

Baseline Carbon Emissions Analysis: How Much Needs to be Removed?

1. In order for the Council to assess the level of action needed to meet reach the 2030 target of a Carbon Neutral Council and City it was imperative that we undertook detailed assessment of the Council's Baseline Emissions and the Citywide Emissions. This would then enable us to assess the impact that planned interventions will have on reducing the carbon emissions and enable the Council to assess the residual carbon emissions and assess what further interventions will be needed over the next decade to achieve the 2030 target.

Council Baseline Emissions Assessment

2. In order for the Council to understand, the level of interventions required to achieve a carbon neutrality by 2030 it is imperative that we fully understand our existing baseline emissions. A detailed baseline assessment has been completed to demonstrate the Councils existing emissions, with a baseline year of 2019/2020. This assessment has been undertaken in line with the recently published, Welsh Government's Public Sector Net Zero Carbon Reporting guidance, which sets out how local authorities should measure and manage their Carbon Footprint with the aim of achieving carbon neutral by 2030. This now includes Scope 3 carbon emissions as part of the carbon footprint reduction.
3. In order for the Council to assess our baseline Green House Gas (GHG) emission, we have appointed specialist GEP who have undertaken this assessment. Summary reports of both Councils and the City Emissions are presented in Appendix 2, with key findings presented in the following paragraphs.
4. In order to provide a representative baseline year it has been decided that the 2019/20 financial period provided the most suitable baseline year to assess our emissions owing to the impacts of the COVID pandemic and subsequent lockdowns would have if a 2020/21 period was utilised.
5. In line with the Net Zero reporting guidance, **Error! Reference source not found.** provides the baseline GHG emissions for the FY 2019/20 reporting period are **189,559.36 tonnes CO₂e**. These results represent the combined total of the Council's direct and indirect emissions footprint, inclusive of all Scope 3 emissions.

Table 1 - Cardiff Council 2019-20 GHG Baseline Emissions Inc Procurement

Reporting Scope	GHG Emissions (tonnes CO ₂ e)	Percentage of total (%)
Scope 1 (Direct) GHG Emissions	14,745.19	7.8%
Scope 2 (Energy Indirect) GHG Emissions	11,373.08	6%
Scope 3 (Other Indirect) GHG Emissions	163,441.10	86.2%
(Gross) Total GHG Emissions (t CO ₂ e)	189,559.36	-
Land-use Sequestration (t CO ₂ e)	-4,654.84	-

(Net) Total GHG Emissions (t CO ₂ e)	184,904.52	
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6. In terms of Scope 1 and 2 emissions the majority of these emissions are associated with energy consumption across the Corporate Estate (including schools), and fuel used by the Council's vehicle fleet.
7. Staff commuting accounts for the majority of the Council's direct Scope 3 GHG emissions footprint. Negative values in the table above, represent modelled GHG emissions sequestration from land-use and land-use change of the Council's land assets
8. The most significant outcome of the baseline assessment is the significance of our Scope 3 caused emissions in terms of the Council's total emissions. These emissions account for an estimated 86% of total Council emissions, with 82% of this value from procurement activities alone. These results are significantly higher than the Council had anticipated.
9. There are some concerns on how accurate this assessment reflects our true emissions. This is mainly owing to the fact that the WG Carbon Reporting Guidance utilised to assess the impacts from our procurement activities has **significant limitations**, and thus the impacts from procurement will need further consideration over the coming months and will be a key priority in our action plan.
10. The main concerns to be highlighted is that the reporting guidance relies on national "carbon factors" (kg of emissions per £ spent) for different spend categories which may not fully represent Cardiff's existing position. As such, there needs to be a further review undertaken to allow a detailed review of spend coding and to assess any areas where there is the potential for double counting between Scopes.

City Wide Baseline

11. A summary of the citywide baseline GHG emissions for the 2019/20 reporting year (1st April – 31st March) are presented in the following paragraphs. GHG emissions calculations have been previously undertaken by BEIS and results are sourced from published GHG emissions inventories for UK Local Authority and Regions.¹
12. Between 2005 and 2019 Cardiff has seen significant decreases in CO₂ emissions. A 48% decrease in per capita emissions and 40% decrease in absolute emissions.
13. Our Citywide baseline GHG emissions for the 2019 reporting period have been calculated to be **1,626,059 tonnes CO₂e (or 1,626 kilo-tonnes CO₂e)**. Results are presented in units of carbon dioxide equivalent (CO₂e) which includes all six greenhouse gases (GHGs), and are summarised in **Error! Reference source not found..**

¹ <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019>

Table 2 - City Wide Baseline Emissions 2019

GHG Emissions Category (BEIS)	GHG Emissions (tonnes CO₂e)	Percentage of Total (%)
Transport	669,465	41%
Domestic	439,137	27%
Industry	219,225	13%
Commercial	200,451	12%
Public Sector	99,055	6%
(Gross) Total GHG Emissions (t CO ₂ e)	1,627,336	-
LULUCF (t CO ₂ e)	-1,277	-
(Net) Total GHG Emissions (t CO₂e)	1,626,059	

14. The majority of the City's GHG emissions are associated with emissions from transport (41%) activity within the City. This includes the use of motorways, trunk roads, diesel railways, and other modes of transport including shipping etc. Emissions from energy use within the City's domestic housing are also significant, accounting for 27% of total emissions for 2019.
15. Public Sector emissions account for the lowest proportion of the City's baseline GHG emissions footprint. This category factors in operations from all public sector organisations (e.g., NHS, Emergency Services, Civil Service). Negative values in the table above represent modelled GHG emissions sequestration from land-use and land use change of land areas within the local authority boundary of Cardiff.