



Accounting for Greenhouse Gas Emissions

Financial Reporting
Webinar Series

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With you today

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Today's agenda

01 GHG Protocol – measurement basis under IFRS S2

02 How GHG emissions data is gathered and used

Step 1: Define the organizational boundary

Step 2: Classify sources of emissions

Step 3: Calculate emissions

Step 4: Track emissions

Step 5: Report emissions

GHG Protocol – measurement basis under IFRS S2



GHG emissions

ISSB IFRS S2 requires companies to disclose their GHG emissions.

GHG Protocol

Companies are required to use the GHG Protocol for measuring emissions, subject to reliefs.

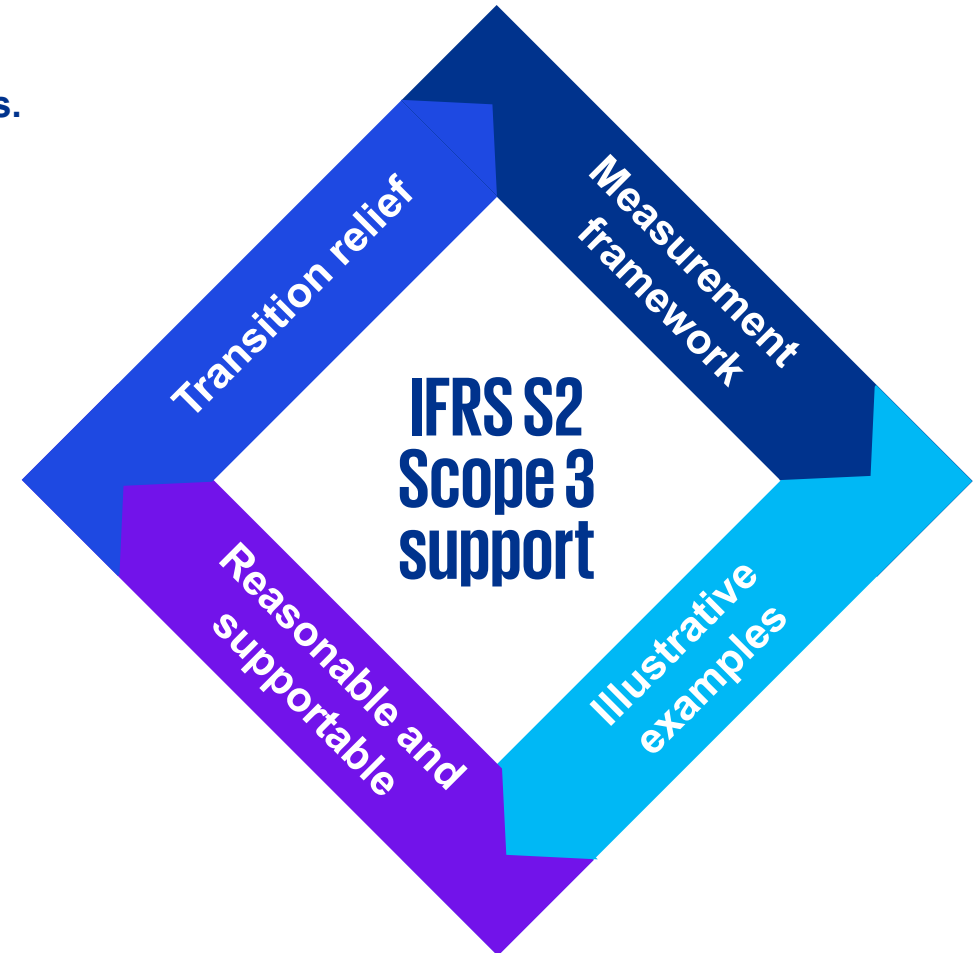
The Protocol includes Corporate Accounting and Reporting Standard Scope 2 Guidance, Corporate Value Chain (Scope 3) Accounting and Reporting Standard

Organisational boundary

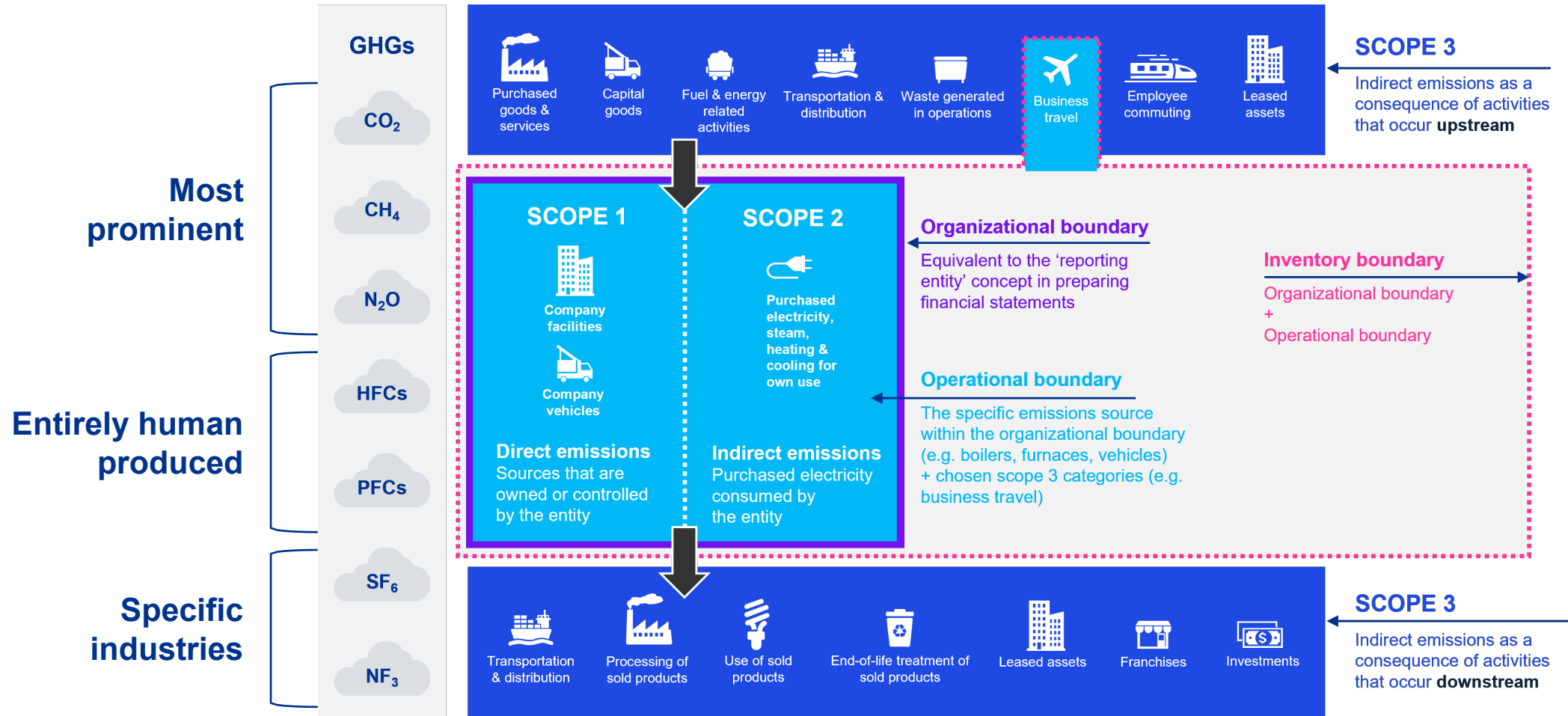
The standards allow flexibility in the organisational boundary used (i.e., the equity share, operational control or financial control methods)

