SUMMARY REPORT: GIBRALTAR CITY INVENTORY 2022

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

Report for: HM Government of Gibraltar

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Ricardo, Gemini Building, Fermi Avenue, Harwell, Oxfordshire, OX11 0QR, UK | +44(0)1235 75 3000 | www.ricardo.com
Registered company no. 08229264 | VAT no. GB 212 8365 24

Customer:
Catherine Walsh, Department of the Environment, HM Government of Gibraltar

Contact:
Ellie Kilroy, Gemini Building, Fermi Avenue, Harwell, Didcot, OX11 0QR, UK

T: +44 (0) 1235 753 3706
E: ellie.kilroy@ricardo.com

Author:
Ellie Kilroy, Maya Rubin, Serena Churchill, Jason Wong, Charles Walker.

Approved by:
Ellie Kilroy

Signed

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Summary of Gibraltar's 2022 City-Scale Greenhouse Gas Inventory

This summary is intended to provide an easily accessible synopsis of the main technical report accompanying Gibraltar's 2022 City-Scale Greenhouse Gas (GHG) Inventory. It provides some brief background to Gibraltar's climate commitments and inventory, the results of the 2022 inventory, and changes between previous inventories. For more information on the background behind Gibraltar's inventories, the data and methodologies used, revisions to previous inventories and recommended future improvements, see the full report, available at: https://www.gibraltar.gov.gi/uploads/environment/GHG%20Inventory/2022-GibraltarCityInventory_Report_FINAL.pdf

Gibraltar's climate commitments

The Government of Gibraltar has been active in addressing the concerns of climate change and committing to reducing harmful GHG emissions. As well as being a signatory to the Global Covenant of Mayors for Climate and Energy[1] (GCoM) since 2015, Government has passed the Climate Emergency Motion, committed to ambitious emission reduction targets in the Climate Change Act (Figure 2) and published Gibraltar's Climate Change Strategy[2].

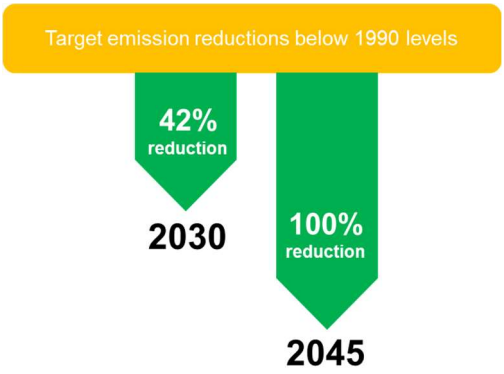


Figure 2: Climate Change Act targets

Under GCoM, Gibraltar have committed to regularly reporting a GHG inventory (which has been reported annually since 2015), assessing climate risks and vulnerabilities, defining ambitious climate mitigation, resilience and energy targets, and creating a full climate action plan outlining how targets will be delivered, as depicted in Figure 1.

Figure 1: GCoM commitment requirements

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

Greenhouse gas emission inventories

Gibraltar's GHG inventory is the key tool for tracking changes in emissions over time and reporting progress towards emission reduction targets. The inventory follows the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories[3] (GPC), which is a robust, transparent, and globally accepted framework to consistently identify, calculate and report on sub-national GHGs. Emissions are calculated for seven GHGs, reported as carbon dioxide equivalent4 (CO_2e), and are categorised by 'scope', to distinguish where emissions physically occur:

