

Marlow Town Council's Carbon Footprint 2019/20

Final Report to Marlow Town Council, January 2020

Contents

- Introduction	1
- Overall emissions and removals	3
- Emissions by reporting scope	4
- Emissions by council service	5
- Emissions by council autonomy	6
- Emissions by functional group	7
- Emissions by fuel type	8
- Top five emission sources	9
- Full emissions statement	10
- Technical annex	11

Introduction

In April 2020 Marlow Town Council adopted a statement on climate change¹, including a commitment to audit its own greenhouse gas emissions. This report fulfills that commitment.

Marlow Town Council sits at the lowest tier of local government: its functions and responsibilities are:

- Representing the residents of Marlow
- Managing two allotment sites (Hanging Hill and Foxes Piece)
- Managing several open spaces (Gossmore Park, Seymour Park, Marlow Cemetery etc)
- Grass and hedge cutting in designated areas, including roadside verges owned by Buckinghamshire
- Part-funding the Marlow town bus (50%) and Marlow PCSO (40%)
- Organising events (including Remembrance Day, Carols on the Causeway and Celebrate Marlow)
- Communicating with residents via The Marlovian magazine and the Council website

The Council operates from a small office in Marlow and employs 4.7 FTE staff. Its functions are overseen by 12 councillors. The council owns one van. It provides services like grounds maintenance and Christmas lights in the town centre via contractors. The council contributes financially to the Marlow town bus and Marlow PCSO but does not manage those services.

The Council wished to obtain the fullest picture possible of its overall impact on climate change. Therefore this report counts not only the council's direct emissions but also emissions relating to services provided on

¹ <https://www.marlow-tc.gov.uk/climate-change-statement/>

its behalf, and to its purchasing of products. It is therefore better understood as a consumption-based carbon footprint study rather than a (narrower) production-based carbon audit.

More specifically, the study includes:

- All main greenhouse gases (GHGs), not just carbon dioxide;
- Outsourced, or “Scope 3” emissions, as well as those from the council’s own operations;
- Within Scope 3 emissions not only emissions from outsourced activities, but also those upstream or downstream from the council associated with its use of products;

The UK Government’s policy goal of “net zero” emissions takes into account not only emissions but also removals from the atmosphere. Marlow Town Council owns several areas of park or amenity land with significant numbers of trees. The annual absorption of carbon dioxide by these trees is also calculated in this report.

Total emissions are classified in various ways to shed light on different aspects:

Firstly, following standard practice for carbon reporting emissions are broken down by reporting “Scope”: whether an organisation emits greenhouse gases directly through its own operations (Scope 1) or whether its actions cause emissions to occur outside its direct control and/or elsewhere (Scopes 2 and 3).

Second, emissions are divided by the Council’s main service areas. In addition to the Council administration these include public transport and public realm (management of outdoor public areas).

Third, the report categorises emissions by the degree of autonomy the Council has over decisions that lead to them occurring, ranging from full decision making powers to financial responsibility but low influence.

Fourth, emissions are classified into functional areas: transport energy, buildings energy, water, waste and purchasing of non-fuel products.

Finally, emissions are broken down by type of fossil fuel where this is known.