Scope 3 support

IFRS S2 includes mechanisms to allow for proportionality in measuring Scope 3 emissions, including on data quality and availability.



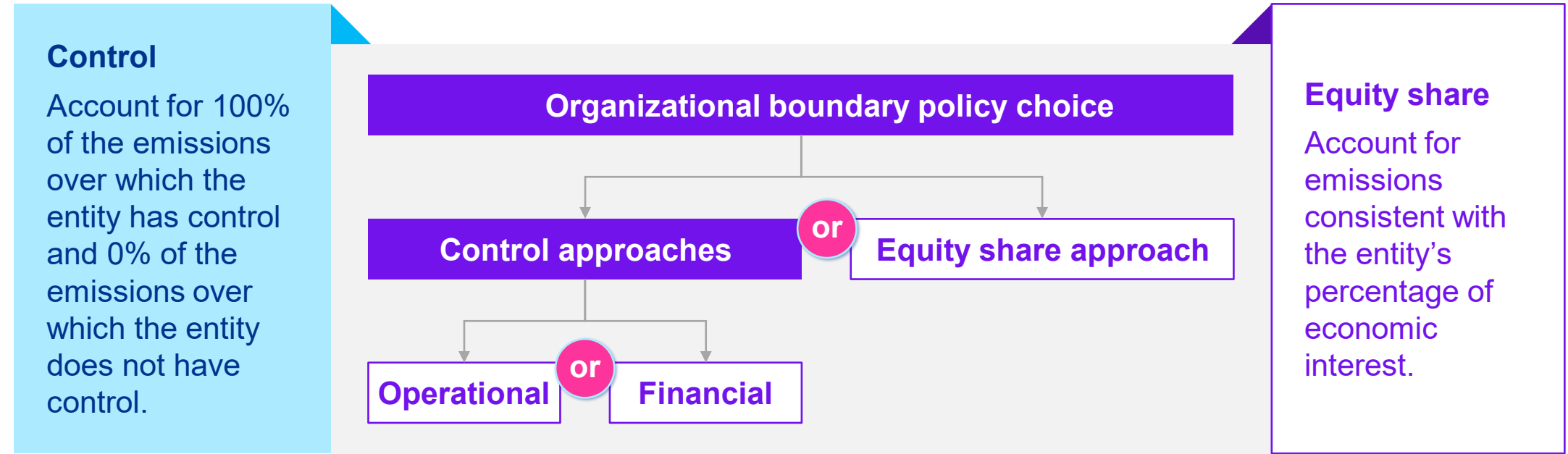
Scope 1, 2 and 3 emissions overview



Organizational boundary approaches

In setting an entity's organizational boundary, the GHGP allows three choices.

The choice made by an entity is equivalent to an accounting policy election in preparing financial statements.

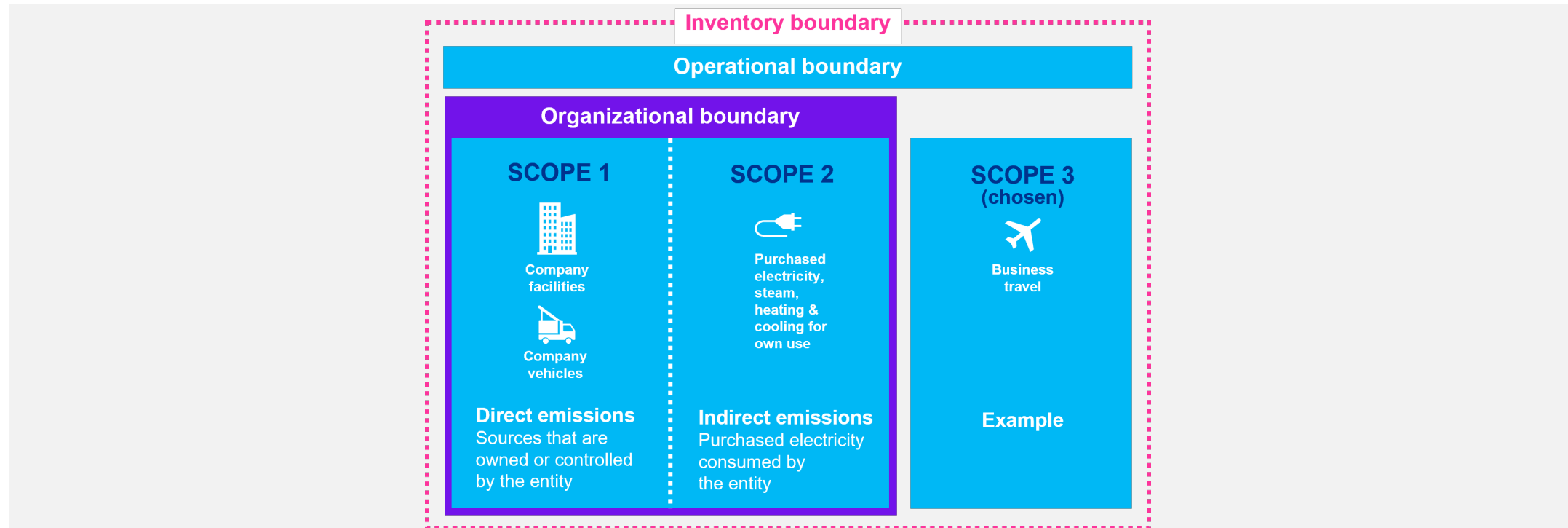


Although these approaches drew on accounting standards in effect when the GHGP Corporate Standard was developed, they cannot simply be equated to the application of financial reporting standards.

Operational boundary

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 and indirect emissions and decides which indirect (scope 3) emissions to include.



