

# **User Guide**

# **Greenhouse Gas Emissions Calculator**

**February 2024**

**Version C02/24**

## 1. Background and Objectives

The Hong Kong University of Science and Technology cooperated with the Green and Sustainable Finance Cross-Agency Steering Group to build two greenhouse gases (GHG) emissions tools in bridging the data gap highlighted by the industry.

The GHG emissions calculator aims to facilitate corporates to calculate their Scopes 1 and 2 GHG emissions (as classified in the GHG Protocol Corporate) based on their levels of actual activities and the widely adopted international standards, such as the GHG Protocol Corporate Accounting and Reporting Standard. To cater the needs of local users, this GHG emissions calculator incorporates more parameters in Hong Kong and the Mainland China, please refer to section 2.4 for details.

## 2. Introduction to the GHG Emissions Calculator

### 2.1 Standards and Guidelines

The GHG emissions calculator is built with reference to widely adopted international standards as well as local standard to address direct and indirect emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC and PFC in scopes 1 and 2.

#### International standards:

- WBCSD/WRI<sup>1</sup>: The GHG Protocol Corporate Accounting and Reporting Standard (Revised Edition)
- ISO 14064-1 (2018): Greenhouse Gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

#### Local standard:

- HKEPD<sup>2</sup> and EMSD<sup>3</sup> Guidelines: Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional Purposes) in Hong Kong (2010 Edition)

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<sup>1</sup> World Business Council for Sustainable Development and World Resources Institute (WBCSD/WRI)

<sup>2</sup> Hong Kong Environmental Protection Department (HKEPD)

<sup>3</sup> Electrical and Mechanical Services Department (EMSD)

These standards categorize various parameters into 3 different scopes to facilitate the accounting of greenhouse gases.

Scope 1	Scope 2	Scope 3
Direct emissions and removals: <ul style="list-style-type: none"> <li>• Stationary combustion</li> <li>• Mobile combustion</li> <li>• Fugitive emission</li> <li>• Other physical and chemical processing</li> </ul>	Indirect emission: <ul style="list-style-type: none"> <li>• Imported energy such as purchased electricity and town gas</li> </ul>	Other indirect emission: <ul style="list-style-type: none"> <li>• Water and sewage</li> <li>• Waste disposal</li> <li>• Air travels</li> <li>• Others</li> </ul>

## 2.2 Boundary Setting

Users are suggested to make reference to “WBCSD/WRI: The GHG Protocol Corporate Accounting and Reporting Standard” and adopts the control approach in the determination of organizational boundary.

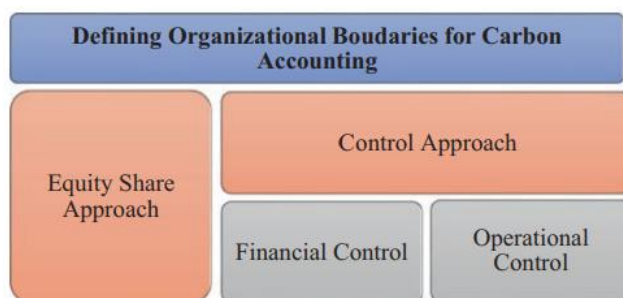


Fig.1 Summary of different approaches to define the organizational boundaries (Zhou, 2020)

## 2.3 Calculation Methodology

The calculation methodology of the GHG emission calculator is based on the following equations as recommended in the HKEPD and EMSD GHG guidelines for Scopes 1 and 2 GHG emissions.

### 2.3.1 Scope 1 Direct Emissions and Removals

#### (i) GHG Emissions from Stationary Combustion Sources

$$Emission (CO_2) = \sum Fuel\ consumption \times Emission\ factor\ of\ CO_2$$

Where

Emission is measured in tonnes of CO<sub>2</sub>-equivalent;

The amount of fuel used is measured either by its volume, such as liters, or by its mass, such as kilograms; and

CO<sub>2</sub> Emission Factor = Net Calorific Value of Fuel x Carbon Emission Factor of Fuel x Fraction of Carbon Oxidized x (44/12)

This equation calculates the emissions of CH<sub>4</sub> and N<sub>2</sub>O:

$$Emission (CH_4/N_2O) = \sum Fuel\ consumption \times Emission\ factor\ of\ (CH_4/N_2O) \times Relative\ GWP$$

where

Emission is measured in tonnes of CO<sub>2</sub>-equivalent;

Amount of fuel consumed is in terms of volume (e.g. litre) or mass (e.g. kg) for particular fuel;

Emission Factor of (CH<sub>4</sub> / N<sub>2</sub>O) = Net Calorific Value of the Fuel x Specific (CH<sub>4</sub> / N<sub>2</sub>O) x Conversion Factor; and

Relative GWP refers to the Relative Global Warming Potential of CH<sub>4</sub> or N<sub>2</sub>O

#### Global warming potential (GWP) for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O

GHGs	GWP 100-year time horizon		
	SAR (IPCC, 1995)	AR4 (IPCC, 2007)	AR5 (IPCC, 2014)
CO <sub>2</sub>	1	1	1
CH <sub>4</sub>	21	25	28
N <sub>2</sub> O	310	298	265

(Greenhouse Gas Protocol, n.d.)