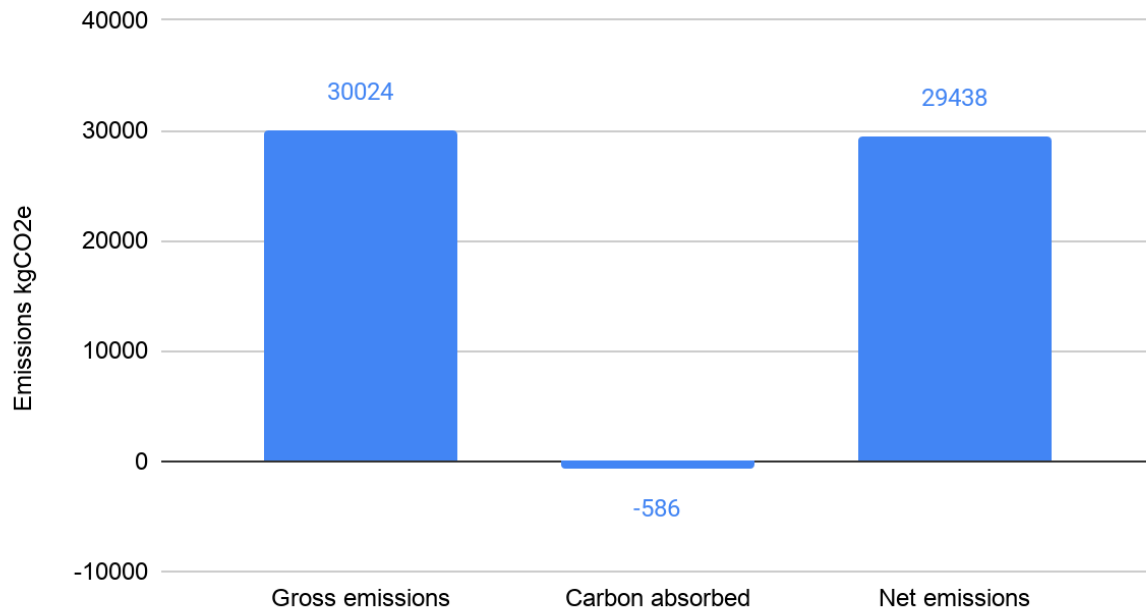
The report highlights in more detail a small number of specific activities that are found to drive a large proportion of total emissions. A full breakdown of all emission sources that have been counted is also included.

Overall emissions and removals

The Council's gross emissions in FY 2019/20 were 30,024 kgCO₂e (or 30 tonnes CO₂e).

Marlow Town Council is responsible for 186 trees on land it owns. These are calculated to have absorbed net 586 kgCO₂e, reducing the Council's net emissions by 2% to 29,438 kgCO₂e or 29.4 tonnes CO₂e.

Overall gross and net emissions



Emissions by reporting scope

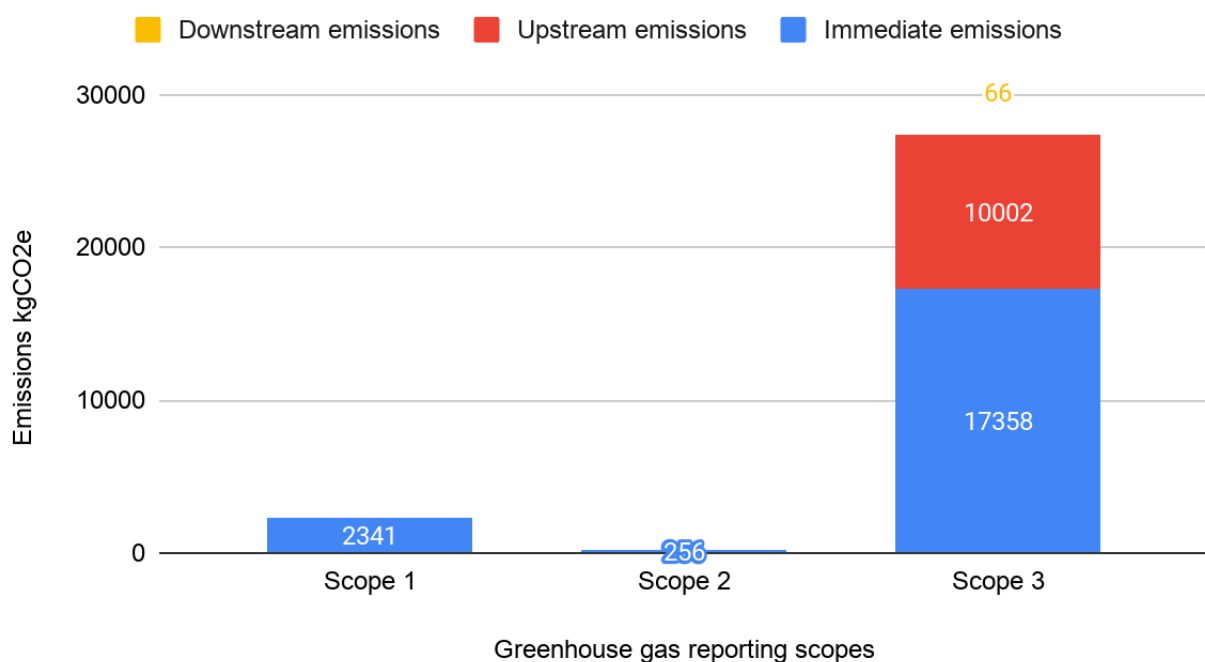
Official guidance on corporate greenhouse gas reporting distinguishes three key categories of emissions, known as Scopes. These are defined as follows:

