions from publicly available GHG reporting by each underlying investment entity and the equity share from financial records.

The formula to calculate emissions associated with investments during the reporting period is:

Sum across investees:

Activity data: Σ (scope 1 and scope 2 emissions of investments)
×
Share of equity %)

To perform this calculation, Investment Manager gathers the following information.

Investment	Scopes 1 and 2 emissions in reporting year (tCO_2e)	% equity share
Maple Leaf Inc	45,000	35
Thistle Inc	70,000	15
Rose Inc	100,000	10
Cherry Blossom Inc	20,000	25

Based on this data, emissions are calculated as:

Activity data × Emission factor = tCO_2e
(45,000 × 35%) + (70,000 × 15%) + (100,000 × 10%) + (20,000 × 25%)
= 15,750 + 10,500 + 10,000 + 5,000 = **41,250 tCO_2e**

Question 8A.17.40**
What types of activities are included in category 15?

Interpretive response: The Scope 3 Standard describes the following activities in category 15.

Minimum boundary

The minimum boundary comprises the following activities that are always included in measuring scope 3-category 15 emissions, if material (see Question 8A.2.15). [GHGP-S3.52]

Financial investment / service	Description	Relevant PCAF Standard[1]
Equity investments made by the entity using its own capital	• Equity investments in subsidiaries, associate entities (affiliated entities) and joint ventures • Equity investments where the reporting entity has neither financial control nor significant influence	Part A
Debt investments (known use of proceeds)	Corporate debt holdings held in the reporting entity's portfolio where the use of proceeds can be identified	Part A
Project finance	Long-term financing of projects by the reporting entity in the form of equity or debt of projects (e.g. infrastructure and industrial projects)	Part A

Optional types of emissions

The following types of emissions may be included in measuring scope 3-category 15 emissions at the discretion of the entity (see Question 8A.2.15). [GHGP-S3.54]

Financial investment / service	Description	Relevant PCAF Standard[1]
Debt investments (unknown use of proceeds)	General purpose corporate debt holdings (e.g. bonds, loans) held in the reporting entity's portfolio where the use of proceeds is not specified.	Part A
Managed investments and client services	Investments managed by the reporting entity on behalf of clients (using clients' capital) or services provided by the reporting entity to clients. For example:	
	• Investment and asset management – i.e. equity or fixed income funds managed on behalf of clients, using clients' capital	Part A

Financial investment / service	Description	Relevant PCAF Standard[1]
	• Corporate underwriting and issuance for clients seeking equity or debt capital	Part B
	• Financial advisory services	n/a
Other investments or services	Other investments, financial contracts or financial services not included above. For example:	
	• insurance contracts	Part C
	• pension funds • retirement accounts • securitized products • credit guarantees • financial guarantees • export credit insurance • credit default swaps	n/a

Note:

1. The PCAF Standard covers categories of assets not included in this table. For example, Part C deals with insurance-associated emissions, which reflect the economic activity enabled by underwriting activities rather than emissions related to the insurance contract itself.

- The minimum boundary is not relevant under IFRS S2. IFRS S2 has alternative guidance for the measurement and disclosure of scope 3-category 15 emissions – see section 8B.4.

Question 8A.17.50**

Are ‘scope 3 of scope 3’ emissions required for category 15?

Interpretive response: No. The Scope 3 Standard does not require the reporting entity to measure an investee’s own scope 3 emissions, known as ‘scope 3 of scope 3’ emissions (see Question 8A.2.70). However, entities are encouraged to include these emissions when relevant. [GHGP-S3.54]

- See Question 8B.4.50 for discussion of scope 3 of scope 3 under IFRS S2, which requires disclosure.

Question 8A.17.60**

Is there an exclusion threshold applied to category 15?

Interpretive response: Yes. Entities may exclude *equity* investments below a set threshold (e.g. 1% of equity investment) if the omission is disclosed and justified. [GHGP-S3.52]

This relief acknowledges the potential difficulty of collecting data related to activities that may not be significant. However, the ability to exclude certain immaterial emissions does not allow an entity to exclude material emissions from the minimum boundary (see Question 8A.2.15). [GHGP-S3.54]

- IFRS S2 applies the concept of materiality rather than permitted exclusion thresholds. See Question 2B.3.30.

8B. IFRS Sustainability Disclosure Standards**

8B.1 Comparison to the GHGP**

IFRS S2 requires the disclosure of absolute gross scope 3 emissions, measured using the Corporate Standard alongside measurement guidance in IFRS S2.

Unlike the Corporate Standard, IFRS S2 requires the disclosure of scope 3 emissions, where material. The somewhat more flexible approach in the Scope 3 Standard is not available. See section 8B.2.

IFRS S2 includes high-level measurement guidance for scope 3 emissions, which entities are required to follow. While IFRS S2 refers to the Scope 3 Standard for category descriptions, it does not follow the measurement guidance in the Scope 3 Calculation Guidance. See section 8B.3.

In addition, IFRS S2 includes specific requirements relating to scope 3-category 15 (investments) that differ from the Scope 3 Standard. See section 8B.4.

8B.2 Identifying scope 3 emissions**

Question 8B.2.10**
Are scope 3 emissions disclosures required?

Interpretive response: Yes. IFRS S2 requires an entity to disclose material information about scope 3 emissions. It specifies that an entity consider the entire value chain and all 15 categories of scope 3 emissions and disclose which of these categories are included in its scope 3 disclosures. [IFRS S2.B32]

However, this does not mean that all categories necessarily need to be included in the scope 3 disclosures. See Question 8B.2.30.

Question 8B.2.20**
Can entities limit scope 3 emissions disclosures to the minimum boundary in the Scope 3 Standard?

Interpretive response: No. Under IFRS S2, types of emissions that are optional under the Scope 3 Standard (see Question 8A.2.15) must be disclosed if the information is material. [FAQ 5]

Judgment is required in determining what information is material, and in some cases an entity may determine that the optional types of emissions under the GHGP do not represent material information. See Question 8B.2.30.

The following table lists the categories of scope 3 emissions where there are optional types of emissions that must be considered under IFRS S2.

Category	Minimum boundary under the Scope 3 Standard	Additional emissions required under IFRS S2
4. Upstream transportation and distribution	Scope 1 and 2 emissions of transportation and distribution providers during use of vehicles/facilities (e.g. energy use)	Life cycle emissions from manufacturing vehicles, facilities or infrastructure
5. Waste generated in operations	Scope 1 and 2 emissions of waste management suppliers during disposal/treatment	Emissions from transportation of waste
6. Business travel	Scope 1 and 2 emissions of transportation carriers during use of vehicles (e.g. energy use)	Life cycle emissions from manufacturing vehicles or infrastructure; emissions from hotel stays
7. Employee commuting	Scope 1 and 2 emissions of employees and transportation providers during use of vehicles (e.g. energy use)	Emissions from employee teleworking
8. Upstream leased assets	Scope 1 and 2 emissions of lessors during reporting entity's operation of leased assets (e.g. energy use)	Life cycle emissions from manufacturing/constructing leased assets
9. Downstream transportation and distribution	Scope 1 and 2 emissions of transportation providers, distributors and retailers during use of vehicles/ facilities (e.g. energy use)	Life cycle emissions from manufacturing vehicles, facilities or infrastructure; emissions from customers traveling to retail stores
11. Use of sold products	Direct use-phase emissions of sold products over expected lifetime (i.e. scope 1 and 2 emissions of end users from use of products that directly consume energy, fuels/feedstocks, and GHGs/products that emit GHGs during use)	Indirect use-phase emissions of sold products (i.e. emissions from products that indirectly consume energy during use); emissions from maintenance of sold products

Category	Minimum boundary under the Scope 3 Standard	Additional emissions required under IFRS S2
13. Downstream leased assets	Scope 1 and 2 emissions of lessees during operation of leased assets (e.g. energy use)	Life cycle emissions from manufacturing/constructing leased assets
14. Franchises	Scope 1 and 2 emissions of franchisees during operation of franchises (e.g. energy use)	Life cycle emissions from manufacturing/constructing franchises
15. Investments	See section 8B.4.	See section 8B.4.

Question 8B.2.30**

How does an entity decide which scope 3 categories to disclose under IFRS S2?

Interpretive response: We believe that an entity needs to at least perform a high-level screening of the 15 categories of scope 3 emissions identified in the Scope 3 Standard to support its decision on which categories to include.

We believe that information about categories can be excluded when:

- the category is **not applicable** to the entity (see Question 8B.2.40);
- the information is **not material** (see Question 8B.2.50 and Example 8B.2.10); or
- it is **impracticable** to obtain the required data, to measure the category or estimate the information and the entity instead discloses how it is managing these emissions (see Question 2B.3.40).

To conduct an initial screening, an entity considers each of the 15 categories against the activities undertaken across its entire value chain. In our experience, many entities use third-party screening calculators to support with:

- reviewing the description and reporting boundaries of each category; and
- calculating preliminary indicative estimates.

Once this initial view has been developed, the entity eliminates categories that are not applicable and determines which of the remaining categories are expected to be material (see Questions 8B.2.40 and 8B.2.50). Detailed data gathering can then focus on material categories.

Question 8B.2.40**
How does an entity decide which categories are applicable?

Interpretive response: When considering whether a category is 'applicable' the entity considers whether the category could potentially have non-zero emissions. For example:

- category 1 (purchased goods and services) would be applicable for an entity with suppliers; and
- category 14 (franchises) would not be applicable for an entity without any franchise arrangements.

Question 8B.2.50**
How does an entity decide which categories are material?

Interpretive response: Entities consider the guidance on materiality in IFRS S1, which focuses on applying judgment about whether information is useful for investors' decisions. See Question 2B.3.30.

We believe when an entity is making materiality judgments about what to include in its scope 3 emissions inventory, it should consider all relevant facts and circumstances. The following factors may be useful to consider as part of the overall assessment of what information may be useful to investors.

Factor	Considerations
Size	Whether the emissions contribute significantly to the entity's total anticipated scope 3 emissions.
Influence	Whether there are potential emissions reductions that could be undertaken or influenced by the entity – e.g. whether the entity is able to influence its value chain to bring about a change to a given scope 3 category of emissions.
Risk	Whether the emissions contribute to or provide evidence about the entity's risk exposure.
Outsourcing	Whether the activities are outsourced, but were previously performed in-house, or are typically performed in-house by other companies in the entity's sector.
Other	Whether the emissions meet criteria for determining relevance set by the industry or sector.

These factors have been adapted from guidance in the Scope 3 Standard to reflect the conceptual principles underpinning IFRS S1 (see section 2B.3), such as the focus on investor information needs rather than all stakeholders.

If an entity is already measuring and monitoring scope 3 emissions, or has a target relating to specific categories, we believe these factors provide evidence that information about the related categories is material.

Some entities may choose to align their measurement of scope 3 emissions categories with guidance and standards covering scope 3 target-setting, such as from the SBTi or ISO. While this is not required by IFRS S2, we believe such standards could be a source of evidence around what information about scope 3 emissions would meet the information needs of investors – and therefore which categories an entity may need to include.

Example 8B.2.10**
Making materiality judgments

Hotel Group has recently started a new venture to franchise its brand and hotel operating model in a new region. It has previously operated all of its own hotels but sees this as a strategic opportunity to increase its brand presence quickly in new markets.

While the group currently has a small number of franchise arrangements, if successful, the group has publicly confirmed to its investors that it sees this model as a key addition to its business model going forward. As a result, investors are interested in how franchising will affect the company's market positioning as a sustainable travel company.

When assessing the materiality of its scope 3 emissions categories, Hotel identifies that category 14 is applicable. It considers the following facts and circumstances in particular when making its judgment:

- **Size:** The emissions are quantitively small in the current year (~4% of total scope 3) and were zero in the prior year. However, they are likely to increase over the next five years.
- **Influence:** Hotel has a high degree of influence over franchisees' emissions because it enforces policies in its franchise agreements about environmental performance – particularly around sustainable procurement, renewable energy sourcing and energy efficiency. Hotel sets emissions targets for franchisees to encourage them to engage with its sustainable travel branding.
- **Risk:** Hotel has sustainability-related risks relating to climate, including the reputational risk to revenues if its brand as a 'sustainable hotel chain' is damaged by poor environmental performance.
- **Outsourcing:** Franchising represents a new model for Hotel, which has previously operated all hotels directly. If the venture is successful, a larger proportion of its emissions would fall into this category in the future.

Based on this analysis, Hotel concludes that information about category 14 is material. It collates data to include in its scope 3 emissions disclosures.

Question 8B.2.60**
Can an entity report information about some, but not all, parts of a category?

Interpretive response: Yes, provided that all *material* information is included. We believe an entity can exclude information about part of a category when:

- the excluded part of a category is not applicable; or
- information about the excluded part of the category is not material.

IFRS S2 allows entities to use the concept of 'undue cost or effort' when collating data about scope 3 emissions (see Question 2B.2.20). However, in our experience in applying IFRS Accounting Standards, it is in only exceptional circumstances (i.e. when it is genuinely 'impracticable' to measure or estimate the information) that an entity would be able to exclude information about part of a category that would be material. When scope 3 information is not disclosed because it is impracticable, an entity discloses how it is managing its scope 3 emissions.

For example, as described in Example 8A.3.20, an entity may be able to obtain direct data from a manageable number of suppliers to measure over 90% of its estimated total emissions within category 1. However, it perceives that obtaining direct data from suppliers for the residual (less than 10%) would represent undue cost or effort because of the wide array of suppliers.

Under IFRS S2, because the entity is able to form an estimate of the residual population, the entity would not be able to exclude material information about emissions from the residual population due to this being 'impracticable'. Instead, it would estimate the residual and include it within its reported total.

Example 8B.2.20**
Identifying material information about part of categories

Hotel performs high level screening of its scope 3-category 1 emissions (purchased goods and services). It finds that:

- the majority of its estimated emissions are concentrated in purchases of goods – largely driven by consumables and food;
- a minority of its estimated emissions relate to outsourced maintenance services; and
- the remainder relates to support services (e.g. accounting and payroll).

Hotel has a strategy, policies, targets and actions in place to reduce its emissions from purchased goods, including sometimes paying a premium for lower emission products.

Hotel also has policies for maintenance service providers relating to environmental performance and includes data about emissions from maintenance services in its targets.

Hotel has no strategy or actions in place to reduce the emissions from support services and does not identify any relevant climate-related transition risks or opportunities associated with them. Information about those services is not included in its targets.

Hotel determines that information about scope 3-category 1 emissions is partly material – and discloses emissions data for its purchased goods and maintenance services only.

Example 8B.2.30**
Identifying and assessing which scope 3 categories to disclose

Hotel is a global hotel group with owned, leased and franchised hotels. Hotel applies IFRS S2 and the GHGP in preparing its GHG emissions disclosures.

When identifying what to measure and disclose for its scope 3 emissions, Hotel identifies which categories are applicable, then makes a judgment about which applicable categories are individually material or material in aggregate.

Identifying applicable categories

Hotel reviews all 15 scope 3 categories to determine which are applicable to its business model and value chain.

- Upstream categories are generally applicable, but downstream categories are not because Hotel does not sell goods or services that generate downstream emissions.
- Neither category 8 (upstream leased assets) nor category 13 (downstream leased assets) are applicable. This is because Hotel's selected organizational boundary includes all upstream leases in scope 1 and 2 (see section 4A.3) and it does not have any downstream leases.
- Hotel does not have investments and therefore category 15 (investments) is not applicable.
- The only downstream emissions category that is applicable is 14 (franchises).

Assessing the materiality of applicable categories

For each applicable category, Hotel performs a high-level screening to estimate emissions and identify relevant facts and circumstances.

Hotel considers the ability of information about categories of scope 3 emissions to help investors understand its exposure to climate-related transition risks arising from increasing regulation around emissions and changing consumer preference for sustainable tourism.

It considers the following factors as part of its overall assessment of what information may be useful to investors:

- **Size:** Contribution to total anticipated scope 3 emissions
- **Influence:** Potential for emissions reductions by Hotel
- **Outsourcing:** Activities outsourced but typically performed in-house in the sector

It concludes that all categories are connected to its identified sustainability-related risks.

	1. Purchased goods and services	2. Capital goods	3. Fuel- and energy-related	4. Upstream transportation
Emissions (tCO_2e)	120,000	15,000	8,000	5,000
Size	High	Medium	Low	Low
Level of influence	High	Medium	Medium	Medium
Investor interest	High	High	Unknown	Unknown
Outsourced?	Yes	No	No	No
Individually material?	Yes[1]	Yes[2]	No[3]	No[4]
Rationale 1. Major contributor; procurement leverage; investor and strategic focus area. 2. Moderate share but fluctuates depending on investment programs; procurement leverage; strategic focus area. 3. Small share; limited influence. 4. Small share; limited influence.				

	5. Waste generated in operations	6. Business travel	7. Employee commuting	14. Franchises
Emissions (tCO_2e)	10,000	2,000	3,000	90,000
Size	Medium	Low	Low	High
Level of influence	Medium	Medium	Medium	Medium
Investor interest	High	Low	Low	High
Outsourced?	Yes	No	No	Yes

	5. Waste generated in operations	6. Business travel	7. Employee commuting	14. Franchises
Individually material?	Yes[5]	No[6]	No[7]	Yes[8]

Rationale

5. Moderate share; key focus area and investor focus area; high investor interest due to interest from customers
6. Small share
7. Small share
8. Large part of brand footprint; investor focus area.

Hotel assesses the categories that are not deemed individually material (3, 4, 6 and 7) to assess whether they are material in aggregate and notes the following.

- Individually immaterial categories total approximately 18,000 tCO_2e (about 7% of total scope 3 emissions).
- The group does not have any policies specifically relating to categories 3 and 4 and does not actively monitor these categories.
- Despite the small size of business travel and employee commuting, Hotel has active policies around these activities. It uses internal carbon pricing to incentivise lower-emissions business travel and gives employees access to subsidies to reduce emissions from commuting.
- The group has not set a total scope 3 target, instead choosing to set more granular targets for specific categories – including all material categories plus category 6 (business travel) and category 7 (employee commuting).

Based on these facts and circumstances, Hotel decides to report on categories 6 and 7 as well as the four categories identified as individually material: category 1 (purchased goods & services), category 2 (capital goods), category 5 (waste generated in operations) and category 14 (franchises).

