Summary Report: Gibraltar City Inventory 2015

A Summary of the City-Level Greenhouse Gas Emissions Inventory for Gibraltar

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Report for HM Government of Gibraltar

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Ricardo in Confidence

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Summary of Gibraltar's 2015 City-Scale Greenhouse Gas Inventory

This summary is intended to provide an easily accessible synopsis of the main technical report accompanying Gibraltar's 2015 City-Scale Greenhouse Gas Inventory. This summary provides the background to Gibraltar's city-scale greenhouse gas inventory programme, the results of the 2015 inventory, and changes between the 2013 and 2015 inventories. For more information on the background behind Gibraltar's inventories, the data and methodologies used, and recommended future improvements, see the full report, available at: (insert link to full report).

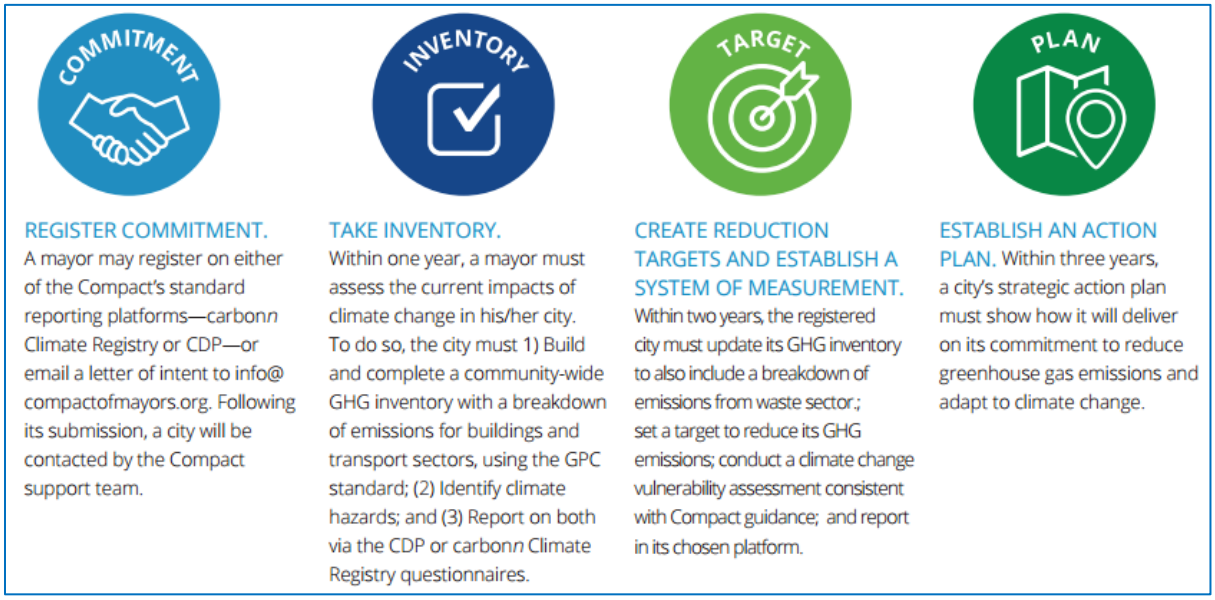
Background

Cities are a large problem and a significant opportunity in the management of global greenhouse gas (GHG) emissions, and accounting and management of emissions at the city scale is becoming increasingly important. At the 21st Conference of the Parties (the COP) in Paris in 2015, almost 200 countries collectively committed to limiting global temperatures to 'well below' 2 degrees and avoiding the worsening effects of climate change. At the same time, more than 360 cities from all continents and regions across the globe announced that the collective impact of their commitments will deliver over half of the world's potential urban emissions reductions by 2020. Since then, the focus has transferred from making promises to taking action. Effective and committed governance at the national level will be key to achieving the Paris Agreement, however it is at the sub-national level where real gains in climate change mitigation will be made.

A global initiative among city mayors and officials, with the main aims of reducing GHG emissions, tracking progress and preparing for the impacts of climate change, was launched in 2014; this is known as the Compact of Mayors[1] (CoM). Gibraltar committed to the CoM in 2015. There are now 650 cities signed up to the CoM, including around 170 with populations less than 50,000[2].