- Scope 1 - Direct emissions: Activities owned or controlled by the reporting organisation that release emissions straight into the atmosphere, for example emissions from the Council's own vehicle when it is being driven.
- Scope 2 - Indirect emissions: Emissions associated with the reporting organisation's consumption of purchased electricity that occur at sources outside of its control. Emissions associated with the purchase of heat, steam or cooling would also be in Scope 2 but are not relevant in the Council's case.
- Scope 3 - Other indirect emissions that are a consequence of the reporting organisation's actions, but which occur outside of its control, for example because they are emissions by contractors or upstream emissions associated with products bought by the organisation.

This study finds that In FY2019/20 about 91% of the Council's emissions were in Scope 3, followed by 8% in Scope 1 and 1% in Scope 2.

The Council's Scope 3 emissions are further broken down: Over half (58%) of all emissions came from direct release to the atmosphere resulting from activities outside the Council's immediate control. Another 33% came from emissions occurring upstream (embodied in products) or downstream (due to waste management) from the Council.

Emissions by greenhouse gas reporting scope

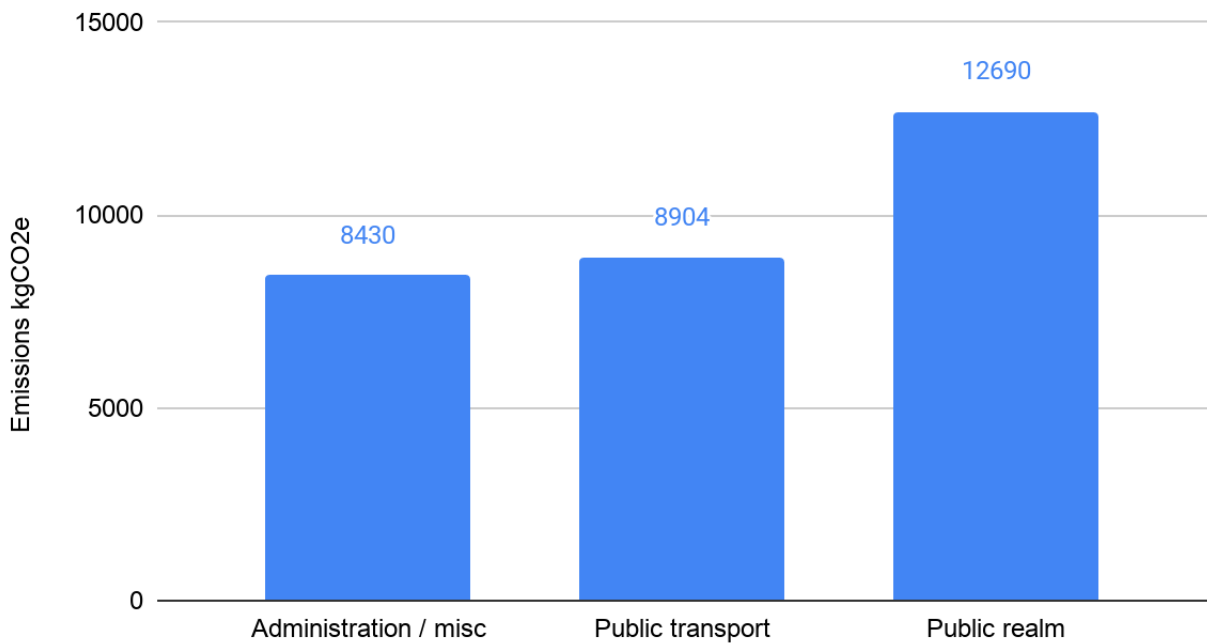


Emissions by Council service areas

The Council provides a variety of services to the people of Marlow, and it is useful to break down emissions by service areas.

The most important service area, accounting for 42% of gross emissions, was the management of all publicly accessible outdoor areas, or public realm. This was followed by public transport at 30% of total emissions, then emissions relating to council administration at 28%.

