Greenhouse Gas (GHG) Emissions Reporting Framework

July 2026

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1. Introduction

1.1. This emissions reporting framework provides a comprehensive overview of greenhouse gas (GHG) accounting within the context of relevant regulations. It outlines the approach adopted by Stevenage Borough Council (hereafter 'the Council') to measure and report its organisational emissions. Results of two annual GHG inventories, financial year 2023-2024 (FY23/24) and financial year 2024-2025 (FY24/25), are presented in addition to data considerations and recommendations.

1.2. The document is organised following national and local context for GHG accounting, followed by the methodology chosen for the emissions reporting framework, assumptions taken and data limitations identified, restructuring of baseline year emissions, results for both annual inventories, further work and finally recommendations.

1.3. GHG accounting, also known as carbon accounting, involves measuring and monitoring GHG emissions (hereafter 'emissions') using standardised methods, and reporting them in accordance with established protocols.

1.4. These standardised methods enable organisations, including governments and companies, to quantify emissions generated directly by their operations as well as indirectly through upstream[1] and downstream activities.[2][3]

1.5. Emissions are categorised into distinct reporting scopes, as defined by the GHG Protocol:[4]

Scope 1

Scope 1 emissions are direct emissions released into the atmosphere from sources owned or controlled by the organisation. These include emissions from gas-fired heating systems, the organisation's vehicle fleet, and fugitive

[1] Upstream activities refer to the purchased value chain and are emissions related to purchased goods and services by the reporting organisation. These emissions occur before the product or service reaches the Council; for example, emissions from the extraction and processing of office supplies or fuel for the fleet, also known as well-to-tank emissions.

[2] Downstream activities refer to the sold or provided value chain and are emissions related to provided goods and services. These occur after a product or service leaves the Council's operational control; for example, utility usage in leased assets where the Council is the lessor, or financial investments such as pension funds.

[3] World Resources Institute: Climate Disclosures

[4] National Audit Office: Measuring and Reporting Public Sector GHG Emissions

emissions, such as leaks of greenhouse gases like fluorinated gases from refrigeration or air-conditioning units.

Scope 2

Scope 2 emissions are indirect emissions resulting from the generation of purchased energy. For local governments, the primary source is emissions from electricity generation used in buildings and street lighting, but this also includes purchased heat, such as from local heat networks.

Scope 3

Scope 3 emissions encompass all other indirect emissions not included in Scope 2 that occur because of an organisation's activities but originate from sources not owned or controlled by it. These include upstream emissions, such as employee business travel and purchased goods and services, as well as downstream emissions, such as those from investments and leased assets. Direct waste produced from operations and water use are also included in Scope 3.

Measuring Scope 3 emissions can be challenging due to the need for diverse data, often held by third parties, which may affect data accessibility and quality. Despite this, Scope 3 emissions often represent the largest portion of an organisation's total footprint, typically accounting for 60-80%.[5]

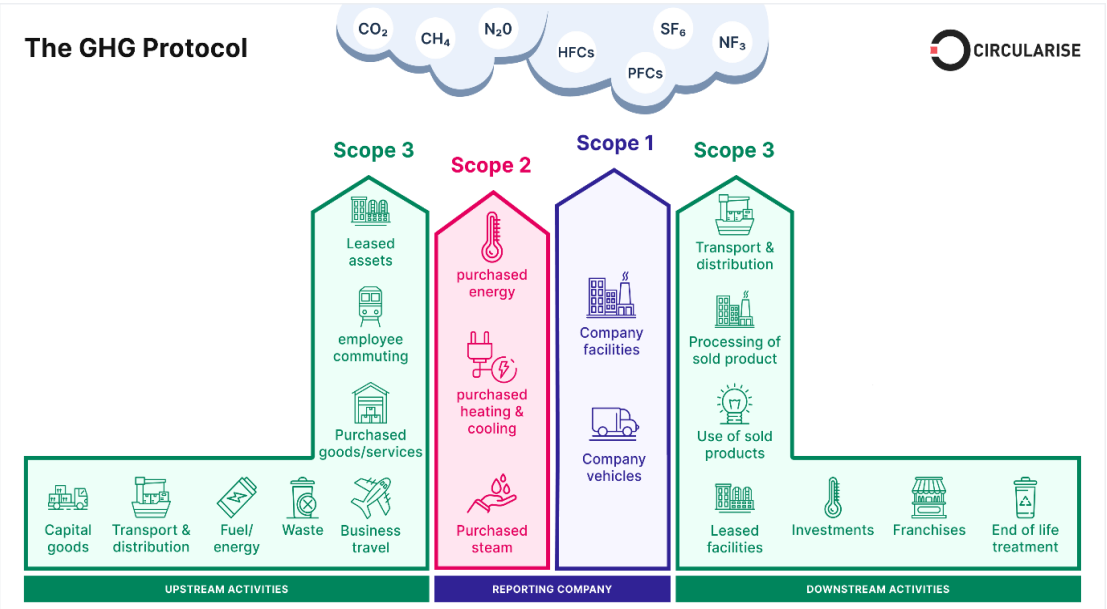


Figure 1. Diagram displaying Scope 1, 2 and 3 emission sources. Source: Circularise

[5] Local Government Association: Climate Change Reporting Guidance

Outside of Scopes

Some emissions fall outside the Scope 1, 2, and 3 categories defined by the GHG Protocol. For example, biogenic CO_2 emissions - those from the combustion of fuels derived from biological sources - are considered 'outside of scopes' because their net carbon impact is zero. This is due to the CO_2 absorbed during the growth phase of the biomass equalling the CO_2 released upon combustion. While these emissions are considered outside of scope and therefore do not form part of an organisation's core inventory, they should be reported separately for transparency. [6]

1.6. A detailed breakdown of activity sources within each scope for the Council is provided later, in Section 4.2.2.

2. GHG Accounting: National Context

2.1. National Policy Context

2.1.1. The UK's Climate Change Act 2008 established the world's first legally binding national framework to reduce greenhouse gas emissions, setting the foundation for the country's long-term climate ambitions. In June 2019, the Act was amended to commit the UK to achieving net zero emissions by 2050; interim emission reduction targets on the path to net zero are in situ, providing a structured timeline for national emission reductions. [7]

2.1.2. Furthermore, more recently at COP29, the UK pledged to a minimum 81% reduction in GHG emissions by 2035 (relative to 1990 levels), confirming the nation's dedication to climate action. [8]

2.1.3. To meet these legal obligations, the UK Government tracks progress through the UK Greenhouse Gas Inventory (GHGI), an annual national dataset published by the Department of Energy Security and Net Zero (DESNZ), the government department responsible for energy and climate policy. The GHGI is compiled following the internationally recognised 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines, ensuring consistency and comparability of emissions data globally.

[6] UK Government: GHG Conversion Factors
[7] Climate Change Committee: Climate Action
[8] Climate Change Committee: COP29 Key Outcomes

2.1.4. The GHGI provides a detailed sectoral breakdown of emissions, covering eight main areas: transport, buildings and product uses, industry, electricity supply, fuel supply, agriculture, land use, and waste. While emissions from public sector buildings are specifically categorised as a subgroup within one of the sectors, all other emissions pertaining to the public sector are less identifiable.

2.2. Public Sector Context

2.2.1. The public sector is a significant component of the UK economy thus contributing to national GHG emissions. As of December 2025, public sector expenditure - including central government departments and their partner organisations, as well as the wider public sector comprising local government, the NHS, emergency services, and academy schools - accounted for 44% of the UK's Gross Domestic Product.[9]

2.2.2. The UK Government has articulated its ambition for the public sector to lead in emissions reduction and exemplify best practice. This commitment was first set out in the 2017 Clean Growth Strategy and reaffirmed in the 2021 Net Zero Strategy: Build Back Greener, which targets halving direct emissions from public sector buildings by 2032 and achieving a 75% reduction by 2037. These targets apply across central government and the wider public sector, including local authorities. Complementary commitments to public sector decarbonisation are also embedded in several other government strategies, such as the Heat & Buildings Strategy (2021), Green Finance Strategy (2019), and National Infrastructure Strategy (2020).

2.2.3. Despite the public sector's economic scale and leadership ambitions, a June 2022 report by the National Audit Office (NAO) highlighted significant gaps in emissions measurement. The report found no single, reliable metric capturing the full extent of public sector emissions. While decarbonisation goals cover the entire sector, mandatory emissions measurement and reporting currently only apply to central government. The NAO recommended that DESNZ review and enhance measurement and reporting practices to ensure comprehensive emissions data coverage across the whole public sector.[10]

2.2.4. In this context, it is crucial to evaluate how local authorities may be required to undertake mandatory emissions reporting in the future, particularly considering potential changes resulting from Local Government

[9] HM Treasury: Public Spending Statistics (December 2025)
[10] National Audit Office: Measuring and Reporting Public Sector GHG Emissions

Reorganisation (LGR). Further discussion on this topic is detailed in Section 2.6.

2.3. Reporting Standards

2.3.1. The Greenhouse Gas Protocol (GHGP) is the leading global standard for measuring and reporting emissions. Developed in 1998 and published in 2001 by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), it provides comprehensive guidance for corporate and organisational emissions inventories. The GHGP underpins many global reporting frameworks, including UK government guidance, and forms the basis for other standards such as ISO 14064-1 and the Global Reporting Initiative (GRI) 305. Its terminology and principles - particularly the categorisation of emissions into Scopes 1, 2, and 3 - have become global best practice. Because of this stature, the Council has chosen to adopt the GHGP as its core methodology for its emissions reporting framework, detailed further in Section 4.1.

2.3.2. ISO 14064-1 is a standard developed by the International Organisation for Standardisation (ISO) that provides detailed requirements for quantifying and verifying GHG emissions. Originally published in 2006 and updated in 2018, ISO 14064-1[11] consists of three parts covering organisational inventories, project quantification, and verification. While not freely available, it is widely used as it mandates third-party verification, enhancing the credibility and transparency of emissions reporting. In late 2025, ISO and the GHGP announced a partnership to merge their accounting standards into a unified global framework, aiming to simplify emissions accounting worldwide.[12]

2.3.3. The GRI offers a broad sustainability reporting framework that is the most widely used globally. Its GRI 305 standard specifically addresses emissions reporting and aligns closely with the GHG Protocol. The GRI framework is freely accessible and is particularly popular among organisations with comprehensive environmental, social, and governance (ESG) reporting requirements.

2.3.4. While these reporting standards are not mandated, they underpin many UK statutory reporting requirements and are explicitly referenced in government guidance, as discussed in the following section.

[11] Last reviewed and confirmed in 2024.
[12] GHG Protocol: Press Release

2.4. National Statutory Requirements and Guidance

2.4.1. While there are dedicated standards for calculating and reporting organisational emissions, the obligation to report typically arises within broader sustainability reporting frameworks and statutory guidance.

2.4.2. This section outlines the current statutory frameworks and guidance shaping emissions reporting in the UK, highlighting distinctions between public and private sector requirements and upcoming regulatory changes. These frameworks provide context for potential future reporting obligations for local authorities.

2.4.3. Public Sector Reporting

2.4.3.1. In the UK, emissions reporting for central government departments and arm's-length bodies[13] is governed by two complementary frameworks:

Greening Government Commitments (GGCs)

An internal performance management framework that sets government-wide emissions reduction targets and tracks progress against operational baselines. It focuses on managing and driving emissions reductions across government operations.

HM Treasury's Sustainability Reporting Guidance (SRG)

A statutory framework requiring auditable disclosures of emissions within annual financial reports. It emphasises climate-related risk reporting aligned with the Task Force on Climate-related Financial Disclosures (TCFD). [14]

2.4.3.2. Both frameworks require reporting of Scope 1 and Scope 2 emissions (with limited Scope 3) and use the accounting principles derived from the GHGP. However, neither the GGC nor SRG apply to public sector organisations beyond central government and their immediate partners. Emissions from the wider public sector, including local authorities, currently fall outside these frameworks and there is no equivalent process in place.