Example 8B.2.40**
Reporting information about sub-categories that are optional under GHGP

Property Manager has a service agreement with Waste Co, which collects accumulated tenant waste from properties on a weekly basis. All waste is sent to the landfill for disposal.

Under the Scope 3 Standard, category 5 (waste generated in operations) includes third-party disposal/treatment of operational waste as part of the minimum boundary. The transportation of waste in third-party vehicles is optional.

Under IFRS S2, Property Manager assesses whether information about third-party disposal/treatment is material, as well as the transportation of waste.

Property Manager identifies that the emissions generated by waste sent to landfill are material but assesses that emissions from the related transport are not. Such transportation emissions are not commonly reported within the industry and are not a focus area for investors.

In addition, as part of its materiality assessment, Property Manager assesses that:

- transport-related emissions are small compared to emissions from the waste (due to the general proximity of its properties to municipal waste facilities); and
- it has limited or no influence over the emissions from the transport because the sole provider is the local authority.

Based on its assessment, Property Manager includes the emissions associated with the future emissions of waste sent to the landfill during the reporting year in scope 3-category 5 but restricts its reporting to the minimum boundary identified by the Scope 3 Standard. This is because it deems information about the optional sub-category to be immaterial.

8B.3 Measuring scope 3 emissions**

Question 8B.3.10**

How do entities measure Scope 3 emissions under IFRS S2?

Interpretive response: Entities apply the guidance in IFRS S2 to measure scope 3 emissions, in addition to the Corporate Standard. IFRS S2 references the Scope 3 Standard solely to identify the 15 categories (see Question 2B.2.40).

However, although the guidance in IFRS S2 takes precedence, entities are not precluded from following the measurement guidance in the Scope 3 Standard and related technical guidance to the extent there is no conflict.

Entities use ‘all reasonable and supportable information available at the reporting date without undue cost or effort’ to prepare their scope 3 emissions disclosures. See Question 2B.3.40.

IFRS S2 requires entities to prioritize inputs and assumptions with the following characteristics (listed in no particular order).

Characteristics	Description
Data based on direct measurement [IFRS S2.B40(a)]	Activity data measured directly at the source – e.g. fuel meters, utility meters, process sensors. See Question 2A.3.40.
Data from specific activities within the entity's value chain [IFRS S2.B40(b)]	Data reflecting the exact activity or process within the entity's operations or supply chain.
Timely data that faithfully represents jurisdiction and technology [IFRS S2.B40(c)]	Data that is current and representative of the geographical location and technology used in the value chain.
Data that has been verified [IFRS S2.B40(d)]	Data that has undergone independent assurance or verification, which may be secondary or average data.

Following this framework requires judgment because there are trade-offs between different characteristics – e.g. between data that can be directly measured and timeliness. As an overall consideration, entities need to ensure that the resulting information meets the qualitative characteristics of sustainability-related financial information – i.e. it is comparable, verifiable, timely and understandable. [IFRS S1.10, IFRS S2.B42]

Question 8B.3.20**
Is directly measured data prioritized?

Interpretive response: Generally, yes. This means that entities prioritize capturing actual data on GHG emissions, rather than relying on estimates (see Question 2A.3.40). [IFRS S2.B44]

However, in some cases, an estimate enables an entity to provide more timely data, or more relevant information. In that case, the entity applies its judgment in identifying the type of data to use. [IFRS S2.B42]

Question 8B.3.30**
What types of value chain data can be used?

Interpretive response: Data from the value chain may be primary, secondary or a combination of both.

- Primary data may be provided directly from suppliers or other value chain partners and include specific activity-related data or actual emissions. Examples include meter readings and utility bills, sourced either internally or externally. Using activity-specific data provides a more accurate measurement of scope 3 emissions. [IFRS S2.B48]
- Secondary data is not collected directly from the entity's value chain activities. It typically comes from third-party sources such as industry averages, government statistics, or published databases. An example is using industry-average emission factors from published databases to estimate emissions when direct data is unavailable. [IFRS S2.B49]
- A combination of primary and secondary data – e.g. where primary activity data is combined with secondary emission factors.

When measuring GHG emissions, entities prioritize primary data. However, primary data can be costly to obtain and it may be difficult to verify the quality of data provided by a supplier. [IFRS S2.B47]

See Question 8B.3.40 for additional considerations around using secondary data.

Example 8B.3.10**

Scope 3 emissions measurement using data from specific activities within the entity's value chain

Hotel is estimating its scope 3 emissions from purchased food.

It collects data directly from its main catering supplier about the energy and transport used in production and delivery (primary data). For smaller suppliers from whom this data is not available, Hotel uses industry-average emission factors from a third-party database (secondary data).

Question 8B.3.40**

Can entities use secondary data?

Interpretive response: Yes. While IFRS S2 prioritizes the use of primary data, secondary data may be more appropriate in some circumstances – e.g. when gathering primary data would incur undue cost or effort or it is not possible to verify the quality of data from a supplier. The spend-based method is an example of using secondary data, particularly in the early years of an entity's reporting journey.

When using secondary data, it is important to consider whether it faithfully represents the entity's own activities. Secondary data can lack accuracy as to the specific activities of the entity. [IFRS S2.B49]

When using secondary data, entities need to prioritize activity or emissions data that consider the:

- technology actually used in the value chain;
- location or jurisdiction where the activity occurred; and
- activities that actually occurred during the reporting period.

Question 8B.3.50**
What is verified data?

Interpretive response: Verified data must have undergone internal or external validation processes such as on-site checks, review of calculations or cross-checking against other sources. [IFRS S2.B53-B54]

Verification provides confidence that information is complete, neutral and accurate. Information subject to limited or reasonable assurance is an example of data that has been verified – but not all verified data has been assured. In some cases, entities may need to rely on unverified data if they cannot verify their data without undue cost or effort. [IFRS S2.B54]

Question 8B.3.60**
Are there any exemptions from using the IFRS S2 measurement guidance?

Interpretive response: No. Entities need to follow the measurement guidance in IFRS S2.

Some entities may take the jurisdictional exemption (see Question 2B.2.50) that provides relief from using measurement guidance in the Corporate Standard. However, when taking this relief, entities still follow the IFRS S2 scope 3 measurement guidance, as well as other guidance in IFRS S2 around selecting GWPs and emission factors (see section 5B.2).

Question 8B.3.70**
Under IFRS S2, is disclosure of scope 3 emissions limited to emissions generated during the period?

Interpretive response: No. An entity's scope 3 emissions for a reporting period are based on the entity's activity occurring in that reporting period, rather than the emissions physically generated. This means that the time horizons applied for activity data are consistent with the Scope 3 Standard (see Question 8A.2.30).

For example, an entity estimates the lifetime emissions of products sold during the reporting period when calculating category 11 (use of sold products). It does not estimate the emissions *actually generated* in the reporting period from use of products sold in the current period and any previous periods.

8B.4 Category 15: Investments**

Question 8B.4.10**
What types of scope 3-category 15 emissions do entities need to measure and disclose under IFRS S2?

Interpretive response: While entities are generally required to disclose material information about all types of scope 3-category 15 emissions, we believe it is acceptable to limit disclosure to the types of emissions that meet the ISSB's definition of 'financed emissions' – i.e. the "portion of gross greenhouse gas emissions of an investee or counterparty attributed to the loans and investments made by an entity to the investee or counterparty." [IFRS S2.A]

This flexibility is permitted because the ISSB has acknowledged a lack of clarity in this area, particularly for emissions associated with insurance and reinsurance activities, and investment banking activities.

The following are examples of activities and types of instruments that would be included or excluded from financed emissions as defined in IFRS S2.

Included	Excluded
• Equity investments • Debt investments (known use of proceeds), including bonds and commercial loans • Debt investments (unknown use of proceeds), including corporate bonds or debt[1] • Derivatives[1, 2] • Undrawn loan commitments[1] • Project finance • Assets under management[3]	• Insurance and re-insurance contracts[1] • Investment banking activities[1] • Corporate finance activities[1]

Notes:

1. Indicates activities and types of instruments that are optional or not described in the Scope 3 Standard (see Question 8A.2.15). In December 2025, PCAF issued an updated standard that included a new methodology for measuring emissions relating to undrawn loan commitments (see Forthcoming requirements).

2. Because the ISSB has acknowledged a lack of clarity around whether emissions relating to derivative contracts are required under IFRS S2, we believe it is acceptable to exclude them.
3. We believe emissions associated with assets under management should be included within financed emissions because it is clear from the required disaggregation of emissions associated with assets under management that the ISSB's intention was to require this information. [IFRS S2.B61]

The above interpretations were confirmed by the ISSB in amendments to IFRS S2 that were issued in December 2025, with early adoption permitted. See Forthcoming requirements.

Question 8B.4.20**

Does IFRS S2 prescribe specific methodologies for measuring scope 3-category 15 emissions?

Interpretive answer: No. IFRS S2 does not prescribe any specific methodology for an entity to use in calculating scope 3-category 15. [FAQ 10]

In our experience, many companies use the PCAF Standard when measuring types of category 15 emissions. While IFRS S2 does not mandate that entities follow PCAF, the ISSB recognizes that financial institutions commonly use it and that this may give rise to decision-useful and comparable information. [IFRS S2.B33, BC102]

Question 8B.4.30**

Under IFRS S2, are scope 3-category 15 disclosures required by entities operating in all industries?

Interpretive response: Yes, if the entity has relevant activities. The ISSB does not define 'financed emissions' in relation to any particular industry, instead referring to types of activity. Disclosure is required, if material, for any entity undertaking activities that give rise to emissions that meet the definition. See Question 8B.4.10.

IFRS S2 includes additional information requirements about financed emissions for entities with activities in the following industries: commercial banking, insurance and asset management (see Question 8B.4.40).

Question 8B.4.40**

What additional information do entities with commercial banking, insurance or asset management activities disclose about financed emissions?

Interpretive response: IFRS S2 requires entities with activities in commercial banking, insurance or asset management to provide additional disclosures about their financed emissions. These requirements are designed to give investors additional information about financed emissions without requiring additional measurement.

These requirements relate to 'financed emissions' as defined by IFRS S2 – e.g. emissions relating to the loans and investments held by an insurance company. These requirements do not apply to the disclosure of insurance-associated emissions (see Question 8B.4.10 and Forthcoming requirements).

For an asset manager, financed emissions include off-balance sheet investments for which the entity provides asset management services, as well as on-balance sheet investments that the entity makes in its own right.

An entity with commercial banking, insurance or asset management activities discloses the following as part of its scope 3-category 15 reporting.

	Commercial banking and insurance activities [IFRS S2.B62-B63]	**Asset management and custody activities** [IFRS S2.B61]
Absolute gross financed emissions	For each industry[1] by asset class[2] disaggregated by scopes 1, 2 and 3	Disaggregated by scopes 1, 2 and 3
Associated amounts in presentation currency	Gross exposure to each industry by asset class (including funded amounts and undrawn loan commitments)	Amount of total assets under management included in the financed emissions calculation, disaggregated by scopes 1, 2 and 3
Associated amounts as a percentage	The gross exposure included in the financed emissions calculation[3, 4]	Total assets under management included in the financed emissions calculation[4]
Methodology	A description of the methodology, including the method of investment or gross exposure allocation	

Notes:

1. Industry classification using GICS. See Forthcoming requirements.
2. Including loans, project finance, bonds, equity investments and undrawn loan commitments. If other asset classes are included, the entity explains why their inclusion provides relevant information.

3. Where applicable, the effects of risk mitigation are excluded from the gross exposure for funded amounts. The percentage of undrawn loan commitments included in the financed emissions calculation is disclosed separately.
4. If the percentage of gross exposure or total assets under management included in the financed emissions calculation is less than 100%, the entity explains the exclusions, including the types of assets excluded.

Question 8B.4.50**

Is an entity required to disclose 'scope 3 of scope 3' when reporting financed emissions under IFRS S2?

Interpretive response: Yes. IFRS S2 requires the disclosure of absolute gross financed emissions, disaggregated by scopes 1, 2 and 3 emissions for asset management, commercial banking and insurance activities respectively. [IFRS S2.B61(a), B62(a), B63(a), TIG 2025-1 AP1]

In our experience, measuring this information can be challenging for an entity because of the lack of high-quality data on scope 3 emissions from investees. An entity would report this information if it is material and not impracticable to measure (see Question 8B.2.30).

Forthcoming requirements**

Category 15 disclosures

In December 2025, the ISSB issued amendments to clarify certain aspects of IFRS S2. The amendments, which comprise a series of reliefs from the application of IFRS 2, are effective for annual reporting periods beginning on or after January 1, 2027, but may be adopted early.

The amendments include the following change that clarifies which types of scope 3-category 15 emissions entities are required to disclose.

What's required?	What's the impact?
• Scope 3-category 15 GHG emissions disclosures can be limited to financed emissions, as defined in IFRS S2, and specifically exclude derivatives. • A company is required to disclose: – total scope 3-category 15 GHG emissions and a subtotal for financed emissions; – an explanation of what it treats as derivatives; and	• A company does not need to include emissions from the following asset classes or activities in its scope 3 emissions, even if they are material: – derivatives; – investment banking activities; – underwriting activities in the insurance and reinsurance industry (insurance-associated emissions); and

What's required?	What's the impact?
– a description of the financial activities excluded, including the activities associated with derivatives.	– other category 15 GHG emissions that are not financed emissions. • The relief is not time-bound. • There is no change to the requirement for all types of entities to disclose financed emissions, if material. This includes emissions from assets under management.

Forthcoming requirements**
GICS classification system

In December 2025, the ISSB issued amendments to clarify certain aspects of IFRS S2. The amendments, which comprise a series of reliefs from the application of IFRS 2, are effective for annual reporting periods beginning on or after January 1, 2027, but may be adopted early.

The amendments include the following change related to the disaggregation of financed emissions by industry.

What's required?	What's the impact?
• An entity is no longer required to use GICS to disaggregate its financed emissions. Instead, it may select a commonly used industry-classification system when disclosing its disaggregated financed emissions. • An entity is required to disclose the industry classification system used and explain the reason for selecting it. • An entity participating in both commercial banking and insurance activities may use separate classification systems for each activity.	• An entity may use its existing industry-classification system to disaggregate its financed emissions. However, it may need to explain how that system supports understanding of the entity's climate-related transition risks and comparability with other companies. • This amendment may particularly benefit entities already required to use a different classification system for prudential regulatory reporting, or those applying a commonly used system used by other companies operating in the same industry or jurisdiction.

9. Tracking emissions and setting targets

Detailed contents

New item added in this edition **

9B.3 The base year and tracking emissions **

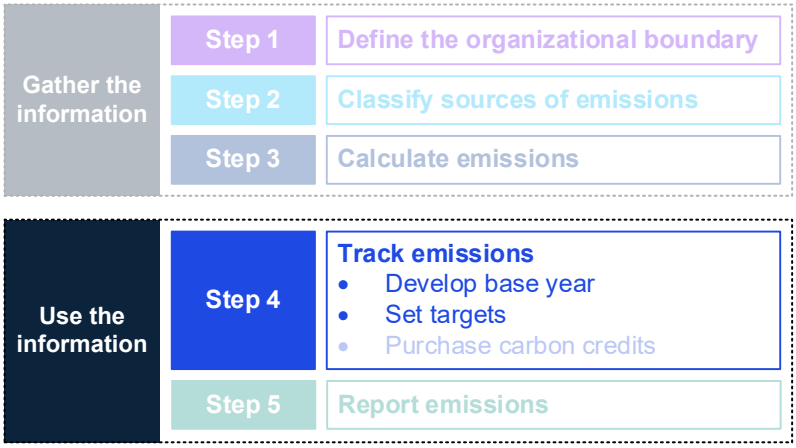
Questions

Example

9A GHG Protocol

9A.1 How the Protocol works

Until this point, this handbook has dealt with gathering the information necessary to create the GHG inventory. This chapter discusses tracking emissions, which is part of how the information is used.



Develop a base year

A base year is a benchmark that allows an entity to observe trends in emissions information. To maintain consistency, it may be necessary to recalculate the base year and other historical emissions. Such recalculations may be triggered by a variety of circumstances – e.g. acquisition, change in methodology.

Set reduction targets

GHG emissions reduction targets are increasingly used by entities that commit to reduce GHG emissions by a certain amount by a certain year. The terms ‘net-zero’ and ‘carbon neutral’ are frequently used to identify a GHG emissions reduction commitment.

9A.2 The base year and tracking emissions

Question 9A.2.10
How are emissions tracked over time?

Interpretive response: To make meaningful and consistent comparisons of emissions over time, an entity sets a base year (see Question 9A.2.20) to which it compares current emissions. Such comparisons may support a variety of business goals – e.g. reporting, target setting, risk management. [GHGP-CS.35]

A base year is a benchmark that allows an entity to observe trends in emissions information. To maintain consistency, it may be necessary to recalculate base year and other historical emissions. Such recalculations may be triggered by a variety of changes to the entity. See Question 9A.2.30.

Question 9A.2.20
How is a base year chosen?

Interpretive response: Absent reporting requirements (e.g. SBTi's Net-Zero Standard requires a base year no earlier than 2015; see Question 9A.3.50), the following steps provide guidelines for choosing a base year.

First, the entity decides whether to select one base year for its entire emissions inventory or different base years for each source of emissions – e.g. scope 1, scope 2, scope 3.

Second, the entity selects an approach for calculating base year emissions. [GHGP-CS.35]

- **Single year:** Select one single year against which to compare all future emissions.
- **Multi-year:** Average annual emissions data over a set number of consecutive years.

Third, the entity selects the base year. Typically, this is the earliest relevant point for which reliable data is available. [GHGP-CS.36]

A base year can be changed, but it may affect future inventory comparisons. For example, an entity may need to reconsider its base year if it has an acquisition for which historical data is unavailable. See Question 9A.2.30.

The inventory base year may also be used as the target base year (see Question 9A.3.30).

Example 9A.2.10
Setting a base year

Hotel set its base year as 2019 for scopes 1, 2 and 3 emissions. The following table shows the base year emissions and the comparison one year later. Hotel would continue tracking in future years to reveal the trend in its emissions over time.

Measures in tCO_2e	2019 (base year)	2020	Trend
Scope 1	1	0.8	-20%
Scope 2	3	4.5	+50%
Scope 3	6	7.5	+25%

Question 9A.2.30
When are recalculations necessary?