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,

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

[1] https://www.globalcovenantofmayors.org/

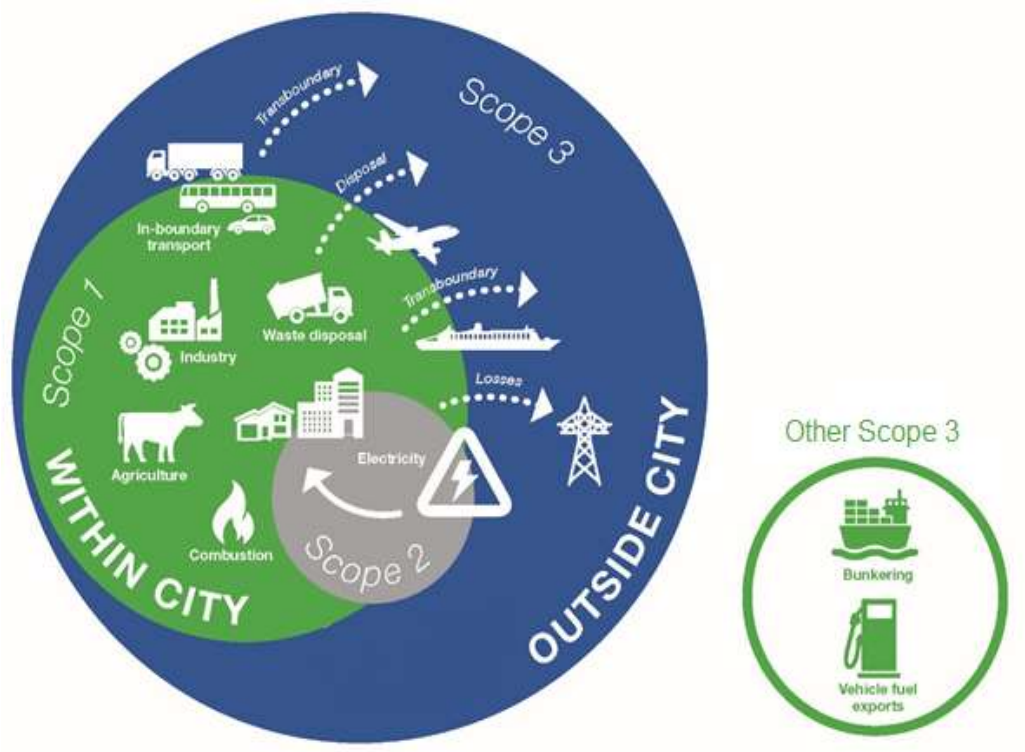
[2] https://www.gibraltar.gov.gi/press-releases/gibraltars-climate-change-strategy-published-8442021-7430

[3] http://www.wri.org/publication/global-protocol-community-scale-greenhouse-gas-emission-inventories

[4] 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.

The sources, and scopes, that are included within Gibraltar's GHG inventories are shown in Figure 3.