[13] Central government departments and their executive agencies, non-ministerial departments and non-departmental public bodies (excluding devolved administrations and overseas territories).

[14] The Task Force on Climate-related Financial Disclosures (TCFD) was established in 2015 to develop a voluntary framework for consistent climate-related financial disclosures, structured around four pillars: governance, strategy, risk management, and metrics and targets. While widely adopted and embedded into UK statutory reporting requirements, the TCFD completed its remit and was formally disbanded in 2023 following the publication of the International Sustainability Standards Board's (ISSB) IFRS Sustainability Disclosure Standards.

2.4.4. Private Sector Reporting

2.4.4.1. Private companies in the UK primarily report emissions under the Streamlined Energy and Carbon Reporting (SECR) framework[15], introduced for financial years starting on or after 1st April 2019. SECR applies to:

- UK quoted companies[16]; and
- Large unquoted companies and Limited Liability Partnerships (LLPs) meeting at least two of the following criteria:
    - Turnover equal to or exceeding £36 million
    - Balance sheet total equal to or over £18 million
    - More than 250 employees

2.4.4.2. SECR, based on the GHGP, recommends the operational control approach (detailed further in Section 4.2.1) for emissions accounting. Organisations must report global or national emissions alongside an emissions intensity metric. Reporting is included within the Director's Report or Energy and Carbon Report, with mandatory Scope 1 and 2 disclosures and encouraged Scope 3 reporting. SECR also requires the disclosure of energy efficiency measures planned or undertaken.

2.4.5. Upcoming Changes

2.4.5.1. From 2026, the UK Government will require private companies to gradually adopt mandatory climate-related financial disclosures. These disclosures will follow the UK Sustainability Reporting Standards (UK SRS), which are adapted from the International Sustainability Standards Board's (ISSB) IFRS Sustainability Disclosure Standards - specifically IFRS[17] S1 (general sustainability disclosures) and IFRS S2 (climate-related disclosures) - to fit the UK context.

2.4.5.2. This alignment ensures UK organisations report in a globally consistent and transparent manner. The UK SRS is intended to become the foundation for national sustainability reporting, gradually superseding and expanding existing frameworks such as SECR.

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[15] UK Government: Environmental Reporting Guidelines (March 2019)

[16] A quoted company is defined in section 385(2) of the Companies Act 2006 as a company that is UK incorporated and whose equity share capital is listed on the Main Market of the London Stock Exchange UK or in an EEA State or admitted to trading on the New York Stock Exchange or Nasdaq.

[17] The International Financial Reporting Standards Foundation (IFRS)

2.5. Local Authority Context: Current Reporting Landscape

2.5.1. Local authorities in England have previously been requested by the Government to measure and report emissions from their own estate and operations. In 2011, authorities were asked to publish their emissions data for the 2009/2010 and 2010/2011 financial years. This request was repeated annually until 2014. Authorities were asked, at minimum, to publish total CO_2e emissions for Scope 1, Scope 2, and Scope 3 where possible, on their websites.[18] The Council published data in accordance with these requests, further detailed in Section 3.2.

2.5.2. As a request rather than a statutory requirement, uptake varied annually. The letters and reporting ceased after 2014 due to departmental restructuring - from the Department of Energy and Climate Change to the Department for Business, Energy and Industrial Strategy (BEIS) - and a shift towards the UK Greenhouse Gas Inventory (GHGI) methodology.

2.5.3. Reporting of emissions data by local authorities remains voluntary, although many councils choose to disclose progress against their carbon reduction targets. According to 2024 figures, 92% of local authorities report Scope 1 and 2 emissions from their own operations, while 35% report at least some Scope 3 emissions. [19] In addition, the Carbon Disclosure Project (CDP), a not-for-profit organisation which manages a global environmental disclosure system, reported that 104 UK local authorities disclosed climate data through the CDP-ICLEI Track[20] [21] in 2024, representing a 52% increase compared with 2023. [22] This reflects a broader trend towards greater transparency and consistency in local authority emissions reporting, although participation in external disclosure platforms remains optional.

2.5.4. In 2020, Local Partnerships, in collaboration with the Local Government Association (LGA), developed a free Excel-based GHG accounting tool for UK local authorities. Updated annually, the tool covers Scopes 1 to 3 and incorporates current DESNZ emission factors. It also includes summary tables and graphs intended to support interpretation by non-specialist audiences.

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[18] UK Government: Sharing Information on GHG Emissions
[19] Local Government Association: Climate Change Reporting Guidance
[20] CDP-ICLEI Track Reporting
[21] Through this platform, authorities submit quantitative and qualitative data on governance, baseline emissions, climate hazards, adaptation goals, mitigation targets, planning and actions.
[22] Climate Disclosure Project: Press Release (Jun 2025)

Although national usage rates are not known, nine of the eleven Hertfordshire authorities use the tool for emissions disclosure.

2.5.5. The tool has also been reviewed by CDP, meaning that its outputs may be used by authorities that wish to disclose through the CDP-ICLEI Track system; however, reference to this route is included here for context only and does not indicate any current proposal for the Council to report through that platform.

2.5.6. Some authorities choose to conduct in-house reporting, whereas others outsource the process to external consultants. Data from 2023 suggested that three out of the eleven local authorities in Hertfordshire outsource their emissions reporting. The remainder relied on internal officer resource.

2.6. Local Authority Context: Future Reporting Landscape

2.6.1. LGR will consolidate local authorities across the UK. This transition offers central government an opportunity to streamline emissions reporting by replacing multiple legacy reports with a single, unified report for each new authority. Should the government mandate emissions reporting for local authorities, it is likely to do so post-LGR, once new geographical and operational boundaries are established.

2.6.2. In addition, as 2030 approaches, organisations will face increasing reputational pressure to offset residual emissions they cannot eliminate to meet net zero targets. This is expected to drive significant growth in the procurement of carbon offsets, including Woodland Carbon Code and Peatland Code credits, through the Voluntary Carbon Market (VCM). These purchases carry responsibility, necessitating robust reporting mechanisms to accurately record the retirement of carbon credits and prevent double counting. Platforms such as the CDP or financial disclosure frameworks like the UK SRS may provide appropriate mechanisms.

2.6.3. In line with current reporting frameworks, it is likely that any government mandate for local authority emissions reporting would require mandatory disclosure of Scope 1 and Scope 2 emissions, with Scope 3 emissions remaining optional due to their complexity and variability. It is unlikely that the government would enforce adherence to the GGCs, SRG, or newer UK SRS frameworks (Section 2.3), as these cover broader sustainability measures beyond GHG emissions.

2.6.4. Instead, the most likely process would be to require councils to publish their emissions data on their websites, like the approach taken between 2008 and 2014, or via a central database. Given the established uptake and support for

Local Partnerships standardised Excel-based accounting tool, it is probable that this tool would form the basis for consistent and accessible reporting. For this reason, the tool has been selected by the Council to supplement the emissions reporting framework alongside the GHGP.

3. GHG Accounting: Stevenage Borough Council Context

3.1. Climate Goals and Targets

3.1.1. The Council's Climate Change Strategy[23] sets a clear vision to achieve net zero carbon emissions by 2030. The strategy prioritises reducing emissions from Council operations, promoting sustainable development, and enhancing community engagement on climate action. Key focus areas include improving energy efficiency in buildings, transitioning to low-carbon transport, and supporting local renewable energy projects.

3.1.2. A structured emissions reporting framework is integral to tracking progress against these goals and ensuring transparency and accountability in the Council's climate commitments.

3.2. Historic Emissions Data

3.2.1. To support the update of its reporting process and base year, the Council has reviewed all previously published emissions data to ensure continuity and credibility.

3.2.2. In response to the Government's 2011 request for emissions data, the Council published annual emissions data on its website covering 2010 to 2013. Although the webpage is no longer live, a summary of the archived data is provided in Table 1, with the latest (and only available) report included in *Appendix A – Historic Stevenage Borough Council GHG Emissions Report (2012/2013)*. The report also presents historic emissions intensity ratios per Full Time Equivalent (FTE), a metric commonly used in reporting frameworks, using 2008/09 as the base year. Reported activity sources included fleet fuel, natural gas, LPG, purchased electricity, business travel, and water consumption and disposal. However, it is unclear which buildings were included in the dataset, as no asset list is provided. The report does, however, refer to Stevenage Swimming Centre, which was operated at the time by

[23] Stevenage Borough Council: Climate Change Strategy

Stevenage Leisure Ltd, despite stating that the Council applied the operational control approach. In the 2013 report, operational control is defined as covering operations 'directly under its own control or through subsidiaries and partners of operations'.

3.2.3. The latest GHG figures published in the archived report relate to 2012/13, when emissions totalled 6,634.5 tCO_2e, comprising 2,355.2 tCO_2e Scope 1, 3,377.5 tCO_2e Scope 2, and 901.7 tCO_2e Scope 3. While the report does not provide a full asset list or estate boundary, which limits clarity over the organisational scope of the inventory, helpful conclusions can still be drawn from the report, such as demonstrating the emissions profile at the time was dominated by purchased electricity, followed by natural gas use and fleet diesel.

Table 1.Stevenage Borough Council historic emissions data (2010-2013)

			2010/2011 GHG CO_2e (kg)				2011/2012 GHG CO_2e (kg				2012/2013 GHG CO_2e (kg)			
			Scope 1	Scope 2	Scope 3	Total	Scope 1	Scope 2	Scope 3	Total	Scope 1	Scope 2	Scope 3	Total
Scope 1	Emissions Direct	Own or controlled transport freight diesel	825,466	NA	156,536	**982,002**	979,451	NA	221,291	**1,200,743**	999,021	NA	225,712	**1,224,734**
	Emissions Direct	Owned or controlled transport freight petrol	35,613	NA	6,302	**41,915**	31,708	NA	6,717	**38,425**	31,735	NA	6,723	**38,457**
	Emissions Direct	Natural gas fuels combustion	1,411,100	NA	137,005	**1,548,105**	1,097,965	NA	113,373	**1,210,438**	1,319,334	NA	136,343	**1,455,678**
	Emissions Direct	LPG fuels combustion	5,953	NA	745	**6,698**	4,863	NA	609	**5,472**	5,156	NA	645	**5,801**
	Emissions Direct	Gas oil fuels combustion	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Emissions Direct	Process emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Emissions Direct	Fugitive emissions	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Scope 2	Emissions Indirect	Consumption of purchased electricity	NA	3,830,312	504,765	**4,335,077**	NA	3,425,592	457,189	**3,882,781**	NA	3,377,544	450,776	**3,828,320**
	Emissions Indirect	Consumption of purchased heat	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Emissions Indirect	Consumption of purchased steam or cooling	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Scope 3	Emissions (other) Indirect	Transport related activities (business travel)	NA	NA	41,430	**41,430**	NA	NA	51,899	**51,899**	NA	NA	64682	**64682**
	Emissions (other) Indirect	Water consumption and disposal	NA	NA	7,974	**7,974**	NA	NA	14,353	**14,353**	NA	NA	16,858	**16,858**
	Emissions (other) Indirect	Waste disposal (own estate waste, recycling)	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
	Emissions (other) Indirect	Leased assets, franchising and outsourcing	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
	Emissions (other) Indirect	Sold goods and services (use of goods, services, contractors)	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
	Emissions (other) Indirect	Purchased materials and fuels (extraction, processing and production)	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI
		TOTAL	2,278,132	3,830,312	845,757	**6,963,201**	2,113,987	3,425,592	865,431	**6,404,111**	2,355,246	3,377,544	901,739	**6,634,530**

3.2.4. Currently, the Council's most comprehensive and transparent source of emissions data is its online Climate Change Action Plan tracker[24]. The tracker presents the Council's emissions baseline using data provided in a carbon assessment report undertaken by an external consultant in 2020, discussed in more detail later in Section 6.1. An emissions timeline is also provided on the site, visible in Figure 2. Key highlights from the website include:

- Baseline emissions were approximately 3,400 tCO_2e.
- Switching to a zero-carbon electricity tariff since 2020 has reduced emissions by 35.7% (1,212 tCO_2e/year).
- By 2023, emissions had been reduced by about 40% to roughly 2,060 tCO_2e.
- In February 2024, the Council committed to switching its fleet fuel to Hydrotreated Vegetable Oil (HVO), expected to reduce emissions by over 700 tCO_2e. annually once fully implemented.
- Projected emissions for 2025 are around 1,334 tCO_2e/year, a 61% reduction from the baseline.
- Remaining emissions by 2030 are expected to be approximately 300 tCO_2e/year, primarily from natural gas heating.

