







INTRODUCTION

The GPC provides a robust and transparent accounting and reporting system for city-wide GHG emissions.

The GPC requires cities to report their emissions using two distinct but complementary approaches:

✓ The scopes framework allows cities to comprehensively report all GHG emissions attributable to activities taking place within the geographic boundary of the city by categorizing the emission sources into in-boundary sources (scope 1, or "territorial"), grid-supplied energy sources (scope 2), and out-of-boundary sources (scope 3). Scope 1 allows for a territorial approach to aggregating multiple cities' inventories, consistent with national-level GHG reporting.

CITY-INDUCED FRAMEWORK

The city-induced framework measures GHG emissions attributable to activities taking place within the geographic boundary of the city. This covers selected scope 1, 2 and 3 emission sources. It provides two reporting levels demonstrating different levels of completeness.

✓ The BASIC level covers emission sources that occur in almost all cities (Stationary Energy, in-boundary transportation, and in-boundary generated waste) and the calculation methodologies and data are more readily available.

✓ The BASIC+ level has a more comprehensive coverage of emissions sources (BASIC sources plus IPPU, AFOLU, transboundary transportation, and energy transmission and distribution losses) and reflects more challenging data collection and calculation procedures.

GHG inventories should be updated on a regular basis using the most recent data available. The GPC recommends cities update their inventory on an annual basis, as it provides frequent and timely progress on overall GHG emissions reduction efforts.

THE SCOPES AND CITY- INDUCED FRAMEWORKS

Emission sources and scopes included in **BASIC** totals:

- All scope 1 emissions from Stationary Energy sources (excluding energy production supplied to the grid, which shall be reported in the scope 1 total)
- All scope 1 emissions from Transportation sources
- All scope 1 emissions from Waste sources (excluding emissions from imported waste, which shall be reported in the scope 1 total)
- All scope 2 emissions from Stationary Energy sources and transportation
- Scope 3 emissions from treatment of exported waste

BASIC+ totals include all BASIC sources, plus:

- All scope 1 emissions from IPPU
- All scope 1 emissions from AFOLU
- Scope 3 emissions from Stationary Energy sources (only transmission and distribution losses), and from Transportation

Figure 2.1 provides an overview of the above-mentioned scopes and BASIC/ BASIC+ frameworks as well as breakdowns by sector and sub-sector. Cities should aim to cover all emissions for which reliable data are available. Notation keys shall be used to indicate any data gaps.

The GPC requires reporting for one of two reporting levels: BASIC and BASIC+. BASIC covers scope 1 (territorial) and scope 2 emissions from Stationary Energy and Transportation, as well as in-boundary generated waste.

SOURCES AND SCOPES COVERED BY THE GPC

Sectors and sub-sectors	Scope 1	Scope 2	Scope 3
STATIONARY COMBUSTION			
Residential buildings	✓	✓	✓
Commercial and institutional buildings and facilities	✓	✓	✓
Manufacturing industries and construction	✓	✓	✓
Energy industries	✓	✓	✓
Energy generation supplied to the grid	✓	✓	✓
Agriculture, forestry, and fishing activities	✓	✓	✓
Non-fossil fuel sources	✓	✓	✓
Significant emissions from mining, processing, storage, and transportation of coal	✓	✓	✓
Significant emissions from oil and natural gas systems	✓	✓	✓
TRANSPORTATION			
On-road	✓	✓	✓
Maritime	✓	✓	✓
Domestic navigation	✓	✓	✓
Airports	✓	✓	✓
Off-road	✓	✓	✓
WASTE			
Disposal of solid waste generated in the city	✓	✓	✓
Disposal of solid waste generated outside the city	✓	✓	✓
Biological treatment of waste generated in the city	✓	✓	✓
Biological treatment of waste generated outside the city	✓	✓	✓
Incineration and open burning of waste generated in the city	✓	✓	✓
Incineration and open burning of waste generated outside the city	✓	✓	✓
Wastewater generated in the city	✓	✓	✓
Wastewater generated outside the city	✓	✓	✓
INDUSTRIAL PROCESSES AND PRODUCT USE (IPPU)			
Industrial processes	✓	✓	✓
Product use	✓	✓	✓
AGRICULTURE, FORESTRY AND OTHER LAND USE (AFOLU)			
Land use	✓	✓	✓
Land	✓	✓	✓
Agriculture sources and non- CO_2 emission sources or land	✓	✓	✓
OTHER SOURCES			
Other Scope 3	✓	✓	✓
✓ Sources covered by the GPC	✓	✓	✓
✗ Sources required for GHGCA reporting	✗	✗	✗
✗ Sources included in Other Scope 3	✗	✗	✗
✗ Sources required for GHG reporting	✗	✗	✗
✗ Sources required for emissions that are not for GHGCA/GHGCA reporting (Other 1)	✗	✗	✗
✗ Non-applicable emissions	✗	✗	✗