Interpretive response: To maintain consistency over time ('like with like') so that meaningful emissions comparisons can be made, it may be necessary to recalculate historical emissions; such recalculations may affect historical emissions, including base year emissions.

To reflect changes in the entity that would otherwise compromise the consistency and relevance of GHG emissions information, historical emissions are retroactively recalculated. [GHGP-CS.34]

Recalculations may be triggered by:

- the rapid evolution in sustainability reporting – e.g. new data, new measurements, new methodologies; or
- structural changes within the entity itself – e.g. divestments.

A historical emissions recalculation may be necessary in the following circumstances, if they are significant (see Question 9A.2.40): [GHGP-CS.35]

- improvements in the accuracy of emission factors or other data;
- discovery of errors;
- outsourcing or insourcing of emitting activities;
- refinement in the calculation methodology applied; and/or
- a structural change in the entity (e.g. merger, acquisition, divestment).

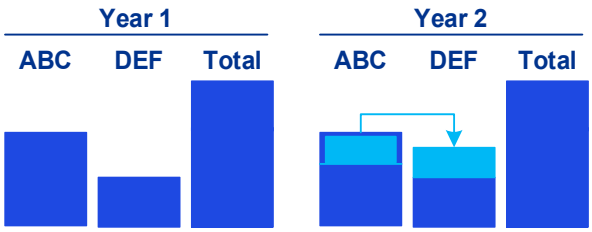
In addition, new scope 3 categories may be added to the operational boundary in the current year (see chapter 4) with prior year information added for comparability.

A historical emissions recalculation is not made in the following circumstances: [GHGP-CS.38-39]

- changes (e.g. acquisition) involving facilities or operations that did not exist in base year;
- organic growth or decline from increases or decreases in production output, change in product mix, and closures or openings of operating units owned or controlled by the entity; and
- outsourcing or insourcing if the relevant indirect emissions are reported.

The example in Appendix B includes illustrative disclosures when a recalculation is triggered.

The following diagram illustrates the philosophy of the GHGP in requiring recalculations. If ABC sells part of its business to DEF, total emissions have not changed – they have simply been redistributed between the two entities. By recalculating past emissions for the effect of the transaction (disposal for ABC and acquisition for DEF), the emissions tracking over time maintains its integrity relative to the current year.



However, if DEF built a new plant instead of acquiring it from ABC, total emissions would increase and therefore there is no recalculation.

This approach is very different from financial reporting and means that recalculations of prior year information can be common in GHG emissions reporting, and it does not mean that there was an error in prior period information. However, historical emissions are not recalculated if they fall below a 'significance threshold'.

- IFRS S1 contains requirements for revising comparative disclosures that result in revision in different situations to the GHGP. Entities cannot follow guidance in the GHGP around when to revise emissions.
- While IFRS S1 and S2 do not directly address the revision of base years, the requirements for revising historical emissions may indirectly influence when entities choose to revise base years. See Question 9B.3.20.

Question 9A.2.40
What is a significance threshold?

Interpretive response: A significance threshold is a point at which a recalculation of historical emissions is triggered. When a significance threshold has been reached, historical emissions are recalculated. A significance threshold comprises qualitative and/or quantitative criteria (and it may be based on cumulative changes) that an entity establishes in a recalculation policy. Particular care should be taken in assessing the qualitative nature of errors that are discovered. This threshold is at the entity's discretion and is not prescribed by the GHGP. [GHGP-CS.35]

As defined in the Scope 3 Standard, significant changes result not only from single large changes, but also from several small changes that are cumulatively significant. [GHGP-S3.104]

Although the GHGP makes no specific recommendation as to what constitutes 'significant', some external GHG programs may specify certain numerical thresholds.

- IFRS S1 and S2 rely on the concept of materiality and do not use the significance thresholds. If an entity wishes to set a policy including thresholds to determine when a revision is required, it needs to check that this does not give rise to a material misstatement. See Question 9B.3.20.

Example 9A.2.20
Recalculating prior year emissions

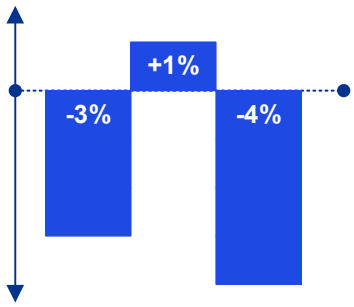
Hotel establishes an emissions recalculation policy that defines a significance threshold of 5%. Any positive or negative changes outside the 5% threshold are considered significant and trigger a recalculation.

Scenario 1: The cumulative impact of multiple events triggers a base year recalculation

In the current year, Hotel monitors the following events.

- Operations makes a recommendation to change the calculation methodology. For consistency purposes, the change will also be made in the base year. This results in a 3% decrease in total base year emissions.
- Internal Audit discovers an error in the current year emissions calculation and determines that the same error was made in the base year calculation. This results in a 1% increase in total base year emissions.
- Management divests from a manufacturing facility. This results in a 4% decrease in total base year emissions.

Individually, none of these changes exceed the 5% significance threshold. However, cumulatively the 5% significance threshold is exceeded and Hotel determines a base year recalculation is necessary.



Scenario 2: A single event triggers a base year recalculation

Hotel purchased Subsidiary in 2023. The purchase resulted in an increase in the emissions within Hotel's inventory boundary. Because this increase exceeded Hotel's significance threshold, Hotel determined it necessary to recalculate prior year emissions.

Hotel's prior year emissions have been recalculated to reflect the inclusion of Subsidiary's emissions.

Measures in tCO_2e	2019 (base year)	2019 (subsidiary)	2019 (adjusted base year)
Scope 1	1	0.2	1.2
Scope 2	3	0.5	3.5
Scope 3	6	2	8

9A.3 Goals and targets

Question 9A.3.10
What is a GHG emissions target?

Interpretive response: A GHG emissions reduction target is a planning tool that can be used to manage GHG risks, enhance cost savings and drive research and development. GHG emissions targets are increasingly used by entities that commit to reduce GHG emissions by a certain amount by a certain year. The rest of this section discusses the different types of targets and some of the common phrases used by entities in making commitments – e.g. net zero.

Question 9A.3.20
What are the steps in setting a GHG emissions target?

Interpretive response: Target-setting is a process that is informed by relevant policy and stakeholder discussions. It is typically an iterative process involving the following steps.

Excerpt from Corporate Standard [p 75]

Steps in setting a GHG target:

1. Obtain senior management commitment
2. Decide on the target type
3. Decide on the target boundary
4. Choose the target base year
5. Define a target completion date
6. Define the length of the target commitment period
7. Decide on the use of offsets or credits
8. Establish a target double counting policy
9. Decide on the target level
10. Track and report progress

This remainder of this section (9A) focuses on Steps 2 and 7.

Question 9A.3.30
What are the different GHG emissions target types?

Interpretive response: The two types of GHG emissions targets are absolute and intensity-based. [GHGP-CS.77]

- **Absolute targets** refer to reductions of absolute emissions over time – e.g. 50% reduction in the entity's scope 1 emissions by 2030.
- **Intensity targets** refer to reductions of the ratio of emissions relative to a business metric over time – e.g. 50% reduction in the entity's scope 1 emissions intensity per square foot of facility space by 2030.

An entity chooses the type of reduction target that make sense for its operations and reporting goals. It may focus on tracking a year-over-year trend (absolute or

intensity) within the entity or it may focus on comparing (or benchmarking) its own intensity metrics to that of peers. Some entities may have multiple targets, both absolute and intensity-based.

Even with decreased GHG intensity, absolute emissions may still rise. An entity may meet an intensity target by improving energy efficiency throughout its facilities, while also building more facilities that increase consumption and lead to a rise in absolute emissions.

Intensity metrics

There is no standard metric upon which to base an intensity value. This is because of the significant diversity in what entities do and how they do it. Unless production processes are homogenous, it is difficult to develop indicators that allow for useful comparisons across facilities or entities.

In our experience, common denominators for intensity metrics are:

- production output – e.g. mileage, kWh, metric tonnes of products;
- financial basis – e.g. revenue, costs; and
- other – e.g. office space.

An entity chooses a denominator that allows for meaningful tracking of a trend for the intended purpose – e.g. measuring progress toward a reduction target. It is important to understand the context for an intensity metric when using it for analyses and comparisons.

Question 9A.3.40
What is a science-based target?

Interpretive response: A target is considered ‘science-based’ if it is in line with what the latest climate science (e.g. IPCC) says is necessary to meet the goals of the Paris Agreement – limiting global warming to 1.5 degrees Celsius above pre-industrial levels.

There are several science-based target frameworks, the most commonly known being the Science Based Targets initiative (SBTi).

SBTi provides guidance and tools for entities to set science-based targets (SBTs) by, among other things, defining and promoting best practice in SBT-setting across sectors. SBT submissions are validated against the SBTi’s science-based criteria.

According to the SBTi Criteria guidance, near-term SBTs need to:

- cover a minimum of 5 years and a maximum of 10 years from the date the target is submitted to the SBTi;
- follow the Corporate Standard, Scope 2 Guidance and Scope 3 Standard (to the extent scope 3 categories are included);

- cover scopes 1 and 2;
- cover scope 3 for entities whose scope 3 emissions cover more than 40% of their combined scope 1, 2 and 3 emissions;
- be based on emissions reductions through direct action within the entity's own boundaries or value chains (see chapter 4);
- not count avoided emissions (see Question 10A.3.10);
- not count offsets (see Question 10A.3.10); and
- only count renewable instruments such as RECs to meet reductions of scope 2 emissions using the market-based approach (see Question 7A.4.10).

The SBTi recommends that annually entities publicly disclose their emissions inventory and progress against their targets – e.g. in the annual report, sustainability report, corporate website, CDP annual questionnaire.

The SBTi is currently developing a process to track entity progress against targets and plans to issue more specific guidance on annual reporting requirements for entities.

Question 9A.3.50

What is the difference between carbon neutral and net-zero?

Interpretive response: The terms 'net-zero' and 'carbon neutral' are frequently used to identify a GHG emissions reduction commitment. There are no standard definitions and various frameworks define these terms – e.g. Net Zero Initiative Framework, ISO Net Zero Guidelines. Because each term may be defined differently, it is important for the entity to have a clear understanding of the terms used in making commitments.

The following table compares the two concepts, leveraging the carbon neutral definition from PAS 2060 and the net-zero definition from SBTi.

	Carbon neutral	Net-zero SBTi
Overview	Reduce emissions through a target-driven carbon management plan	Reduce emissions in line with 1.5-degree Celsius pathway – i.e. consistent with the Paris Agreement (see Question 2A.2.10)
Use of offsets	Residual carbon emissions can be offset by high quality certified carbon credits	Residual emissions can be offset by carbon removal projects or credits
Scope	Scopes 1 and 2, and scope 3 emissions that contribute more than 1% of the total footprint	Scopes 1, 2 and 3

	Carbon neutral	Net-zero SBTi
Gases	Includes all GHGs	Includes all GHGs
Boundary	Can refer to a specific product or service, or the whole entity	Encompasses the whole entity
Types of offsets	Carbon reduction, avoidance or removal projects	Carbon removal projects
Applicable standard	PAS 2060	SBTi Corporate Net-Zero Standard

Entities that commit to emissions reduction targets often have discretion in the extent and ambition of those targets. These targets are often influenced by regulators, public policy and other stakeholders.

For example, many signatories to the Paris Agreement have set net-zero targets. These targets align with the IPCC's 2018 Special Report on Global Warming of 1.5 degrees Celsius, which explains that to limit the global temperature increase to 1.5 degrees Celsius, global net anthropogenic CO_2 emissions need to decline by about 45% from 2010 levels by 2030, reaching net-zero around 2050.

As more countries set targets in line with this goal, more entities are facing pressure to set similar targets.

Scope 2

Many entities set a target for scope 2 market-based emissions because the only way to reduce scope 2 location-based emissions is to reduce overall energy usage, or potentially increase on-site renewable generation used directly on the entity's premises. The market-based approach allows an entity to take credit for green electricity purchases, giving it more options to demonstrate a reduction in reported emissions. See Example 7A.3.10.

The difference between Scope 2 market-based versus location-based emissions is discussed in section 7A.2.

Example 9A.3.10
Differentiating between carbon neutral and net-zero targets

The following are example policies.

Restaurant has established a carbon neutral target

We have signed the UN's carbon neutral pledge and are committed to reducing our carbon footprint to the extent possible. We are reducing our carbon footprint by serving a vegan menu and using stipends to incentivize employee use of public transportation. We offset unavoidable emissions through investment in a carbon reduction project to develop fuel-efficient cookstoves in Africa.

Hotel has established a net-zero target

We plan to achieve net-zero GHG emissions by the end of 2035, and every year thereafter. We will start by reducing emissions within our organizational boundary. For emissions we cannot avoid, we plan to fully neutralize them by investing in forest conservation projects that prevent carbon from entering the atmosphere. We will further invest in grassland restoration projects that capture and store carbon. These actions are consistent with SBTi obligations for 90% reductions and carbon removal offsets on the remaining 10% of emissions.

Future developments**
Net-zero standards

ISO Net Zero Guidelines

In addition to its ISO 1406X family of standards, ISO launched its Net Zero Guidelines at COP27 in 2022. Unlike other ISO Standards, the Net Zero Guidelines are free to download and available in six languages. The Guidelines aim to complement voluntary initiatives and facilitate alignment to encourage comparability between net zero targets. They provide guiding principles and recommendations to enable a common, global approach.

Science-based targets initiative (SBTi) developments

In November 2025, SBTi released a second draft of its revised Corporate Net-Zero Standard for public consultation, which closed on December 12. The revised standard is expected to be released at the end of 2026 with the following transitional arrangements.

- Entities setting new targets could continue to do so under the current standard until December 31, 2027. From January 1, 2028 all entities would be required to use the updated standard.
- Entities with existing commitments would reference the version of the standard that was in effect at the time of submission.
- Existing near-term targets would remain valid until the end of the target time frame.

Future developments**
GHGP update project

As part of the GHG's update project (see section 2A), a new land sector and removals standard is intended to aid the reporting of land management, land use change, carbon dioxide removals and storage in various carbon pools, biogenic products and products from technological CO_2 removals across the value chain. Entities will use the standard to:

- inform their mitigation strategies;
- set targets and track performance;
- report GHG emissions and carbon removals, as well as progress toward GHG mitigation goals.

More information is available on the GHGP's website.

9B. IFRS Sustainability Disclosure Standards**

9B.1 Comparison to the GHGP**

IFRS Sustainability Disclosure Standards include requirements to disclose information about any targets the entity has. This could be targets the entity uses to monitor progress toward its goals or targets imposed by regulation.

However, they do not include requirements covering how entities set those targets, or what the targets need to be. Entities adopting the standards can choose to apply other standards relating to target-setting (e.g. GHGP, ISO 14064, SBTi) or have no targets. See Question 9B.2.10.

IFRS S2 does not include equivalent guidance to the GHGP about how to track emissions and set targets in practice. Its guidance is restricted to how to disclose material information about any targets the entity has. In addition, IFRS S2 also does not define what the base year needs to be or provide explicit guidance on when it needs to be revised. See section 9B.3.

However, IFRS Sustainability Disclosure requirements do define when entities update historical information disclosed as comparatives. These requirements are different from the GHGP – e.g. in relation to accounting for acquisitions and disposals and the use of significance thresholds. This changes when and how comparative information is updated and can influence when an entity revises its base year. See section 9B.3.

9B.2 Target-setting**

Question 9B.2.10**

Does IFRS S2 require an entity to set GHG emissions reduction targets?

Interpretive response: No. IFRS S2 simply requires disclosure about targets the entity has. This could be targets the entity uses to monitor progress toward its goals or targets imposed by regulation.

If an entity has a GHG emissions reduction target, it discloses the following in addition to the target itself. [IFRS S2.33]

	Disclosure
Basis	The metric used to set the target
Objective	The objective of the target – e.g. mitigation, adaptation or conformance with science-based initiatives
Scope	The part of the entity to which the target applies

	Disclosure
Period	The period over which the target applies
Base period	The base period from which progress is measured
Interim targets	Any milestones and interim targets
Absolute or intensity	If the target is quantitative, whether it is an absolute target or an intensity target
Political context	How the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement, has informed the target

The type of metrics used to define targets will vary depending on the entity, and the entity may present multiple targets. In practice, common targets might be based on:

- a cross-industry metric – e.g. gross absolute scope 1 emissions expressed in $MTCO_2e$;
- an industry-specific metric – e.g. targets around methane emissions reduction for extractives industries; or
- a metric developed by the entity itself.

If an entity has no targets, the above disclosures are not required. However, in that case, the entity would consider if disclosing that it has no targets is, in itself, material information. [IFRS S2.14(a)]

9B.3 The base year and tracking emissions**

Question 9B.3.10**
Does IFRS S2 require a base year to be selected?

Interpretive response: No. Although IFRS S2 requires entities to disclose the base period from which progress is measured for each climate-related target that has been set, it does not specify how the base year should be chosen. [IFRS S2.33(e)]

Therefore, entities may refer to the guidance in the Corporate Standard on selecting a base year (see Question 9A.2.20).

Question 9B.3.20**
When are recalculations of comparative information necessary?

Interpretive response: IFRS Sustainability Disclosure Standards include requirements that are different from the GHG Protocol for restating historical information disclosed as comparatives.

These requirements apply to the historical information presented for the year or years preceding the reporting period. See Question 9B.3.30 for how this guidance relates to recalculating base periods and targets.

Unlike the GHGP, IFRS Sustainability Disclosure Standards do not:

- make use of significance thresholds (see Question 9A.2.40);
- permit retrospective recalculations where there is a change in the reporting entity (see Question 9A.2.30); or
- permit revision for changes in operations such as outsourcing or in-sourcing, regardless of whether the relevant indirect emissions are reported (see Question 9A.2.30).