Organizational boundary example

Step 1: Define the organizational boundary

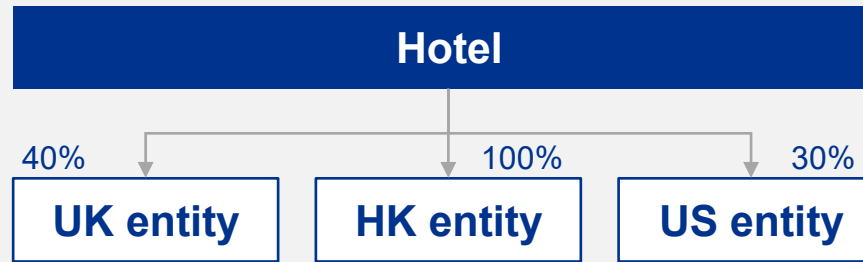
Step 2: Classify sources of emissions

Step 3: Calculate emissions

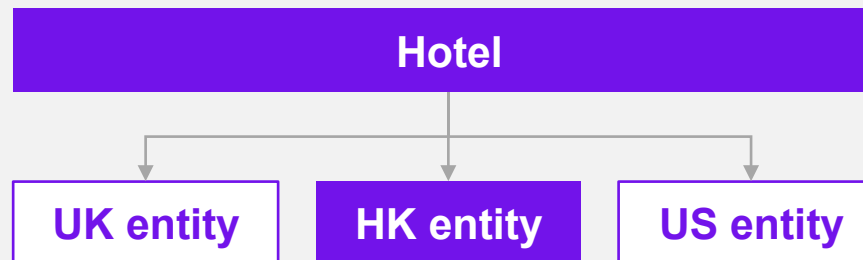
Step 4: Track emissions

Step 5: Report emissions

Hotel has the following ownership interest in three investees.



Hotel determines its organizational boundary using the operational control approach.

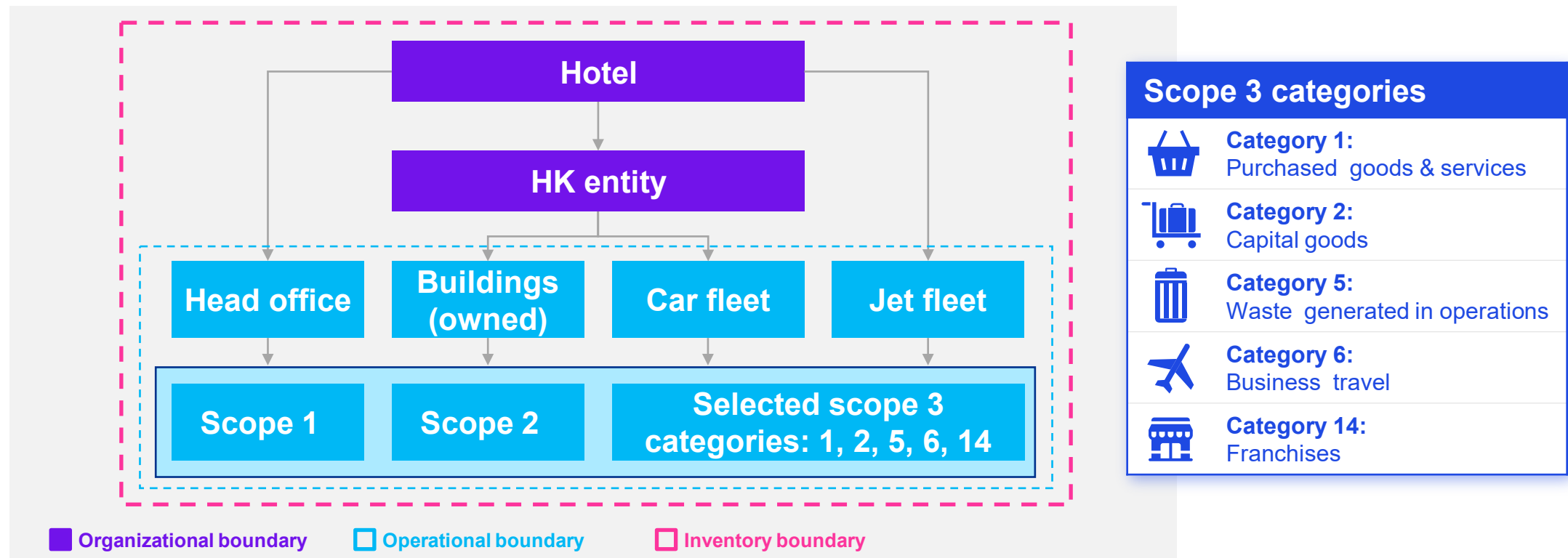


■ Organizational boundary

Operational boundary example

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

In addition, Hotel voluntarily decides to include certain scope 3 categories in its operational boundary.



Scope 3 categories



Category 1:
Purchased goods & services



Category 2:
Capital goods



Category 5:
Waste generated in operations



Category 6:
Business travel



Category 14:
Franchises

Emissions estimation

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions**
- Step 4: Track emissions
- Step 5: Report emissions

The following formula is used to estimate emissions:

Activity data	×	Emission factor	×	GWP	=	tCO ₂ e
Estimated measure of activity related to a specific emissions source (e.g. tonnes of fuel consumed, tonnes of product produced)		Calculated ratio applied to make varied activities comparable (e.g. MWh per metric tonne (mt) of CO ₂)		Multiplier that makes different GHGs comparable to CO ₂ - the reference gas		Tonnes of CO ₂ equivalent

Global warming potential

- Equalizer to reflect the varied ability of GHGs to trap heat relative to CO₂
- GHGP requires use of 100-year values from the Intergovernmental Panel on Climate Change (IPCC)
- Higher GWP value → more infrared radiation will be absorbed by the gas → more energy (heat)

Global warming potentials

Step 1: Define the organizational boundary

Step 2: Classify sources of emissions

Step 3: Calculate emissions

Step 4: Track emissions

Step 5: Report emissions

Extract from [IPCC AR 6 WG1 Full Report Table 7.15](#)