Figure 3: GHG Inventory sources and scopes



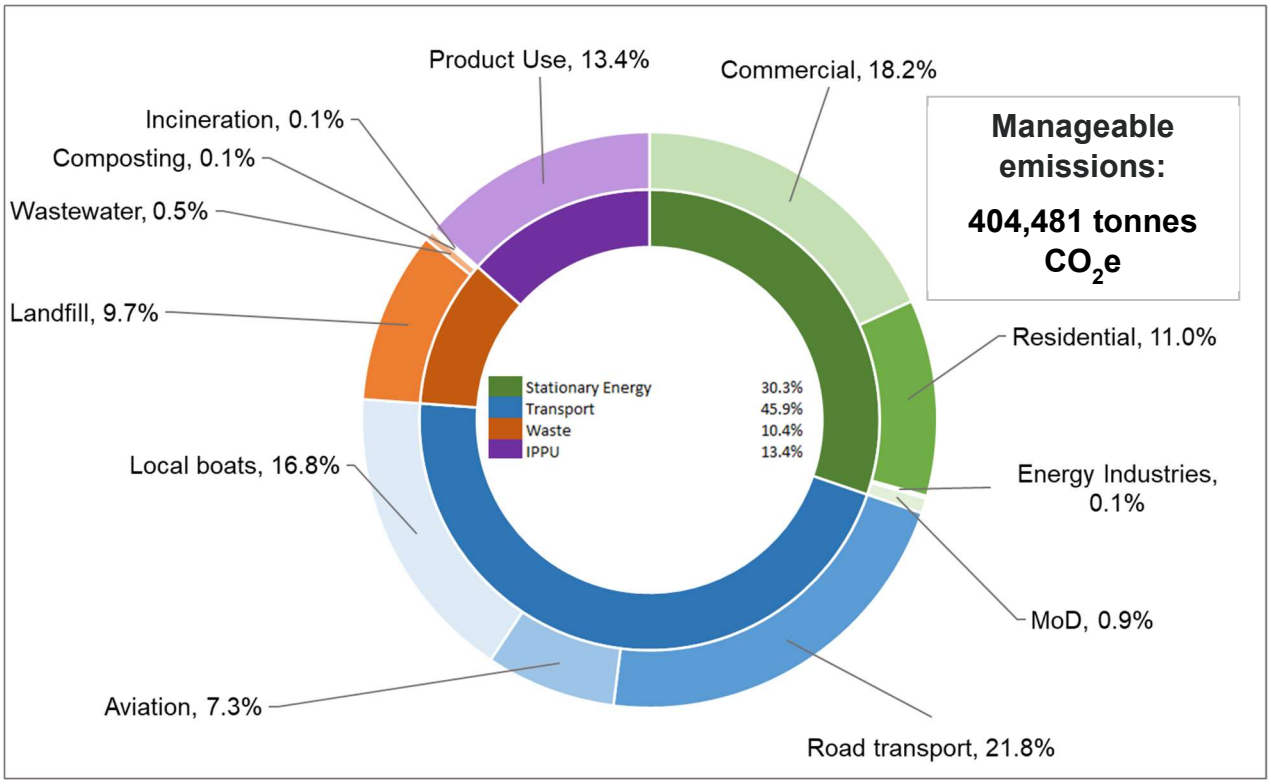
Gibraltar's 2022 inventory

Gibraltar's 2022 GHG emissions are presented, by sector, in **Table 1** and **Figure 4**. 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 2022 city inventory.

Table 1: Gibraltar's 2022 manageable emissions (tonnes CO_2e) by sector

Sector	Manageable emissions	
	Tonnes CO_2e	% contribution
Stationary Energy	122,369	30.3%
Transportation	185,638	45.9%
Waste	42,184	10.4%
Industrial Processes and Product Use (IPPU)	54,291	13.4%
TOTAL	***404,481***	***100%***

Figure 4: Gibraltar's 2022 manageable emissions



Emissions from the transport sector are the largest source of emissions in Gibraltar, accounting for almost half of the manageable emissions shown above. Road transport dominates transport emissions, with significant contributions from local boats and aviation also. Emissions from electricity consumption are the second largest source of emissions in Gibraltar (accounting for almost a third of Gibraltar's manageable emissions), due to the reliance on electricity for nearly all energy needs, the generation technology currently used and the territory's independence from other electricity supply networks. Prior to 2019, diesel/gas oil (with high carbon intensity) was the only fuel used to generate electricity, meaning the emissions per kilowatt hour (kWh) of electricity were considerably higher than, for example, the UK and other European countries. However, in 2019, North Mole Power Station began using natural gas (with a lower carbon intensity than diesel/gas oil) to generate electricity, which has reduced emissions from electricity consumption. Having said this, electricity consumption remains a significant source of emissions in Gibraltar. The majority of electricity consumption comes from the commercial sector, followed by residential use.

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.

Timeseries trends

This section presents emission trends over Gibraltar's inventory time series (2015 to 2022). The 2022 inventory results are compared against the revised 2015-2021 (2015r-2021r) inventories. There are some differences between the original 2015-2021 inventories and the revised versions; this is due to improvements in methodologies and activity data availability during the compilation of the 2022 inventory, which have been applied retrospectively to previous year's inventories for consistency and accuracy, following international best practice. Important recalculations are explained in the full report.