The CoM places requirements on all signatories, shown in **Figure 1**.

Figure 1: Compact of Mayors commitment requirements



Source:https://data.bloombergIp.com/mayors/sites/14/2015/07/Compact-of-Mayors-Full-Guide_July2015.pdf

As of January 2017, the CoM merged with the EU Covenant of Mayors[3] to form the Global Covenant of Mayors for Climate & Energy[4] (GCoM). This merger will help to ensure greater collaboration of cities and increase momentum for local actions. Under GCoM, Gibraltar's commitments will remain until the end of 2018.

[1] https://www.compactofmayors.org/
[2] True as of June 2017 (source: https://www.compactofmayors.org/)
[3] http://www.covenantofmayors.eu
[4] http://www.globalcovenantofmayors.org/

Greenhouse gas emission inventories

The first step in managing GHG emissions effectively at the city (or community) scale and making informed decisions to contribute to global mitigation efforts, is to have a good understanding of these emissions – the major sources, activities and relative contributions of different activities. The Global Protocol for Community-Scale Greenhouse Gas Emission Inventories[5] (GPC) was launched in December 2014 for just this, and is a robust, transparent and globally-accepted framework to consistently identify, calculate and report on sub-national GHGs. It is methodologically consistent with national territory-based approaches to emissions accounting, but also provides the flexibility to account for emissions in ways that more accurately reflect local circumstances. The CoM requires that GHG emissions inventories follow the GPC guidelines.

What is a GHG inventory?

A GHG inventory is an accounting of GHGs emitted to or removed from the atmosphere over a period of time.

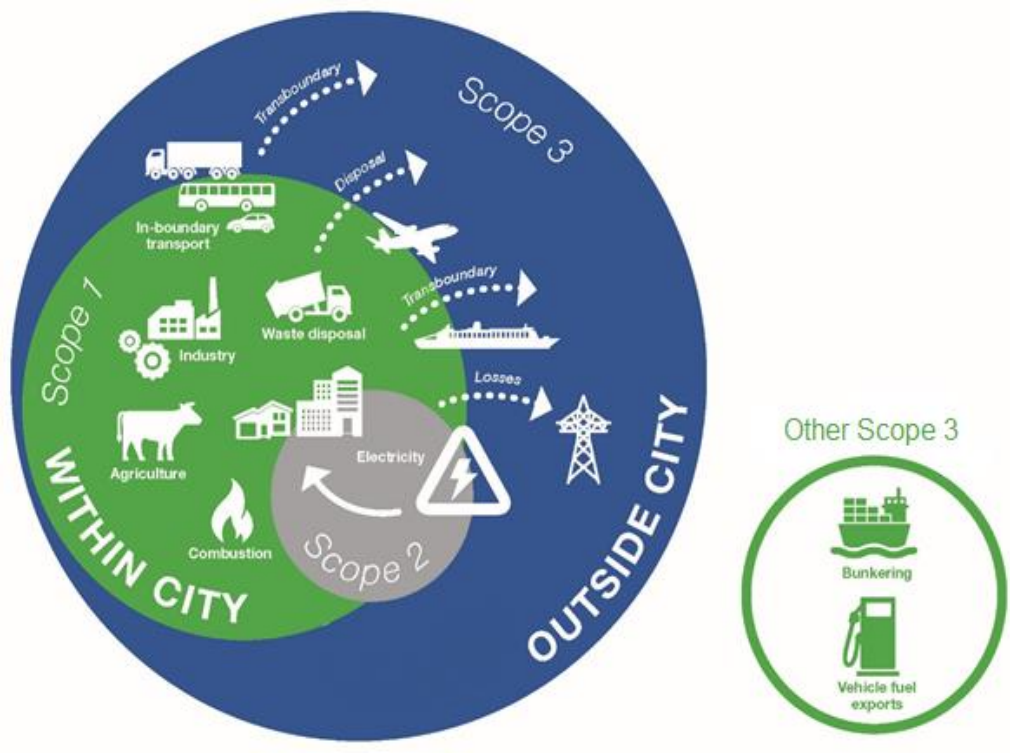
Policy makers use inventories to establish a baseline for tracking emission trends, developing mitigation strategies and policies, and assessing progress.