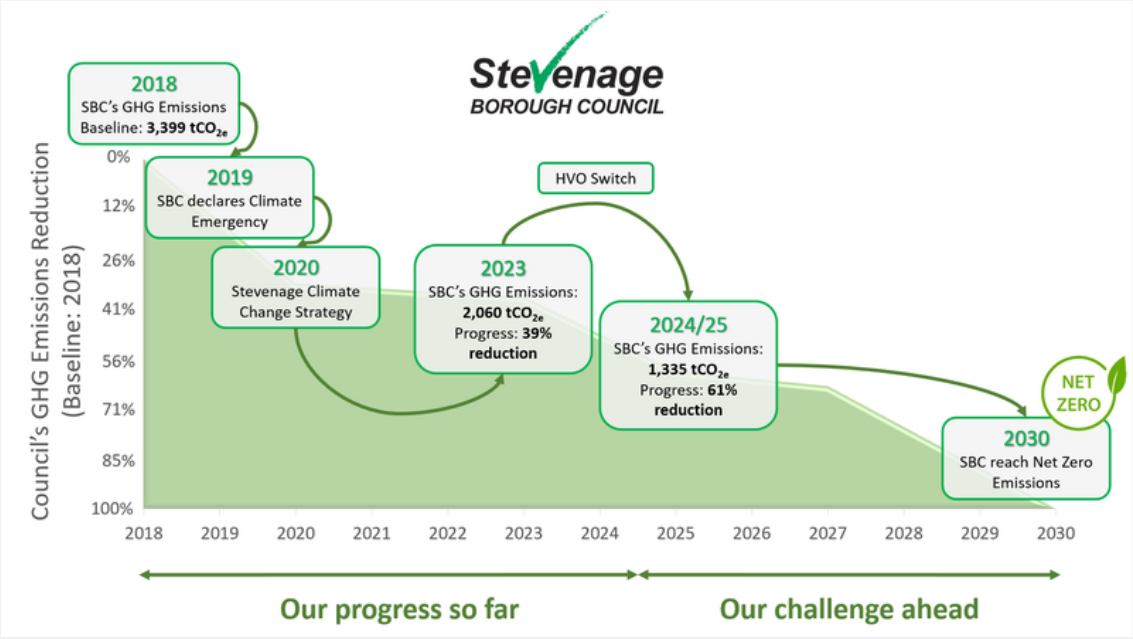


Figure 2. Stevenage Borough Council emissions reduction progress

[24] Stevenage Climate Action Plan

3.2.5. The update of the baseline to financial year 2023/24, together with comparison against the previously reported baseline as outlined above, is discussed later in Section 6.1.

3.3. Need for an Emissions Reporting Framework

3.3.1. The Council currently does not undertake annual emissions reporting nor operate a formal GHG reporting framework. Consequently, emissions data collection and reporting across the organisation lack consistency and structure. Developing a repeatable, structured reporting framework is essential to improve the management of organisational emissions and support the Council's climate ambitions and support decision-making.

3.3.2. This position is supported by a Shared Internal Audit Service (SIAS) review conducted via Hertfordshire County Council in September 2024, which assessed the Council's climate data and reporting arrangements. The review recommended establishing a clear GHG reporting strategy detailing reporting frequency, requirements, and data collection processes (see *Appendix B – Shared Internal Audit Service (SIAS) 2024/25)*

3.3.3. To enable meaningful tracking over time, the Council has identified the need to update its original base year to better reflect its estate and operational activities. A revised base year will provide a more representative baseline for assessing future emissions reductions and strengthen performance management. Further detail on the base year update is provided in Section 6.1.

3.3.4. Developing a formal reporting framework, supported by wider staff participation and clearly defined data collection protocols, will reduce reliance on external consultants and enable more efficient use of Council resources over the long term. Moreover, it will enable the identification and prioritisation of decarbonisation initiatives, strengthen both internal and external transparency, improve monitoring of energy efficiency performance, and facilitate benchmarking of emissions trends against comparable local authorities.

3.3.5. Embedding internal capability will also support continuity and consistency as organisational structures and reporting expectations evolve, potentially following LGR. An emissions reporting framework aligned with the GHGP, and the Local Partnerships tool will facilitate future integration of emissions data with neighbouring authorities post-reorganisation.

3.3.6. Since 2020, the Council has been a member of the Hertfordshire Climate Change and Sustainability Partnership (HCCSP), which includes a dedicated carbon subgroup. This subgroup has published the Carbon Strategic Action Plan, which sets a key objective to develop a standardised carbon measurement framework for Hertfordshire authorities. This framework aims to establish consistent methodologies for emissions and sequestration based on agreed boundaries and is targeted for completion by 2028. Implementing a formal emissions reporting framework within the Council will directly support the HCCSP in achieving this county-wide goal.

4. Emissions Reporting Framework: Methodology

4.1. Chosen Reporting Standards

4.1.1. As mentioned previously, the Council has adopted the GHGP, specifically the Corporate Standard[25] (hereafter 'the standard'), as the foundational methodology for defining its inventory boundary and calculating emissions. Aligning annual emissions inventories with the standard ensures the Council's preparedness to adapt to any future reporting scenarios.

4.1.2. The standard is underpinned by five key principles that guide robust emissions reporting frameworks:

Relevance: The inventory must accurately reflect the Council's emissions and meet the decision-making needs of internal and external stakeholders.

Completeness: All GHG emission sources and activities within the defined inventory boundary should be accounted for and reported. Any exclusions must be clearly disclosed and justified.

Consistency: Methodologies should be applied consistently over time to enable meaningful comparisons. Any changes to data, boundaries, or methods must be transparently documented.

Transparency: Reporting should be factual and coherent, supported by a clear audit trail. Assumptions, methodologies, and data sources must be fully disclosed.

Accuracy: Emissions quantification should avoid systematic over- or underestimation, with uncertainties minimised as far as practicable, ensuring users can trust the integrity of the information.

[25] GHG Protocol Corporate Standard

4.1.3. In addition to the GHGP, the Council has also adopted the Local Partnership's GHG accounting tool[26]. This tool is widely used across UK local authorities, facilitating straightforward comparison and benchmarking of emissions data. It supports easy submission and performance tracking against peer councils, promoting transparency and collaborative progress. In addition, it's expected to aid integration of emissions data with neighbouring authorities following LGR.

4.1.4. However, the tool currently supports only location-based emissions reporting and does not accommodate market-based emissions (dual reporting), defined in Section 4.4.1. Furthermore, while the tool is useful for standardised reporting, it remains relatively high level in some areas and does not eliminate the need for robust internal data collection and management. For example, it uses a single total energy consumption figure for Council buildings, so the accuracy and usefulness of its outputs still depend on the quality of the data provided by the Council. The tool therefore helps to structure and report emissions data, but does not remove a significant proportion of the administrative work required to gather, validate and prepare the source data.

4.1.5. To ensure comprehensive and accurate reporting, the Council maintains the GHGP as its primary methodology, using the Local Partnerships tool as a complementary resource. This dual approach enables both location-based and market-based emissions reporting. While future updates to the tool may include market-based emissions, this is not yet confirmed.

4.2. Setting the Inventory Boundary

Determining an inventory boundary is first step in calculating emissions resulting from the Council's activities. This boundary defines the organisational and operational scopes, clearly specifying which activities and sources are included in the emissions inventory.

4.2.1. Organisational Boundary

4.2.1.1. The organisational boundary defines the scope of operations and activities included in the emissions inventory. The Council selects a consolidation approach for emissions and applies it consistently each reporting year, establishing the structural boundary for GHG reporting.

[26] Local Partnerships GHG Accounting Tool

4.2.1.2. Two approaches exist for consolidating emissions:[27]

a) **Equity Share Approach**: Emissions are accounted for proportional to the organisation's equity share in an operation, reflecting economic interest. This approach is common among large businesses with ownership stakes in external operations.

b) **Control approach:** The organisation accounts for 100% of emissions from operations it controls, excluding emissions from operations where it has ownership but no control. Control can be financial or operational:

Financial Control: The organisation can direct financial and operating policies to gain economic benefits, usually retaining majority risks and rewards. This aligns reporting with financial accounts, especially for organisations with subsidiaries without day-to-day operational control.

Operational Control: The organisation has full authority to implement operating policies at the operation and accounts for all emissions from such operations.

4.2.1.3. When using the control approach to consolidate emissions, organisations must choose between either the operational control or financial control criteria. The GHGP does not prescribe which approach to use for voluntary reporting, advising organisations to select the method best suited to their activities and reporting needs.

4.2.1.4. The Council has adopted the operational control approach, under which it accounts for 100% of emissions from operations where it has full authority to implement operating policies. This provides a clear basis for tracking emissions associated with activities under the Council's direct control and ensures that progress towards the net zero target is measured against emissions it can most directly influence. The approach is also widely used, including by neighbouring local authorities, which should help facilitate a more consistent consolidation of emissions following LGR. It should, however, be noted that previously published Council emissions data either did not explicitly confirm the use of the operational control approach[28] or, where it did, applied

[27] Streamlined Energy and Carbon Reporting: Consolidation Approaches
[28] In reference to the previous baseline emissions obtained in 2020 via external consultancy.

a relatively broad definition[29]. The potential implications for the updated base year are considered further in Section 6.1.

4.2.2. Operational Boundary

4.2.2.1. The operational boundary specifies the emission sources and activities included in the Council's inventory, defining the scope of operational control over emissions. It complements the organisational boundary by detailing which direct and indirect emissions are accounted for, ensuring transparent and consistent reporting.

4.2.2.2. The operational boundary includes sources across Scopes 1 to 3, and certain emissions outside these scopes, defined in Section 1.

Scope 1

a) Natural gas usage in council operated buildings.
b) Fuel usage in council operated fleet (road vehicles and machinery).
c) Fugitive emissions from council operated buildings.

Scope 2

a) Purchased electricity for council operated buildings and assets.[30]
b) Purchased electricity for street lighting in the borough.
c) Purchased electricity for council electric vehicle fleet charging.[31]

Scope 3

a) Grey fleet travel mileage (car transport only).[32]
b) Water consumption and treatment at council operated sites and council leased assets.
c) Transmission and distribution losses from all purchased electricity use.
d) Well-to-tank emissions from council liquid fuel and purchased electricity use.

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[29] In reference to the 2010-2013 reporting period and production of the Financial Year 2012/2013 report seen in *Appendix A – Historic Stevenage Borough Council GHG Emissions Report (2012/2013)*.

[30] Includes electricity consumed by public electric vehicle charge points (EVCPs) where supply is provided through Council-procured electricity contracts. This electricity use is retained within Scope 2, as it relates to a Council-operated service over which the Council maintains control of both the infrastructure and electricity provision. In line with common reporting practice, Scope 2 emissions associated with EV charging are attributed to the organisation that procures the electricity, while service providers that do not hold the relevant supply contract would not ordinarily report this consumption within Scope 2.

[31] Where staff charging has taken place at Council-supplied EVCPs, the associated kWh consumption has been separated from item (a) to avoid double counting. Staff charging at all other locations remains included in Scope 2.

[32] Wider staff business travel, for example use of rail or other public transport is currently not included.

e) Utility consumption in downstream leased commercial[33] and residential assets - where available - including gas, electricity, water and other fuel usage.
f) Fugitive emissions from downstream leased commercial assets, where available.