	GHGP	IFRS Sustainability Disclosure Standards
Correcting errors e.g. including data omitted in error in the prior year	Recalculate if the error is significant [GHGP-CS p35]	Recalculate if the change is material, unless it is impracticable to do so [IFRS S1.83, B55-59] Additional disclosure is required about the revision or restatement. [IFRS S1.83, B58]
Updating for changes in measurement policy e.g. changing from an operational control approach to a financial control approach or redefining a metric to apply a new measurement approach		
Updating estimates – general e.g. replacing estimated value-chain data with directly measured data or adapting measurement technique to reflect latest developments.		
Updating estimates – forward-looking e.g. updating financial forecasts	n/a	Entities can choose to update prospectively if the metric is forward looking (e.g. a forecast of a financial investment.) [IFRS S1.B51(b)]

	GHGP	IFRS Sustainability Disclosure Standards
Reflecting changes in the reporting entity e.g. reflecting acquisitions and disposals or outsourcing or insourcing of emitting activities	Recalculate if there is a significant change in the: • reporting entity (e.g. acquisitions or disposals) unless the acquisition or disposal relates to facilities or operations that did not exist in the base year; or • outsourcing or insourcing of emitting activities, unless the relevant indirect emissions are reported. [GHGP-CS p35, pp38-39]	The reporting entity is consistent with the financial statements. [IFRS S1.20] This means that acquisitions are included in the GHG emissions inventory from the date of acquisition onward, and disposals are excluded from the date of disposal onward. There are no specific provisions in IFRS Sustainability Disclosure Standards to revise metrics due to a change in outsourcing or insourcing of activities.[1]

Note:

1. IFRS S1 includes more general guidance that an entity reassesses the scope of all affected risks and opportunities following a significant event or change in circumstances. [IFRS S1.B11]

These differences principally arise because IFRS Sustainability Disclosure Standards have a greater focus on achieving connectivity with the financial statements compared to the GHGP. The approach to comparative information aims to balance financial statement connectivity with supporting users' ability to analyze trends in historical information.

The requirements in IFRS S1 also differ from financial statements prepared under IFRS Accounting Standards because in general estimates are updated prospectively under the accounting standards. This departure was deliberately introduced because the nature of some sustainability-related metrics was different to financial information, requiring a significantly greater element of estimation. The ISSB concluded that requiring certain estimates to be updated retrospectively would support the ability of users to understand trends in reported information – a similar objective to that of the GHGP. [IFRS S1.BC151]

Question 9B.3.30**
Does IFRS S2 contain requirements on recalculating targets and base periods?

Interpretive response: No. IFRS S2 does not mandate when targets or base periods are updated.

However, IFRS Sustainability Disclosure Standards do have specific requirements affecting when historical information disclosed as comparatives are revised. See Question 9B.3.20.

We believe an entity should consider its facts and circumstances when deciding whether to update its targets and the base period. It may choose to follow the GHGP guidance around restating targets and base periods (see section 9A.2), but IFRS S2 does not require this.

If an entity decides to update its targets and base period, it discloses the change and explains why the change was made. [IFRS S1.51(g), S2.34(d)]

Because IFRS Sustainability Disclosure Standards have different requirements from the Corporate Standard for when there are changes in the reporting entity (see Question 9B.3.20), when restating a base period or target, entities need to consider carefully whether the information presented is understandable. See Question 9B.3.40.

When considering whether to update a target or base year, in addition to factors included in the Corporate Standard, we believe an entity may consider whether:

- it has its targets verified by an external body that has specific requirements relating to updates (e.g. SBTi); or
- a significant change in the composition of the entity itself (e.g. an acquisition or disposal) was contemplated when the target was set.

Question 9B.3.40**
Is an entity required to disclose additional information if it changes its target and/or base period?

Interpretive response: Yes. Where an entity has updated its target or base year, it must identify and explain the changes. [IFRS S1.51(g), S2.34(d)]

Where a change in target and/or base period was triggered by a change in the reporting entity, such as an acquisition or disposal, an entity may need to present additional information about its current period and comparative period emissions to allow users to reconcile to the new target and base period.

This is because the current period and comparative period disclosure will only include information about an acquired business from the date of acquisition onward, or a disposal until the date of disposal. See Question 9B.3.20.

Additional information could include:

- one or more adjusted values that reflect the acquisitions and/or disposals (which may include base-year emissions and one or more reporting periods of GHG emissions between the base year and the reporting year); and
- information that explains the difference between the original and the adjusted values.

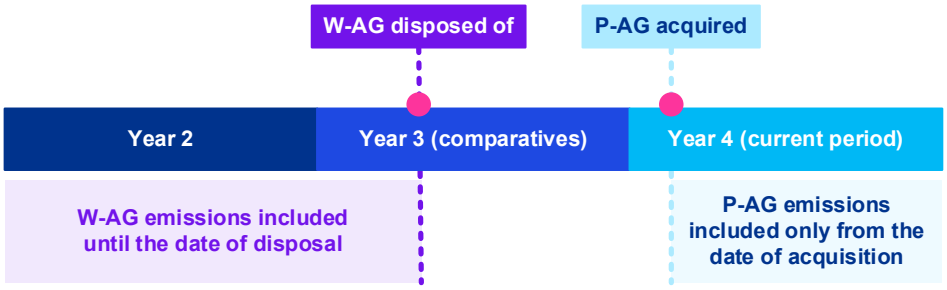
Example 9B.3.10**
Connectivity to the related financial statements for GHG comparative information

Hotel measures absolute scope 1 and 2 emissions and has a target to reduce these emissions by 2032 by 30% compared to its base year of Year 1. For the purposes of GHG emissions reporting, the comparative information provided matches the reporting boundary of the financial statements for the fiscal year.

Since Hotel set its target relative to its base year at the end of Year 1, two transactions occurred.

- On May 1, Year 3, Hotel disposed of its dog grooming subsidiary W-AG due to lack of demand for those services.
- On February 28, Year 4, Hotel acquired P-AG as it expanded into business conference catering.

The following diagram summarizes Hotel's approach to these transactions in measuring its emissions, which is further explained below.



Entity	Effect on base year and target	Years 3 and 4	Year 2
W-AG	Because the disposal of W-AG was already included in its plan to achieve the target, Hotel does not revise its base year to remove W-AG. Instead, it discloses an explanation that the disposal was included in the original target.	Included until May 1, Year 3	Included

Entity	Effect on base year and target	Years 3 and 4	Year 2
P-AG	Hotel is able to measure emissions from P-AG from the start of Year 2 in a way that is consistent with its own emissions measurement. Therefore, it decides to revise its target and base year to include the emissions of P-AG. It discloses an explanation for the change to its target and base year.	Included from February 28, Year 4	Not included

Question 9B.3.50**
Can a significance threshold be used?

Interpretive response: It depends. Under IFRS Sustainability Disclosure Standards, an entity needs to provide material information.

If a company uses thresholds to help determine when a revision of historical emissions is triggered, then it needs to ensure that any threshold does not result in excluding information that is material to users.

In our experience, many entities applying the Corporate Standard set a recalculation policy that includes a significance threshold – e.g. applying a 5% threshold to individual or cumulative revisions. When applying IFRS Sustainability Disclosure Standards, entities wanting to take a similar approach would need to justify why this does not result in a material misstatement.

10. Carbon credits

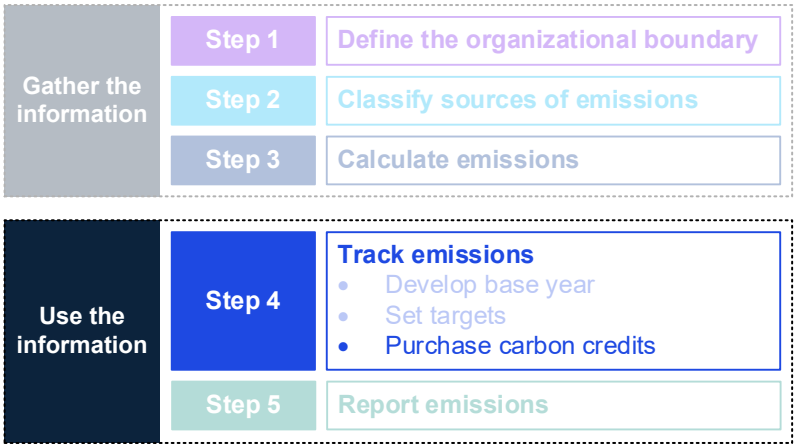
Detailed contents

Item significantly updated in this edition **#**
New item added in this edition ******

10A. GHG Protocol

10A.1 How the Protocol works

Having provided an overview of how emissions are tracked in chapter 9, this chapter looks more closely at the use of offset credits to meet GHG emissions targets. This chapter provides a foundational overview of how carbon credits originate.



Once an entity sets a GHG emissions reduction target, it actions an emissions reduction plan to reduce the gross emissions within its inventory boundary as much as possible. As the plan progresses over time, the entity may plan to purchase carbon credits that compensate for residual emissions that cannot be eliminated.

Carbon credits are the result of GHG project implementation. The GHGP Project Standard provides guidance for quantifying and reporting GHG reductions from GHG projects. Although this kind of accounting is separate and distinct from the accounting for GHG inventories, there is a connection between the two.

The output of project accounting (carbon credit) may be an input into a corporate emissions inventory report if the entity elects to use carbon credits. Carbon credits are not part of the calculation of gross emissions, but instead are presented separately in an entity's emissions statement.

Corporate emissions inventory		Project accounting
the inventory boundary	**Define**	the assessment boundary
actual emissions for each source within the boundary	**Estimate**	baseline (hypothetical) emissions
all emissions within the boundary	**Total**	difference between baseline emissions and project emissions
purchase carbon credits	**Transact**	sell carbon credits

10A.2 Carbon credits and GHG projects

Question 10A.2.10#
What terminology is used in practice?

Interpretive response: In our experience, there are differences between the technical explanations of offsets under the GHGP and the use of carbon credit terminology often used for GHG reporting purposes.

This chapter refers to the following.

- **Scope 2 contractual instruments.** These are certificates or other evidence that allow the receiving entity to take credit for the use of renewable energy (e.g. RECs in the US market). These instruments are an inherent part of scope 2 market-based emissions calculations. See chapter 7.
- **Carbon credits.** These are instruments used by entities to reduce their reported emissions footprint. They are not part of the calculation of gross emissions but, instead, are presented separately in an entity's emissions statement (see Question 10A.3.50).

The remainder of this chapter uses the following terminology while acknowledging that other terms may be used interchangeably to mean the same thing.

- **GHG offset** (as used in the GHGP), which may be related to a reduction, removal or avoided GHG emission. This chapter sometimes uses the term 'reduction' where removal or avoided GHG emission could be used instead.
- **Carbon credit** (rather than 'offset credit' as used in the GHGP), which is a transferable instrument.

Question 10A.2.20
What is a GHG offset?

Interpretive response: A GHG offset represents the reduction, removal or avoidance of GHG emissions from a specific GHG project that is used to offset GHG emissions that occur elsewhere. They may be used to meet a voluntary or mandatory GHG trade or cap. See Question 10A.2.80. [GHGP-CS.59]

The following table depicts the types of projects from which GHG offsets may be derived.

Type	Avoidance	Removal
Definition	Reduce emissions to the atmosphere	Capture emissions from the atmosphere and store them via natural or technological processes
Method	Compare to what most likely would have happened absent the project	Via either natural or technological processes
Examples	Renewable energy, convert methane captured from landfill to energy, limit timber harvest levels	Reforestation, afforestation, direct air capture

Question 10A.2.30
What is a GHG project?

Interpretive response: A GHG project comprises a specific activity or set of activities intended to reduce GHG emissions, increase the storage of carbon or enhance GHG removals from the atmosphere. A project activity is a specific intervention intended to *change* GHG emissions, removals or storage. [GHGP-PA.11]

These changes are associated with processes that either: [GHGP-PA.11]

- release GHG emissions into the atmosphere (GHG source) – e.g. fossil-fuel powered vehicles; or
- remove and store GHG emissions from the atmosphere (GHG sinks) – e.g. trees.

These changes are either intentional (primary effects) or unintentional (secondary effects). For example, the primary effect of a reforestation project is to increase storage or removals of CO_2 and a secondary effect may be the release of GHG emissions from the machinery used to prepare the land for planting. [GHGP-PA.11]

Question 10A.2.40
What is a GHG assessment boundary?

Interpretive response: The GHG assessment boundary comprises all of the primary and significant secondary effects associated with a GHG project. The primary and significant secondary effects are included within the assessment boundary regardless of whether they occur at GHG sources or sinks owned or controlled by the project entity. [GHGP-PA.12]

Within the assessment boundary, a GHG reduction is either a reduction in GHG emissions or an increase in removals or storage of GHGs from the atmosphere, relative to baseline emissions. [GHGP-PA.12]

Excerpt from GHGP Project Standard [p 29]

Defining the GHG assessment boundary

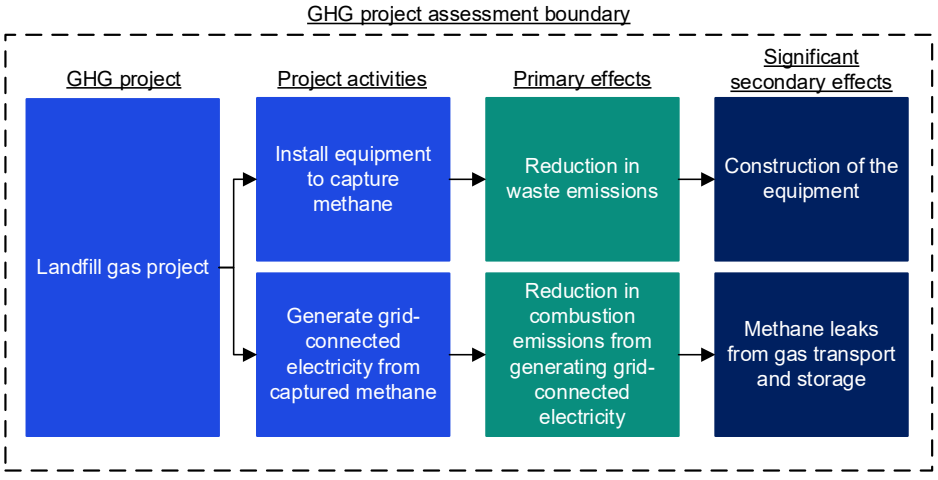
The GHG assessment boundary encompasses GHG effects, regardless of where they occur and who has control over the GHG sources or sinks associated with them. This inclusive GHG assessment boundary is intended to encourage a more comprehensive assessment of the GHG project's effect on GHG emissions and to minimize the possibility of overlooking any significant GHG effects that may occur outside the project's physical location or beyond the control of the project developer. However, what constitutes *significant* is left to the discretion of the project developer.

Example 10A.2.10
Identifying the GHG assessment boundary

This following example has been adapted from the GHGP Project Standard by adding significant secondary effects. [GHGP-PA.31]

Project undertakes a project to capture methane gas at a landfill. This project captures GHGs that would otherwise be emitted to the atmosphere.

Project identifies the project's assessment boundary as follows.



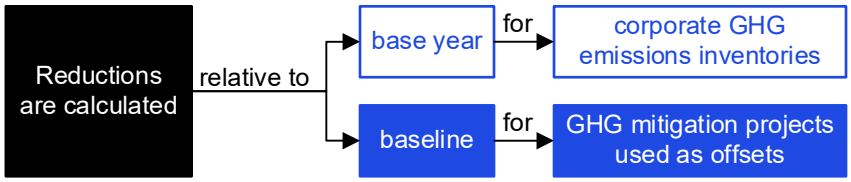
Insignificant secondary effects are outside the assessment boundary.

Question 10A.2.50
How are GHG offsets quantified?

Interpretive response: GHG offsets are quantified relative to a baseline that represents a hypothetical scenario for what emissions would have been in the absence of the GHG project. The GHGP Project Standard focuses on the quantification of GHG reductions from GHG mitigation projects that will be used as offsets (see Question 10A.2.20). [GHGP-CS.59]

This is different from reductions in a corporate emissions inventory, which calculates reductions by comparing changes in the entity's emissions inventory over time relative to a base year. The Corporate Standard focuses on the accounting and reporting of GHG emissions at the entity level. [GHGP-CS.59]

The following figure portrays how reductions are quantified differently in terms of GHG offsets versus corporate inventories.



Excerpt from Corporate Standard [p 59]

Reductions in indirect emissions

Reductions in indirect emissions (changes in scope 2 or 3 emissions over time) may not always capture the actual emissions reduction accurately. This is because there is not always a direct cause-effect relationship between the activity of the reporting company and the resulting GHG emissions.

For example, a reduction in air travel would reduce a company's scope 3 emissions. This reduction is usually quantified based on an average emission factor of fuel use per passenger.

However, how this reduction actually translates into a change in GHG emissions to the atmosphere would depend on a number of factors including whether another person takes the "empty seat" or whether this unused seat contributes to reduced air traffic over the long term.

Question 10A.2.60
How are baseline emissions calculated?

Interpretive response: Baseline emissions are calculated using a baseline (or hypothetical) scenario of what would have most likely occurred in the absence of the GHG project. [GHGP-PA.12]

Baseline emissions associated with primary effects are derived from a baseline scenario, either developed via the project-specific standard or a performance standard. [GHGP-PA.13]

- A **project-specific standard** is linked to the specific circumstances of the project activity. [GHGP-PA.48]
- A **GHG emission performance standard** is not tied to the specific project activity; rather it represents an analysis of the GHG emission rates of all baseline candidates. An example may be energy efficiency. [GHGP-PA.60]

The GHGP Project Standard defines baseline candidates as alternative technologies (both existing and potential) or practices within a specified geographic area or temporal range that could provide the same product or service as the project activity. [GHGP-PA.38]

For example, for a project activity that substitutes a low GHG-emitting fuel for a high GHG-emitting fuel in vehicles, the service provided would be energy used for transportation, not transportation itself. Therefore, alternative fuels would be considered as baseline candidates, but alternative modes of transportation would not. [GHGP-PA.39]

Baseline emissions associated with secondary effects are estimated – e.g. using existing data or emission factors – and linked to the project-specific baseline scenario. [GHGP-PA.13]

Excerpt from GHGP Project Standard [pp 15-16]

Defining the GHG assessment boundary

Though the presumption is generally that a project activity differs from its baseline scenario, in some cases, a project activity (or the same technologies or practices it employs) may have been implemented “anyway.” In these cases, the project activity and its baseline scenario are effectively identical.

While such a project activity may appear to reduce GHG emissions relative to historical emission levels, compared to its baseline scenario the project activity does not reduce GHG emissions. In the context of GHG programs, it is important to count only GHG reductions from project activities that differ from – or are additional to – their baseline scenarios.