The latest GWP from IPCC<sup>4</sup> Fifth Assessment Report (AR5) is adopted in the GHG emission calculator.

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<sup>4</sup> The Intergovernmental Panel on Climate Change (IPCC)

Please refer to section 2.4.1(i) for the emission factors for stationary combustion.

**(ii) GHG Emissions from Mobile Combustion Sources**

The calculation covers three categories of mobile sources: road transport, air transport, and water transport.

$$Emission (CO_2) = \sum Fuel\ consumption \times Emission\ factor\ of\ CO_2$$

Where

Emissions, measured in tonnes of CO<sub>2</sub>-equivalent, are calculated by summing up the emissions from all fuel types, transport modes, and vehicle categories; Fuel consumption, measured in volume (e.g. liters), is determined for each specific fuel type, transport mode, and vehicle category; and Emission Factor of CO<sub>2</sub> is determined by the net calorific value of the fuel, the carbon factor of the fuel, the fraction of carbon oxidized, and the ratio of 44 to 12.

This equation calculates the emissions of CH<sub>4</sub> and N<sub>2</sub>O:

$$\begin{aligned} Emission (CH_4/N_2O) &= \sum Fuel\ consumption \times Emission\ factor\ of\ (CH_4 / N_2O) \\ &\times Relative\ GWP \end{aligned}$$

where

Emissions, measured in tonnes of CO<sub>2</sub>-equivalent, are calculated by summing up the emissions from all fuel types, transport modes, and vehicle categories; Fuel consumption, measured in volume (e.g. liters), is determined for each specific fuel type, transport mode, and vehicle category; Emission Factor of (CH<sub>4</sub> / N<sub>2</sub>O) = Net Calorific Value of the Fuel x Specific (CH<sub>4</sub> / N<sub>2</sub>O) x Conversion Factor; and Relative GWP refers to the Relative Global Warming Potential of CH<sub>4</sub> or N<sub>2</sub>O

Please refer to section 2.4.1(ii) for the emission factors for mobile combustion.

**(iii) HFC and PFC Emissions for Refrigeration / Air-conditioning (Fugitive Emission)**

$$OE = \sum (C_s + C_i - C_d - C_e)_j \times GWP_j$$

Where:

OE = CO<sub>2</sub>-equivalent emissions resulting from the release of refrigerant j during equipment operation

C<sub>s</sub> = The inventory of refrigerant in storage (kg) at the beginning of the reporting period

C<sub>i</sub> = The amount of refrigerant added to the inventory during the reporting period (kg)

C<sub>d</sub> = The amount of refrigerant that was disposed of through environmentally responsible means (such as recycling) during the reporting period (kg)

C<sub>e</sub> = The inventory of refrigerant in storage, measured in kilograms, at the end of the reporting period

GWP = The 100-year Global Warming Potential (GWP) of refrigerant j, can be obtained using Table 3.

Please refer to section 2.4.1(iii) for the GWP of refrigerants.

**2.3.2 Scope 2 Energy Indirect Emissions**

**Energy Indirect GHG Emissions due to Electricity and Towngas Purchased**

*GHG Emission*

*= Quantity of purchased electricity/towngas  
× Emission Factor*

Please refer to section 2.4.2 for the emission factors for purchased electricity and towngas.

**2.4 Emission Factors**

The tables of emission factors presented below are extracted from two sources:

- the EMSD/EPD *Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings In Hong Kong*, and

- the *Guidance for Quantification and Reporting of the Organization's Greenhouse Gas Emissions in Shenzhen* (深圳市标准化指导性技术文件 - 组织的温室气体排放量化和报告指南) (2018).

The results of the calculations will be expressed in terms of CO<sub>2</sub>-equivalent (CO<sub>2</sub>-e).