Outside of Scopes

a) Biogenic CO_2 emissions from average diesel biofuel blend use in Council fleet.
b) Biogenic CO_2 emissions from average petrol biofuel blend use in Council fleet.
c) Biogenic CO_2 emissions from HVO use in Council fleet.

4.2.2.3. Activity data refers to quantitative measures of activities that result in emissions, such as litres of fuel, kilowatt-hours of electricity, or miles travelled. Accurate and reliable activity data are fundamental to calculating a reliable emissions inventory.

4.2.2.4. Table 2 outlines the Council's emission sources, activity units, and collection methods, in addition to the groups or individual with primary access to the data (i.e., data custodian).

4.2.2.5. A complete asset list is provided in *Appendix C – Asset List (Operational and Non-Operational Control)*, comprising both assets under the Council's operational control and non-controlled assets, such as leased assets and tenanted spaces, clearly labelled within the same dataset.

[33] Sites where the Council is the lessor. Includes large consumption, third-party managed sites, such as Stevenage Arts & Leisure Centre, Stevenage Swimming Pool, Stevenage Business and Technology Centre etc.

Table 2.Included emission sources and data collection and calculation processes

Scope	Emission Source	Unit	Data Custodian	Data Collection Method for Activity Data and Emission Factor
1	Natural Gas Use: Council-operated sites	Kilowatt-hours (kWh)	Energy and Utilities Manager	Activity data: Sourced from online energy supplier portals and customer service reports. Where unavailable, kWh consumption was extracted manually from invoices. Where gas usage was only available in cubic metres (m^3), Gross Calorific Value (GCV) was applied to convert to kWh for consistency with DESNZ emission factors, many of which are published on a gross CV basis. Invoice-specific conversion formulae were used. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the fuels category for natural gas.
1	Fugitive Emissions: Council-operated sites	Kilograms (kg)	Facilities	Activity data: Refrigerant leakages identified in maintenance contractor reports and extracted manually. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the refrigerants category under blends for the specific refrigerant concerned.
1	Road Fleet Fuel Use: Council-operated	Litres	Procurement and Compliance Manager	Activity data: Fuel use reports exported from the internal fuel management system. Fuel type is recorded separately, and usage is manually categorised by asset type, for example road fleet or machinery. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the liquid fuels category for diesel average biofuel blend and petrol average biofuel blend, and the biofuels category for biodiesel HVO, where applicable.

Scope	Emission Source	Unit	Data Custodian	Data Collection Method for Activity Data and Emission Factor
1	Machinery Fleet: Council-operated	Litres	Procurement and Compliance Manager	Activity data: Fuel use reports exported from the internal fuel management system. Fuel type is recorded separately, and usage is manually categorised by asset type, for example machinery or road fleet. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the liquid fuels category for petrol average biofuel blend, and the biofuels category for biodiesel HVO, where applicable.
2	Purchased Electricity: Council-operated sites and assets	Kilowatt-hours (kWh)	Energy and Utilities Manager	Activity data: Sourced from online energy supplier portals and customer service reports. Where unavailable, kWh consumption was extracted manually from invoices. Emission factor(s): For location-based reporting, calculated using the DESNZ annual GHG conversion factors dataset and the UK electricity category for grid electricity. For market-based reporting, supplier-specific emission factors are used where available; otherwise, a residual mix factor is applied. Further detail is provided in Section 4.4.1.
2	Purchased Electricity: Borough wide street lighting	Kilowatt-hours (kWh)	Engineering Services & Energy and Utilities Manager	Activity data: Sourced through annual recharge invoices from Hertfordshire County Council and online energy supplier portals. Emission factor(s): For location-based reporting, calculated using the DESNZ annual GHG conversion factors dataset and the UK electricity category for grid electricity. For market-based reporting, supplier-specific emission factors are used where available; otherwise, a residual mix factor is applied.
2	Purchased Electricity: Council owned electric vehicles (fleet)	Kilowatt-hours (kWh)	Parking Enforcement	Activity data: Staff charging data obtained through Blink customer service reports using RFID (radio frequency identification) card charging records. Emission factor(s): For location-based reporting, calculated using the DESNZ annual GHG conversion factors dataset and the UK electricity category for grid electricity. For

Scope	Emission Source	Unit	Data Custodian	Data Collection Method for Activity Data and Emission Factor
				market-based reporting, supplier-specific emission factors are used where available; otherwise, a residual mix factor is applied.
3	Grey Fleet: Staff business travel by private car (driver mileage only)	Miles	Human Resources	Activity data: Sourced from the internal staff mileage claims system. Only mileage claimed for staff use of private cars as the driver is included. Passenger and bicycle claims are excluded, as these do not represent additional grey fleet vehicle mileage and could otherwise result in double counting. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the Scope 3 business travel – land category for average car, unknown fuel.
3	Water Consumption: Council-operated sites	Cubic metres (m^3)	Energy and Utilities Manager	Activity data: Water consumption data gathered from meter readings and invoices, supported by Telex Water. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the water supply category for water supply.
3	Water Treatment: Council-operated sites	Cubic metres (m^3)	Energy and Utilities Manager	Activity data: Water consumption and rate-to-sewer (%) data gathered from meter readings and invoices, supported by Telex Water. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the water supply category for wastewater treatment.
3	Water Consumption: Council leased assets	Cubic metres (m^3)	Energy and Utilities Manager	Activity data: Water consumption data gathered from meter readings and invoices, supported by Telex Water. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the water supply category for water supply.

Scope	Emission Source	Unit	Data Custodian	Data Collection Method for Activity Data and Emission Factor
3	Water Treatment: Council-leased sites	Cubic metres (m^3)	Energy and Utilities Manager	Activity data: Water consumption and rate-to-sewer (%) data gathered from meter readings and invoices, supported by Telex Water. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the water supply category for wastewater treatment.
3	Commercial Downstream Leased Assets: Utility consumption	Various (kWh, litres, m^3, kg)	Third - Party Site Managers & Energy and Utilities Manager	Activity data: For large, third-party managed sites, such as the Business and Technology Centre, Arts and Leisure Centre, and Stevenage Swimming Pool, data was sourced directly from site operators. For smaller commercial leased assets, activity data was collected through online energy supplier portals where available. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the relevant category by utility type, including UK electricity, fuels, and water supply factors, or supplier-specific electricity emission factors for market-based reporting.
3	Residential Downstream Leased Assets: Utility consumption	Various (kWh, litres, m^3, kg)	Energy and Utilities Manager & Housing Asset Management	Activity data: Tenant utility consumption for residential schemes gathered through online energy supplier portals, invoices, and meter readings where available. This category covers tenant-controlled areas only and excludes landlord-controlled areas, which are reported in Scope 1 and Scope 2. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the relevant category by utility type, including UK electricity, fuels, and water supply factors, or supplier-specific electricity emission factors for market-based reporting.
3	Transmission and Distribution (T&D) Losses: All purchased electricity	Kilowatt-hours (kWh)	Energy and Utilities Manager	Activity data: Based on all purchased electricity reported within Scope 2, including street lighting, buildings, and electric vehicles. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the UK electricity category for transmission and distribution losses.

Scope	Emission Source	Unit	Data Custodian	Data Collection Method for Activity Data and Emission Factor
3	Well-to-Tank (WTT): Liquid fuel use for Council-operated fleet	Litres	Procurement and Compliance Manager	Activity data: Based on litre consumption data from the internal fuel management system for diesel, petrol, and HVO. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the relevant well-to-tank fuel categories for diesel, petrol and HVO.
3	Well-to-Tank (WTT): Natural gas use in Council-operated buildings	Kilowatt-hours (kWh)	Energy and Utilities Manager	Activity data: Based on natural gas consumption data already identified for Scope 1 reporting. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the well-to-tank category for natural gas.
3	Well-to-Tank (WTT): Grey fleet	Miles	Human Resources	Activity data: Based on grey fleet mileage claim data. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the WTT passenger vehicles & business travel – land category for WTT cars (by size), average car, unknown fuel.
3	Well-to-Tank (WTT): Purchased electricity for council operated sites and assets	Kilowatt-hours (kWh)	Energy and Utilities Manager	Activity data: Based on purchased electricity consumption data already gathered for Council-operated sites and assets, borough-wide street lighting, and staff electric vehicle charging. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the well-to-tank category for WTT – UK electricity (generation). This factor is applied in both location-based and market-based reporting to provide a conservative estimate for market-based emissions.
3	Well-to-Tank: T&D losses associated	Kilowatt-hours (kWh)	Energy and Utilities Manager	Activity data: Based on purchased electricity consumption data already gathered for Council-operated sites and assets, borough-wide street lighting, and staff electric vehicle charging.

Scope	Emission Source	Unit	Data Custodian	Data Collection Method for Activity Data and Emission Factor
	with purchased electricity use			Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the well-to-tank category for transmission and distribution losses for grid electricity.
3	Outside of Scopes: Biogenic CO_2 Council-operated fleet	Litres	Procurement and Compliance Manager	Activity data: Based on litre consumption data from the internal fuel management system for diesel, petrol, and HVO. Emission factor(s): Calculated using the DESNZ annual GHG conversion factors dataset and the outside of scopes category within forecourt fuels containing biodiesel for diesel and petrol, and the biofuels category for biodiesel HVO.

4.3. Exclusions from the Operational Boundary

4.3.1. Broad emission source exclusions

4.3.1.1. Various emission sources have been excluded from the emissions reporting framework and, accordingly, from both annual GHG inventories. These exclusions reflect present data availability constraints, methodological limitations, and areas where further development is required before robust and repeatable reporting can be established. Table 3 sets out the principal excluded emission sources and the rationale for their exclusion.

Table 3.Excluded emission sources and reasoning

Scope	Excluded Emission Source	Reasoning / Justification
3	Direct waste from Council-operated sites, including residual and recyclable waste	No established process currently exists for collecting consistent waste activity data from Council sites. Capturing this data would likely require coordination with cleaning contractors to obtain reliable weight or container data before collection. This is identified as a potential area for future development (see Section 8.3)
3	Emissions arising from waste processing, treatment and disposal by the Council's waste contractors[34]	These data have not previously been collected and are not currently readily accessible. Relevant emissions data would need to be obtained directly from contractors and aligned to waste arising from the Stevenage area. Work is ongoing, but this source remains excluded at present.
3	Staff commuting	Although indicative information exists from a 2023 staff travel survey, the survey was voluntary and is not repeated annually. This limits reproducibility and makes year-on-year reporting unreliable. A one-off internal estimate may be developed separately, but this source is excluded from the formal inventories.

[34] For private arrangements the Council has with waste management, excluding any services contracted by HCC.

Scope	Excluded Emission Source	Reasoning / Justification
3	Staff working from home	As with staff commuting, current available information was obtained through a voluntary survey which cannot currently be reproduced consistently on an annual basis. This source is therefore excluded from the formal inventories.
3	Procurement and wider supply chain emissions	No current data collection process is in place for quantifying procurement-related emissions. This remains a significant but methodologically complex area for future development.
3	Contractor emissions associated with social housing development and regeneration schemes delivered on the Council's behalf	This area has not yet been assessed in detail. It is complex, hard to standardise, and likely to depend on the availability and quality of data from developers and contractors. Further investigation is required before inclusion can be considered.
3	Emissions associated with Council financial investments, including pensions	This is a complex reporting area requiring additional methodological consideration and access to suitable data. It has not yet been assessed and is excluded from the current inventories.
3	Emissions from tenanted spaces within downstream leased assets, including commercial and residential units, where the Council is not the primary utility account holder	Where the Council does not hold the utility contract, the underlying activity data are not currently accessible. These emissions cannot therefore be quantified reliably and are excluded.

4.3.2. Excluded utility accounts within the utility dataset

4.3.2.1. In addition to the general source exclusions set out above, several individual utility meters relating to gas, electricity and water have been excluded from the utility dataset underpinning the two inventories (FY23/24 and FY24/25). In most cases, the Council is aware of these meters and their statuses, but they were excluded because they showed no relevant activity

during the reporting period, related only to activity outside of the reporting period, or could not be processed within the timeframe of the development of this framework.