Emissions are calculated for seven GHGs, reported as carbon dioxide equivalent[6] (CO_2e) and are categorised by 'scope':

- Scope 1 emissions are directly emitted within the city boundary
- Scope 2 emissions are indirect from in-boundary consumption of electricity
- Scope 3 emissions are indirect and out of boundary emissions

The sources, and scopes, that are included within Gibraltar's GHG inventories are shown in **Figure 2**.

Figure 2: GHG Inventory sources and scopes



Gibraltar has two iterations of the city-scale GHG inventory: 2013 and 2015. The inventory will continue to be annually updated and reported to CDP[7] to fulfil the requirements of the CoM (currently) and the GCoM (from 2018).

[5] http://www.wri.org/publication/global-protocol-community-scale-greenhouse-gas-emission-inventories
[6] CO_2e values are used to take account of different GHGs having a greater or lesser warming impact that another. A Global Warming Potential (GWP) value is used to convert quantities of different GHGs to a shared unit (CO_2e) that can then be directly compared.
[7] https://www.cdp.net/en

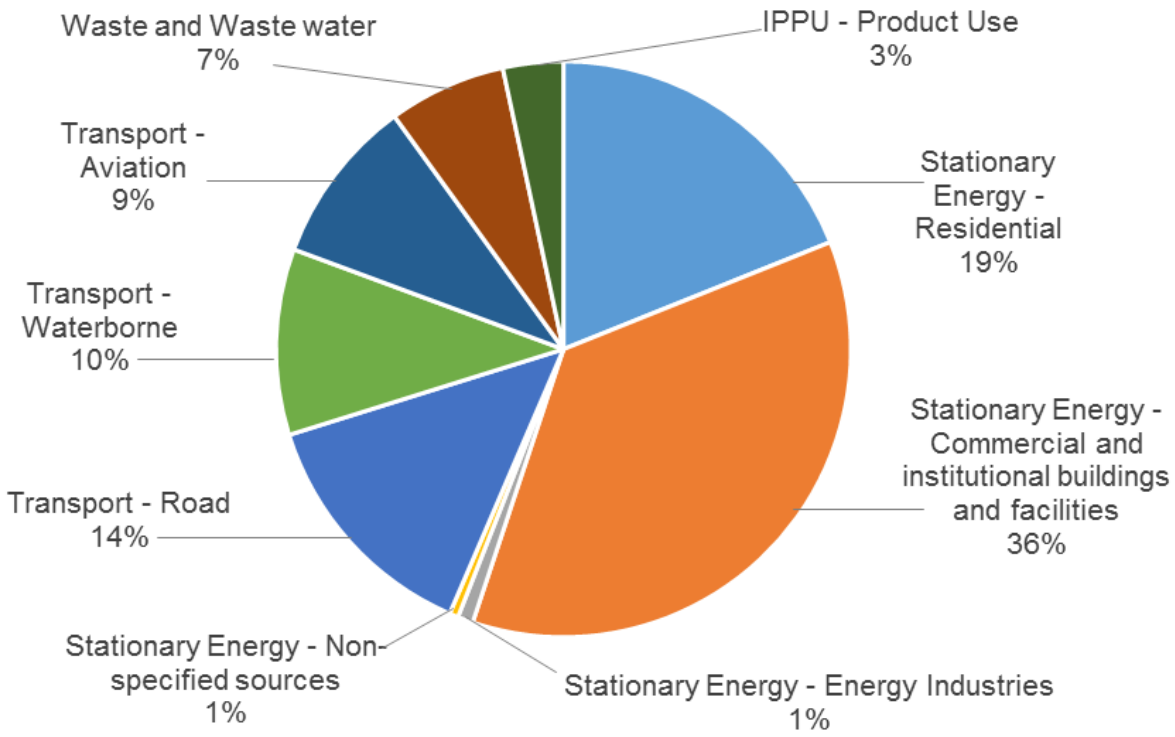
Gibraltar's 2015 inventory

Gibraltar's 2015 GHG emissions are presented, by sector, in **Table 1** and **Figure 3**. Certain sources, such as international shipping (non-bunkering), are excluded from the results presented in this report due to its very large impact on overall totals, and the lack of potential local influence; this sub-set of emissions is considered as **Gibraltar's 'manageable' emissions**. In addition to 'manageable' emissions, there are alternative reporting levels which include/exclude certain sources; these are covered in the full report accompanying Gibraltar's 2015 city inventory.