## 2.4.1 Scope 1 - Direct Emissions

### i) Stationary Combustion Sources in Hong Kong

**Table 1-1 CO<sub>2</sub> Emission factor by fuel type**

Fuel Type	Emission Factor	Unit
Diesel Oil	2.614	kg/litre
LPG	3.017	kg/kg
Kerosene	2.429	kg/litre
Charcoal	2.970	kg/kg
Towngas	2.549	kg/unit

**Table 1-2 CH<sub>4</sub> Emission factor by fuel type**

Fuel Type	Emission Factor	Unit
Diesel Oil	0.0239	g/litre
LPG	0.0020	g/kg
Kerosene	0.0241	g/litre
Charcoal	5.5290	g/kg
Towngas	0.0446	g/unit

**Table 1-3 N<sub>2</sub>O Emission factor by fuel type**

Fuel Type	Emission Factor	Unit
Diesel Oil	0.0074	g/litre
LPG	0.0000	g/kg
Kerosene	0.0076	g/litre
Charcoal	0.0276	g/kg
Towngas	0.0099	g/unit

## Stationary Combustion Sources in Mainland China

**Table 1-4 CO<sub>2</sub> Emission factor by fuel type**

Fuel Type	Fuel Type (Chinese)	Emission Factor	Unit
Anthracite	無煙煤	1.97	kgCO <sub>2</sub> /kg
Bituminous coal	煙煤	1.86	kgCO <sub>2</sub> /kg
Lignite	褐煤	2.06	kgCO <sub>2</sub> /kg
Washed coal	洗精煤	2.45	kgCO <sub>2</sub> /kg
Middling coal	洗中煤	0.78	kgCO <sub>2</sub> /kg
Slime	煤泥	1.17	kgCO <sub>2</sub> /kg
Coke	焦炭	2.85	kgCO <sub>2</sub> /kg
Crude oil	原油	3.02	kgCO <sub>2</sub> /kg
Fuel oil	燃料油	3.17	kgCO <sub>2</sub> /kg
Petrol	汽油	2.92	kgCO <sub>2</sub> /kg
Kerosene	一般煤油	3.03	kgCO <sub>2</sub> /kg
Diesel oil	柴油	3.1	kgCO <sub>2</sub> /kg
LNG	液化天然氣	2.58	kgCO <sub>2</sub> /kg
LPG	液化石油氣	3.1	kgCO <sub>2</sub> /kg
Refinery dry gas	煉廠乾氣	3.04	kgCO <sub>2</sub> /kg
Ethane	乙烷	3.28	kgCO <sub>2</sub> /kg
Bitumen	瀝青	3.26	kgCO <sub>2</sub> /kg
Lubricating oil	潤滑油	3.04	kgCO <sub>2</sub> /kg
Petroleum coke	石油焦	4.14	kgCO <sub>2</sub> /kg
Natural gas	天然氣	0.0022	kgCO <sub>2</sub> /L
Coke oven gas	焦爐煤氣	0.00089	kgCO <sub>2</sub> /L
Blast furnace gas	高爐煤氣	0.00017	kgCO <sub>2</sub> /L
Producer gas fuel	發生爐煤氣	0.00023	kgCO <sub>2</sub> /L
Heavy oil catalytic cracking gas	重油催化裂解煤氣	0.00085	kgCO <sub>2</sub> /L
Heavy oil thermal cracking gas	重油熱裂解煤氣	0.0016	kgCO <sub>2</sub> /L
Coke gas	焦炭製氣	0.00072	kgCO <sub>2</sub> /L



Coalbed methane	壓力水化煤氣	0.00067	kgCO <sub>2</sub> /L
Water gas	水煤氣	0.0046	kgCO <sub>2</sub> /L

### **Biomass Combustion Sources in Mainland China**

**Table 1-5 CO<sub>2</sub> Emission factor**

Fuel Type	Fuel Type (Chinese)	Emission Factor	Unit
Timber/ waste wood	木材/廢木材	2.21	kgCO <sub>2</sub> /kg
Other solid biomass	其他固體生物量	2.7	kgCO <sub>2</sub> /kg

### **ii) Mobile Combustion Sources in Hong Kong**

**Table 2-1 CO<sub>2</sub> Emission factor**

Fuel Type	Emission Factor	Unit
Diesel Oil (DO)	2.614	kg/litre
Unleaded Petrol (ULP)	2.360	kg/litre
Liquefied Petroleum Gas (LPG)	1.679	kg/litre
	3.017	kg/kg
Gas Oil (For Ships only)	2.645	kg/litre
Kerosene (Including Jet Kerosene)	2.429	kg/litre