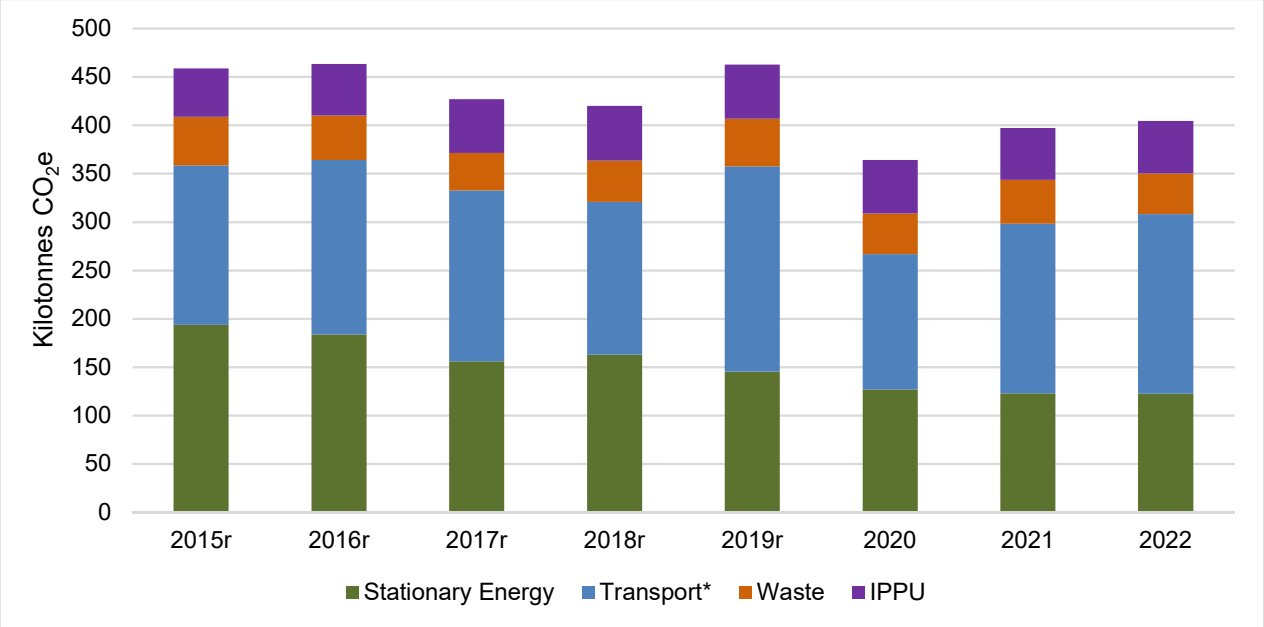
Emissions from the 2015r and 2022 inventories are presented, by sector, in **Table 2** and **Figure 5.**

Table 2: Comparison between the 2015r-2022 inventories

Reporting sector	Emissions (tCO_2e)							
	2015r	2016r	2017r	2018r	2019r	2020r	2021	2022
Stationary Energy	193,540	183,785	155,844	162,740	145,433	126,868	122,786	122,369
Transportation (all)*	353,799	452,324	438,552	364,039	461,464	368,129	408,567	397,825
Transportation (excluding scope 3 shipping)	164,804	180,238	176,830	158,083	211,899	139,838	175,327	185,638
Waste	50,301	45,850	38,483	42,649	49,301	42,159	45,278	42,184
IPPU	50,033	53,380	55,717	56,619	56,081	55,278	53,619	54,291
*Other Scope 3**	3,089,512	3,237,239	3,336,127	3,055,427	2,446,240	2,198,479	2,244,172	2,088,914
Total Manageable emissions	**458,678**	**463,252**	**426,874**	**420,092**	**462,714**	**364,143**	**397,009**	**404,481**

*** Not included in Gibraltar's manageable emissions**

Figure 5: Gibraltar's manageable emissions for 2015r-2022



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Transport emissions excluding scope 3 shipping

Gibraltar's 2022 manageable emissions have decreased by 12% since 2015r, but increased by 2% since 2021r; this is a result of the following:

- Emissions from electricity generation have stayed static since 2021 (0% change) but have decreased by 37% since 2015. Decreases since 2015 are due to the new power station using natural gas (LNG rather than gas oil only).The amount of electricity produced/consumed has remained fairly static. There have also been modest increases renewable energy generation.
- Emissions from local boats in Gibraltar have decreased by 37% since 2021 (but with 0% change since 2015) due to less fuel being sold to (and assumed used by) local boats in Gibraltar.
- Emissions from waste decreased by 7% since 2021 (and by 16% since 2015) due to a decrease in total waste arisings sent to landfill.

- Emissions from road transport in Gibraltar have increased by 96% since 2021 (and by 32% since 2015) due to more fuel being sold to vehicles in Gibraltar – this is likely a continuation of rebounds from the COVID-19 pandemic.
- Emissions from aviation increased by 34% since 2021 (but decreased by 1% from 2015) as a result of more flights– again, this is likely a continuation of rebounds from the effects of the pandemic in 2020. There were no 'international' flights from Gibraltar in 2022.
- Emissions from IPPU increased by 1% since 2021, and by 9% since 2015. This largely follows trends in UK and Malaga data that is used as a proxy for Gibraltar's emissions from product use.

T: +44 (0) 1235 75 3000

E: info@ricardo.com

W: www.ricardo.com