4.3.2.2. 705 individual meters across the three utilities (gas, water and electric) were included across the two GHG inventories, while a further 385 meters were excluded, indicating an approximate estate coverage of ~65%, based on best available knowledge at the time.

4.3.2.3. While this serves as an approximate indicator of dataset coverage, further reconciliation may identify additional utility accounts or assets; however, it is likely that any such additions are more likely to relate to Scope 3 activity rather than Scope 1 and 2.

4.3.2.4. The excluded meters should also be interpreted carefully. Of the total exclusions, a third were excluded due to recording zero consumption, disconnection, or only showing consumption outside of the reporting period (April 2023 to March 2025). A further ~54% were identified through a later reconciliation exercise and could not be fully reviewed within the reporting timeframe. The excluded total therefore overstates the extend of materially missing in-scope emissions data.

4.3.3. Initial exclusions identified during data collection

4.3.3.1. Of the 385 excluded meters, 178 were identified through the initial data collection and review process using energy supplier online portals. 89 of these showed zero consumption or had been disconnected, and a further 38 showed consumption only outside of the reporting period. Together, 127 of the 178 accounts (~71%) had no relevant in-period activity for inclusion in the inventories.

4.3.3.2. Most of the remaining exclusions reflected data access or quality issues. Consumption data from 23 meters required overly time-consuming manual extraction from invoices with varying formats and were deemed not readily workable within the reporting timeframe. A further 8 meters were not visible on the supplier portal, 4 were not under the Council's operational control, and 1 was excluded due to unreliable data.

4.3.4. Additional exclusions identified through reconciliation

4.3.4.1. A further 207 meters, representing ~54% of all excluded utility assets, were identified through a later reconciliation exercise against internal asset and property records.[35]

4.3.4.2. As these meters were identified after the initial extraction stage, they could not be fully retrieved, analysed and quality-checked within the reporting timeframe. Their exclusion reflects the timing of data discovery and practical data access constraints rather than necessarily indicating material omissions from the Council's core reported emissions.

4.3.5. Ongoing improvement of data coverage

4.3.5.1. The Council continues to review the excluded meters to determine whether underlying activity data can be recovered and incorporated into future inventories. The current inventories should therefore be understood as representing the best available utility dataset at the time of reporting, while acknowledging that some assets remain excluded for data access, timing, quality or reporting-period reasons.

4.4. Calculating Emissions

4.4.1. Dual reporting of purchased electricity emissions

4.4.1.1. To provide a more complete view of its carbon footprint, the Council reports Scope 2, and some Scope 3, electricity emissions on both a location-based and market-based basis, in accordance with the GHGP.

4.4.1.2. The location-based method reflects the average emissions intensity of the electricity grid from which consumption is drawn. It uses national grid-average emission factors and therefore represents the emissions associated with electricity consumption regardless of the Council's contractual arrangements with suppliers. In the UK, the relevant grid-average emission factors are published annually by DESNZ. Transmission and Distribution (T&D) losses are excluded from DESNZ Scope 2 electricity factors and are therefore reported separately within Scope 3 where applicable.

4.4.1.3. The market-based method reflects emissions associated with the electricity products procured by the organisation through contractual instruments, such as renewable electricity tariffs. Supplier-specific emission

[35] Provided by the Energy and Utilities Manager and Housing Asset Management colleagues.

factors are applied where available. Where they are not available, a residual mix emission factor is used in accordance with the GHGP.

4.4.1.4. The Council uses location-based reporting to show the emissions associated with its electricity consumption within the wider grid, and market-based reporting to reflect the effect of its electricity procurement choices. Market-based reporting has also been included to support tracking of the Council's progress towards its net zero target. This dual approach further addresses the limitation of the Local Partnerships GHG accounting tool, which supports location-based reporting only, by providing a supplementary market-based view.

4.4.1.5. For the Council, electricity consumption supplied under the EDF Zero Carbon for Business contract is the only activity data in Scope 2 and 3 assigned a supplier-specific emission factor in the market-based inventory. In this case, a factor of zero is applied. Electricity consumption from other suppliers is assigned the relevant UK residual mix factor. Some third-party managed sites in Scope 3, outside of the EDF contract, have also been calculated using supplier-specific emission factors for market-based reporting.[36]

4.4.1.6. Where supplier-specific factors are unavailable, the residual mix factor is applied, sourced from the Association of Issuing Bodies (AIB). As the UK residual mix factor is published in CO_2 only, it is converted to CO_2e for consistency using the ratio of CO_2 to CO_2e derived from the corresponding DESNZ UK electricity emission factor. Details are provided in *Appendix D – Residual Mix Factor Calculation.*

4.4.2. Emission Factors

4.4.2.1. Emission factors convert activity data into GHG emissions and are typically expressed as kilograms of CO_2e per unit of activity. The Council uses UK Government emission factors published annually by DESNZ, which are publicly available and widely used in organisational carbon reporting.[37] Although these factors are generally published in kg CO_2e, the Council coverts the resulting outputs into tCO_2e, as set out in Section 4.4.4 below.

4.4.2.2. The Council applies the majority approach when selecting the appropriate year of emission factors for each reporting year. Under this approach, the factors from the calendar year containing the majority of the reporting period

[36] Stevenage Arts and Leisure Centre, Stevenage Swimming Pool, Ridlins Stadium, Fairlands Valley Aqua Park, and the Golf and Conference Centre.

[37] UK Government: GHG Reporting Conversion Factors

are used. For example, the 2023 DESNZ factors are applied to the reporting year 1 April 2023 to 31 March 2024, and the 2024 DESNZ factors are applied to the reporting year 1 April 2024 to 31 March 2025. The alternative blended approach, which weights factors across two calendar years, was not adopted as doing so would have fragmented the methodology across two years, increasing the risk of calculation error.

4.4.2.3. DESNZ emission factors account for the principal greenhouse gases, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and relevant fluorinated gases, and convert these into carbon dioxide equivalent (CO_2e) using Global Warming Potentials (GWPs)[38]. The Council reports emissions as total CO_2e and does not provide a gas-by-gas breakdown. This is consistent with the output format of the Local Partnerships tool and is considered appropriate for the purposes of the Council's reporting.

4.4.3. Source-specific factors and exceptions

4.4.3.1. All emission sources are calculated using the relevant annual DESNZ emission factors, with the exception of market-based Scope 2 and some Scope 3 electricity consumption which use either a supplier-specific emission factor or the UK residual mix factor, as described above.

4.4.4. Emissions calculation formula

4.4.4.1. Emissions are calculated by multiplying activity data by the relevant emission factor, using compatible units, and converting kilograms of CO_2e to tonnes where required:

$$\textit{Emissions } (tCO_2e) = \frac{Activity\ Data\ \times Emission\ Factor}{1000}$$

Where necessary, activity data are first converted into the correct unit before the relevant factor is applied. For example, natural gas recorded in cubic metres (m^3) is converted to kilowatt-hours (kWh) using the appropriate conversion methodology before the DESNZ factor is applied.

[38] DESNZ uses the 100-year period for the GWPs. The larger the GWP, the more the gas warms the atmosphere compared to CO_2 over the same period. Further information: Greenhouse Gas Protocol: Global Warming Potential Values 2024

4.4.4.2. For illustration, if a building consumed 10,000 kWh of natural gas and the relevant emission factor was 0.182 kg CO_2e/kWh, emissions would be calculated as follows:

$$Emissions\ (tCO_2e) = 10{,}000\ kWh \times 0.182\ kg\ CO_2e \,/\, 1000$$

$$Emissions\ (tCO_2e) = \frac{1{,}820}{1000} = 1.82\ tCO_2e$$

4.4.4.3. Calculations for all reported emission sources across Scope 1, Scope 2 (location-based and market-based), and Scope 3 are provided in *Appendix F – Emission Group and Asset Specific GHG Calculations.* This serves as a comprehensive reference to the calculations applied, ensuring full transparency and reproducibility of the emissions inventory.

5. Methodological Assumptions and Data Limitations

5.1. Key Assumptions and Limitations

5.1.1. The annual inventories presented in this report have been prepared using the best available data at the time of analysis and a consistent methodology across the reporting period. However, the results should be interpreted with regard to several known limitations relating to data completeness, data quality, and the current maturity of emissions reporting processes.

5.1.2. Detailed explanations of the inventory boundary, exclusions and calculation methods are set out in Section 4; this section summarises the principal assumptions and limitations that may affect interpretation of the results. Reported emissions may also be affected by changes in national conversion factors between reporting years, even where underlying activity data remain unchanged.

5.1.3. Market-based electricity emissions are materially influenced by the availability of supplier-specific emission factors. Where supplier-specific factors are unavailable, the UK residual mix factor is applied. For FY24/25, the converted residual mix factor used in the inventory was approximately 0.425 kgCO_2e/kWh, compared with around 0.207 kgCO_2e/kWh for the equivalent location-based grid factor. As a result, electricity supplies reported using the residual mix factor produce materially higher market-based emissions than if they were reported on a location-based basis.

5.1.4. For Scope 2 purchased electricity (FY24/25), 93.6% of total consumption was calculated using the supplier-specific factor from EDF and 6.4% using the residual mix factor. If the electricity currently reported using residual mix were instead reported on a location-based basis, market-based emissions would be approximately 68.0 tCO_2e lower; in other words, this use of the residual mix emission factor adds around 68.0 tCO_2e to the reported market-based total. Relevant Scope 3 electricity-related emissions are subject to the same methodological issue, although their influence on the Council's overall reported position is less significant. This effect should therefore be considered when interpreting the difference between location-based and market-based electricity results.

5.2. Data Completeness and Quality

5.2.1. The inventories reflect the best available utility and operational data for the Council's known in-scope assets at the time of reporting, but coverage remains under development. As set out in Section 4.3, some utility accounts and assets have been excluded due to zero or out-of-period consumption, data access constraints, validation issues, or late identification through reconciliation.

5.2.2. Activity data quality also varies across sources and includes a mixture of actual readings, supplier-estimated values, portal downloads, invoice extraction and third-party returns. Utility data are currently obtained from multiple supplier portals and reporting formats, which can make historic data extraction, cleaning and verification time-consuming and less consistent across reporting cycles.

5.2.3. In some cases, this has limited the ease with which complete consumption histories can be retrieved and quality-checked within the reporting timeframe. The Council is therefore seeking to improve the efficiency and consistency of future reporting through a more streamlined approach to supplier data access and energy procurement arrangements. This affects the precision of reported emissions, particularly at individual site level.

5.2.4. Meter type information across the estate is currently being assessed to help understand the maturity and reliability of the underlying utility dataset. However, only partial information was available at the time of preparing these inventories, and this was not considered sufficient to support meaningful analysis or reporting of meter type coverage across the estate. Accordingly, no quantified breakdown has been provided at this stage. Estimated readings should also be interpreted with caution where year-on-year variation may not be fully reflected in the underlying data.

5.2.5. For some mixed-use assets, natural gas consumption cannot yet be fully disaggregated between operationally controlled areas and tenant use due to the absence of sub-metering or sufficiently granular billing data. Where gas consumption is shared and cannot be reliably separated, total gas consumption has been conservatively attributed within the inventory. This approach avoids under-reporting emissions associated with assets under operational control, but it is likely to materially overstate Scope 1 emissions from these sites and inflate the contribution of natural gas use from mixed-use schemes within the Council's direct operational emissions.

5.2.6. As the exact split between landlord and tenant consumption is not currently known, the scale of this overstatement cannot yet be quantified robustly. Readers should therefore interpret gas emissions from these sites with caution and refer to Section 7.4 for further detail on the contribution these mixed-use assets make to the Council's reported Scope 1 emissions.

5.2.7. Fugitive emissions should also be interpreted with caution, as these are currently derived from maintenance and servicing records; where no refrigerant additions were recorded, emissions have been assumed to be zero, although this does not necessarily confirm the absence of leakage.

5.2.8. The Council is continuing to improve the completeness and maturity of the underlying dataset through the development of a centralised asset and meter register, improved visibility of meter type and meter health, and a more structured approach to data validation and collection.