**Table 2-2 CH<sub>4</sub> Emission factor**

Vehicle Type	Fuel Type	Emission Factor	Unit
Motorcycle	ULP	1.422	g/litre
Passenger Car	ULP	0.253	g/litre
	DO	0.072	g/litre
	LPG	0.248	g/litre
Private Van	ULP	0.203	g/litre
	DO	0.072	g/litre
	LPG	0.248	g/litre
Public Light Bus	DO	0.072	g/litre
	LPG	0.248	g/litre

Light Goods Vehicle	ULP	0.203	g/litre
	DO	0.072	g/litre
Heavy Goods Vehicle	DO	0.145	g/litre
Medium Goods Vehicle	DO	0.145	g/litre
Ships	Gas Oil	0.146	g/litre
Aviation	Jet Kerosene	0.069	g/litre
Other Mobile Machinery	DO	0.0239	g/litre
	LPG	0.0036	g/litre
		0.006	g/kg
	Kerosene	0.0241	g/litre

**Table 2-3 N<sub>2</sub>O Emission factor**

Vehicle Type	Fuel Type	Emission Factor	Unit
Motorcycle	ULP	0.046	g/litre
Passenger Car	ULP	1.105	g/litre
	DO	0.110	g/litre
Private Van	ULP	1.140	g/litre
	DO	0.506	g/litre
	LPG	0.000	g/litre
Public Light Bus	DO	0.506	g/litre
	LPG	0.000	g/litre
Light Goods Vehicle	ULP	1.105	g/litre
	DO	0.506	g/litre
Heavy Goods Vehicle	DO	0.072	g/litre
Medium Goods Vehicle	DO	0.072	g/litre
Ships	Gas Oil	1.095	g/litre
Aviation	Jet Kerosene	0.000	g/litre
Other Mobile Machinery	DO	0.007	g/litre
	LPG	0.000	g/litre or g/kg
	Kerosene	0.0076	g/litre

## Mobile Combustion Sources in Mainland China

Table 2-4 CO<sub>2</sub> Emission factor

Transport	Fuel Type	Fuel Type (Chinese)	Emission Factor	Unit
Road transport	Petrol	汽油	2.92	kgCO <sub>2</sub> /kg
	Kerosene	噴氣煤油	3.02	kgCO <sub>2</sub> /kg
	Diesel oil	柴油	3.1	kgCO <sub>2</sub> /kg
	LPG	液化石油氣	3.1	kgCO <sub>2</sub> /kg
	LNG	液化天然氣	2.68	kgCO <sub>2</sub> /kg
Non-road transport	Petrol	汽油	2.92	kgCO <sub>2</sub> /kg
	Diesel oil	柴油	3.1	kgCO <sub>2</sub> /kg

### **iii) Fugitive emission**

This GHG emission calculator include the refrigerants which are specified in the EMSD/EPD Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings in Hong Kong. The global warming potential (GWP) of refrigerants are updated with the latest available values found in the IPCC AR5.

Table 3 GWP of Refrigerants

Refrigerant Type	GWP	Data Source
HCFC-21	148	A
HCFC-22	1760	A
HCFC-123	79	A
HCFC-124	527	A
HCFC-141b	782	A
HCFC-142b	1980	A
HCFC-225ca	127	A
HCFC-225cb	525	A
HFC-23	12400	A
HFC-32	677	A
HFC-41	116	A
HFC-43-10mee	1650	A
HFC-125	3170	A
HFC-134	1120	A
HFC-134a	1300	A
HFC-143	328	A
HFC-143a	4800	A
HFC-152	16	A
HFC-152a	138	A
HFC-161	4	A
HFC-227ea	3350	A
HFC-236cb	1210	A
HFC-236ea	1330	A
HFC-236fa	8060	A
HFC-245ca	716	A
HFC-245fa	858	A
HFC-365mfc	804	A
PFC-14	6630	A
PFC-116	11100	A
PFC-218	8900	A
PFC-318	9540	A
PFC-31-10	9200	A

Refrigerant Type	GWP	Data Source
PFC-41-12	8550	A
PFC-51-14	7910	A
R-401A	1130	B
R-401B	1236	B
R-401C	876	B
R-402A	2571	B
R-402B	2261	B
R-403B	4457	B
R-404A	3943	B
R-406A	1780	B
R-407A	1923	B
R-407B	2547	B
R-407C	1624	B
R-407D	1487	B
R-407F	1674	B
R-407H	1378	B
R-408A	3257	B
R-409A	1485	B
R-410A	1924	B
R-410B	2048	B
R-411A	1555	B
R-411B	1659	B
R-414B	1274	B
R-416A	975	B
R-417A	2127	B
R-417C	1643	B
R-420A	1382	B
R-500	7564	B
R-502	4786	B
R-503	13300	B
R-507	3985	B
R-507A	3985	B
R-508B	11698	B

Note: Information sources:

A: Greenhouse Gas Protocol (n.d.)