Emissions by service type

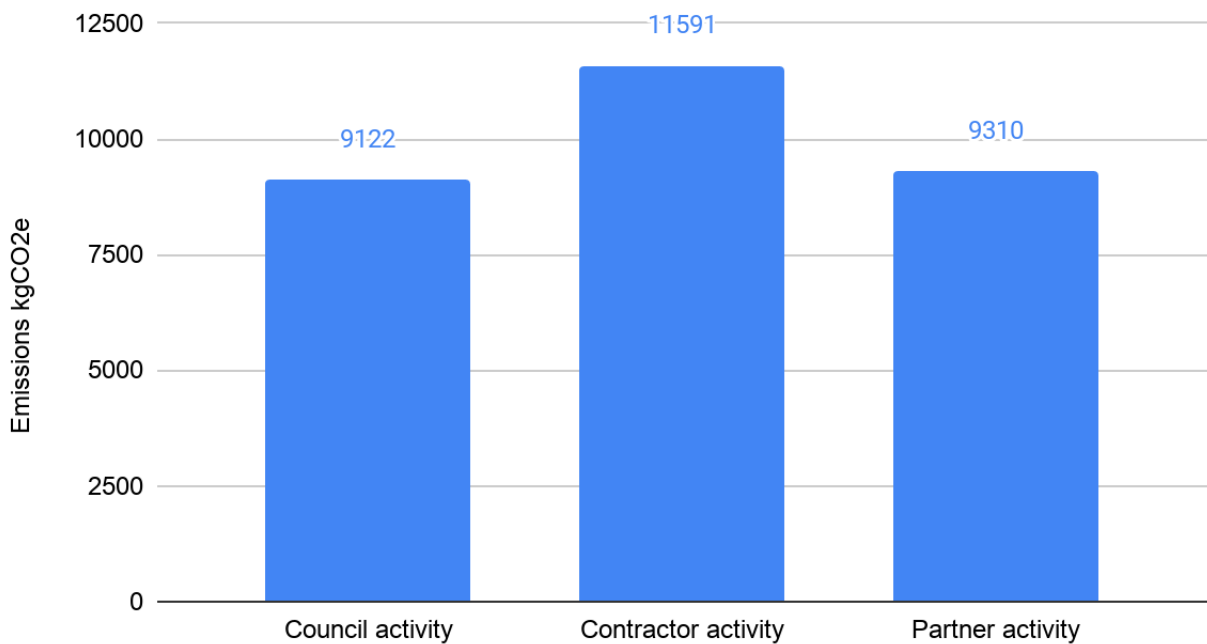


Emissions by Council autonomy

Another useful way of categorising emissions is by the degree of control the Council has over them. This doesn't necessarily equate to how easy or cost-effective it would be to reduce emissions, but does identify areas over which the Council has greater or lesser ability to make decisions unilaterally.

The largest single category is emissions resulting from activities of contractors employed by the Council, at 39% of total consumption-based emissions. This is followed by activities of partners over which the Council has no management controls, at 31%, followed by activities carried out directly by the council at 30%.