Question 10A.2.70
What is additionality?

Interpretive response: Distinguishing a project activity from its baseline scenario is referred to as determining additionality. [GHGP-PA.16]

Additionality means beyond 'business as usual'. Additionality is a term specifically associated with offsets and project level accounting – separate from corporate GHG accounting. [GHGP-PA.16]

As defined in the GHGP Project Standard, it is a criterion stipulation that project-based GHG reductions should only be quantified if the project activity 'would not have happened anyway' – i.e. the project activity (or the same technologies or practices it employs) would not have been implemented in its baseline scenario and/or that project activity emissions are lower than baseline emissions. [GHGP-PA.130]

The GHGP Project Standard acknowledges that there is no common agreement about how to prove that a project activity and its baseline scenario are different. [GHGP-PA.16]

The GHGP Project Standard does not explicitly require a demonstration of additionality. Rather, additionality is an implicit part of the baseline emissions estimation procedures – via either the project-specific or performance standard. See Question 10A.2.60. [GHGP-PA.8]

Example 10A.2.20
Demonstrating additionality

Project undertakes a landfill gas project with the intention of developing offset credits that can be sold to third parties.

Project determines that the baseline scenario involves the continuation of current activities – e.g. in the absence of this project, methane from the landfill would continue to be released to the atmosphere. Therefore, baseline emissions are equal to the GHG emissions sequestered by the methane capture technology.

To further demonstrate additionality, Project verifies the following:

- there are no laws or regulations that require the capture of landfill methane; and
- there are no laws against the capture of landfill methane.

Project claims that "1,500 tCO_2e have been avoided at a global level."

Project supports the credibility of this claim by demonstrating the undertaking of an 'intervention' to capture the methane from the landfill – and that without this intervention, the methane capture would not have happened.

Question 10A.2.80
What are GHG trading programs?

Interpretive response: GHG trading programs determine compliance by comparing emissions with an emissions reduction target or cap. They may be implemented on a mandatory or voluntary basis. Such programs often have specific accounting and reporting requirements. As a result, it is necessary to check relevant programs for additional requirements when developing an inventory. [GHGP-CS.13]

GHG trading programs use GHG registries, where entities report GHG emissions in a public database. These registries allocate a serial number to all traded offsets or credits, and the serial numbers are retired once they are used. This prevents double counting of offset credits. [GHGP-CS.82]

The following are examples of GHG programs:

- **European Union Emissions Trading System** uses a compulsory carbon market to reduce emissions in high-intensity carbon-emitting industries.
- **The Climate Registry** operates the voluntary Carbon Footprint Registry for entities in North America.

10A.3 Carbon credits

Excerpt from Corporate Standard [p 60]

Project based reductions and offsets/credits

[Credits] are typically generated from an activity such as an emissions reduction project and then used to meet a target in an otherwise closed system, such as a group of facilities with an absolute emissions cap placed across them. Although a credit is usually based on the underlying reduction calculation, the conversion of an offset into a credit is usually subject to strict rules, which may differ from program to program.

Question 10A.3.10
What is a carbon credit?

Interpretive response: A GHG offset is an outcome from an action, which can be associated with a transferrable instrument that represents the avoided or

removed GHG emissions – a carbon credit. A carbon credit (referred to as an offset credit in the GHGP) is a transferrable instrument certified by a GHG program and may be used to meet an externally imposed target. Question 10A.2.80 further discusses GHG programs. [GHGP-CS.98]

One carbon credit represents 1 tonne of CO_2e. [GHGP-MGS.148]

Question 10A.3.20

How are carbon credits used to meet GHG emission reduction targets?

Interpretive response: A GHG emissions target may be met entirely from internal reductions at sources included in the inventory boundary. For remaining emissions that cannot be eliminated, carbon credits may be used. [GHGP-CS.81]

Carbon credits represent emissions reductions generated from sources external to the inventory boundary. They must be reported separately from an entity's gross emissions. The example in Appendix B illustrates the presentation of carbon credits.

The purchaser of a carbon credit can 'retire' it to claim the underlying reduction toward its own GHG emissions goals. [GHGP-CS.82]

Question 10A.3.25

What is the process by which carbon credits are derived from a GHG project?

Interpretive response: The following series of steps identifies the typical process from GHG project inception through carbon credits being retired under a high-quality program. The highlighted steps are explored further in this question as background in understanding the discussion about the quality of carbon offsets later in this section.

Step	Description	Party performing
1	Create project description	Project Proponent
2	Review project description	Registry / Program
3	Review project description	Validation & Verification Body
4	Validate final project description	Validation & Verification Body
5	Submit final project description	Project Proponent
6	Register project	Registry / Program
7	Implement project	Project Proponent
8	Verify performance of project	Validation & Verification Body
9	Issue credits	Registry

Step	Description	Party performing
10	Receive credits to sell / hold	Project Proponent
11	Buy credits	Buyer
12	Retire credits (to offset emissions)	Buyer
13	Record retirement of credits	Registry / Program

Most discussion about the presentation of carbon credits in GHG emissions reporting focuses on the purchase and retirement of offset credits (Steps 11 to 13). In theory, Steps 12 and 13 happen simultaneously.

However, the concepts of validation (Step 4) versus verification (Step 8) and the timing of credits being issued (Step 9) are particularly relevant in understanding the factors contributing to the quality of offset credits (see Question 10A.3.35). The following descriptions are included in the GHGP Mitigation Goal Standard. [GHGP-MGS.123]

- Validation provides assurance of goal design, base year emissions or emissions intensity, baseline scenario emissions and allowable emissions, among other accounting steps.
- Verification provides assurance of progress assessments undertaken during the goal period and assessments of goal achievement undertaken at the end of the goal period.

While validation is concerned with the design and set-up of the project, it is verification that drives the issuance of credits (Step 9). Verification is carried out periodically (e.g. every three to five years) and its purpose is to provide a level of assurance over whether the registered project (Step 6) is achieving its stated outcomes.

Without verification, a buyer (Steps 11 and 12) has no assurance that the GHG emissions reductions (or removals) underpinning the credits did, in fact, occur. Therefore, verification is an indicator of quality and important in assessing whether reductions for which credits have already been issued were realized or reversed (see Question 10A.3.35).

Question 10A.3.27
What if GHG emissions reductions are reversed after carbon credits are issued?

Background: As explained in Question 10.3.25, the verification of credits under a high-quality program is an ongoing process and may identify the reversal of GHG emissions reductions or removals – e.g. the carbon sequestration associated with a reforestation project is partially reversed due to a forest fire.

Reversals from individual projects have implications for credits that have already been issued (Step 9 in the process outlined in Question 10.3.25) and may have already been retired (Steps 12 and 13).

Interpretive response: A common mechanism to help ensure that carbon credits are not claimed in excess of actual emissions reductions is for a program to use 'buffer reserves' (also known as a 'buffer pool'). A buffer reserve might be kept at the project level or might be maintained across different projects to help mitigate risk.

Using a buffer reserve, a GHG program does not issue credits (Step 9) for the entire amount of emissions reductions. Instead, a percentage is kept in reserve as a kind of insurance against the risk of reversal. Example 10A.3.10 illustrates one way in which a buffer reserve might operate.

Example 10A.3.10
Carbon credits buffer reserve

Project is validated at the start of Year 1 and is expected to capture 20,000 tCO_2e over a 10-year crediting period – i.e. generating 2,000 carbon credits a year. To counter the risk of captured emissions being released into the atmosphere, Project maintains a 20% buffer reserve – i.e. 4,000 carbon credits over 10 years.

In each of Years 1 to 3, Project sells 1,600 carbon credits (2,000 – 400 buffer reserve).

At the end of Year 3, verification is carried out, which reveals that the estimates used in validation were overstated and Project is now expected to capture 19,000 tCO_2e over the 10-year crediting period.

To account for the overstatement, Project retires 1,000 credits from the buffer reserve at the start of Year 4. Project plans to continue selling 1,600 credits a year, with the planned reserve now at 3,000 credits.

Note: As an alternative, Project may be required to reserve a greater percentage of credits for the buffer reserve prospectively.

Question 10A.3.30
What are the considerations around the credibility of carbon credits?

Interpretive response: The GHG Project Standard provides guidance to address key project accounting challenges associated with the credibility of carbon credits – e.g. baseline, additionality, secondary effects, double counting. See section 10A.2.

Double counting can occur when a GHG offset is counted toward the target by both the selling and purchasing entities. This can be avoided by clarifying ownership of reductions either through registries or contracts.

To assess the credibility of carbon credits used to meet a target, useful information includes the project type, its geographic and organizational origin, how offsets are quantified and whether they are recognized by external programs. [GHGP-CS.82]

Such external programs use standards, methodologies, independent auditing and registries to assess GHG emissions reductions or removals against a set of defined criteria (see Question 10A.3.35). These programs also track the retirement of carbon credits – e.g. when the carbon credit holder claims the associated GHG reductions toward a GHG reduction goal.

Question 10A.3.50 discusses presentation and disclosure considerations for reporting carbon credits.

- This general guidance on credibility under the GHGP differs from IFRS S2. See Question 10B.2.10.

Example 10A.3.20
Double counting carbon credits

Project undertakes an internal reduction project. Project sells this project reduction to Hotel in the form of a carbon credit.

Scenario 1: Inappropriate double counting

Without any contract or registry, Project and Hotel both count these reductions toward their targets. This results in the inappropriate double counting of the offset credit.

All measures in tCO_2e	Project	Hotel
Scope 1 emissions	60,000	15,000
Internal reductions	-15,000	0
Carbon credits	0	-15,000
Net scope 1 reported emissions	45,000	0

Scenario 2: Appropriately avoid double counting

With a contract in place clarifying that Hotel takes sole ownership of the carbon credit, only Hotel counts this reduction toward its target. Project does not count the reduction toward its target. This scenario appropriately avoids double counting of the offset credit.

All measures in tCO_2e	Project	Hotel
Scope 1 emissions	60,000	15,000
Internal reductions	0	0
Carbon credits	0	-15,000
Net scope 1 reported emissions	60,000	0

Neither entity counts the reductions in calculating gross emissions. The reductions are reported separately from gross emissions. See Question 10A.3.50.

Question 10A.3.35

What considerations are relevant in assessing the quality of carbon credits in the voluntary market?

Background: The Corporate Standard and Project Standard do not provide a specific set of criteria for assessing the quality of carbon credits. However, the GHGP Mitigation Goal Standard does include guidance that may assist an entity in evaluating the quality – which can infer the value – of a carbon credit before purchasing it.

Excerpt from GHGP Mitigation Goal Standard

[pp 47-48]

Offset credits applied toward goal achievement shall be:

- **Real**: Emission reductions or removals represent actual emission reductions and are not artifacts of inaccurate or incomplete accounting.
- **Additional**: Emission reductions or removals are beyond what would have happened in the absence of the incentive provided by the offset credit program or project.
- **Permanent**: Emission reductions or removals are irreversible or, if sourced from projects such to potential reversal (for example, carbon sequestration), have guarantees to ensure that any losses are compensated for, which may include replacement mechanisms such as legal guarantees, insurance, or buffer pools.
- **Transparent**: Offset credits are publicly and transparently registered with unique serial numbers to clearly document offset credit generation, transfer, retirement, cancellation, and ownership. Crediting programs are transparent regarding rules and procedures for monitoring, reporting, and verification, quantifying GHG reductions, and enforcement.
- **Verified**: Offset credits are issued from emission reductions or removals that result from projects whose performance has been appropriately validated and verified to a standard that ensures reproducible results by an independent third party that is subject to a viable and trustworthy accreditation system.
- **Owned unambiguously**: Ownership of GHG reductions or removals is clear by contractual assignment and/or government recognition of ownership rights. Transfer of ownership of offset credits must be unambiguous and documented. Once the reductions or removals are sold,

the seller and host government must cede all rights to claim future credits for the same reduction in order to avoid double counting.

- **Addresses leakage**: Emission reductions or removals are generated in a manner that addresses leakage. The market (or other) mechanism that generates the transferable emissions units is designed and operated in a way that minimizes the risk of leakage and accounts for any unavoidable leakage.

Interpretive response: Like compliance GHG trading programs (see Question 10A.2.80), GHG programs in the voluntary carbon market may use registries, with unique serial numbers assigned to credits and specific methodologies and frameworks to evaluate and implement projects. The methodologies and frameworks are developed, approved and enforced by the registries.

For entities seeking to purchase carbon credits, obtaining sufficient information about the projects and credits available, and comparing the options, may be a challenge. Question 10A.3.30 describes high-level considerations related to the credibility of offset credits.

This question describes the risks associated with carbon credits – using the quality criteria in the GHGP Mitigation Goal Standard as an example (see excerpt) – that are helpful in assessing the quality of credits. In addition, it provides examples of related disclosures that might be required, using the California Voluntary Carbon Market Disclosures Act (AB-1305) as an example; for more information about AB-1305, read KPMG's Hot Topic, All about California's climate laws.

Real

This criterion is looking for emissions reductions or removals that physically impact the metric tonnes of GHGs in the atmosphere (see Question 10A.2.20). However, there are two main types of credits.

- **Ex-post credits** relate to past reductions or removals – i.e. the reductions or removals have already occurred.
- **Ex-ante credits** are issued in advance of the emissions reductions or removals being verified.

It may not always be clear whether a carbon credit is an ex-post or ex-ante credit, or whether an ex-ante credit will be exchanged or adjusted once the reductions or removals have occurred. These differences create risk for an entity seeking to purchase high-quality offset credits. See Question 10A.3.37 for further discussion.

Relevant to this criterion, the following disclosures are required by California AB-1305 (for example):

- emissions reduced or carbon removed on an annual basis; and
- the type of project, including whether the offsets from the project are derived from a carbon removal, an avoided emission, or a combination of both.

Additional

As described in Question 10.2.70, additionality is a fundamental characteristic of a quality carbon credit. The following are example quality considerations that an entity should be aware of.

- Independent registries establish their own additionality thresholds, which may also vary by project type even within the same registry.
- Changing legal requirements may render a project non-additional (because the underlying project would have happened anyway; see Question 10A.2.70) or reduce the number of carbon credits that may be generated as laws set higher bars for minimum levels of performance, e.g. energy efficiency, permitted emissions output, production efficiency, or industry methods.
- Technological advances and increased adoption of those technologies may make the project the most economical choice or become 'common practice' – i.e. the underlying project would have happened anyway.

Relevant to this criterion, the following disclosure is required by California AB-1305 (for example):

- The pertinent data and calculation methods needed to independently reproduce and verify the number of emissions reductions or removal credits issued using the protocol.

Permanent

Permanence can be described in two different ways in the context of a project:

- the actual length of time that the reversal or reduction will be in place; and
- the length of time the GHG program will provide for compensation for potential reversals.

Addressing permanence within the program can be through buffer reserves (see Question 10A.3.27) or other insurance types. As with other information that may indicate quality, permanence safeguards may be provided for throughout a crediting period but may not be transparent to the buyer.

Relevant to this criterion, the following disclosures are required by California AB-1305 (for example):

- Details regarding accountability measures if a project is not completed or does not meet the projected emissions reductions or removal benefits, including, but not limited to, details regarding what actions the entity, either directly or by contractual obligation, shall take under both of the following circumstances:
  - carbon storage projects are reversed; and
  - if future emissions reductions do not materialize.

Transparent

Transparency has two components:

- the first relates to the project documentation, methodologies and processes followed for managing crediting and quality; and
- the second relates to visibility into ownership transfers over the life of the credit (see Owned unambiguously).

Project-related transparency involves the documentation, methodologies and processes used for managing crediting and quality, including monitoring plans to assess performance and provide performance reports, which may be verified.

Relevant to this criterion, the following disclosures are required by California AB-1305 (for example):

- the specific protocol used to estimate emissions reductions or removal benefits; and
- the location of the offset project site, the project timeline and the date when the project started or will start.

Verified

Each methodology sets the verification frequency and standards to be used. Registries may allow verifications of credits issued under their GHG programs to be performed only by verifiers approved by the registry – i.e. a verifier that understands the registry's methodology and will maintain its standards.

Verification can be costly and may not be required by the methodology every year. For example, a GHG program that issues ex-ante credits might not verify them to generate ex-post credits.

Relevant to this criterion, the following disclosures are required by California AB-1305 (for example):

- whether there is independent expert or third-party validation or verification of the project attributes.

Owned unambiguously

As ownership changes hands more times in an unregulated market and the buyer may be further removed from the seller that generated the credit, there may be a risk that ownership records are not keeping up with each transaction.

Ownership-related transparency concerns the visibility of ownership transfers over the life of the credit (from generation to retirement). Unique identifiers, such as serialization, facilitate tracking and verifying credit ownership throughout a credit's life cycle. A public registry with effective governance and enforcement mechanisms, along with serialization, supports the overall credibility of the voluntary carbon market by lending transparency to the process.

The GHGP Mitigation Goal Standard describes a public registration of carbon credits with unique serial numbers to aid in meeting transparency expectations. [GHGP-MGS.47-48]

Addresses leakage

Leakage comprises the 'secondary effects' described in Question 10.2.30 and a high-quality project or program will include mitigation actions to reduce the amount of leakage to the extent possible and account for unavoidable leakage. [GHGP-MGS.34]

- This general guidance on the quality of carbon credits differs from IFRS S2. See Question 10B.2.10.

Question 10A.3.37

How does an ex-ante carbon credit differ from an ex-post carbon credit?

Interpretive response: A carbon credit, as defined in Question 10A.3.10, refers to a transferable instrument certified by a GHG program. However, the methodologies that support the generation of the carbon credit may contain fundamental differences that give rise to differences in the contractual terms of purchase. [GHGP-CS.98]

Levels of risk

The Carbon Offset Guide describes three methods of carbon credit delivery with increasing levels of risk.

- **Low risk:** Ex-post credits are carbon credits for removals/reductions that have already occurred and are promptly delivered to the buyer.
- **Medium risk:** Forward contracts that involve a binding agreement specifying a pre-defined price, time or fixed delivery quantity for future offsets. These contracts protect buyers by requiring sellers to produce offset credits from another project if fewer than expected are generated.
- **High risk:** Forward crediting, or ex-ante credits, involve the sale of carbon credits for a future reduction or removal. Contracts may include ex-post adjustments of purchase prices that correspond to shortfalls in credit generation to protect buyers.