B: California Air Resources Board (n.d.)

#### 2.4.2 Scope 2 – Indirect emission: Purchased Electricity and Towngas

The emission factors for purchased electricity from HKE and CLP are sourced from their 2022 sustainability reports, while the territory-wide default value for Hong Kong is suggested by the EMSD/EPD Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings in Hong Kong.

The electricity emission factors for the mainland China are sourced from the 2019 Emissions Reduction Project Baseline Emission Factor for the Chinese Regional Power Grid (2019 年度减排项目中国区域电网基准线排放因子). The country-wide emission factor for Mainland China is published by The Ministry of Ecology and Environment of People’s Republic of China in February 2023.

The towngas emission factor is from the 2022 Environmental, Social and Governance Report of Towngas.

**Table 4-1 Emission factor of purchased electricity in Hong Kong and Mainland China**

Location	Electricity Company	Emission Factor	Unit
Hong Kong	HKE	0.68	kg/kWh
Hong Kong	CLP	0.39	kg/kWh
Hong Kong	Territory-wide	0.7	kg/kWh
Mainland China	North China Grid	0.9419	kg/kWh
Mainland China	Northeast China Grid	1.0826	kg/kWh
Mainland China	East China Grid	0.7921	kg/kWh
Mainland China	Central China Grid	0.8587	kg/kWh
Mainland China	Northwest China Grid	0.8922	kg/kWh
Mainland China	China Southern Power Grid	0.8042	kg/kWh
Mainland China	Country-wide	0.5703	kg/kWh

**Table 4-2 Geographical area covered in the regional power grid of Mainland China**

<b>Power Grid Name</b>	<b>Covering Provinces and Cities</b>
North China Grid 華北區域電網	Beijing city, Tianjin city, Hebei province, Shanxi province, Shandong province, Inner Mongolia autonomous region 北京市、天津市、河北省、山西省、山東省、內蒙古自治區
Northeast China Grid 東北區域電網	Liaoning province, Jilin province, Heilongjiang province 遼寧省、吉林省、黑龍江省
East China Grid 華東區域電網	Shanghai city, Jiangsu province, Zhejiang province, Anhui province, Fujian province 上海市、江蘇省、浙江省、安徽省、福建省
Central China Grid 華中區域電網	Henan province, Hubei province, Hunan province, Jiangxi province, Sichuan province, Chongqing city 河南省、湖北省、湖南省、江西省、四川省、重慶市
Northwest China Grid 西北區域電網	Shaanxi province, Gansu province, Qinghai province, Ningxia autonomous region, Xinjiang autonomous region 陝西省、甘肅省、青海省、寧夏自治區、新疆自治區
China Southern Power Grid 南方區域電網	Guangdong province, Guangxi autonomous region, Yunnan province, Guizhou province, Hainan province 廣東省、廣西自治區、雲南省、貴州省、海南省

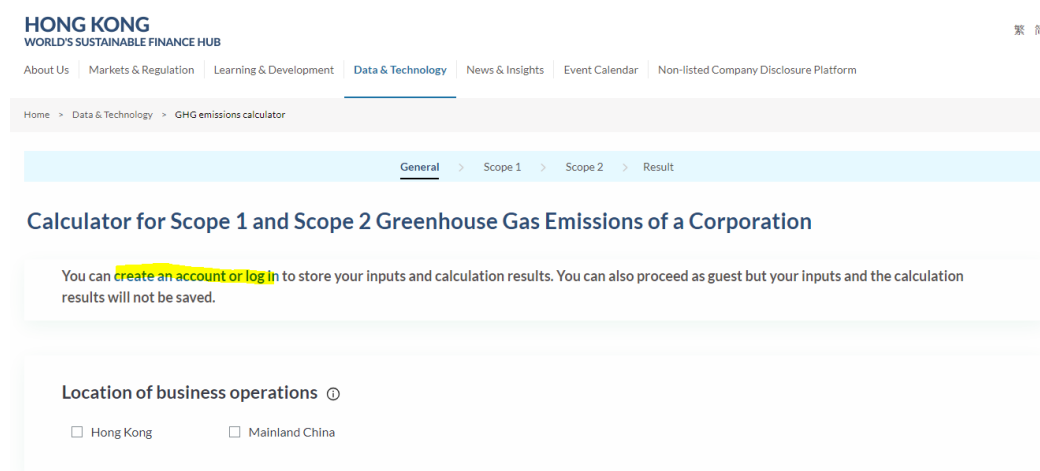
**Table 5 Emission factor of purchased towngas**