Species	Lifetime (Years)	Radiative Efficiency ($W\ m^{-2}\ ppb^{-1}$)	GWP-20	GWP-100	GWP-500	GTP-50	GTP-100	CGTP-50 (years)	CGTP-100 (years)
CO ₂	Multiple	$1.33 \pm 0.16 \times 10^{-5}$	1.	1.000	1.000	1.000	1.000		
CH ₄ -fossil	11.8 ± 1.8	$5.7 \pm 1.4 \times 10^{-4}$	82.5 ± 25.8	29.8 ± 7.1	10.0 ± 3.8	13.2 ± 6.1	7.5 ± 2.9	2823 ± 1060	3531 ± 1385
CH ₄ -non fossil	11.8 ± 1.8	$5.7 \pm 1.4 \times 10^{-4}$	79.7 ± 25.8	27.0 ± 11	7.2 ± 3.8	10.4 ± 6.1	4.7 ± 2.9	2675 ± 1057	3228 ± 1364
N ₂ O	109 ± 10	$2.8 \pm 1.1 \times 10^{-3}$	273 ± 118	273 ± 130	130 ± 64	290 ± 140	233 ± 110		
HFC-32	5.4 ± 1.1	$1.1 \pm 0.2 \times 10^{-1}$	2693 ± 842	771 ± 292	220 ± 87	181 ± 83	142 ± 51	78,175 ± 29,402	92,888 ± 36,534
HFC-134a	14.0 ± 2.8	$1.67 \pm 0.32 \times 10^{-1}$	4144 ± 1160	1526 ± 577	436 ± 173	733 ± 410	306 ± 119	146,670 ± 53,318	181,408 ± 71,365
CFC-11	52.0 ± 10.4	$2.91 \pm 0.65 \times 10^{-1}$	8321 ± 2419	6226 ± 2297	2093 ± 865	6351 ± 2342	3536 ± 1511		
PFC-14	50,000	$9.89 \pm 0.19 \times 10^{-2}$	5301 ± 1395	7380 ± 2430	10,587 ± 3692	7660 ± 2464	9055 ± 3128		

IFRS S2.B20-B22

- Absolute gross GHG emissions expressed as metric tonnes of CO₂ equivalent
- If using direct measurement, required to convert the 7 constituent GHGs into CO₂ equivalent using GWP – 100 from latest IPCC assessment
- If using emission factors with converted constituent gases into CO₂ equivalent, then recalculation not required

Scope 3 categories

There are 15 distinct categories of scope 3 emissions.

They are designed to be mutually exclusive, resulting in no double counting between categories or scopes 1 and 2 emissions.



Scope 3 emissions

Step 1: Define the organizational boundary

Step 2: Classify sources of emissions

Step 3: Calculate emissions

Step 4: Track emissions

Step 5: Report emissions

Scope 3 emissions include all emissions up or down the value chain that are not already included in scopes 1 and 2 as part of the organizational boundary.

Inclusion

Included to the extent relevant to the entity's business goals or reporting obligations.

- Understand the value chain and identify the associated sources of GHG emissions.
- Determine which scope 3 categories are relevant in terms of size, contributions to GHG risk exposure, stakeholder attention or potential emissions reductions.

Activity data

Calculated using a combination of primary and secondary activity data.

- **Primary data** may be provided directly from suppliers or other value chain partners and include specific activity-related data or actual emissions.
- **Secondary data** is general data that's available, such as industry-average data.

Activity periods

Based on the activity of the entity occurring in that reporting year.

Emissions related to the entity's activity (e.g., purchase of a product) 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).

Scope 3-category 1 example

Purchased goods and services

Accounts for emissions related to the production of products (both goods and services) purchased or acquired by the entity during the reporting year.

Calculation methods: (1) supplier-specific; (2) hybrid; (3) average-data; (4) spend-based

Scenario:	Hotel decides to repaint the walls of its lobby as part of an ongoing renovation.
Calculation method:	Supplier-specific
Activity data:	50 tonnes of purchased paint
Emission factor:	0.1 tCO ₂ e per tonne (provided by the supplier)
Calculation:	50 tonnes × 0.1 tCO ₂ e per tonne = 5 tCO₂e
[Activity data x Emission factor]	
Classification:	The emissions associated with the production of purchased paint are included in scope 3-category 1 (purchased goods and services).

Scope 3-category 6 example

Business travel

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).

Calculation methods: (1) fuel-based; (2) distance-based; (3) spend-based

Scenario:	Hotel's executive and corporate events teams, among others, regularly travel for work purposes.
Calculation method:	Distance-based
Activity data:	300,000 kms traveled (<i>per travel records</i>); Fuel consumption: 27,000L (average 9L/100 kms)
Emission factors*:	Per the US EPA: 2.32kg/CO ₂ /L; CH ₄ factor (5yo passenger car) 0.0032g/km; GWP: 28 N ₂ O factor (5yo passenger car) 0.00093g/km; GWP: 265
Calculation:	CO ₂ : 27,000L X 2.32kg X 0.001 t/kg = 62.64 tCO₂e
[Activity data x Emission factor]	CH ₄ : 300,000kms X 0.0032g/km X 28 X 0.000001 t/g = 0.027 tCO₂e N ₂ O: 300,000kms X 0.00093g/km X 265 X 0.000001 t/g = 0.074 tCO₂e Total : 62.741 tCO₂e
Classification:	The emissions associated with business travel are included in scope 3- category 6 (business travel).

*Emission factors are originally in miles and gallon and converted for illustration

IFRS S2 Industry-specific climate-related metrics

Financed emissions

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions**
- Step 4: Track emissions
- Step 5: Report emissions

The climate standard requires companies with activities in commercial banking, insurance or asset management to disclose additional information about their financed emissions.

A company with the above activities discloses the following as part of its Scope 3 Category 15 (investments) reporting.



	Commercial banking and insurance activities	Asset management activities
Absolute gross financed emissions	For each industry ¹ by asset class disaggregated by Scope 1, 2 and 3	Disaggregated by Scope 1, 2 and 3
Associated amounts in presentation currency – i.e.	Gross exposure to each industry ¹ by asset class (including funded amounts and undrawn loan commitments)	Amount of total assets under management
Percentage of	Gross exposure included in the financed emissions calculation ²	Total assets under management included in the financed emissions calculation ²
A description of the methodology used, including the method of investment or gross exposure allocation		

¹ Industry classification using the Global Industry Classifications System (GICS®).

² If the percentage of gross exposure or total assets under management included in the financed emissions calculation is less than 100 percent, companies are required to disclose information that explains the exclusions, including the type of assets excluded.

Category 15 : overview of GHG Protocol and PCAF

Step 1: Define the organizational boundary

Step 2: Classify sources of emissions

Step 3: Calculate emissions

Step 4: Track emissions

Step 5: Report emissions

Partnership for Carbon Accounting Financials (PCAF)

- PCAF is a global partnership of financial institutions who work together to develop and implement a harmonized approach to assess and disclose the GHG emissions associated with their loans and investments.
- PCAF is the recommended methodology by Task Force on Climate-Related Financial Disclosures (TCFD) to estimate financed emissions.



Why are financed emissions important?

Financed emissions constitute a considerable portion of global GHG emissions.

- Financed emissions account for over 99% of financial institutions' overall emissions¹.
- Unaccounted financed emissions put the global climate at risk while exposing financiers to reputational and financial risk.