5.3. Scope 3, Reporting Process and Assurance

5.3.1. Scope 3 reporting remains partial and should be understood as an improved estimate of wider indirect emissions rather than a complete organisational Scope 3 inventory. Several categories remain excluded where robust, reproducible activity data are not yet available, while some included Scope 3 sources rely on data supplied by third parties, including externally managed sites and leased assets. As a result, Scope 3 emissions are currently more subject to data availability and methodological constraint than Scope 1 and Scope 2 reporting.

5.3.2. The inventories have been subject to internal quality checks but have not been independently verified. Reporting also currently depends on input from multiple service areas across a large and operationally diverse estate, coordinated through limited staff resource. This creates a need for a more formalised and distributed data collection system, with clearer data ownership,

standardised templates and defined reporting responsibilities, to support a repeatable and timely annual reporting cycle.

6. Baseline Emissions

6.1. Original Base Year

6.1.1. As discussed in Section 3.3, the Council commissioned CLS Energy Consultancy Ltd to prepare a carbon baseline report in July 2020. The report was intended to establish a starting point for future carbon, energy, fuel and cost reduction work, and was explicitly framed as a baseline derived from the data made available at the time, rather than as a complete organisational greenhouse gas inventory.

6.1.2. The exact period of activity data used to construct the original baseline cannot now be confirmed with certainty. Internal understanding within the Council is that 2018 data informed the consultant's baseline. However, this cannot be verified from the report itself or from the underlying source data, which is no longer available. The report contains a later reference to electricity costs for the period April 2019 to March 2020, but this appears in the context of an illustrative savings example rather than as a clear statement of the baseline year. On that basis, the original baseline period should be treated as uncertain.

6.1.3. The baseline covered 12 locations, listed below, with the first eight treated as council owned and operated, and the latter four treated as council owned but operated by others on the Council's behalf:

- Cavendish Depot
- Daneshill House
- Indoor Market
- St George's MSCP
- Silkin Court
- Ridlins
- Meadway *(specific site unknown, presumably Meadway Pavillion)*
- Shephalbury Park Changing Rooms
- Stevenage Arts and Leisure Centre
- Stevenage Swimming Pool
- Stevenage Golf and Conference Centre
- Fairlands Valley Park.

6.1.4. The baseline report does not explicitly state whether it applies the GHG Protocol's operational control, financial control or equity share approach. However, the treatment of sites suggests that a pragmatic, hybrid boundary was adopted. The Council's directly operated sites were included as a matter of course, while the leisure sites were also included on the basis that they were Council owned and could hypothetically be brought back in-house in future.

6.1.5. At the same time, the report acknowledges that the leisure sites are arguably Scope 3 and that the Council has discretion over whether to include them. It also notes that, if leisure partner organisations are already including emissions from these sites within their own carbon reduction plans, their inclusion in the Council's baseline would create double counting. This indicates that the original boundary was not fixed through a clearly defined control methodology but instead reflected a more pragmatic and locally determined reporting choice.

6.1.6. The baseline includes emissions from electricity and gas usage, where applicable, across the 12 locations listed above, together with other fuel use associated with the Council's fleet and staff business mileage reclaim. The consultant also included separate Scope 3 entries for 'Mileage Avoided Diesel' and 'Mileage Avoided Petrol'.

6.1.7. The report excluded several emissions sources because data was unavailable, incomplete or unclear at the time. It stated that there was no factoring for water, waste, renewable energy or other aspects, and later clarified that F-gases from air conditioning units had not been included. It also noted that some sites, such as community centres, pavilions and public conveniences, were outside the dataset received, and that LPG or heating oil were absent because their use could not be confirmed.

6.1.8. By emissions source, the consultant baseline reported gas as the largest contributor at 37% of total emissions, followed by electricity at 36% and diesel at 22%, with the remaining 5% arising from other fuel use and mileage-related Scope 3 entries. A summary of emissions by scope and source is set out in Table 4 below.

Table 4.CLS Energy Consultancy Total Emissions per Scope (2020)

Scope	Emissions (tCO_2e)
Scope 1	2,145
Scope 2	1,212
Scope 3	45
Total	**3,402**

Table 5.CLS Energy Consultancy Emissions Breakdown by Source (2020)

Scope	Emission Source	Activity Data	Emissions (tCO_2e)
Scope 1	Gas (buildings)	6,797,075 kWh	1,253.585
Scope 1	Diesel including gas oil (fleet use)	332,348 litres	868.141
Scope 1	Unleaded petrol (machinery use)	10,452 litres	23.089
Scope 2	Purchased electricity (buildings)	4,742,936 kWh	1,212.295
Scope 3	Mileage reclaim diesel (staff business travel)	70,208 miles	19.589
Scope 3	Mileage reclaim petrol (staff business travel)	71,694 miles	20.865
Scope 3	Mileage avoided diesel (staff business travel)	8,615 miles	2.404
Scope 3	Mileage avoided petrol (staff business travel)	8,798 miles	2.560
Total			**3,402.528**

6.1.9. The original baseline report lacks granularity and provides only limited raw underlying data beyond annual totals, broad site groupings and selected commentary. In practical terms, this means that the detailed baseline methodology, meter-level breakdowns, monthly patterns and assumptions cannot now be fully reconstructed from the report alone. This limitation is particularly relevant for the leisure sites, where the consultant noted that only total annual electricity and gas figures were available.

6.1.10. The consultant baseline also includes additional Scope 3 entries labelled 'Mileage Avoided Diesel' and 'Mileage Avoided Petrol', alongside standard grey fleet mileage reclaim data. The report briefly refers to these as miles driven with a business passenger but does not set out a transparent calculation method or clearly explain whether these figures represent a distinct emissions source or an additional treatment of journeys already captured elsewhere.

6.1.11. In the absence of a clear methodological explanation or supporting source data, inclusion of these 'avoided mileage' figures introduce uncertainty and may create a risk of double counting. For the updated baseline, outlined next, only standard grey fleet mileage reclaim data has therefore been included, as this provides a clearer, more auditable and more comparable basis for reporting over time.

6.2. Updated Base Year

6.2.1. An updated baseline has been established using FY23/24 emissions data. Unlike the original baseline, which was limited in scope and based on a relatively small number of sites and sources, the FY23/24 baseline reflects a substantially more comprehensive organisational inventory.

6.2.2. The updated baseline includes more than 700 assets across Scopes 1, 2 and 3. This represents a significant expansion compared with the 12 locations included in the original baseline and provides a much more complete picture of the Council's emissions footprint.

6.2.3. The updated baseline also applies a clearer and more consistent treatment of organisational boundaries. While the original consultant baseline included several leisure-related assets within Scopes 1 and 2, the FY23/24 inventory treats the majority of these as Scope 3 emissions, in line with the GHGP. In practice, this means that emissions associated with sites such as Ridlins, Stevenage Arts and Leisure Centre, Stevenage Swimming Pool, the Golf and Conference Centre, and Fairlands Valley Park are no longer reported within the Council's direct operational footprint, but instead within leased or indirect categories. The Indoor Market remains within the Council's direct reporting boundary for this updated baseline.[39]

6.2.4. The FY23/24 baseline also includes a wider range of emission sources than the original baseline. In addition to fuel use, gas, electricity and grey fleet mileage, it includes water supply and treatment, fugitive emissions, well-to-tank emissions for relevant fuels and electricity, and transmission and

[39] Refers to the 'old' indoor market location within St George's MSCP.

distribution losses associated with purchased electricity. For staff business travel, only standard grey fleet mileage claims have been included; the ambiguous passenger-related 'mileage avoided' categories used in the original consultant report have not been carried forward, as previously mentioned.

6.2.5. For FY23/24, the Council reports both location-based and market-based emissions. The location-based dataset provides the most suitable basis for comparison with the original consultant baseline, which appears to have applied standard electricity conversion factors and is therefore best interpreted as location-based in practice. However, the market-based dataset is the more appropriate baseline for future target tracking, as it reflects the Council's current electricity procurement arrangements and formal reporting approach.

6.2.6. On a location-based basis, FY23/24 emissions totalled 5845.42 tCO_2e. On a market-based basis, FY23/24 emissions totalled 4,710.12 tCO_2e, and this figure is adopted as the Council's formal revised baseline inventory. The FY23/24 market-based baseline is summarised in Table 6 below alongside the FY23/24 location-based breakdown for comparison purposes.

Table 6.Total emissions for Financial Year 2023/24, market-based and location-based

Scope	Market-Based Emissions (tCO_2e)	Location-Based Emissions (tCO_2e)
Scope 1	1,922.42	1,922.42
Scope 2	89.68	1,004.67
Scope 3	2,698.02	2,918.32
Total	**4,710.12**	**5,845.42**

6.2.7. Within the FY23/24 market-based baseline, Scope 3 is the largest contributor, reflecting the breadth of leased-site emissions, upstream fuel and electricity emissions, and other indirect sources now included within the inventory[40]. Scope 1 remains materially significant, driven principally by natural gas consumption at operated sites and diesel use[41]. Scope 2 is comparatively low under the market-based method because purchased electricity for operated assets is reported using a much lower market-based emission factor

[40] 87% of all Scope 3 emissions under market-based reporting originated from the use of gas or electricity in leased buildings; 67% were derived from natural gas-related emission sources with 20% from electricity-related emission sources.

[41] Diesel use in FY23/24 was still relatively high as the use of HVO for the Council's fleet had not yet been introduced. This is discussed further in Section 7.

than under the location-based method, reflecting the Council's EDF Zero Carbon for Business tariff.

6.3. Base Year Comparison & Analysis

6.3.1. Direct comparison between the original consultant baseline and the updated FY23/24 baseline should be assessed carefully. Although both provide useful baseline reference points, they are not methodologically identical. The original baseline was narrower in scope, included only 12 locations, excluded several emissions sources now reported, and applied a pragmatic approach to the treatment of leisure-related assets. By contrast, the FY23/24 baseline is a much more comprehensive organisational inventory covering more than 700 assets and a wider range of direct and indirect emission sources. In addition, the new baseline correctly allocates Scope 1, 2 and 3 emissions from buildings using a fixed operational control approach.

6.3.2. For comparison purposes, the most appropriate reference is the FY23/24 location-based baseline, because the original consultant report is best interpreted as location-based in practice. On this basis, reported emissions increased from 3,402.00 tCO_2e in the original baseline to 5,845.42 tCO_2e in FY23/24. However, this increase should not be interpreted as a simple deterioration in emissions performance. A substantial part of the difference is explained by the expansion in reporting boundary, improved data coverage, the inclusion of additional categories such as water and upstream emissions, and the reclassification of certain leisure-related sites from Scopes 1 and 2 into Scope 3.

Table 7.Scope total comparisons for location-based emissions between the original baseline and new baseline year data

Scope	Original Baseline (tCO_2e)	FY23/24 location-based baseline (tCO_2e)	Absolute Change (tCO_2e)
Scope 1	2,145.00	1,922.42	- 222.58
Scope 2	1,212.00	1,004.67	- 207.33
Scope 3	45.00	2,918.32	+ 2,873.32
Total	**3,402.00**	**5,845.42**	**+ 2,443.42**

6.3.3. The scope comparison illustrates that the most significant change between the two baselines is within Scope 3, which increases from 45 tCO_2e in the original baseline to 2,918.32 tCO_2e in the FY23/24 location-based baseline.

This does not indicate a like-for-like increase in the Council's indirect emissions alone, but instead reflects the much broader reporting boundary and more comprehensive methodology applied in the updated inventory. In particular, the FY23/24 baseline includes additional indirect sources such as leased-site energy use, water, well-to-tank emissions and transmission and distribution losses, while also moving several leisure-related assets out of Scopes 1 and 2 and into Scope 3 in line with the operational control approach.

6.3.4. By contrast, both Scope 1 and Scope 2 are lower in the FY23/24 location-based baseline than in the original consultant baseline. However, these changes should again be interpreted with caution given the differences in site coverage, categorisation and data completeness between the two approaches. In several cases, emissions have not necessarily reduced in operational terms but have instead been reclassified or newly captured under a different scope.