The forward contract and forward crediting methods may seem similar, but the risks involved differ significantly. Forward crediting exposes buyers to higher risks, and despite ex-post adjustments being part of a contract, shortfalls in generation may not be communicated to the buyer.

Carbon credits that have already resulted in emissions reductions or removals and were verified are less risky relative to the other types.

Retiring carbon credits

Ex-post carbon credits are retired when a buyer uses them to offset emissions within a reporting period (Step 12 in Question 10A.3.25). Emissions may occur during the current reporting period, but the retired credit relates to a past

reduction/removal. This type of carbon credit could be presented as such in a GHG inventory that is in accordance with the GHGP (see Question 10A.3.50).

Ex-ante carbon credits can be exchanged for ex-post credits. Contracts may also allow for ex-post adjustments to compensate for shortfalls. Two types of ex-ante offset credits have emerged:

- Type A: Credits exchanged for ex-post credits after verification of the reduction/removal; and
- Type B: Credits delivered to registries and retired to offset actual emissions despite not having yet occurred.

Type A credits have the same character upon retirement as a carbon credit that was only ever issued after the emissions reduction or removal occurred.

However, Type B credits are retired before an associated reduction or removal occurs. This substantially increases the risk that subsequent information, including verification, demonstrates the project did not generate sufficient removal or reduction benefits to support the carbon credits' issuance or retirement.

Question 10A.3.40
Are carbon credits different from RECs?

Interpretive response: Yes. Carbon credits and RECs are fundamentally different instruments used for different purposes and they are not interchangeable. Both carbon credits and RECs may be used as tools to reduce reported emissions, but they do this differently.

- **Carbon credits** convey avoided GHG emissions (tCO_2e) compared to a baseline scenario.
- **RECs** convey information about direct energy generation emissions occurring at the point of production – e.g. the scope 2 market-based emission factor associated with each MWh of energy generation.

The following table summarizes these differences.

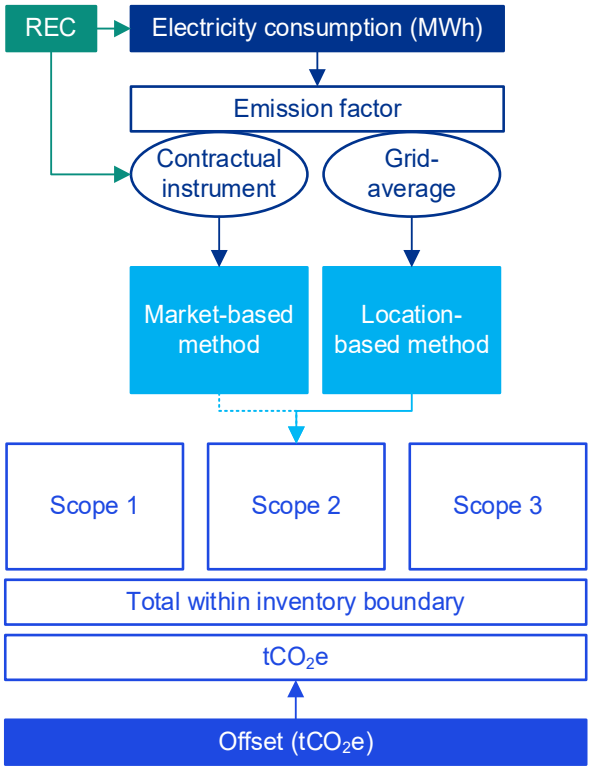
	Carbon credits	RECs
Unit	1 tCO2e	1 MWh electricity generation
Source	Projects that avoid or reduce GHG emissions to the atmosphere	Renewable electricity generators – e.g. wind, solar, biogas, hydropower, geothermal
Scope under the GHGP	Net adjustment to scope 1, 2 or 3	Lower scope 2 market-based emissions
Additionality	Required	Not required

A REC is associated with 1 MWh of electricity generation. The emission factor derived from the REC is used to calculate scope 2 market-based emissions. Because renewable energy has an associated emission factor of zero, the use of emission factors derived from RECs results in a decrease in scope 2 market-based emissions.

A carbon credit is associated with 1 tCO_2e. An entity may elect to purchase a total amount of credits equal to the total tCO_2e from its entire corporate inventory – e.g. the sum of all scope 1, 2 and 3 emissions identified within the inventory boundary. In this case, the entity's reported emissions are neutralized by purchasing credits equal to the sum of the entity's emissions.

RECs are not offsetting emissions. Rather, the purchase of RECs represents renewable electricity from a low (or zero) emissions source. This reduces the reported emissions associated with an entity's electricity use.

The following diagram illustrates the differences between carbon credits and RECs.



Example 10A.3.30
Purchasing RECs to reduce scope 2 market-based emissions

Hotel and its competitor consume the same amount of electricity on the same grid. Hotel purchases RECs and its competitor does not.

Hotel uses the emission factor of zero conveyed by the REC to calculate scope 2 market-based emissions. Because its competitor has not entered into any contractual arrangements, it uses the residual mix emission factor to calculate scope 2 market-based emissions. To calculate scope 2 location-based emissions, both entities use the grid-average emission factor.

	Hotel	Competitor
Electricity consumption (MWh)	500	500
RECs purchased (MWh)	500	0
Scope 2 market-based emissions calculation:		
Emission factor (tCO_2e/MWh)[1]	0	0.3
Emissions (tCO_2e)[2]	**0**	**150**
Scope 2 location-based emissions calculation:		
Emission factor (tCO_2e/MWh)[1]	0.2	0.2
Emissions (tCO_2e)[2]	**100**	**100**

Notes:

1. Hypothetical emission factors are used for simplicity. This example does not demonstrate the unit conversion calculation (e.g. converting pounds to tonnes; see Question 5A.2.20) or the GWP conversion calculation (e.g. converting CH_4 to CO_2e; see Question 2A.3.50).
2. Emissions are calculated as Electricity consumption × Emission factor

Example 10A.3.40
Purchasing carbon credits to meet GHG emission reduction goals

Hotel has set GHG emissions targets, but its competitor has not.

Hotel's targets relate to all emissions within its inventory boundary, specifically scope 1, scope 2 location-based and scope 3. It has undertaken various initiatives to reduce the emissions within its inventory boundary as much as possible. For the residual emissions, Hotel has purchased and retired carbon credits.

All measures in tCO_2e	Hotel	Competitor
Scope 1 emissions	100	50
Scope 2 location-based emissions	250	250
Scope 3 emissions	800	600
Total emissions calculated within the inventory boundary	**1,150**	**900**
Carbon credits retired	-1,150	0
Net emissions	0	900

Question 10A.3.50
How are carbon credits reported?

Interpretive response: An entity reports physical inventory emissions for its chosen inventory boundaries separately and independently of any GHG trades (purchase or sale of allowances, offsets and credits) they undertake. [GHGP-CS.60]

Internal projects reduce GHGs within an entity's inventory boundary. These reductions are not reported separately unless they are sold, traded externally or otherwise used as a carbon credit. [GHGP-CS.61]

When disclosing targets, entities specify whether carbon credits are used and, if so, how much of the target reduction was achieved using credits [GHGP-CS.82]

The example in Appendix B illustrates how carbon credits might be presented.

10B. IFRS Sustainability Disclosure Standards**

10B.1 Comparison to the GHGP**

IFRS S2 requires the disclosure of absolute gross GHG emissions – i.e. before the deduction of carbon credits.

The definition of carbon credits differs in some respects from the GHGP, and IFRS S2 includes stricter requirements relating to disclosures about carbon credits.

10B.2 Select requirements of IFRS S2**

Question 10B.2.10**

Is registration required for an instrument to meet the definition of a carbon credit under IFRS S2?

Interpretive response: Yes. IFRS S2 defines a carbon credit as including the characteristics that it is "uniquely serialised, issued, tracked and cancelled by means of an electronic registry." In effect, this definition requires carbon credits to be registered. [IFRS S2.A]

Although IFRS S2 does not refer to 'quality standards' (see Question 10A.3.35), the characteristics required by IFRS S2 lead toward ensuring that carbon credits meet quality standards because carbon crediting programs typically include such standards. In addition, IFRS S2 requires disclosure about the credibility and integrity of carbon credits that an entity plans to use for offsetting GHG emissions. [IFRS S2.36(e)(iv)]

- Unlike IFRS Sustainability Disclosure Standards, the guidance in the GHGP focuses on how to evaluate the credibility or quality of carbon credits (see section 10A.3) rather than requiring a specific definition to be met. While that guidance does not specifically require registration, we would not generally expect significant differences in practice.

Question 10B.2.20**

Is an entity required to disclose its use of carbon credits to meet targets under IFRS S2?

Interpretive response: Yes. IFRS S2 requires any disclosed GHG targets to be accompanied by a clear statement on whether and to what extent those targets are planned to be met using carbon credits. [IFRS S2.36(e)(i)]

In addition, the following disclosures are required: [IFRS S2.36(e)(ii)-(iv)]

- which third-party program will verify or certify the carbon credits (see Question 10A.3.25);
- the type of carbon credit and whether the underlying offset is achieved through carbon reduction or removal (see Question 10A.2.20); and
- any other factors necessary for users to understand the credibility and integrity of the carbon credits (see Question 10B.2.10).

Example 34 in KPMG's Guide, Illustrative disclosures – IFRS Sustainability Disclosure Standards, provides example disclosures.

♦ Unlike IFRS Sustainability Disclosure Standards, disclosures related to the use of carbon credits are optional under the GHGP. See Appendix A.

Question 10B.2.30**

Can a credit that does not meet the definition of a 'carbon credit' be disclosed under IFRS S2?

Interpretive response: Yes. We believe if a credit meets quality standards (see Question 10A.3.35), an entity may voluntarily disclose its usage in helping the entity to reduce emissions. However, it should not be described as a 'carbon credit' or using other terminology that implies it is a 'carbon credit'. [IFRS S2.A]

If such 'other' instruments are disclosed, we believe the general principles of the IFRS S2 disclosures about carbon credits still apply – i.e. users should have sufficient information to understand the nature of the instruments and how the entity plans to use them (see Question 10B.2.20).

11. Reporting

Detailed contents

New item added in this edition **

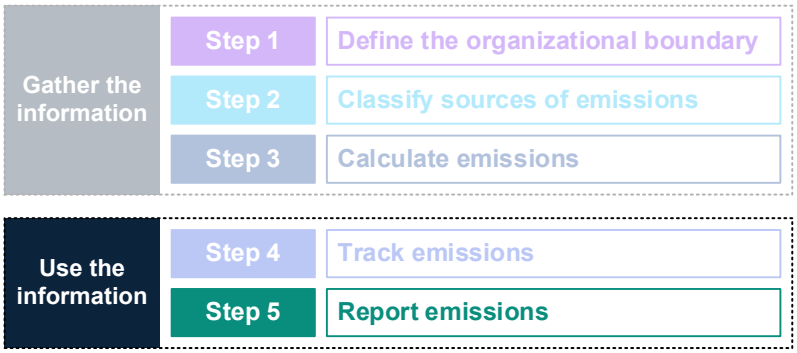
Example

Future developments

11A GHG Protocol

11A.1 How the Protocol works

The last step in the process is to report the information gathered and tracked.



The presentation and disclosure requirements of the GHGP differ depending on whether an entity elects to follow just the Corporate Standard (including the Scope 2 Amendment) or is also following the Scope 3 Standard.

In many cases, entities will follow the standards and guidance of the GHGP in gathering information (Steps 1 to 3) and tracking emissions (Step 4), but will present emissions in accordance with other standards – e.g. under the requirements of ESRS E1 or IFRS S2.

11A.2 Which standards and guidance apply

Question 11A.2.10
How is GHG information presented?

Interpretive response: Similar to financial statements, the basis of presentation needs to be clearly stated in the GHG emissions statement.

Under the general guidelines, a public GHG report: [GHGP-CS.62]

- is based on the best data available at the time of publication;
- is transparent about limitations;
- communicates any material discrepancies; and
- presents gross emissions separate from any GHG trades – e.g. offsets.

The GHGP requires reporting a minimum of scopes 1 and 2 emissions. As a result, for an emissions statement presented in accordance with the GHGP, there are two commonly used bases of presentation that are acceptable. [GHGP-S3.6]

	Report in accordance with…	The emissions statement includes…
Approach A	the Corporate Standard and the Scope 2 Amendment	• Scope 1 and Scope 2 emissions; and • Scope 3 emissions to the extent the entity chooses – e.g. Category 6 (business travel).
Approach B	all components of the GHGP	• Scope 1 and Scope 2 emissions; and • Scope 3 emissions; unlike Approach A, all categories of emissions are disclosed, with any exclusions justified. [GHGP-S3.60]

Approach A is illustrated in Appendix B; Approach B is illustrated in Example 11A.2.10.

Example 11A.2.10
Basis of presentation

Hotel has prepared its GHG emissions schedules and related notes in accordance with the GHGP, following Approach B (see Question 11A.2.10). The following is an example basis of presentation.

Hotel has prepared its GHG emissions schedules and related notes for the year ended December 31, Year 5, in accordance with the World Resources Institute

and World Business Council for Sustainable Development's Greenhouse Gas Protocol standards and guidance (collectively, the GHG Protocol).

- Scope 1 emissions have been prepared in accordance with The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (revised edition)
- Scope 2 emissions have been prepared in accordance with The Greenhouse Gas Protocol: GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard
- Scope 3 emissions have been prepared in accordance with The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

Question 11A.2.20

Can an entity report in accordance with the Corporate Standard without following the Scope 2 Amendment?

Interpretive response: No. Reporting in accordance with the Corporate Standard includes reporting in accordance with the Scope 2 Guidance. The Scope 2 Guidance is an amendment to the Corporate Standard and not a standalone document.

Excerpt from Scope 2 Guidance [pp 7, 10]

Purpose of this Guidance

This guidance acts as an amendment to the Corporate Standard, providing updated requirements and best practices on scope 2 accounting and reporting.

Changes from the Corporate Standard

This guidance introduces accounting and reporting requirements related to scope 2 that replace and add to those in the *Corporate Standard.*

Question 11A.2.30

If scope 3 categories are included when reporting under the Corporate Standard, is the measurement and disclosure guidance of the Scope 3 Standard followed?

Interpretive response: The Corporate Standard does not require that scope 3 emissions be presented. The reporting of discrete scope 3 categories is at the discretion of the entity (see section 8A).

Because the Scope 3 Standard was developed sometime after the Corporate Standard (see Question 2A.3.20), the latter does not contemplate calculation or disclosure guidance for scope 3 categories.

However, we recommend the following approach, which provides disclosures related to scope 3 categories at least commensurate with the detail presented for scopes 1 and 2.

- The scope 3 calculation guidance is followed (see section 8A).
- The presented scope 3 categories are disaggregated by category, instead of being presented as a single line of 'scope 3 emissions'.
- The following additional information is disclosed:
  - a list of scope 3 categories and activities included in the inventory; and
  - for each scope 3 category, a description of the methodologies, allocation methods and assumptions used to calculate scope 3 emissions.

In addition, in assessing whether sufficient information is disclosed, an entity considers the underlying principles of the GHGP – relevance, completeness, consistency, transparency and accuracy (see Question 2A.3.30).

Question 11A.2.40

If only certain scope 3 categories are presented, can the basis of preparation be the Scope 3 Standard?

Interpretive response: Generally, no. When fewer than all relevant categories are measured and presented, the basis of preparation generally follows Approach A as outlined in Question 11A.2.10.

Scope 3 categories may be excluded to the extent they are not relevant or significant to the GHG inventory. In that case, an entity discloses the justification for the exclusion. However, omitting a *significant* scope 3 category precludes a basis of presentation that is in accordance with the Scope 3 Standard, regardless of the underlying rationale. [GHGP-S3.60]

11A.3 Presentation and disclosure

In addition to the guidance in this section, the following Questions discuss disclosure and presentation under the GHGP.

Topic	Reference
Biogenic emissions	Question 4A.4.10
Carbon credits	Question 10A.3.50

Question 11A.3.10
What are the required disclosures?

Interpretive response: As a general principle, reported information needs to be relevant, complete, consistent, transparent and accurate (see Question 2A.3.30).

The GHGP distinguishes between the following levels of disclosure.

Shall: These disclosures are required and can be omitted only if the information is not material.

Should: These disclosures are recommended but not required and may be omitted.

May: These disclosures are optional and may be included at the discretion of the entity.

There are also conditional disclosures, meaning that they are recommended only if certain optional disclosures are made, but are not required and may be omitted.

See Appendix A for the GHGP disclosures.

In addition, the following are typically disclosed even though they are not stated explicitly in the GHGP:

- the reporting entity;
- the reporting period covered; and
- the basis of presentation (see Question 11A.2.10).

Question 11A.3.20
Is comparative information required?

Interpretive response: No. The GHGP does not require disclosure of year-over-year comparative information. [GHGP-CS chp 9]

However, it does require disclosure of, for example, the "year chosen as the base year, and an emissions profile over time that is consistent with and clarifies the chosen policy for making base year emissions recalculations." See section 9A.2. [GHGP-CS.63]

Question 11A.3.30
How are the main GHGs presented?

Interpretive response: The Corporate Standard lists information that is required to be included in reporting (see Appendix A). Such requirements include: [GHGP-CS chp 9]

- total scopes 1 and 2 emissions independent of any GHG trades such as sales, purchases, transfers or banking of allowances;
- emissions data separately for each scope; and
- emissions data for all seven GHGs separately in metric tonnes and in tonnes of CO_2e, separately for scope 1 and scope 2.

The following is an example of how disclosure of the main GHGs may appear if material to the entity and all seven GHGs are relevant.

GHG	Scope 1		Scope 2	
	Metric Tonnes	Tonnes of CO_2e	Metric Tonnes	Tonnes of CO_2e
CO_2				
CH_4				
N_2O				
HFCs				
PFCs				
SF_6				
NF_3				

The disclosure of GHG emissions by individual GHGs is optional in the Scope 3 Standard. The example in Appendix B illustrates how emissions per gas might be disclosed.

In our experience, it may not be possible for an entity to obtain the appropriate level of data to disclose GHG emissions by individual gas (for scope 1, 2 or 3). For example, in Japan, available emission factors for purchased electricity reflect CO_2 but do not reflect CH_4 and N_2O.