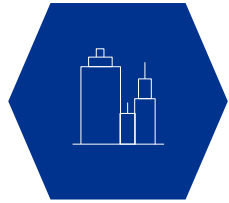
Regulatory requirements

- Per HKEX's Appendix C2 ESG Code, the required information about climate-related risks would also include disclosure of an Issuer's greenhouse gas emissions.
- Financed emissions estimation is an integral part of target setting and transition risk assessment per ISSB/HKEX requirements.

¹Carbon Disclosure Project, <https://www.cdp.net/en/articles/media/finance-sectors-funded-emissions-over-700-times-greater-than-its-own>

High-level financed emissions methodology

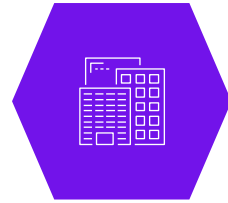
PCAF provides methodology to estimate financed emissions for seven asset classes:



Listed equity and corporate bonds



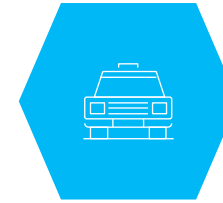
Business Loans and Unlisted Equity



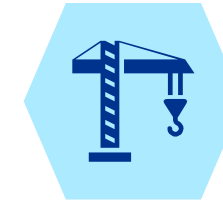
Commercial Real Estate



Mortgages



Motor Vehicle Loans



Project finance



Sovereign debt

General approach to financed emissions calculation

Financed emissions = Attribution Factor X Emissions Per Loan or Investment

The **attribution factor** is defined as the share of emissions of the borrower or investee that is allocated to the loans or investments.

Emissions are calculated per asset class, with specific requirements across data quality tiers

Additional Considerations From PCAF

Data Quality

Financial institutions shall use the highest quality data available for each asset class and improve data quality over time.

Disclosure

Public disclosure of PCAF assessments is crucial for external stakeholders and financial institutions to understand how companies contribute to global climate goals.

Data requirements for financed emissions estimation

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions**
- Step 4: Track emissions
- Step 5: Report emissions

PCAF general financed emissions formula for Business Loans and Equity investments to/in private companies

$$\text{Financed emissions} = \sum_i \text{Attribution factor}_i \times \text{Emissions}_i$$

(with i = borrower or investee)

↓

$$\frac{\text{Outstanding amount}_i}{\text{Total equity} + \text{debt}_i}$$

Data quality	Options to estimate financed emissions	Data requirements
Score 1	Option 1: Reported emissions	1a Outstanding amount in the company and total company equity plus debt are known. Verified emissions of the company are available.
Score 2		1b Outstanding amount in the company and total company equity plus debt are known. Unverified emissions calculated by the company are available.
Score 3	Option 2: Physical activity-based emissions	2a Outstanding amount in the company and total company equity plus debt are known. Reported company emissions are not known. Emissions are calculated using primary physical activity data for the company's energy consumption and emission factors specific to that primary data. Relevant process emissions are added.
Score 4		2b Outstanding amount in the company and total company equity plus debt are known. Reported company emissions are not known. Emissions are calculated using primary physical activity data for the company's production and emission factors specific to that primary data.
Score 5	Option 3: Economic activity-based emissions	3a Outstanding amount in the company, total company equity plus debt , and the company's Revenue are known. Emission factors for the sector per unit of revenue are known (e.g., tCO2e per USD of revenue earned in a sector).
		3b Outstanding amount in the company is known. Emission factors for the sector per unit of asset (e.g., tCO2e per USD of asset in a sector) are known.
		3c Outstanding amount in the company is known. Emission factors for the sector per unit of revenue (e.g., tCO2e per USD of revenue) and asset turnover ratios for the sector are known.

Example: listed equity

Financed emissions : listed equity

Hotel invested in 1% equity interest in Company A listed in the stock exchange

Company A

Company A reports **verified company emissions** as part of their public-facing annual Corporate Social Responsibility (CSR) report. In total, the following company financial and emissions data are available:

- Outstanding amount
- Enterprise Value Including Cash
- Verified Company Emissions



PCAF Method: 1a Reported emissions| Data Quality Score: Score 1

$$Financed\ emissions = \sum_c \underbrace{\frac{Outstanding\ amount_c}{Enterprise\ Value\ Including\ Cash_c}}_{Attribution\ Factor} \times Company\ emissions_c$$

Example: listed equity (continued)

An example calculation using the PCAF Methodology for Scope 3 Category 15 emissions for equity investments in Company A are shown below:

Data Quality		PCAF Method	Financed Emissions Estimation	
Data quality: Score 1		<i>Option 1a: Outstanding amount, EVIC, and verified emissions are known</i>	$\text{Financed emissions} = \sum_c \frac{\text{Outstanding amount}_c}{\text{Enterprise Value Including Cash}_c} \times \text{Company emissions}_c$	
1	Provided by the financial institution	Determine FI's equity investments in Company A	Outstanding Amount	= \$27 Million
2	Sourced from 3 rd party data vendors	Determine Company A's EVIC	Enterprise Value Including Cash	÷ \$2,700 Million
3	Calculation	Calculate attribution factor	Attribution factor	= 1%
4	Reported by the company	Company A's reported emissions*	Company Emissions	× 100,000 T CO ₂ e
5	Calculation	Calculate financed emissions	Financed Emissions	= 1,000 T CO ₂ e

Example: Mortgages (1/3)

Step 1: Define the organizational boundary

Step 2: Classify sources of emissions

Step 3: Calculate emissions

Step 4: Track emissions

Step 5: Report emissions

$$\text{Financed emissions} = \sum_b \text{Attribution factor}_b \times \text{Building emissions}_b$$

(with $b = \text{building}$)

$$\text{Financed emissions} = \sum_{b,e} \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b} \times \text{Energy consumption}_{b,e} \times \text{Emission factor}_e$$

(with $b = \text{building}$ and $e = \text{energy source}$)

Since actual energy/fuel consumption data of the properties is unavailable, the building emissions will be estimated based on the building type and location-specific statistics data.

Building emissions = Energy consumption x emissions factor

PCAF Score 4

Energy consumption (kWh) derived from EMSD

1. Map Bank A mortgages property type with EMSD Energy Utilisation Index (EUI) – Residential Sector:

Bank A mortgages property type	EMSD Principal Group
Private Housing	R22. Private Residential Flats
Village House	R23. Houses
Subsidized Housing	R3: Housing Authority (HA) Subsidized Sale Flats

2. Extract the annual energy consumption per saleable floor area from EMSD EUI:

Principal Group	Sub-Group	Annual Energy Consumption per Saleable Floor Area ¹ (MJ/m ²)
R1: Public Housing – Public Rental Flats	/	841
R2: Private Housing	R21. Housing Society (HS) Subsidized Sale Flats	762
	R22. Private Residential Flats	628
	R23. Houses	737
R3: Housing Authority (HA) Subsidized Sale Flats	/	555

Note: 1. EMSD EUI – Residential Sector provided the annual energy consumption of the household as of 30 September 2020 (latest update) by conducting surveys with households. 2. When the saleable floor area is not available, we assume the gross floor area is similar with the saleable floor area and will adopt the gross floor area for the emissions calculation.