REPORTING REQUIREMENTS

City GHG inventories shall report the following information:

Description of the inventory boundary

- ✓ A description of the geographic boundary. Cities should include a map of the geographic boundary that includes a depiction of the region, and rationale used for selecting the geographic boundary.
- ✓ An outline of the activities included in the inventory, and if other scope 3 are included, a list specifying which types of activities are covered.
- ✓ Any specific exclusion of required sources, facilities, and/or operations.
- ✓ The continuous 12-month reporting period covered.
- ✓ The reporting level chosen (BASIC or BASIC+).
- ✓ An overview of the reporting city, including total geographic land area, resident population, and GDP. The geographic boundary should be the same as the inventory boundary. Cities should also include other information, such as an indication of the number of commuters in the city who are not residents, the composition of the economy, climate, and land use activities (accompanied by a land use map).

INFORMATION ON EMISSIONS

City	Year	GHG Emissions (Scope 1 and 2)	GHG Emissions (Scope 3)	GHG Emissions (Total)
City A	2020	100,000	200,000	300,000
City A	2021	110,000	210,000	320,000
City A	2022	120,000	220,000	340,000
City B	2020	80,000	180,000	260,000
City B	2021	85,000	185,000	270,000
City B	2022	90,000	190,000	280,000
City C	2020	60,000	160,000	220,000
City C	2021	65,000	165,000	230,000
City C	2022	70,000	170,000	240,000
City D	2020	40,000	140,000	180,000
City D	2021	45,000	145,000	190,000
City D	2022	50,000	150,000	200,000
City E	2020	20,000	120,000	140,000
City E	2021	25,000	125,000	150,000
City E	2022	30,000	130,000	160,000

Table 4.3 provides a sample reporting structure that covers all of these reporting requirements outlined above. Cities may report GHG emissions (and removals) in a variety of additional formats depending on purpose and audience, and may also disaggregate emissions by fuel type, municipal operations within each sector or sub-sector, etc. However, they shall comply with the following requirements:

INFORMATION ON EMISSIONS

✓Emissions by sector: GHG emissions shall be reported for each sector and sub-sector. CO₂ sequestered by carbon capture and storage systems shall be excluded from emission totals for applicable sectors. However, cities may report these separately. By contrast, removals from land use may be reported either separately or as a "net", depending on the methodologies used to estimate GHGs by land use subcategory.

✓Emissions by scope: GHG emissions shall be reported by scope 1 (territorial), scope 2, and scope 3 separately. These scope totals shall be independent of any GHG trades such as sales, purchases, transfers, or banking of allowances.

✓Emissions by gas: GHG emissions shall be reported in metric tonnes and expressed by gas (CO₂, CH₄, N₂O, 242 HFCs, PFCs, SF₆, and NF₃) and by CO₂ equivalent (CO₂e).

✓Emissions by total: GHG emissions shall be aggregated according to the scopes framework and the city-induced framework (BASiC+ or BASiC, based on the reporting level chosen).

✓Emissions from biogenic origin: CO₂ emissions from combustion of biofuels or decomposition of products and other materials of biogenic origin (e.g., biomass, biofuel, etc.) shall be reported separately from the scopes and other gases.