<b>Location</b>	<b>Towngas Company</b>	<b>Emission Factor</b>	<b>Unit</b>
Hong Kong	Towngas	0.576	kg/unit

### 3. How to use the GHG Emissions Calculator

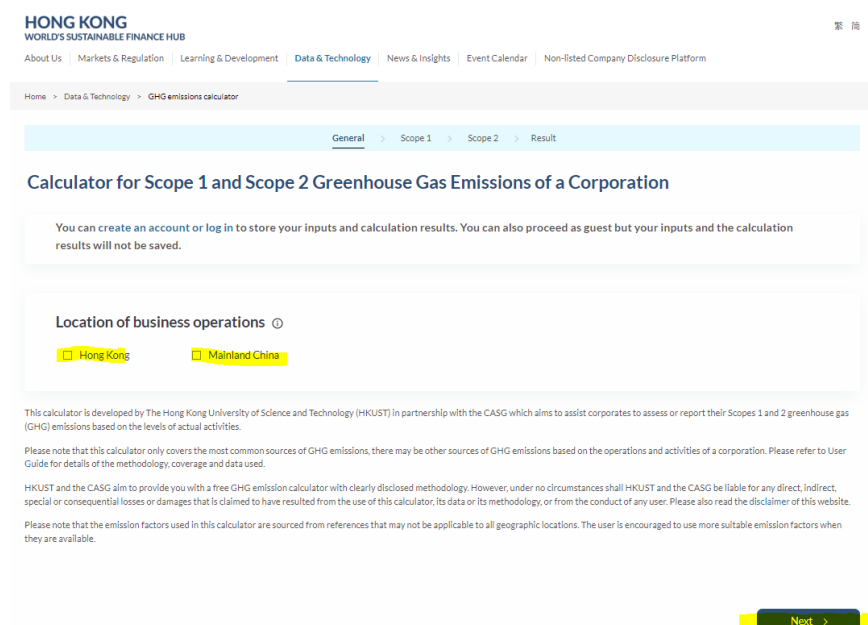
The GHG emissions calculator is an online tool with clear guidance, the ⓘ icons in the tool also provide simple guidance for respective input field. Please read below for details on using the GHG emission calculator.

You can create an account or log in to store your inputs and calculation results, please refer to section 3.5 for the functions of the account platform. You can also proceed as guest but your inputs and the calculation results will not be saved.



#### 3.1 Selecting the location of business operations

On the front page of the GHG emissions calculator, select the applicable location(s) of business operations of the company. You can select more than 1 location, then press “Next”.



### 3.2 Inputting Scope 1 data

On the Scope 1 page, you can input fuel consumptions by i) stationary combustion, ii) mobile combustion and iii) fugitive emission, where applicable. If Scope 1 emission is not applicable to the company, you can press “Next” to proceed to Scope 2 inputs.

#### i) Stationary combustion

You can input the fuel consumption by each station or by fuel type aggregating the fuel consumption of all stations.

The name of the “station” field is defaulted as Station 1, you can change the name of the station to label a designated station and its corresponding fuel consumption for easy reference.

General > Scope 1 > Scope 2 > Result

#### Calculator for Scope 1 and Scope 2 Greenhouse Gas Emissions of a Corporation


Hong Kong

Stationary combustion

Station	Fuel Type	Consumption	
Station 1	Please select		
HK Station A	Please select		

+ Add more station

Then you can select a fuel type in the drop-down menu and input the fuel consumption. The GHG emission calculator does not cover all possible

measurement units, you may refer to  icon for a unit conversion table which may be helpful for performing unit conversion.

General > Scope 1 > Scope 2 > Result

#### Calculator for Scope 1 and Scope 2 Greenhouse Gas Emissions of a Corporation

Hong Kong

Stationary combustion

Station	Fuel Type	Consumption	
Station 1	Diesel Oil	10000	Litre
HK Station A	Charcoal	2000	kg

+ Add more station



To add more stations, you can press the “add more station”. To remove any



additional station, click the icon.

General > Scope 1 > Scope 2 > Result

### Calculator for Scope 1 and Scope 2 Greenhouse Gas Emissions of a Corporation

**Hong Kong** ⓘ

Stationary combustion ⓘ

Station	Fuel Type	Consumption	
Station 1	Diesel Oil	10000	Litre
HK Station A	Charcoal	2000	kg

🔗 🗑️
🔗 🗑️

+ Add more station

### ii) Mobile combustion

Similar with stationary combustion, you can input the fuel consumption by each vehicle or by fuel type aggregating the fuel consumption of all vehicles.