3. Estimate the energy consumption of Hong Kong households for each energy source:

The major energy sources of households in Hong Kong are:

- Electricity: **71%**;
- Town Gas & LPG: **29%**
- Oil & Coal Product (e.g. Kerosene): **<1%***



(EMSD, Hong Kong Energy End Use Data 2023)

* Given that the energy consumption proportion of the oil & coal products are minimal (<1%) based on the EMSD data and which is negligible. The building emissions for oil & coal products will be excluded for the estimation.

4. Multiply the energy consumption with the saleable floor area² and convert the energy consumption unit from MJ to kWh

Example: Mortgages (2/3)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions**
- Step 4: Track emissions
- Step 5: Report emissions

$$\text{Financed emissions} = \sum_b \text{Attribution factor}_b \times \text{Building emissions}_b$$

(with b = building)

$$\text{Financed emissions} = \sum_{b,e} \frac{\text{Outstanding amount}_b}{\text{Property value at origination}_b} \times \text{Energy consumption}_{b,e} \times \text{Emission factor}_e$$

(with b = building and e = energy source)

The emissions factors are extracted from the sustainability reports of local electricity and town gas providers and DEFRA dataset. The buildings emissions are obtained after multiplying with energy consumption.

★ Building emissions = Energy consumption x **emissions factor**

PCAF Score 4

Emissions factor (kgCO₂e/kWh) extracted from local energy providers/global dataset

1. Identify the sources for the emissions factors for each energy sources:

- **Electricity** emissions factor:
 - CLP sustainability report
 - HKE sustainability report
- **Town Gas** emissions factor:
 - Town Gas sustainability report
- **LPG** emissions factor:
 - DEFRA database

▶ **2A. Extract the Electricity emissions factor from CLP and HKE sustainability report as of 31Dec23:**

CLP: 0.39 kgCO₂e/kWh

Greenhouse gas emissions intensity						
	2023	2022	2021	2020	2019	GR/INEX/SASA/IFRS
CLP Group - GHG emissions intensity of generation and energy storage portfolio^{1,2}						
On an equity basis (kg CO ₂ e/kWh) ³	0.62	0.63	0.65	0.66	0.71	GR 305-4 / HKE 44.37
On an equity plus long-term capacity and energy purchase basis (kg CO ₂ e/kWh) ⁴	0.54	0.55	0.57	0.57	0.63	IFRS 52-33(a)
CLP Power Hong Kong - GHG emissions intensity of electricity sold⁵						
CO ₂ emissions intensity of electricity sold by CLP Power Hong Kong (kg CO ₂ e/kWh)	0.39	0.39	0.39	0.37	0.49	
CO ₂ e emissions intensity of electricity sold by CLP Power Hong Kong (kg CO ₂ e/kWh)	0.39	0.39	0.39	0.37	0.50	

1. Starting from 2020, the portfolio includes energy storage assets and generation assets. Energy storage assets include pumped storage and battery storage. In previous years, the portfolio included generation assets only.
2. Pughton Power Station, the power purchase agreements of which expired in December 2018, was not included in the 2019-2023 numbers.
3. In accordance with the Greenhouse Gas Protocol, WE Station, which makes use of landfill gas from waste for power generation, is not included in CLP's Scope 1 CO₂ emissions and is reported separately in the Asset Performance Statistics. Scope 1 CO₂ emissions for CH₄ and N₂O are included in CLP's Scope 1 CO₂ emissions.
4. Numbers include Scope 1 and Scope 2 emissions.
5. Numbers include Scope 1, Scope 2 and Scope 3 Category 2 emissions (direct emissions from generation of purchased electricity that is sold to CLP's customers).
6. "Electricity sold" is the total electricity energy sold to CLP Power Hong Kong Limited's customers before the adjustment of Renewable Energy Certificates.

The 2023 data shaded in orange has been independently verified by KPMG. The assurance scope of past years' data can be found in previous sustainability reports.

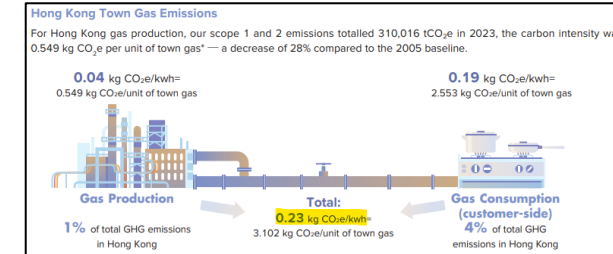
HKE: 0.66 kgCO₂e/kWh

Environment	2023
Fuel Consumed¹	
Gas (TJ)	43,613
Coal & oil (TJ) ²	51,687
Licence Compliance	
Percentage of Compliance (%)	100
Air Emissions³	
SO ₂ (t)	0.81
NO _x (t)	3.68
RSP (t)	0.08
CO ₂ (million T)	6.59
Mercury (T) ⁴	0.027
GHG Emissions	
Direct (Scope 1) GHG emissions (million T of CO ₂ e) ⁵	6.64
Indirect (Scope 2) GHG emissions (million T of CO ₂ e) ⁶	0
Indirect (Scope 3) GHG emissions (million T of CO ₂ e) ⁶	1.08
Indirect (Scope 3) GHG emissions by category (t of CO ₂ e):	
Cat. 1: Purchased goods and services	15.2
Cat. 2: Capital goods	170.2
Cat. 3: Fuel-related and energy-related activities	894.1
Cat. 4: Upstream transportation and distribution ⁷	See note 5
Cat. 5: Waste generated in operations	0.3
Cat. 6: Business travel	0.3
Cat. 7: Employee commuting	0.5
CO₂e per electricity unit sold (kg/kWh)⁸	0.66

Remarks:
emissions factor of the buildings in **Kowloon and New Territories** is derived from the reported emissions factor from **CLP**
emissions factor of the buildings in **Hong Kong Island** is derived from the reported emissions factor from **HKE**

▶ **2B. Extract the Town Gas emissions factors from Town Gas sustainability report as of 31Dec23 and DEFRA* database:**

Town Gas: 0.23 kgCO₂e/kWh



LPG emissions factor from DEFRA database: 0.2145 kgCO₂e/kWh (Gross CV)