Emissions by degree of Council autonomy



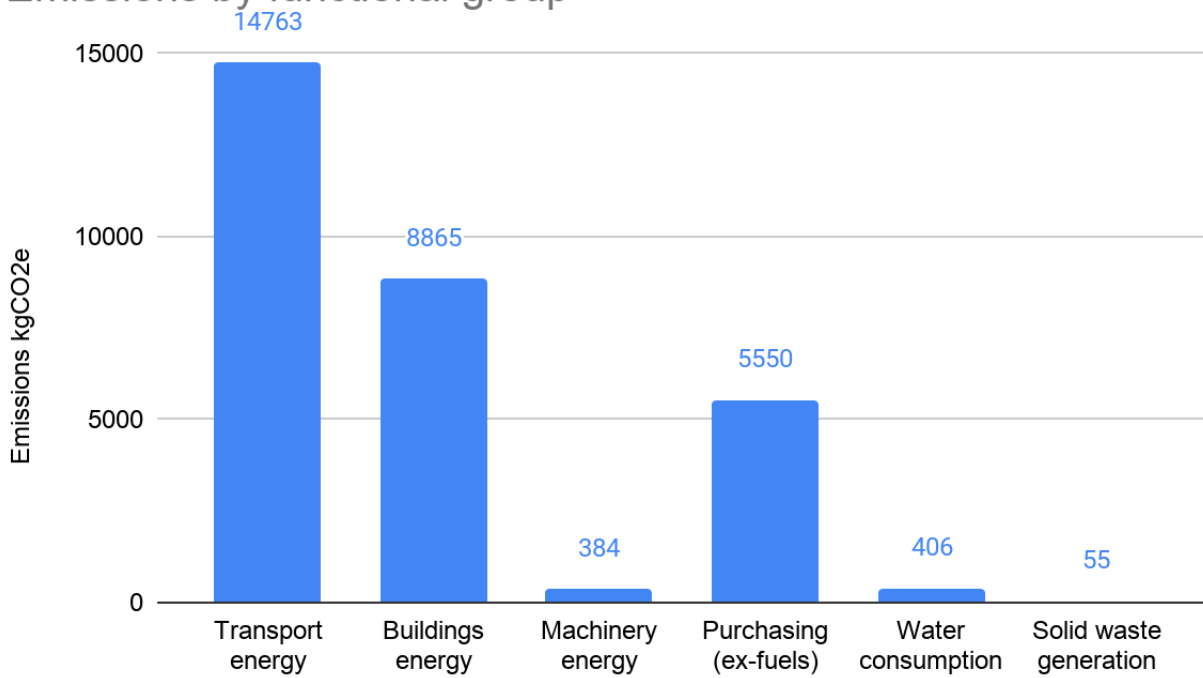
Emissions by functional category

Categorising emissions by standard environmental criteria illustrates the issues in a different way.

Transport energy is the biggest category, accounting for 49% of all emissions. This is followed by buildings energy at 30% (including the annual town centre Christmas lights).

Emissions associated with products purchased by the Council account for another 18% of total emissions. Emissions associated with water use and machinery are much smaller at 1% each, while solid waste accounts for just 0.2% of all emissions.

Emissions by functional group



Emissions by fuel type

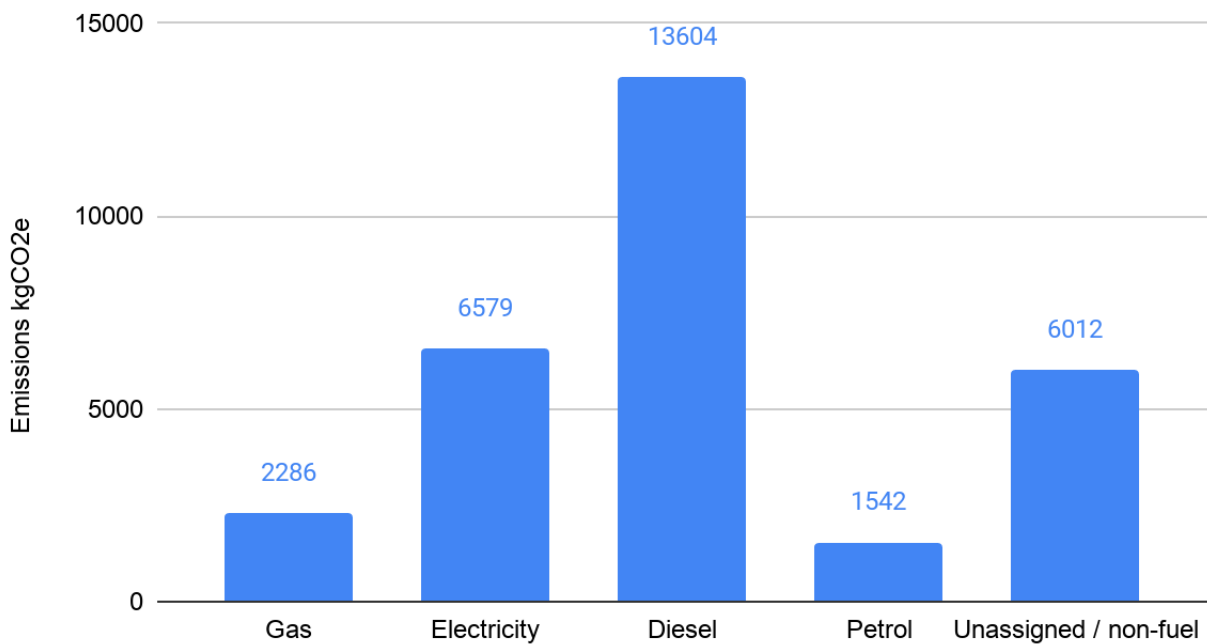
It is instructive to break down emissions by type of fuel. Fully 80% of emissions can be linked directly to the combustion of specific fossil fuels, or to electricity.