INFORMATION ON METHODOLOGIES AND DATA QUALITY

✓For methodologies used to calculate or measure emissions, cities shall provide a reference or link to any calculation tools used. For each emission source sector, cities shall provide a description of the types and sources of data, including activity data, emission factors, and global warming potential (GWP) values used to calculate emissions.

✓Cities shall provide an assessment of data quality for activity data and emission factors used in quantification, following a High-Medium-Low rating.

INFORMATION ON EMISSION CHANGES

✓If a city has set a mitigation goal, it shall identify the year chosen as the base year and report base year emissions.

✓If the city is using an inventory to track progress toward a mitigation goal, the city shall identify a significance threshold that triggers base year emissions recalculation.

INVENTORY CITY INFORMATION

Required information

Name of City	
Country	
Inventory year	
Geographic boundary	
Land area (km ²)	
Resident population	
GDP	

Optional information (some examples)

Composition of economy	
Climate	
Floating Population (non-resident population)	

GHG EMISSIONS SUMMARY



Sector		Total by scope (tCO ₂ e)				Total by city-induced reporting level (tCO ₂ e)	
		Scope 1 (terrestrial)	Scope 2	Scope 3 Included in BASIC/ BASIC+	Other Scope 3	BASIC	BASIC+
Stationary Energy	Energy use (all 1 emissions except 1.4.4)						
	Energy generation supplied to the grid (1.4.4) (included in Scope 2)						
Transportation	(all 6 emissions)						
Waste	Generated in the city (all 10.1 and 10.2)						
	Generated outside city (all 10.3)						
IPPU	(all 11 emissions)						
AFOLU	(all 12 emissions and removals)						
Total		(all Scope 1 emissions)				(all BASIC emissions)	(all BASIC & BASIC+ emissions)

- Sources required for BASIC reporting
- Sources required for BASIC+ reporting
- Sources included in Other Scope 3

- Sources required for Scope 1 (terrestrial) reporting (data-c)
- Non-applicable emissions

Table 4.2 summarizes the emission required for scopes totals and for the city-induced framework's BASIC/BASIC+ reporting levels. It references the line numbers and coloring from the detailed Table 4.3. Note: Aggregation of multiple city inventories is accomplished by combining the scope 1 (territorial) emissions of cities whose inventory boundaries do not overlap geographically.

SCOPE 2 EMISSIONS BASED ON MARKET-BASED METHOD



Contractual instrument or program type	Quantity of energy (MMWh, MWh, BTU, etc.)	Emission factor converted by the instrument	Total GHG emissions (tCO ₂ e)
TOTAL market-based scope 2 emissions (in tCO ₂ e)			

OFFSET CREDIT TRANSACTIONS

Offset credits generated within the geographic boundary and sold	Total GHG emissions (tCO ₂ e)

Offset credits purchased from outside the geographic boundary (e.g., to meet a city reduction goal)	Total GHG emissions (tCO ₂ e)

RENEWABLE ENERGY PRODUCTION OR INVESTMENTS



Technology type	Total annual production of grid-delivered energy	Located in geographic boundary?	If outside boundary, percentage of ownership by city?

REPORTING RECOMMENDATIONS

✓Scope 2 emissions from market-based emissions.

Scope 2 emissions can be accounted using two methods. First, a location-based method which is applied more commonly and uses weighted average for grid emission factors. Second, a market-based method which is used when differentiated energy products in the form of contractual instruments are available in a given market/community.

✓Offset credit transactions (Table 4.4(b)).

Offset credits are used to convey metric tons of avoided GHG emissions to the purchaser. Any offsets purchased from outside the city or generated and sold by the city shall be reported. The offsets shall be reported separately from emissions reporting in both cases and not "netted" or deducted from the reported inventory results.

✓Renewable energy generation (in MWh or KWh) produced within the geographic boundary, or reflecting an investment by the city (Table 4.4(c)).

The following tables highlight key reporting requirements and recommendations of the GPC and together represent the larger reporting framework.

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