Activity	Fuel	Unit	kg CO ₂ e	kg CO ₂	kg CH ₄	kg N ₂ O
ONG	Towngas	tonnes	2531.06	2528.26	3.46	1.33
		litres	0.44372	0.44246	0.00099	0.00033
		MWh (Gross CV)	0.20374	0.20336	0.00027	0.00011
LPG	Towngas	tonnes	1.8367	1.8352	0.00022	0.00010
		litres	2542.41	2537.68	3.40	1.33
		MWh (Gross CV)	0.18455	0.18421	0.00025	0.00010
Natural gas	Towngas	tonnes	2933.00	2928.26	3.40	1.33
		litres	2938.81	2934.82	2.14	1.06
		MWh (Gross CV)	0.20374	0.20336	0.00027	0.00011
Natural gas (100% mineral blend)	Towngas	tonnes	2.03017	2.02445	0.00271	0.00107
		litres	0.28489	0.28411	0.00027	0.00011
		MWh (Gross CV)	0.18455	0.18421	0.00025	0.00010
Other petroleum gas	Towngas	tonnes	260.13	2598.56	1.17	1.09
		litres	0.92574	0.92595	0.00043	0.00021
		MWh (Gross CV)	0.20394	0.20374	0.00029	0.00011

*DEFRA stands for Department for Environment, Food & Rural Affairs, United Kingdom government

Example: Mortgages (3/3)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions**
- Step 4: Track emissions
- Step 5: Report emissions

Table 5-15. General description of the data quality score table for mortgages
(score 1 – highest data quality; score 5 – lowest data quality)

Data Quality	Options to estimate the financed emissions	When to use each option
Score 1	Option 1: Actual building emissions	1a Primary data on actual building energy consumption (i.e., metered data) is available. Emissions are calculated using actual building energy consumption and supplier-specific emission factors ¹⁰⁰ specific to the respective energy source.
Score 2		1b Primary data on actual building energy consumption (i.e., metered data) is available. Emissions are calculated using actual building energy consumption and average emission factors specific to the respective energy source.
Score 3	Option 2: Estimated building emissions based on floor area	2a Estimated building energy consumption per floor area based on official building energy labels AND the floor area are available. Emissions are calculated using estimated building energy consumption and average emission factors specific to the respective energy source.
Score 4		2b Estimated building energy consumption per floor area based on building type and location-specific statistical data AND the floor area are available. Emissions are calculated using estimated building energy consumption and average emission factors specific to the respective energy source.
Score 5	Option 3: Estimated building emissions based on number of buildings	3 Estimated building energy consumption per building based on building type and location-specific statistical data AND the number of buildings are available. Emissions are calculated using estimated building energy consumption and average emission factors specific to the respective energy source.

Note: 1. The available data disclosed by EMSD on the energy consumption by floor area (EUI – Residential Sector) is by property type and no additional disclosure is available regarding to the energy consumption by the respective energy sources.

PCAF score

4

- Rationale behind the scoring**
- The **building energy consumption per floor area** is estimated based on the following available data:
 - Building type: Private Residential Flats, Houses, Housing Authority (HA) Subsidized Sale Flats
 - Location-specific statistical data on the energy consumption per floor area: HK EMSD Energy Utilisation Index – Residential Sector¹ and the energy consumption by energy sources are derived from EMSD report – Hong Kong Energy End Use Data
 - Floor area: as provided by HKMC
 - **Average emissions factors** specific to the below respective energy sources are adopted:
 - Electricity emissions factor from CLP and HKE
 - Town Gas emissions factor from Town Gas
 - LPG emissions factor from DEFRA

- Potential area in enhancing the PCAF score**
- To increase to **PCAF Score 3**: The building energy consumption per floor area based on official building labels and energy sources is available to be estimated.
 - To increase to **PCAF Score 2**: The actual building energy consumption based on the energy sources is available.
 - To increase to **PCAF Score 1**: The actual building energy consumption based on the energy sources is available. The supplier-specific emissions factors are also available.

IFRS S2: Scope 3 emissions measurement framework

Step 1: Define the organizational boundary

Step 2: Classify sources of emissions

Step 3: Calculate emissions

Step 4: Track emissions

Step 5: Report emissions

Prioritise data

01

Based on direct measurement

02

From specific activities in the value chain
(i.e. primary data)

03

Timely

04

Faithfully represents the relevant locations and
technology used for the activities

05

Verified

Disclosures:

- Extent of Scope 3 emissions measured using inputs from specific activities in the value chain
- Extent of data that has been prepared using verified inputs
- How it is managing Scope 3 emissions where the company decides it is impracticable to estimate

Setting targets and base year

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions
- Step 4: Track emissions**
- Step 5: Report emissions

Base year

Benchmark that allows an entity to observe trends in emission information

Ex. Single year or multi-year

Targets (near & long term)

A planning tool that can be used to manage GHG risks, enhance cost savings and drive R&D

Base year
2019

2025

2030

2035

Net zero by
2050

Recalculations

Retrospective recalculation of historic emissions to reflect changes in the entity when above significance policy threshold

Ex. Acquisition, disposition

Absolute or Intensity

50% reduction in scope 1 emissions by 2030

75% reduction per square foot of facility

Purchase offset credits

Contractual instrument used *when gross emissions* within the inventory boundary *cannot be further reduced* through operational changes

Present separately

Example GHG emissions statement

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions
- Step 4: Track emissions
- Step 5: Report emissions**

The following example demonstrates one way that a hypothetical company could present a GHG emissions statement.

The accompanying notes form an integral part of the GHG emissions statement.

<p>ABC COMPANY AND SUBSIDIARIES Greenhouse Gas (GHG) emissions statement Year ended December 31, 20X2 <i>In tonnes of carbon dioxide equivalent (CO₂e)</i></p>	<p>Note 1: Reporting entity</p>	<p>Note 2: Basis of presentation</p>	<p>Note 4: Use of estimates</p>	<p>Note 3: Organizational boundary</p>	<p>Note 5: Operational boundaries</p>	<p>Note 8: Measurement methodologies</p>
<p>Scope 1 emissions</p> <p>Scope 2 emissions:</p> <p style="padding-left: 20px;">Market-based method</p> <p style="padding-left: 20px;">Location-based method</p> <p>Total scope 1 and scope 2 emissions (market-based method)</p> <p>Offset of removal-based carbon credits</p> <p style="padding-top: 20px;">Select scope 3 emissions:</p> <p style="padding-left: 20px;">Category 1, purchased goods and services</p> <p style="padding-left: 20px;">Category 6, business travel</p> <p style="padding-left: 20px;">Category 7, employee commuting</p> <p>Total reported scope 3 emissions</p>	<div style="border: 1px solid black; display: inline-block; padding: 2px 10px;">XX XX</div>	<p>XX</p> <p>XX</p> <p>XX</p> <p>XX</p>	<p>XX</p> <p>(XX)</p>	<p>XX</p> <p>XX</p> <p>XX</p> <p>XX</p>		

Example GHG emissions statement (continued)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions
- Step 4: Track emissions

Step 5: Report emissions

The accompanying notes form an integral part of the GHG emissions statement.