You can change the name of the vehicle to label a designated vehicle and its corresponding fuel consumption. Then you can select a fuel type in the drop-down menu and input the fuel consumption.

Mobile combustion ⓘ

Vehicle	Vehicle Type	Fuel Type	Consumption	
Toyota AP 1234	Passenger Car	Unleaded petrol	500	Litre
Honda KE 5678	Heavy Goods Vehicle	Diesel Oil	300	Litre

🔗 🗑️
🔗 🗑️

+ Add more vehicle

### iii) Fugitive emission

If you want to include fugitive emission in the calculation, you can check the box of “include fugitive emission in the calculation”.

Then you can select the refrigerant type and input the inventory balances, purchase and disposal during the reporting period. The usage of the refrigerants during the period will be automatically calculated based on your input. Please note that any refrigerant used during the period should not be less than zero.

Fugitive Emission (optional)

Include fugitive emission in the calculation

Refrigerant Type	Beginning inventory balance (kg)	Purchase (kg)	Disposal (kg)	Ending inventory balance (kg)
HFC-21	110	20	5	100

Refrigerants used during the period

= 25 kg

+ Add more fugitive emission

If the company also has business operations in Mainland China, repeat the steps for inputting fuel consumption for stationary combustion, mobile combustion, and fugitive emission, where applicable.

**Mainland China**

Stationary combustion

Station	Fuel Type	Consumption
Station 1	Diesel oil	500 kg

+ Add more station

Mobile combustion

Vehicle	Vehicle Type	Fuel Type	Consumption
Vehicle1	Road transport	Diesel Oil	200 kg

+ Add more vehicle

Fugitive Emission (optional)

Include fugitive emission in the calculation

Refrigerant Type	Beginning inventory balance (kg)	Purchase (kg)	Disposal (kg)	Ending inventory balance (kg)
HFC-23	20	0	5	10

Refrigerants used during the period

= 5 kg

+ Add more fugitive emission

After inputting all applicable Scope 1 fields, press “Next” to proceed to Scope 2 section.

### 3.3 Inputting Scope 2 data

On the Scope 2 page, you can input fuel consumptions for i) purchased electricity and ii) purchased town gas (for Hong Kong only), where applicable.

i) Purchased electricity

You can select the source of electricity in the drop-down menu and input the corresponding electricity consumption in kWh.

General > Scope 1 > Scope 2 > Result

### Calculator for Scope 1 and Scope 2 Greenhouse Gas Emissions of a Corporation

**Purchased electricity** ⓘ

Source of electricity	Consumption	
<input type="text" value="HKE"/>	<input type="text" value="120000"/>	kWh
<input type="text" value="North China Grid"/>	<input type="text" value="50000"/>	kWh

[+](#) Add more purchased electricity

ii) Purchased towngas (Hong Kong only)

You can input the towngas consumption in Hong Kong during the year, if applicable.

In general, this figure should be the sum of towngas consumption of all stations on the Scope 1 page. It is because the consumption of towngas involves both types of emissions – (i) direct emissions (Scope 1) arising from the combustion of towngas of the station and (ii) indirect emissions (Scope 2) arising from the generation and transportation of towngas from the production plant to the station concerned.

**Purchased Towngas (Hong Kong only)** ⓘ

 unit

[< Previous](#) [Next >](#)

After inputting all applicable Scope 2 fields, press “Next” to proceed to the calculation results.

### 3.4 Reviewing results

On the results page, you can see a summary of your inputs and the calculation results. You can click the “Export to Excel” to download the input summary and calculation results for record keeping.

## Calculator for Scope 1 and Scope 2 Greenhouse Gas Emissions of a Corporation

### Input Summary

Collapse all

#### — Location of business operations

Hong Kong & Mainland China

#### — Hong Kong

##### Stationary combustion

Station	Fuel Type	Consumption	
Station 1	Diesel Oil	10000	Litre
HK Station A	Charcoal	2000	kg

##### Mobile combustion

Vehicle	Vehicle Type	Fuel Type	Consumption	
Toyota AP 1234	Passenger Car	Unleaded petrol	500	Litre
Honda KE 5678	Heavy Goods Vehicle	Diesel Oil	300	Litre

##### Fugitive Emission (optional)

Include fugitive emission in the calculation

Refrigerant Type	Beginning inventory balance (kg)	Purchase (kg)	Disposal (kg)	Ending inventory balance (kg)
HCFC-21	110	+ 20	- 5	- 100

Refrigerants used during the period

= 25 kg

#### Hong Kong

Scope 1 GHG emissions

38.25 metric tonnes CO<sub>2</sub>e

Scope 2 GHG emissions

82.29 metric tonnes CO<sub>2</sub>e

Scope 1 and 2 GHG emissions

120.54 metric tonnes CO<sub>2</sub>e

Please refer to the [User Guide](#) for details of source data used in the calculation.