The most important fuel is diesel, at 45% of all the Council's emissions. Electricity comes second at 22%, followed by natural gas at 8% and then petrol at 5%.

Though outside the Council's control, natural gas is also the principal driver of emissions associated with UK electricity, followed by coal.

The remaining 20% of the Council's emissions are mainly supply-chain emissions. These are overwhelmingly likely to be caused by combustion of fossil fuels, but which ones cannot be identified.

Emissions by fuel type



Top five emission sources

Five activities accounting for 87% of the total carbon footprint. In descending order these are:

30%

- **The town bus:** Even though only half of its calculated emissions are counted, in line with the Council's financial contribution, the town bus still accounts for 31% of the Council's total carbon footprint. Moreover, though the figure includes both driving and upstream "well-to-tank" fuel production emissions, it doesn't include emissions relating to servicing, replacement of parts etc.

22%

- **Christmas lights:** Multiply a number of small emission sources enough times and you get to a large number, in this case 22% of total carbon footprint. The Christmas lights that the Council puts up each year use energy efficient LED bulbs. However, there are 13,400 of them, and combined consume 20kW, equivalent to ten electric ovens, for around 50 days per year. Calculated emissions do not include life-cycle emissions associated with production of bulbs as an existing set was reused in FY 2019/20.

14%

- **The Marlovian magazine:** The Council's quarterly magazine, distributed to all households in Marlow may seem an unlikely source of emissions, and indeed its direct emissions in the town will be very low. But as with all manufactured goods, its full life-cycle emissions are a lot higher, including forestry management, paper production, printing, manufacture of inks, all related transport and finally disposal or recycling. In the absence of data specifically for The Marlovian the estimate used in this report is based on published life-cycle assessment studies for magazines.

12%

- **Grounds contractor vehicle:** The Council employs a contractor to manage the open spaces it owns, as well as carrying out grave digging in Marlow cemetery and cutting certain roadside grass verges by agreement with Buckinghamshire Council. Emissions from the contractor's diesel pick-up vehicle, including full well-to-tank fuel emissions but not servicing or vehicle manufacture, account for 12% of the Council's total carbon footprint.

8%

- **Council office gas boiler:** The Council's office is heated by a gas boiler, which also supplies hot water. In FY 2019/20 this consumed about 11,000 kWh of natural gas, roughly in line with the average annual consumption of UK households. The associated combustion plus gas production-related emissions make up 8% of the Council's total carbon footprint.

Full emissions statement

All figures in kgCO2e

Abbreviated full list of emissions (kgCO2e)		Scope 1	Scope 2	Scope 3	Total	
Gas	Council Office	2023		263	2286	7.6%
Electricity	Council Office		163	38	202	0.7%
	Cemetery		93	22	115	0.4%
	Christmas lights			6255	6255	20.8%
Water	Council office			16	16	0.1%
	Cemetery			9	9	0.0%
	Central allotments			151	151	0.5%
	Hanging Hill allotments			230	230	0.8%
Transport	Council van	318		78	397	1.3%
	Town bus (@50%)			8904	8904	29.7%
	PCSO travel (@40%)			16	16	0.1%
	Council staff commuting			360	360	1.2%
	Councillor business travel			304	304	1.0%
	Grounds contractor vehicle			3517	3517	11.7%
	Floral displays contractor vehicle			43	43	0.1%
	Security contractor vehicle			1222	1222	4.1%
Grounds maintenance	Grounds contractor machinery			384	384	1.3%
Waste	Grounds contractor green waste			55	55	0.2%
	Council office waste			0.3	0	0.0%
Purchasing	Office supplies			78	78	0.3%
	Office food & drink			483	483	1.6%
	Public realm (banners & benches)			708	708	2.4%

Technical Annex

This report has been compiled in accordance with the 'Environmental Reporting Guidelines'² set by The Department of Business, Energy and Industrial Strategy (BEIS) and HM Government. The Greenhouse Gas Protocol 'Corporate Accounting and Reporting Standard'³ was also used to inform reporting procedure.