If individual GHGs are not relevant, in our experience it is common for entities either to explain that the GHGs were not released from the inventory boundary, or to show (within a table) zero emissions for any GHGs that are not applicable. An entity may further explain that zero emissions are either not occurring, not estimated (e.g. poor data quality, too costly to obtain data) or included in another category.

GHG emissions not covered by the Kyoto Protocol (e.g. CFCs, NOx) are not included in the scopes but may be reported separately at the entity's discretion.

11B. IFRS Sustainability Disclosure Standards**

11B.1 Comparison to the GHGP**

IFRS Sustainability Disclosure Standards are a comprehensive framework requiring sustainability-related information across four content areas: governance, strategy, risk management, and metrics and targets.

Disclosure requirements relating explicitly to GHG emissions are contained within the metrics and targets section content area of IFRS S2. Industry-specific guidance accompanying IFRS S2 includes additional detail for some industries. However, information on GHG emissions may be connected to disclosures across many areas – e.g. information about:

- remuneration linked to GHG emissions targets (governance); or
- GHG emissions targets that are foundational to an entity's transition plan (strategy).

Entities have discretion to determine the most appropriate structure for reporting that is coherent and facilitates linkage with any broader sustainability reporting to avoid unnecessary duplication. Many entities will integrate their GHG disclosures within the broader sustainability report. However, some that have previously presented a dedicated GHG emissions statement may choose to continue to publish this in addition to their sustainability report.

See KPMG's Disclosure Checklist and Illustrative Disclosures for further information about presenting information – including GHG emissions – under IFRS Sustainability Disclosure Standards.

Entities applying IFRS Sustainability Disclosure Standards do not follow disclosure requirements or related guidance from the GHG Protocol.

11B.2 Select requirements of IFRS S2**

In addition to the guidance in this section, the following Questions discuss disclosure and presentation under IFRS Sustainability Disclosure Standards.

Topic	Reference
Biogenic emissions	Question 4B.2.10
Entities with commercial banking, insurance or asset management activities	Question 8B.4.40
GHG emissions reduction targets	Question 9B.2.10
Use of carbon credits to meet targets	Question 10B.2.20
Credits that do not meet the definition of 'carbon credits'	Question 10B.2.30

Question 11B.2.10**
What level of disaggregation is required under IFRS Sustainability Disclosure Standards?

Interpretive response: IFRS S1 does not allow entities to aggregate or disaggregate items of information in a way that obscures material information. [IFRS S1.B26(d)-(e)]

The following are some relevant considerations relating to the disaggregation of GHG emissions information.

General	There is no explicit requirement to disaggregate between the seven constituent gases identified in the Kyoto Protocol. However, disaggregation may be relevant in particular industries – e.g. disaggregating methane emissions for an entity with oil and gas production facilities. [IFRS S2.IE13]
Scopes 1 and 2 emissions	An entity disaggregates scope 1 and 2 emissions from: [IFRS S2.29(a)(iv)(1)-(2)] • the consolidated accounting group; versus • other investees, including associates, joint ventures and unconsolidated subsidiaries. This disaggregation is designed to help users connect the GHG disclosures to the scope of entities included in the financial statements. This is particularly important when the entity chooses to use the operational control approach, because there may be investees – including associates, joint ventures and unconsolidated subsidiaries – over which the entity has operational control, but that are not consolidated in the financial statements. See section 3A.3. [IFRS S2.BC101-BC102]
Scope 3 emissions	There is no explicit requirement to disaggregate information about the categories of scope 3 emissions. [IFRS S2.IE10] However, entities need to consider their relevant facts and circumstances and disaggregation may be required to avoid obscuring material information. Example 8B.2.30 illustrates a company assessing which scope 3 categories to disaggregate.
Financed emissions	IFRS S2 includes specific disaggregation requirements for entities with activities in commercial banking, insurance and asset management. See Question 8B.4.40.

Example 11B.2.10**
Disaggregating scopes 1 and 2 emissions between the consolidated accounting group and other investees

Hotel applies the operational control approach to calculate its GHG emissions. In every case except one, the entities over which it has operational control are

also part of the consolidated group. However, Hotel has a cleaning business that is a joint venture. It has operational control but the cleaning business is not part of the consolidated group.

As shown in the following table, the emissions relating to this joint venture are disaggregated by Hotel in a separate line, 'Other investees'.

Scope 1 and 2 emissions (tCO_2e)

Scope	20X4	20X5
Scope 1	**46,651**	**38,932**
Consolidated group	45,063	37,233
Other investees	1,588	1,699
Scope 2 – location based	**95,823**	**93,944**
Consolidated group	81,093	77,622
Other investees	14,730	16,321

Question 11B.2.20**
Are there any reporting exemptions for GHG emissions under IFRS S2?

Interpretive response: Yes. The disclosure of scope 3 emissions is not required for the first annual reporting period in which an entity applies IFRS S2. [IFRS S2.C4(b)]

When entities take this relief, they are also permitted to exclude comparative information on scope 3 emissions in their second year of reporting. Practically this means that they are not required to collate information about scope 3 emissions in the first year of reporting. [IFRS S2.C5]

Some entities may already be reporting on certain categories of scope 3 emissions before the adoption of IFRS S2. Therefore, it may be useful to continue to provide this information in the year of initial application provided it is made clear that such disclosure is not complete.

Question 11B.2.30**
Is an entity required to disclose GHG emissions on a gross basis?

Interpretive response: Yes. Under IFRS S2, entities are required to disclose their absolute gross GHG emissions generated during the reporting period. This means entities should not take any removal efforts into consideration – in particular the use of carbon credits (see section 10B.2). [IFRS S2.29(a)i]

Question 11B.2.40**

How does an entity report its GHG emissions under IFRS S2 if its reporting period differs from some or all of the entities in its value chain?

Interpretive response: IFRS Sustainability Disclosure Standards recognize that a reporting entity may have a different reporting period from some or all entities in its value chain. As a result, GHG emissions information from the entities might not be available for the reporting entity to use in its disclosure. [IFRS S2.BC114(a)]

In such cases, reporting entities are allowed to measure their GHG emissions using data from reporting periods different from their own, providing they meet the following three conditions. [IFRS S2.B19]

- **Use of recent data:** The most recent data available from the entities in the value chain without undue cost or effort (see Question 2B.3.40) must be used to measure and disclose GHG emissions.
- **Consistency in reporting period length:** The length of the reporting period must be the same.
- **Disclosure of significant events and changes:** Any significant events or changes in circumstances relevant to the GHG emissions that occurred between the reporting dates of the entities in the value chain and the date of the reporting entity's financial reports must be disclosed.

Question 11B.2.50**

What effect does the Industry-based Guidance have on GHG emissions reporting?

Interpretive response: IFRS Sustainability Disclosure Standards require entities to disclose both cross-industry and industry-based metrics. [IFRS S2.23, 32]

Entities therefore refer to and consider the IFRS S2 industry-based guidance in addition to the disclosures required by the IFRS S2 core content. This guidance, which is aligned with the SASB Standards, contains industry-specific disclosure topics and metrics across 11 sectors, comprising 68 industries. For certain industries, the guidance includes additional disclosures relating to GHG emissions.

For example, an entity in the Oil and Gas 'Exploration and Production' industry is required to refer to and consider the following three additional GHG emissions metrics, if applicable.

Metric	Unit of measure	SASB code
• Gross global scope 1 emissions; • percentage methane; and • percentage covered under emissions-limiting regulations.	Metric tons CO_2-e (t), Percentage (%)	EM-EP-110a.1
Amount of gross global scope 1 emissions from: • flared hydrocarbons; • other combustion; • process emissions; • other vented emissions; and • fugitive emissions.	Metric tons CO_2-e	EM-EP-110a.2
• Discussion of long-term and short-term strategy or plan to manage scope 1 emissions, emissions reduction targets; and • an analysis of performance against those targets.	n/a	EM-EP-110a.3

See Future developments for information about proposed updates to the IFRS S2 Industry-based Guidance.

Future developments**

SASB Standards update

In July 2025, the ISSB proposed significant amendments to the SASB Standards that form the basis of the industry-based guidance. The proposals would introduce new disclosure topics and metrics to 50 of the 77 SASB Standards (covering nine industries) and change or delete existing ones across a broad range of industries. They would therefore affect how companies determine what to disclose, whether they:

- already comply with the SASB Standards;
- plan to comply; or
- use them as a source of guidance – e.g. when applying IFRS S1.

The comment period closed on November 30, 2025. The amendments are expected to come into effect 12 to 18 months after they are finalized, with early adoption permitted.

In addition, comprehensive amendments to the standards for the following industries are expected in Q4 2025: Electric Utilities & Power Generators, Agricultural Products and Meat, and Poultry & Dairy.

Read more in KPMG's article.

A. GHGP disclosures

The following excerpts are from the reporting chapters in the GHGP's standards and guidance on scopes 1, 2 and 3. Although these disclosures are the more significant requirements, they are not an exhaustive listing.

Excerpt from Corporate Standard[1] [pp 63-64]

Required information

A public GHG emissions report that is in accordance with the GHG Protocol Corporate Standard shall include the following information:

DESCRIPTION OF THE COMPANY AND INVENTORY BOUNDARY

- An outline of the organizational boundaries chosen, including the chosen consolidation approach.
- An outline of the operational boundaries chosen, and if scope 3 is included, a list specifying which types of activities are covered.
- The reporting period covered.

INFORMATION ON EMISSIONS

- Total scope 1 and 2 emissions independent of any GHG trades such as sales, purchases, transfers, or banking of allowances.
- Emissions data separately for each scope.
- Emissions data for all GHGs covered by the UNFCCC/Kyoto Protocol separately in metric tonnes and in tonnes of CO_2 equivalent.
- Source of the GWP values and indicate if multiple Assessment Reports have been used.
- Year chosen as base year, and an emissions profile over time that is consistent with and clarifies the chosen policy for making base year emissions recalculations.
- Appropriate context for any significant emissions changes that trigger base year emissions recalculation (acquisitions/divestitures, outsourcing/ insourcing, changes in reporting boundaries or calculation methodologies, etc.).
- Emissions data for direct CO_2 emissions from biologically sequestered carbon (e.g., CO_2 from burning biomass/biofuels), reported separately from the scopes.

- Methodologies used to calculate or measure emissions, providing a reference or link to any calculation tools used.
- Any specific exclusions of sources, facilities, and / or operations.

Optional information

A public GHG emissions report should include, when applicable, the following additional information:

INFORMATION ON EMISSIONS AND PERFORMANCE

- Emissions data from relevant scope 3 emissions activities for which reliable data can be obtained.
- Emissions data further subdivided, where this aids transparency, by business units/facilities, country, source types (stationary combustion, process, fugitive, etc.), and activity types (production of electricity, transportation, generation of purchased electricity that is sold to end users, etc.).
- Emissions attributable to own generation of electricity, heat, or steam that is sold or transferred to another organization.
- Emissions attributable to the generation of electricity, heat or steam that is purchased for re-sale to non-end users.
- A description of performance measured against internal and external benchmarks.
- Emissions from GHGs not covered by the Kyoto Protocol (e.g., CFCs, NOx,), reported separately from scopes.
- Relevant ratio performance indicators (e.g. emissions per kilowatt-hour generated, tonne of material production, or sales).
- An outline of any GHG management/reduction programs or strategies.
- Information on any contractual provisions addressing GHG-related risks and obligations.
- An outline of any external assurance provided and a copy of any verification statement, if applicable, of the reported emissions data.
- Information on the causes of emissions changes that did not trigger a base year emissions recalculation (e.g., process changes, efficiency improvements, plant closures).
- GHG emissions data for all years between the base year and the reporting year (including details of and reasons for recalculations, if appropriate)
- Information on the quality of the inventory (e.g., information on the causes and magnitude of uncertainties in emission estimates) and an outline of policies in place to improve inventory quality.

- Information on any GHG sequestration.
- A list of facilities included in the inventory.
- A contact person.

INFORMATION ON OFFSETS

- Information on offsets that have been purchased or developed outside the inventory boundary, subdivided by GHG storage/removals and emissions reduction projects. Specify if the offsets are verified/certified and/or approved by an external GHG program (e.g., the Clean Development Mechanism, Joint Implementation).
- Information on reductions at sources inside the inventory boundary that have been sold/transferred as offsets to a third party. Specify if the reduction has been verified/certified and/or approved by an external GHG program.

Note 1: Includes amendments made in 2013 (see Question 2A.3.20).

Excerpt from Scope 2 Guidance [pp 59-62]

7.1 Accounting and Reporting Requirements

This Guidance provides a new set of requirements applied to the *Corporate Standard* in calculating and reporting scope 2 emissions. Therefore, conformance with this Guidance is required in order to prepare an inventory in conformance with the *Corporate Standard*. In addition to all existing *Corporate Standard* accounting and reporting requirements (see Chapter 9 of the *Corporate Standard*), companies **shall** calculate and report scope 2 in the following ways:

Required information for scope 2

For companies with operations only in markets that do not provide product or supplier-specific data or other contractual instruments…:

- Only one scope 2 result shall be reported, based on the location-based method.

For companies with any operations in markets providing product or supplier specific data in the form of contractual instruments:

- Companies **shall** account and report scope 2 emissions in two ways and label each result according to the method: one based on the location-based method, and one based on the market-based method.
- Many companies' GHG inventories will include a mix of operations globally, some where the market-based method applies and some where it does not.

Companies **shall** account for and report all operations' scope 2 emissions according to both methods.

- To do so, emissions from any operations in locations that do not support a market-based method approach **shall** be calculated using the location based method (making such operations' results identical for location-based and market-based methods). Companies should note what percentage of their overall electricity consumption reported in the market-based method reflects actual markets with contractual information.

Scope 2 Quality Criteria. Companies **shall** ensure that any contractual instruments used in the market-based method total meet the Scope 2 Quality Criteria specified in Table 7.1. If instruments do not meet the Criteria, then other data (listed in Table 6.3) **shall** be used as an alternative in the market-based method total. In this way, *all* companies required to report according to the market-based method will have some type of data option.

- Companies **may** provide a reference to an internal or external third-party assurance process, or assurance of conformance provided by a certification program, supplier label, green power program, etc. An attestation form **may** be used to describe the chain of custody of purchased certificates or other contractual instruments.
- If a residual mix is not currently available, reporters **shall** note that an adjusted emissions factor is not available or has not been estimated to account for voluntary purchases and this may result in double counting between electricity consumers.

Inventory totals. For companies adding together scope 1 and scope 2 for a final inventory total, companies may either report two corporate inventory totals (one reflecting each scope 2 method), or may report a single corporate inventory total reflecting one of the scope 2 methods.

- If reporting a single corporate inventory total, the scope 2 method used should be the same as the one used for goal setting. Companies shall disclose which method was chosen for this purpose.

Methodology disclosure. Companies **shall** disclose methods used for scope 2 accounting. For the market-based method, companies **shall** disclose the category or categories of instruments from which the emission factors were derived, where possible specifying the energy generation technologies.

Base-year information. Companies **shall** disclose the year chosen as the base year; the method used to calculate the base year's scope 2 emissions; whether historic location based data is used as a proxy for a market-based method; and the context for any significant emission changes that trigger base-year emissions recalculation (acquisitions/ divestitures, outsourcing/insourcing, changes in reporting boundaries or calculation methodologies, etc.)

Disclose basis for goal setting. If a company sets a corporate inventory reduction goal and/or a scope 2-specific reduction goal, the company **shall** clarify whether the goal is based on the location-based method total or market based method total.

7.2 Recommended disclosure

Annual electricity consumption. Companies **should** report total electricity, steam, heat, and cooling per reporting period separately from the scopes totals (in kWh, MWh, BTU, etc.), which should include all scope 2 activity data as well as the quantity of energy consumed from owned/ operated installations (which may be only reported in scope 1 and not in scope 2.)

Biogenic emissions. Companies **should** separately report the biogenic CO_2 emissions from electricity use (e.g. from biomass combustion in the electricity value chain) separately from the scopes, while any CH_4 and N_2O emissions should be reported in scope 2.

- Companies **should** document if any GHG emissions other than CO_2 (particularly CH_4 and N_2O) are not available for, or excluded from, location-based grid average emissions factors or with the market-based method information.

Other instrument retirement. Companies **should** disclose additional certificate or other instrument retirement performed in conjunction with their voluntary claim, such as with certificate multipliers or any pairing required by regulatory policy.

Basis for upstream scope 3. The reporting entity **should** identify which methodology has been used to calculate and report scope 3, category 3—upstream energy emissions not recorded in scope 1 and 2, scope 3.

Instrument features. Where relevant, companies **should** disclose key features associated with their contractual instruments claimed, including any instrument certification labels that entail their own set of eligibility criteria, as well as characteristics of the energy generation facility itself and the policy context of the instrument.

Role of corporate procurement in driving new projects. Where relevant, companies should elaborate in narrative disclosure how any of the contractual instruments claimed in the market-based method reflect a substantive contribution by the company in helping implement new low carbon projects.

7.3 Optional information

Scope 2 totals disaggregated by country. This can improve transparency on where market-based method totals differ from location-based.

Avoided emissions estimation. Companies **may** separately report an estimation of GHG emissions avoided from a project or action. This quantification should be based on project-level accounting, with methodologies and assumptions documented (including to what the reduction is being compared).

Advanced grid study estimations. Where advanced studies (or real-time information) are available, companies **may** report scope 2 estimations separately as a comparison to location-based grid average estimations, and companies can document where this data specifically informed efficiency

decision making or time-of-day operations. Because these studies or analyses may be more difficult to use widely across facilities or to standardize/aggregate consistently without double counting, companies should ensure that any data used for this purpose has addressed data sourcing and boundaries consistent with the location-based method.

Scope 2 results calculated by other methods. If companies are subject to mandatory corporate reporting requirements for facilities in a particular region/nation that specify methodologies other than the two required for dual reporting, these companies **may** report these results separately from the scopes.

Disclose purchases that did not meet Scope 2 Quality Criteria. If a reporting entity's energy purchases did not meet all Scope 2 Quality Criteria, the entity **may** note this separately. This note should detail which Criteria have been met, with details of why the remaining Criteria have not. This will provide external stakeholders with the information they require, and allow the reporting entity to disclose the efforts made to adhere to the guidance. (Location-based method data will be used as proxy emission factors in the market-based method total.)