Note 1: Reporting entity

Note 2: Basis of presentation

Note 3: Organizational boundary

Note 4: Use of estimates and estimation uncertainties

Note 5: Operational boundaries

- a. Scope 1 emissions
- b. Scope 2 emissions
- c. Scope 3 emissions

Note 6: Emissions per gas

Note 7: Base year

Note 8: Measurement methodologies

- a. Scope 1 emissions
- b. Scope 2 emissions
- c. Scope 3 emissions
- d. Global Warming Potentials

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 emissions have been prepared in accordance with the GHG Protocol Corporate Accounting and Reporting Standard (revised edition)
- Scope 2 emissions have been prepared in accordance with the GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard
- To the extent presented, Scope 3 emissions have been prepared in accordance with the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

Example GHG emissions statement (continued)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions
- Step 4: Track emissions

Step 5: Report emissions

The accompanying notes form an integral part of the GHG emissions statement.

- Note 1: Reporting entity
- Note 2: Basis of presentation
- Note 3: Organizational boundary
- Note 4: Use of estimates and estimation uncertainties
- Note 5: Operational boundaries
 - a. Scope 1 emissions
 - b. Scope 2 emissions
 - c. Scope 3 emissions
- Note 6: Emissions per gas
- Note 7: Base year
- Note 8: Measurement methodologies
 - a. Scope 1 emissions
 - b. Scope 2 emissions**
 - c. Scope 3 emissions
 - d. Global Warming Potentials

Source	Method	Emission factors	Inputs
Purchased electricity	Location-based	<ul style="list-style-type: none"> • PRC MEE national grid data • Database [Year] • [Year] International Energy Agency (IEA) 	<ul style="list-style-type: none"> • Utility bill/ metered consumption
	Market-based	<ul style="list-style-type: none"> • Supplier-specific (HKE/CLP) • [Year] IEA • Residual Mixes 	<ul style="list-style-type: none"> • Utility bill/metered consumption • Energy attribute certificates • Virtual power purchase agreements

- Emissions are calculated by multiplying the amount of company-purchased electricity, steam, heat and cooling consumed (in units of CO₂) 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.

Webinar dates and topics for 2024



- 11 March – IASB Developments
- 22 April – Sustainability Reporting Developments
- 7 June – Interim Reporting Updates
- 9 August – ISSB’s Activities Updates
- 9 October – Accounting for GHG Emissions
- 5 December – Year-end Updates



For more details and access to our webinar series:

<https://home.kpmg/cn/en/home/services/audit/ifrs-news/financial-reporting-webinar-series.html>

Resources

GHG emission reporting

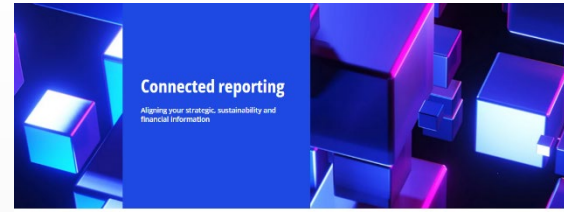


GHG emissions reporting
Handbook

Download the GHG emissions reporting handbook



Connected reporting





Connected reporting
Aligning your strategic, sustainability and financial information

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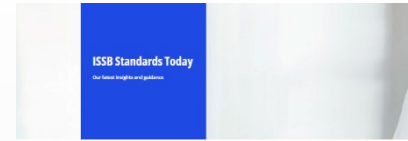
A company's annual report contains three key areas that provide insights into the business inside and alongside the financial statements: the sustainability disclosures and management's discussion and analysis (MD&A).

Companies may face direct challenge from investors, regulators and other report users if these insights are not connected. Climate-related matters and other considerations are under particular scrutiny.

To achieve connectivity, it is important that companies are both compliant with relevant standards and are connecting the dots between financial and non-financial information.



ISSB sustainability reporting





ISSB Standards Today
Our latest insights and guidance

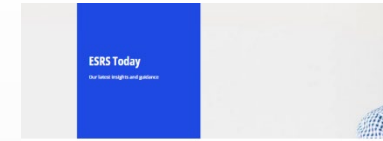
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Key steps to getting ready



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Example GHG emissions statement (continued)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions
- Step 4: Track emissions

Step 5: Report emissions

The accompanying notes form an integral part of the GHG emissions statement.

Note 1: Reporting entity

Note 2: Basis of presentation

Note 3: Organizational boundary

Note 4: Use of estimates and estimation uncertainties

Note 5: Operational boundaries

- a. Scope 1 emissions
- b. Scope 2 emissions
- c. Scope 3 emissions

Note 6: Emissions per gas

Note 7: Base year

Note 8: Measurement methodologies

- a. Scope 1 emissions
- b. Scope 2 emissions
- c. Scope 3 emissions
- d. Global Warming Potentials

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.

Example GHG emissions statement (continued)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
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- Step 4: Track emissions

Step 5: Report emissions

The accompanying notes form an integral part of the GHG emissions statement.

Note 1:	Reporting entity
Note 2:	Basis of presentation
Note 3:	Organizational boundary
Note 4:	Use of estimates and estimation uncertainties
Note 5:	Operational boundaries <ul style="list-style-type: none">a. Scope 1 emissionsb. Scope 2 emissionsc. Scope 3 emissions
Note 6:	Emissions per gas
Note 7:	Base year
Note 8:	Measurement methodologies <ul style="list-style-type: none">a. Scope 1 emissionsb. Scope 2 emissionsc. Scope 3 emissionsd. Global Warming Potentials

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.

<i>Source</i>	<i>Boundary description</i>
Purchased electricity	Data centers, owned office spaces, leased office spaces, inventory storage facilities, manufacturing facilities, retail storefronts.
Steam and heat	
Cooling	

Example GHG emissions statement (continued)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions
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The accompanying notes form an integral part of the GHG emissions statement.

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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.

Example GHG emissions statement (continued)

- Step 1: Define the organizational boundary
- Step 2: Classify sources of emissions
- Step 3: Calculate emissions
- Step 4: Track emissions
- Step 5: Report emissions**

The accompanying notes form an integral part of the GHG emissions statement.

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 - a. Scope 1 emissions
 - b. Scope 2 emissions
 - c. Scope 3 emissions

d. Global Warming Potentials

The global warming potentials for all GHGs were sourced from the Intergovernmental Panel on Climate Change Fifth Assessment Report.