#### Mainland China

Scope 1 GHG emissions

64.17 metric tonnes CO<sub>2</sub>e

Scope 2 GHG emissions

47.1 metric tonnes CO<sub>2</sub>e

Scope 1 and 2 GHG emissions

111.27 metric tonnes CO<sub>2</sub>e

Please refer to the [User Guide](#) for details of source data used in the calculation.

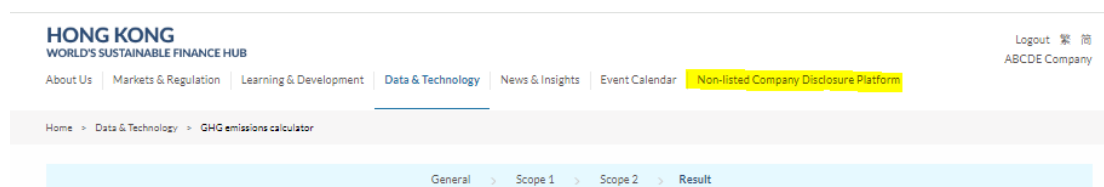
Edit

Export to Excel

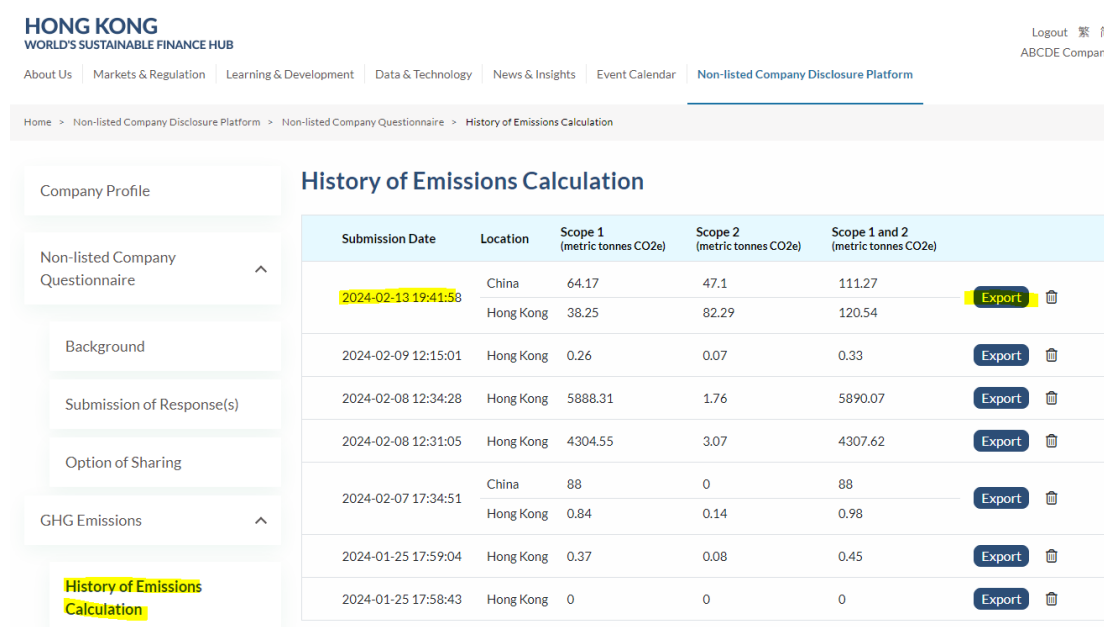
### 3.5 Retrieving calculation results (only for users who created an account)


If you create an account and log in, your inputs and calculation results are automatically saved in the account platform.

To access your user profile and retrieve your calculation history, press “Non-listed Company Disclosure Platform”.




Then click “History of Emissions Calculation” on the menu, your calculation history will be shown. You can review the information online or click “Export” to download the respective input summary and calculation results for record keeping.



To remove a calculation history, click the  icon and confirm to delete.

## History of Emissions Calculation

Submission Date	Location	Scope 1 (metric tonnes CO2e)	Scope 2 (metric tonnes CO2e)	Scope 1 and 2 (metric tonnes CO2e)	
2024-02-13 19:41:58	China	64.17	47.1	111.27	<a href="#">Export</a> 
	Hong Kong	38.25	82.29	120.54	

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