Table 1: Gibraltar's 2015 emissions (tonnes CO_2e) by sector

Sector	'Manageable' emissions
Stationary Energy	192,176
Transportation	114,003
Waste	22,523
Industrial Processes and Product Use (IPPU)	11,529
TOTAL	***340,232***

Figure 3: Gibraltar's 2015 'manageable' emissions



Emissions from electricity consumption are the largest source of emissions in Gibraltar, due to the reliance on electricity for all energy needs, the generation technology currently used and the territory's need to be self-sufficient. Because gas oil is used to generate electricity, the emissions per kilowatt hour (kWh) are considerably higher than the UK. Emissions from electricity consumption will likely decline as Gibraltar's new power station begins operation, supported by an increasing shift towards renewable sources.

Sources that are deemed to be 'outside of scopes' (i.e. they are reported for information in the full report, but are not deemed to be within the influence or responsibility of Gibraltar – such as bunker fuel) would dominate emissions overall if included in emission totals.

Changes between 2013 and 2015 inventories

Gibraltar's 'manageable' emissions have declined by 5% between the 2013 and 2015 inventories. However, the decline is largely due to changes in methodologies, rather than real reductions in emission-producing activities. Methodology changes, as well as the inclusion of new datasets in the 2015 inventory, have caused emissions from some sources to increase, and others to decline. A summary of the reasons for changes is given in **Table 2**.

Table 2: Changes between 2013 and 2015 inventories

Sector/Sub-sector	Change	Reason for change
Stationary Energy		
Electricity	↓	Despite increased consumption of electricity, emissions have decreased; this is likely due to improved efficiency in electricity generation combined with more accurate data for 2015 inventory.
Transmission and distribution losses	↑	New source in 2015 (additional data available for 2015 inventory).
Bottled gas use	↑	New source in 2015 (additional data available for 2015 inventory).
Transport		
Road transport	↓	Improved fuel (petrol and diesel) import data Reduced petrol consumption, but increased diesel = net decrease in road transport sub-sector.
Marine private boats	↑	Improved fuel (diesel) import data. Increase in overall diesel consumption.
Shipping[8]	↓	Method change – the definition of shipping attributable to Gibraltar on the basis of the 'purpose of call' has undergone significant changes which have led to reduced emissions.
Aviation	↑	Flights to an increased number of destinations.
Waste		
Landfill	↓	Method change (improved assumptions) despite increase in total waste disposed.
Biological treatment of waste	↓	Method change (improved assumptions) despite increase in total waste produced and a higher percentage of that waste that is composted in 2015 than in 2013.
Incineration	↓	Decrease in the amount of waste incinerated.
Waste water	↑	Wastewater emissions are based on population, which has increased between 2013 and 2015.
IPPU		
Product use	↑	New sources in 2015 (additional data available) and population growth (many IPPU sources are estimated using population).
Other Scope 3[8]		
Out-of-scope shipping and road transport	↓	Method change – the definition of shipping attributable to Gibraltar on the basis of the 'purpose of call' has undergone significant changes which have led to reduced emissions.

The continuous improvement programme, covering all of Gibraltar's emissions inventories, has identified further data and methodological improvements which will be pursued in collaboration with HM Government of Gibraltar. This will ensure the emission inventories represent the best possible estimate each year, and provide the most accurate information for both international reporting and local policy.

[8] Emissions from international shipping and road transport fuel sold to non-Gibraltarian vehicles are not included in Gibraltar's 'manageable' emissions profile. These emission sources are included in alternative reporting levels which are covered in the main report.