6.3.5. The most significant methodological shift between the two baselines is therefore the treatment of scope and boundary. In the original baseline, several leisure sites were included alongside directly operated Council sites, despite the report itself acknowledging that these could arguably be treated as Scope 3. In the updated baseline, this ambiguity has largely been resolved by treating the majority of these emissions as indirect. As a result, differences at scope level do not necessarily indicate that emissions have been reduced or increased in operational terms; in several cases, emissions have simply moved from one scope to another.

6.3.6. The updated baseline should therefore be understood as a rebased and more robust foundation for future reporting rather than as a direct continuation of the original consultant baseline. For transparency, the original baseline remains useful as an historic reference point, and the FY23/24 location-based inventory provides the best available comparator to it. However, the Council's formal revised market-based inventory baseline is the FY23/24 market-based inventory total of 4,710.12 tCO_2e, as this best reflects the Council's current reporting approach and electricity procurement position.

6.3.7. For the purposes of tracking progress against the Council's 2030 net zero target, the applicable target-tracking boundary is defined separately in Section 7.2 and comprises market-based Scope 1 and Scope 2 emissions plus selected Scope 3 sites.

Table 8.Summary comparison of baseline approaches

Baseline	Reporting Basis	Total Emissions (tCO_2e)	Key Notes
Original baseline (consultant report, published 2020)	Presumed location-based	3,402.00	Partial baseline based on limited available data; covered 12 locations only; included some leisure assets within Scopes 1 and 2; excluded several sources now reported, including water and upstream emissions.
Updated baseline (FY23/24)	Location-based	5,845.42	Used for broad comparison with the original baseline because it is the closest methodological equivalent to the earlier approach. Reflects a wider organisational boundary and more complete source coverage.
Updated baseline (FY23/24)	Market-based	4,710.12	Adopted as the Council's formal revised market-based inventory baseline, reflecting current electricity procurement and reporting practice. The specific target-tracking boundary is defined in Section 7.2.

6.3.8. Table 8 summarises the three baseline reference points used in this report: the original consultant baseline, the updated FY23/24 location-based comparator, and the FY23/24 market-based baseline adopted for future reference.

7. Inventory Results & Analysis

This section presents the results of the Council's FY23/24 and FY24/25 greenhouse gas inventories on both a location-based and market-based basis. Analysis focuses on the core reported inventory within Scopes 1, 2 and 3. Biogenic CO_2 emissions associated with fleet fuel use are excluded from the core inventory totals and are discussed separately in Section 7.8.

7.1. Inventory Overview (Location-Based and Market-Based)

7.1.1. Table 9 , Figure 3 and Figure 4 summarise the Council's greenhouse gas inventories for FY23/24 and FY24/25 on both a location-based and market-based basis. Across both reporting methods, total reported emissions decreased year-on-year. On a location-based basis, emissions fell from 5,845.42 tCO_2e in FY23/24 to 5,582.49 tCO_2e in FY24/25, a reduction of 262.92 tCO_2e (-4.5%). On a market-based basis, emissions fell from 4,710.12 tCO_2e to 4,458.44 tCO_2e, a reduction of 251.68 tCO_2e (-5.3%).

Table 9.Total emissions per scope by reporting basis

Scope	**Location-Based Emissions (tCO_2e)**				**Market-Based Emissions (tCO_2e)**			
	FY23/24	FY24/25	Change	Change (%)	FY23/24	FY24/25	Change	Change (%)
Scope 1	1,922.42	1,657.8	- 264.61	- 13.8%	1,922.42	1,657.80	- 264.61	- 13.8%
Scope 2	1,004.67	998.78	- 5.89	- 0.6%	89.68	132.53	+ 42.85	+ 47.8%
Scope 3	2,918.32	2,925.91	+ 7.58	- 0.3%	2,698.02	2,668.1	- 29.92	- 1.1%
Total	**5,845.42**	**5,582.49**	**- 262.92**	**- 4.5%**	**4,710.12**	**4,458.44**	**- 251.68**	**- 5.3%**

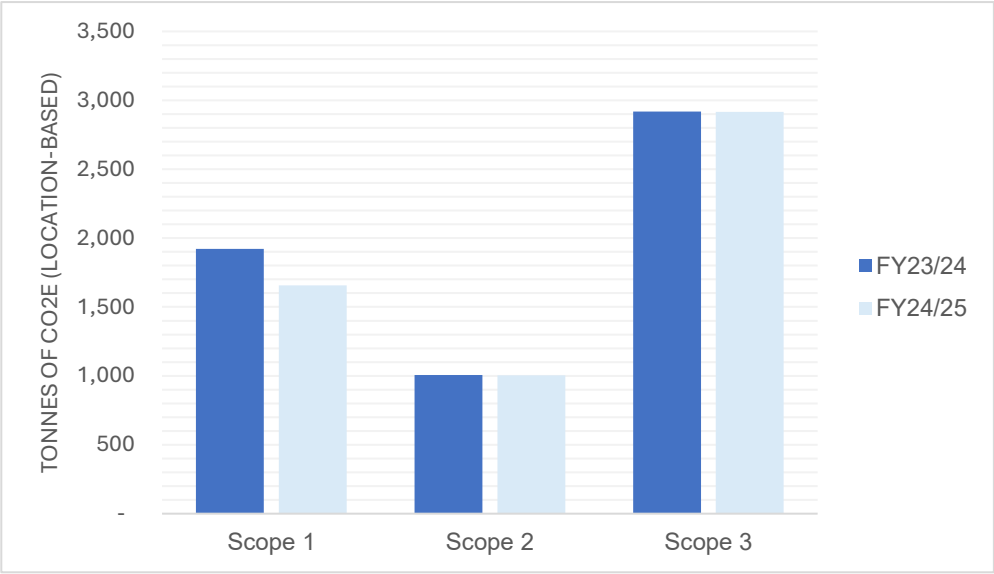


Figure 3. Location-based emissions, FY23/24 and FY24/25

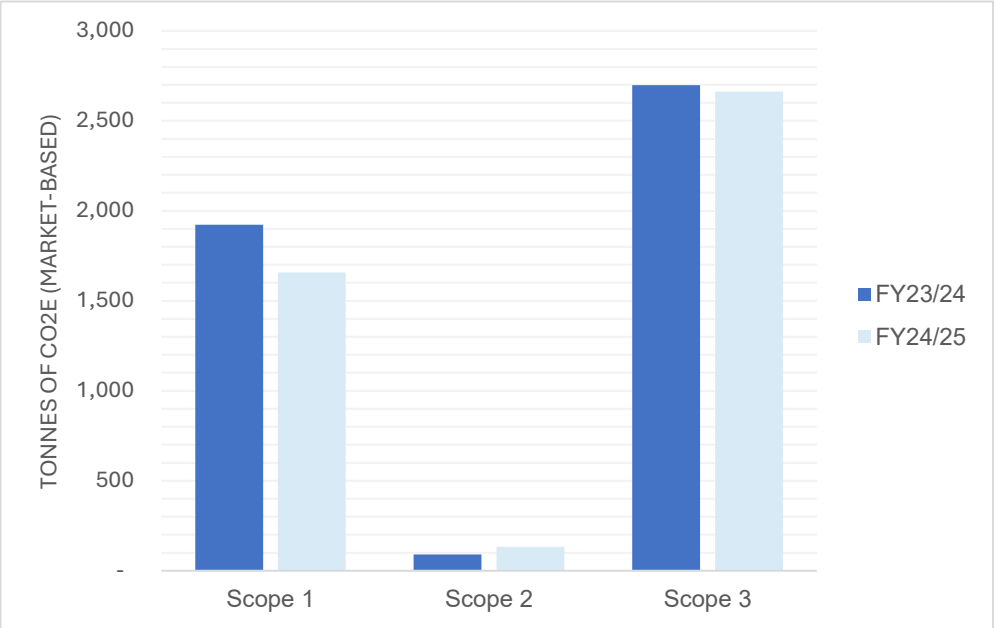


Figure 4. Market-based, FY23/24 and FY24/25

7.1.2. The overall reduction was driven primarily by lower Scope 1 emissions. Scope 1 fell from 1,922.42 tCO_2e to 1,657.80 tCO_2e on both a location-based and market-based basis, a decrease of 264.61 tCO_2e (-13.8%). This reflects a substantial reduction in fleet fuel emissions in FY24/25, partly offset by an increase in emissions from natural gas use at operated sites due to increased consumption.

7.1.3. Scope 2 emissions remained broadly stable on a location-based basis, decreasing slightly from 1,004.67 tCO_2e to 998.78 tCO_2e (-0.6%). On a market-based basis, however, Scope 2 increased from 89.68 tCO_2e to 132.53 tCO_2e

(+47.8%). This increase should be interpreted in context. In both years, market-based Scope 2 emissions remained substantially lower than the corresponding location-based figures, reflecting the significant effect of the Council's EDF Zero Carbon for Business tariff. Compared with the location-based method, market-based reporting reduced Scope 2 emissions by 91% in FY23/24 and 87% in FY24/25. The year-on-year increase in market-based Scope 2 therefore does not indicate a deterioration in electricity performance alone but rather reflects the proportion of electricity consumption reported using supplier-specific factors compared with residual mix factors in FY24/25.

7.1.4. Scope 3 emissions remained the largest component of the inventory under both reporting methods. On a location-based basis, Scope 3 remained broadly stable, decreasing slightly from 2,918.32 tCO_2e to 2,925.91 tCO_2e (-0.3%). On a market-based basis, Scope 3 fell from 2,698.02 tCO_2e to 2,668.1 tCO_2e (-1.1%). The relative stability of Scope 3 reflects offsetting movements across several indirect emission sources, including leased asset energy use, upstream fuel emissions and electricity-related emissions

7.1.5. In profile terms, the inventory remained dominated by Scope 3 emissions, followed by Scope 1, with Scope 2 contributing the smallest share under the market-based method. In FY24/25, Scope 3 accounted for approximately 52.3% of total location-based emissions and 59.8% of total market-based emissions, while Scope 1 accounted for 29.7% and 37.2% respectively. This reflects both the breadth of indirect emission sources included in the inventory and the effect of the Council's electricity procurement arrangements on reported market-based Scope 2 emissions.

7.1.6. The emissions-by-source profile provides additional context to the overall year-on-year change. On both a location-based and market-based basis, heating remained the largest emission source and increased year-on-year, while fleet fuel use recorded the largest reduction. Well-to-tank emissions (from all sources) remained broadly stable, while staff business travel and water-related emissions both decreased modestly. Fugitive emissions also reduced year-on-year based on the records available. The main difference between the location-based and market-based source profiles remained purchased electricity, reinforcing that the Council's overall emissions trend was driven primarily by changes in heating and fleet fuel use, while the treatment of electricity procurement continued to have a significant effect on the market-based inventory.