The presentation approach was benchmarked against carbon audits published by a number of English local authorities, including Buckinghamshire Council⁴ Leicester City Council⁵, King's Lynn and West Norfolk Borough Council⁶, Derby City Council⁷, Charnwood Borough Council⁸, and Congleton Town Council⁹

The organisational boundary is mainly set in line with a definition in the now superseded National Indicator 185¹⁰:

"The indicator is to include all CO₂ emissions from the delivery of local authority functions. In terms of the meaning of the word in legislation "function" covers both the duties and powers of an authority. It covers all an authority's own operations and outsourced services".

Departing from National Indicator 185 gases covered also include the basket of seven gases covered by the UN Kyoto Protocol, with all emissions being reported as CO₂-equivalent or CO₂e. Emissions of individual greenhouse gases are not reported separately.

Carbon emissions embodied in products are included, as well as carbon sequestered by trees on land owned by the council.

The town council did not purchase electricity on a green tariff or own any renewable energy installations or purchase any carbon offsets in 2019/20. The council office does not have air conditioning, hence fugitive emissions are not included.

Most emissions were calculated using the UK government's 'Greenhouse Gas Reporting: Conversion Factors 2020'¹¹ These provide standardised formulae for organisations reporting their emissions to convert from activity factors such as consumption of electricity, petrol or water or generation of waste to kgCO₂e.

Additional sources were used for a small number of activities contributing to emissions that are not covered by the UK Government Conversion Factors:

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/850130/Environmental-reporting-guidance-inc-SECR-31March.pdf

³ <https://www.ghgprotocol.org/sites/default/files/ghgp/standards/ghg-protocol-revised.pdf>

⁴ <https://www.buckscc.gov.uk/media/4516059/carbon-baseline-audit-report-final-v2.pdf>

⁵ <https://www.leicester.gov.uk/media/185674/carbon-footprint-statement-2017-2018.pdf>

⁶ https://www.west-norfolk.gov.uk/downloads/download/366/carbon_audit_reports

⁷ <https://www.derby.gov.uk/environment-and-planning/climate-change-and-energy-management/climate-change/>

⁸ https://www.charnwood.gov.uk/pages/2020_carbon_pledge

⁹ https://www.congleton-tc.gov.uk/wp-content/uploads/2016/01/Agenda_Papers_18.06.15.pdf

¹⁰ <https://www.gov.uk/guidance/sharing-information-on-greenhouse-gas-emissions-from-local-authority-own-estate-and-operations-previously-ni-185>

¹¹ <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>

Emissions associated with users accessing the council's website were estimated via the website <https://www.websitecarbon.com>.

Emissions caused by production and distribution of The Marlovian magazine were based on a life-cycle assessment study of weekly magazines published in Finland.¹²

Emissions associated with two public benches purchased by the Council during the financial year were derived from a UK life-cycle assessment of office chairs.¹³ This is acknowledged as not ideal, but is likely still to provide a first order approximation of emissions.

Emissions associated with raw materials, production and transport of biodegradable cups used in the Council office were calculated using results from a life-cycle assessment published by Finnish company Huhtamaki.¹⁴

Life-cycle emissions associated with office paper were based on a comparative study of methodologies for estimating emissions associated with this product.¹⁵

Emissions absorption by trees owned by the Council was based on a coefficient produced by UK consultancy company IMS based on UK Forestry Commission guidance.¹⁶

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The study has not been externally verified.

¹² <https://www.vttresearch.com/sites/default/files/pdf/symposiums/2009/S262.pdf>

¹³ <https://core.ac.uk/download/pdf/14925697.pdf>

¹⁴ <https://www.huhtamaki.com/globalassets/global/highlights/responsibility/taking-a-closer-look-at-paper-cups-for-coffee.pdf>

¹⁵

https://www.researchgate.net/publication/235712203_Comparison_of_methodologies_for_estimating_the_carbon_footprint_-_case_study_of_office_paper

¹⁶ <https://ccsbestpractice.org.uk/wp-content/uploads/2017/04/Calculating-the-carbon-sequestration-value-of-trees.pdf>