Excerpt from GHGP Corporate Value Chain Accounting and Reporting Standard[1] [pp 119-120]

11.1 Required information

Companies shall publicly report the following information.

- A scope 1 and scope 2 emissions report in conformance with the *GHG Protocol Corporate Standard*
- Total scope 3 emissions reported separately by scope 3 category
- For each scope 3 category, total emissions of GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, and NF_3) reported in metric tons of CO_2 equivalent, excluding biogenic CO_2 emissions and independent of any GHG trades, such as purchases, sales, or transfers of offsets or allowances
- A list of scope 3 categories and activities included in the inventory
- A list of scope 3 categories or activities excluded from the inventory with justification of their exclusion
- Once a base year has been established: the year chosen as the scope 3 base year; the rationale for choosing the base year; the base year emissions recalculation policy; scope 3 emissions by category in the base year, consistent with the base year emissions recalculation policy; and appropriate context for any significant emissions changes that triggered base year emissions recalculations

- For each scope 3 category, any biogenic CO_2 emissions reported separately
- For each scope 3 category, a description of the types and sources of data, including activity data, emission factors and GWP values, used to calculate emissions, and a description of the data quality of reported emissions data
- For each scope 3 category, a description of the methodologies, allocation methods, and assumptions used to calculate scope 3 emissions
- For each scope 3 category, the percentage of emissions calculated using data obtained from suppliers or other value chain partners

11.2 Optional information

A public GHG emissions report should include, when applicable, the following additional information.

- Emissions data further subdivided where this adds relevance and transparency (e.g., by business unit, facility, country, source type, activity type, etc.)
- Emissions data further disaggregated within scope 3 categories where this adds relevance and transparency (e.g., reporting by different types of purchased materials within category 1, or different types of sold products within category 11)
- Emissions from scope 3 activities not included in the list of scope 3 categories (e.g., transportation of attendees to conferences/events), reported separately (e.g., in an “other” scope 3 category)
- Emissions of GHGs reported in metric tons of each individual gas
- Emissions of any GHGs other than CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 whose 100-year GWP values have been identified by the IPCC to the extent they are emitted in the company’s value chain (e.g., CFCs, HCFCs, NF_3, NOX, etc.) and a list of any additional GHGs included in the inventory
- Historic scope 3 emissions that have previously occurred, reported separately from future scope 3 emissions expected to occur as a result of the reporting company’s activities in the reporting year (e.g., from Waste generated in operations, Use of sold products, End-of-life treatment of sold products)
- Qualitative information about emission sources not quantified
- Information on any GHG sequestration or removals, reported separately from scope 1, scope 2 and scope 3 emissions
- Information on project-based GHG reductions calculated using the project method (e.g., using the GHG Protocol for Project Accounting), reported separately from scope 1, scope 2, and scope 3 emissions

- Information on avoided emissions (e.g., from the use of sold products), reported separately from scope 1, scope 2, and scope 3 emissions
- Quantitative assessments of data quality
- Information on inventory uncertainty (e.g., information on the causes and magnitude of uncertainties in emission estimates) and an outline of policies in place to improve inventory quality
- The type of assurance performed (first or third party), the relevant competencies of the assurance provider(s), and the opinion issued by the assurance provider
- Relevant performance indicators and intensity ratios
- Information on the company's GHG management and reduction activities, including scope 3 reduction targets, supplier engagement strategies, product GHG reduction initiatives, etc.
- Information on supplier/partner engagement and performance
- Information on product performance
- A description of performance measured against internal and external benchmarks
- Information on purchases of GHG reduction instruments, such as emissions allowances and offsets, from outside the inventory boundary
- Information on reductions at sources inside the inventory boundary that have been sold/transferred as offsets to a third party
- Information on any contractual provisions addressing GHG-related risks or obligations
- Information on the causes of emissions changes that did not trigger a scope 3 base year emissions recalculation
- GHG emissions data for all years between the scope 3 base year and the reporting year (including details of and reasons for recalculations, if appropriate)
- Additional explanations to provide context to the data

Note 1: Includes amendments made in 2013 (see Question 2A.3.20).

B. Example GHG emissions statement: GHG Protocol

The following example demonstrates one way that a hypothetical company, ABC Company, could present a GHG emissions statement in accordance with the required disclosures of the Corporate Standard, which includes the Scope 2 Guidance. See section 11A.2.

This example has been prepared for illustrative purposes only and does not illustrate all required disclosures, and does not include disclosures in the Corporate Standard that are optional or recommended. See section 11A.3.

ABC COMPANY, INC. AND SUBSIDIARIES

Greenhouse Gas (GHG) emissions statement

Year ended December 31, 20X2[1]

In tonnes of carbon dioxide equivalent (CO_2e)

Scope 1 emissions		XX
Scope 2 emissions:		
Market-based method	XX	
Location-based method	XX	
Total scope 1 and scope 2 emissions (market-based method)		**XX**
Offset of removal-based carbon credits[2]		(XX)
Select scope 3 emissions:		
Category 1, purchased goods and services		XX
Category 6, business travel		XX
Category 7, employee commuting		XX
Total reported scope 3 emissions		**XX**

The accompanying notes on pages X to Y form an integral part of this GHG emissions statement.

1. Reporting entity

ABC Company, Inc. and subsidiaries (the Company) is a technology business headquartered in Atlanta, GA with operations throughout the US that develops, manufactures and sells computer software and consumer electronics, and provides related services. Consumer electronics include personal computers, tablets and gaming consoles.

2. Basis of presentation

The Company has prepared its GHG emissions statement for the year ended December 31, 20X2 in accordance with the World Resources Institute and World Business Council for Sustainable Development's Greenhouse Gas Protocol standards and guidance (collectively, the GHG Protocol):

- Scope 1 and certain categories of scope 3 emissions have been prepared in accordance with the GHG Protocol Corporate Accounting and Reporting Standard (revised edition)[3]
- Scope 2 emissions have been prepared in accordance with the GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard.

3. Organizational boundary

The Company presents its emissions under the operational control approach, accounting for emissions from operations over which it, or one of its subsidiaries, has the full authority to introduce and implement its operating policies.

On November 30, 20X2, the Company acquired Sierra Corp. The Company has excluded Sierra Corp from its emissions calculations because the necessary data is not yet available. The Company plans to include Sierra Corp in next year's GHG emissions statement and will recalculate the base year (see Note 7).

4. Use of estimates and estimation uncertainties

The Company bases its estimates and methodologies on historical experience, available information and various other assumptions that it believes to be reasonable. Emissions data presented are subject to measurement uncertainties resulting from limitations inherent in the nature and the methods used for determining such data. The selection of different but acceptable measurement techniques can result in materially different measurements. The precision of different measurement techniques may also vary.

5. Operational boundaries

Emissions are calculated and presented independent of any GHG trades such as sales, purchases, transfers or banking of allowances.[4, 5]

a. Scope 1 emissions

Scope 1 emissions are direct emissions from the combustion of fuel from sources inside the organizational boundary and include the following.

Source	*Boundary description*
Stationary combustion	Manufacturing equipment, boilers, furnaces, generators.
Mobile combustion	Company-leased vehicles, company-owned vehicles.
Fugitive emissions	Leaks from air conditioning, refrigeration, manufacturing equipment.

b. Scope 2 emissions

Scope 2 emissions are indirect emissions from the generation of acquired and consumed electricity, steam, heat or chilled water occurring at sources outside of the organizational boundary as a consequence of activities from sources inside the organizational boundary, and include the following.

Source	*Boundary description*
Purchased electricity Steam and heat Cooling	Data centers, owned office spaces, leased office spaces, inventory storage facilities, manufacturing facilities, retail storefronts.

c. Scope 3 emissions

Scope 3 emissions are indirect emissions from the generation of fuel from sources outside the organizational boundary as a consequence of activities of the Company.

The Company has elected to include three categories of scope 3 emissions in its GHG emissions statement. These emissions have been calculated (but are not presented) in accordance with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard and following the GHG Protocol Technical Guidance for Calculating Scope 3 Emissions.

Source	*Boundary description*
Category 1, purchased goods and services	The production, transportation and distribution of products purchased or acquired, including hard drives, semiconductors, batteries, keyboards, third-party software.
Category 6, business travel	Air, rail, bus, automobile (including employee-owned and rental cars) and hotel stays when employees* travel for business.
Category 7, employee commuting	Air, rail, bus, automobile (including employee-owned and rental cars) when employees* commute between home and worksites.

* Employees include employees of operations owned, operated or leased by the Company. The Company does not include consultants, contractors or other individuals who travel or commute on behalf of the Company.

6. Emissions per gas[6]

Emissions data for all seven GHGs in metric tonnes and in tonnes of CO_2 equivalent include only scope 1 and 2 emissions. All amounts are for the year ended December 31, 20X2.

	in absolute mt gas						
	Carbon dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)	Nitrogen trifluoride (NF_3)	Hydro-fluoro carbons (HFCs)	Perfluoro carbons (PFCs)	Sulfur Hexa fluoride (SF_6)
Scope 1	XX	XX	XX	XX	XX	XX	XX
Scope 2	XX	XX	XX	XX	XX	XX	XX
- Location-based	XX	XX	XX	XX	XX	XX	XX
- Market-based	XX	XX	XX	XX	XX	XX	XX
	in tCO_2e						
	CO_2	CH_4	N_2O	NF_3	HFCs	PFCs	SF_6
Scope 1	XX	XX	XX	XX	XX	XX	XX
Scope 2	XX	XX	XX	XX	XX	XX	XX
- Location-based	XX	XX	XX	XX	XX	XX	XX
- Market-based	XX	XX	XX	XX	XX	XX	XX

7. Base year

The Company's base year for scope 1 and scope 2 (market-based method) emissions is 20Y9. No base year has been set for scope 3 emissions.

The base year is recalculated if there are changes in any of the following that are significant either individually or in aggregate:

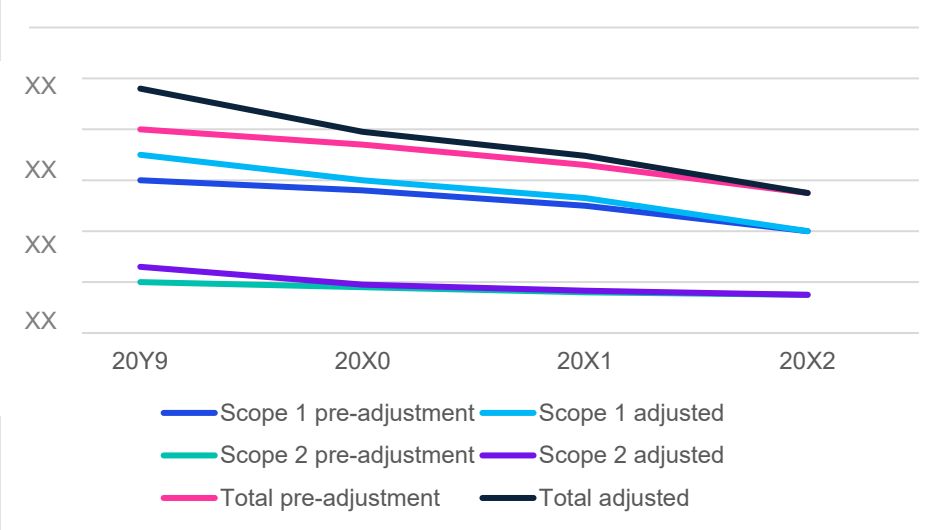
- Structural changes in the organizational boundary, including acquisitions and divestments.
- Changes in calculation methodology or improvements in the accuracy of emission factors or activity data that result in a significant impact on the base year emissions data.

In 20X2, the Company recalculated its scope 1 and scope 2 base year emissions to reflect the following:

- Acquisition of Target Corp on May 5, 20X1, which is also reflected in the Company's current year emissions.
- Divestment of three business units during 20X2, which are also not reflected in the Company's current year emissions.

The following graph shows total scope 1 and scope 2 (market-based method) emissions in the base year and their development over time to the end of the current year.[7] The pre-adjustment amounts for the years 20Y9 to 20X1 were previously reported in the Company's 20X1 GHG emissions statement. The

adjusted amounts in 20Y9 to 20X1 are after accounting for the above transactions that triggered a recalculation of past emissions.



8. Measurement methodologies

a. Scope 1 emissions

Source	*Method*	*Emission factors*	*Inputs*
Stationary combustion	Emission factors applied to primary data or average data where primary data is unavailable	[Year] Environmental Protection Agency (EPA) Emission Factors for GHG Inventories	• Fuel receipts • Purchase records • Metering • Fuel expenditure data and average prices
Mobile combustion	Emission factors applied to primary data or distance based where primary data is unavailable	[Year] EPA Emission Factors for GHG Inventories	• Fuel receipts • Distance travelled • Mode of transport and vehicle type • Weight of shipment
Fugitive emissions	Emission factors applied to the volume of gas restored into the unit	[Year] UK Department for Energy Security and Net Zero	• Units of gas as recorded by maintenance records

b. Scope 2 emissions

Source	*Method*	*Emission factors*	*Inputs*
Purchased electricity	Location-based	• EPA Emissions & Generation Resource Integrated • Database [Year] (eGRID) • [Year] International Energy Agency (IEA)	Utility bill/ metered consumption
Purchased electricity	Market-based	• Contractual instruments • Supplier-specific emission factors • Residual Mix factors	• Utility bill/metered consumption • Energy attribute certificates • Virtual power purchase agreements
Steam and heat	Market-based	[Year] EPA Emission Factors for GHG Inventories	• Utility bill/ metered consumption
Cooling	Location-based	[Year] IEA	• Utility bill/ metered consumption

Methodology descriptions

Emissions are calculated by multiplying the amount of company-purchased electricity, steam, heat and cooling consumed (in units of CO_2) by the appropriate emission factors.

Location-based method estimates are based on grid-average emission factors for defined geographic locations.

Market-based method estimates are based on emission factors derived from contractual instruments, which meet the ‘Scope 2 Quality Criteria’. These may include supplier-specific emission factors or factors denoted through renewable energy certificates (RECs). When these factors are not available, emissions are estimated using residual mix factors.

c. Scope 3 emissions

Source	*Method*	*Emission factors*	*Inputs*
Category 1, purchased goods and services	Spend-based	EPA Supply Chain EEIO	Economic value of purchased goods

Source	*Method*	*Emission factors*	*Inputs*
			and services from purchasing records
Category 6, business travel			
• Air travel	Distance-based	[Year] UK Department for Energy Security and Net Zero	• Distance travelled • Flight type (long haul, short haul)
• Hotel stay	Average-data	[Year] UK Department for Energy Security and Net Zero	Length of stay
• Rental car, personal mileage	Distance-based	[Year] EPA Emission Factors for GHG Inventories	• Distance travelled • Vehicle type (passenger car)
Category 7, employee commuting	Average-data	[Year] EPA Emission Factors for GHG Inventories	• Total employees, adjusted for those not commuting • Mode of transport (rail, car, foot, bus) • One-way commuting distance • Working days, adjusted for hybrid working model

Methodology descriptions

The spend-based method estimates emissions by collecting data on the economic value of assets and multiplying by relevant secondary (e.g. industry average) emission factors (e.g. average emissions per monetary value of goods).

The distance-based method estimates emissions using mass, distance and mode of transport, and applying the appropriate mass-distance emission factor for the vehicle used.

The average-data method estimates emissions using secondary emission factors for emissions per unit of consumption (e.g. kg CO_2e/kWh).

The Company used the following calculation tools in measuring its scope 3 emissions:[8]

- Purchased goods and services: DEF tool

- Employee commuting: XYZ tool.

d. Global Warming Potentials

The global warming potentials for all GHGs were sourced from the Intergovernmental Panel on Climate Change Sixth Assessment Report.

Notes to example:

1. In this example, the company has elected to present only the current year plus certain base year information (see Note 7). For further discussion about comparative information, see Question 11A.3.20.
2. Emissions are presented on a gross basis and offset credits (by whatever name they are called) are not netted against emissions. Therefore, although presentation styles may vary, (1) gross emissions are required to be presented, and (2) any totals or subtotals do not misrepresent the net amount as being gross emissions. See section 10A.3.
3. Question 11A.2.30 discusses the presentation of select scope 3 categories.
4. See Note 2.
5. This example excludes emissions from biomass. If relevant, direct CO_2 emissions from the combustion of biomass are reported separately from the scopes. See Question 4A.4.10.
6. If an individual gas is not relevant, it is common for that fact to be explained or to show zero emissions in a table such as this. See Question 11A.3.30.
7. The GHGP requires disclosure of an emissions profile over time (that is consistent with and clarifies the chosen policy for making base year emissions recalculations). This graph provides a trend line, but an entity could instead provide alternative quantitative or qualitative disclosure that describes the effect on the base year.
8. The GHGP requires an entity to disclose a reference or link to any calculation tools used.

Index of changes

This index lists the significant changes made in this edition to assist you in locating recently updated content. Guidance that has been significantly updated or revised is identified with #. New guidance added in this edition is identified throughout the Handbook with **.

The **B sections**, which focus on IFRS Sustainability Disclosure Standards and differences from the GHG Protocol, are entirely new in this edition. Therefore, the full contents at the start of each chapter is not repeated in this index.

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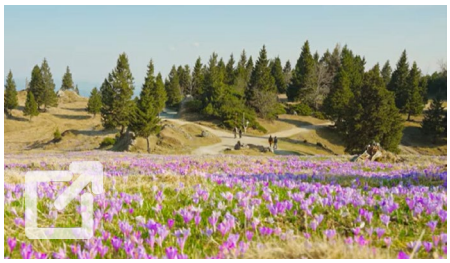

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- Going concern
- IFRS® compared to US GAAP
- Impairment of nonfinancial assets
- Income taxes
- Internal control over financial reporting
- Inventory
- Investment companies
- Investments
- Leases
- Long-duration contracts
- Reference rate reform
- Research and development
- Revenue recognition
- Revenue: Real estate
- Revenue: Software and SaaS
- Segment reporting
- Service concession arrangements
- Share-based payment
- Software and website costs
- Statement of cash flows
- Tax credits
- Transfers and servicing of financial assets

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Note 1: Part of KPMG IFRG Limited.

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