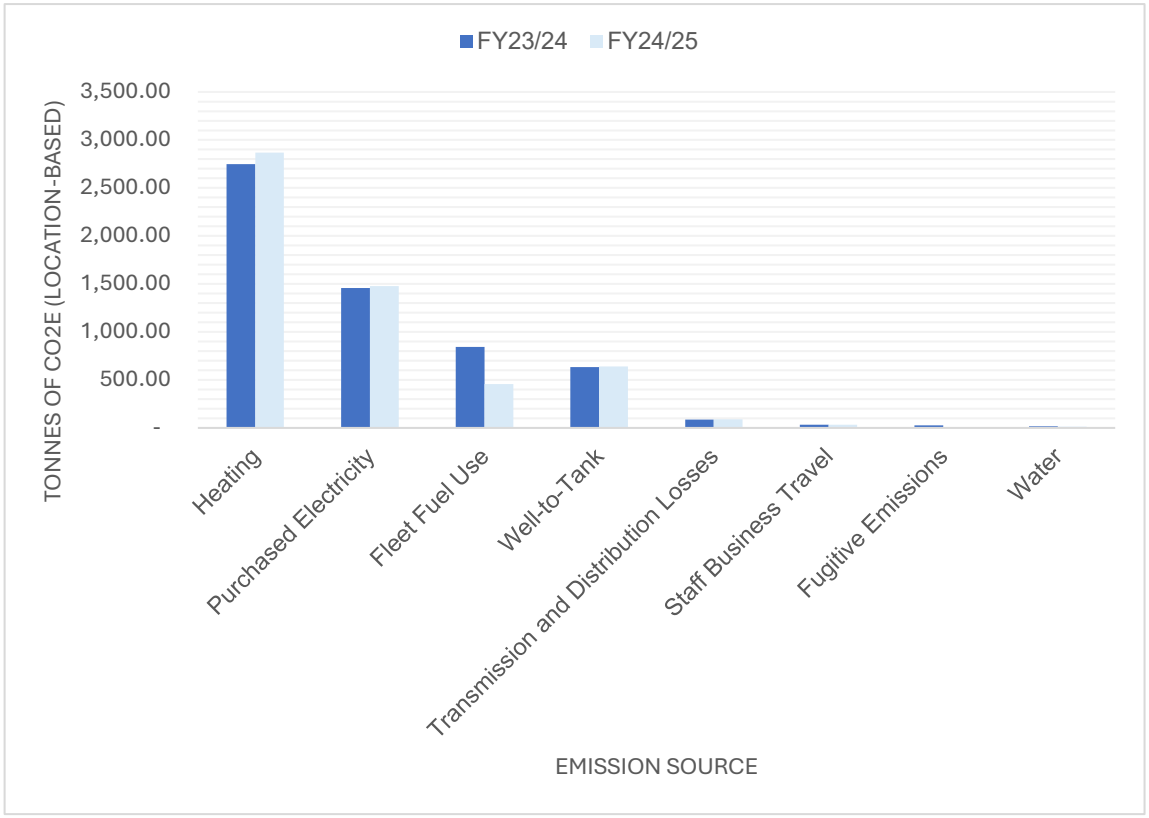


Figure 5. Location-based emissions by emission source (Scope 1, 2, and 3)

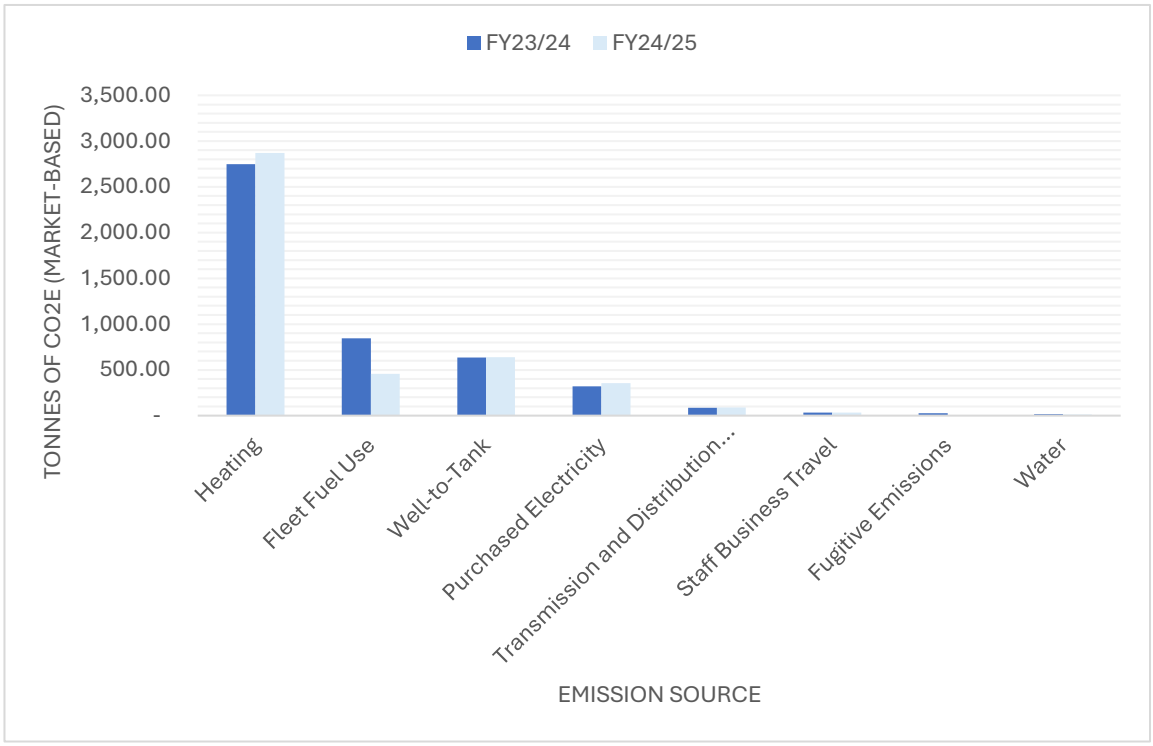


Figure 6. Market-based emissions by emission source (Scope 1,2, and 3)

7.1.7. Overall, the results indicate a modest year-on-year reduction in the Council's reported emissions footprint, driven mainly by improvements in direct fuel-related emissions. However, the inventories also show that reported performance remains sensitive to the treatment of electricity emissions and to the inclusion of wider indirect sources, particularly within Scope 3. More detailed analysis by emission source is provided in the following sections.

7.2. Tracking Progress against the Council's Net Zero Target

7.2.1. As the Council moves to annual emissions reporting, a clear target-tracking boundary is needed to measure progress against the Council's 2030 net zero target. For this purpose, the Council will track progress using market-based Scope 1 and Scope 2 emissions, plus a limited subset of Scope 3 emissions relating to major third-party managed sites that were included in the Council's earlier consultant baseline and have historically featured in published emissions reporting.

7.2.2. This approach provides continuity with the Council's historic published emissions position while retaining visibility of several large, Council-owned assets that remain significant to the Council's wider carbon profile. Although these sites sit outside the Council's direct operational control and are therefore reported within Scope 3, their inclusion within the target-tracking boundary recognises their scale, visibility and historic treatment within the Council's emission baseline.

7.2.3. The selected Scope 3 sites included within the Council's boundary for progress tracking are:

- Stevenage Arts and Leisure Centre
- Stevenage Swimming Centre
- Stevenage Golf and Conference Centre
- Ridlins Stadium
- Fairlands Valley Aqua Park

7.2.4. Together, these five sites contributed 986.66 tCO_2e in FY23/24 and 924.12 tCO_2e in FY24/25 on a market-based basis, equivalent to approximately 20% of the Council's total market-based inventory

Table 10.Target-tracking emissions boundary: market-based Scope 1 and Scope 2, plus selected Scope 3 sites

Scope	FY23/24 (tCO_2e)	FY24/25 (tCO_2e)	Change (tCO_2e)	Change (%)
Scope 1	1,922.42	1,657.80	- 264.61	- 13.8 %
Scope 2	89.68	132.53	+ 42.85	+ 47.8%
Selected Scope 3 Sites	986.66	924.12	- 62.54	- 6.3%
Total	**2,998.76**	**2,714.46**	**- 284.31**	**- 9.5%**

7.2.5. On this basis, the Council's target-tracking emissions total for FY24/25 is 2,714.46 tCO_2e. This represents a reduction of 284.31 tCO_2e, or 9.5%, compared with FY23/24. If this FY24/25 figure is used as the starting point for the remaining period to 2030, the Council would need to reduce emissions by an average of approximately 542.89 tCO_2e per year over the next five financial years to reach net zero.

Table 11.Selected Scope 3 sites included within the target-tracking boundary, market-based emissions

Site	FY23/24 MB (tCO_2e)	FY24/25 MB (tCO_2e)	Change (tCO_2e)	Change (%)
Stevenage Swimming Centre	522.98	468.79	- 54.19	- 10.4%
Stevenage Arts and Leisure Centre	383.72	378.45	- 5.26	- 1.4%
Ridlins Stadium	41.10	35.35	- 5.75	- 14%
Stevenage Golf and Conference Centre	34.37	38.41	+ 4.04	+ 11.8%
Fairlands Valley Aqua Park	4.49	3.13	- 1.36	- 30.3%
Total	**986.66**	**924.12**	**- 62.53**	**- 6.3%**

7.2.6. The target-tracking boundary should be interpreted alongside the wider emissions inventory presented in this report. The Council will continue to report its full Scope 1, Scope 2, and available Scope 3 emissions annually for transparency. However, formal progress against the Council's 2030 net zero target will be assessed using the market-based target tracking boundary set out in this section.

7.3. Indicative Cost of Offsetting Residual Emissions

7.3.1. Sections 7.1 and 7.2 set out the Council's current emissions position and the proposed target-tracking boundary for measuring progress against the 2030 net zero target. A related consideration is the potential future cost of offsetting any residual emissions that remain after operational reductions have been pursued. The figures presented below are therefore intended as indicative benchmarks only. They do not represent a current financial liability, a recommendation to offset at this stage, or a fixed forecast of future carbon prices, all of which may change over time. In addition, HCCSP has previously

stated the need for the Council to prioritise mitigation first, due to the co-benefits such as cost savings.

7.3.2. Three benchmark price types are used to illustrate the potential scale of cost. First, the 2025 UK ETS civil penalty carbon price of £41.84/ tCO_2e provides an official UK regulatory benchmark[42]. Second, for the voluntary carbon market[43] (VCM), an assumption of $25/ tCO_2e [44] has been used as a broad proxy for higher-quality nature-based credits.[45] Third, UK-specific voluntary carbon benchmarks are also shown using the 2024 average transaction prices for Woodland Carbon Code (£26.85/ tCO_2e) and Peatland Code (£25.04/ tCO_2e) units[46]. Further detail on voluntary market pricing is provided in *Appendix G – Voluntary Carbon Market (VCM) Pricing: Ecosystem Marketplace.*

7.3.3. Using the latest FY24/25 target-tracking total set out in Section 7.2, the indicative cost of offsetting a total of 2,714.46 tCO_2e would be approximately £113kper year using the UK ETS benchmark, £73kusing the Woodland Carbon Code benchmark, £68k using the Peatland Code benchmark, or around $68k using the illustrative $25 voluntary market assumption.

Table 12.Indicative annual cost of offsetting FY24/25 target-tracking emissions (residual emissions)

Benchmark Price	**FY24/25 target-tracking emissions: 2,714.46 tCO_2e**
UK ETS civil penalty price (2025) - £41.84	~£113,000
Woodland Carbon Code average (2024) - £26.85	~£73,000
Peatland Code average (2024) - £25.04	~£68,000
Higher-quality nature-based credit assumption - $25 USD	~$68,000 USD

7.3.4. The Council should therefore consider a future offsetting strategy carefully. Lower-priced voluntary credits may appear attractive in cost terms, but they

[42] UK Government: UK ETS Carbon Price 2025
[43] Ecosystem Marketplace: 2025 State of the Voluntary Carbon Market (SOVCM)
[44] Ecosystem Marketplace's 2024 data show materially higher prices for several nature-based project types, including $14.97 for Improved Forest Management, $20.44 for Afforestation/Reforestation/Revegetation and $29.72 for Blue Carbon. On this basis, in conjunction with prior industry knowledge, a $25t/$CO_2e$ assumption has been chosen.
[45] The VCM global 2024 average transaction price of $6.34/$tCO_2e$ is not considered an appropriate planning assumption for the Council, given the quality and reputational concerns associated with lower-priced credits.
[46] Woodland Carbon Code (WCC): Carbon Prices

may not provide the level of integrity, permanence or co-benefit assurance that would be expected for a public body. Conversely, higher-integrity UK nature-code units and stronger nature-based voluntary credits are likely to command a premium. For this reason, the figures above are best interpreted as broad planning benchmarks to illustrate the scale of possible future costs, rather than as target prices for procurement.

7.4. Natural Gas Consumption

7.4.1. Natural gas remained one of the Council's largest reported emission sources in both years and increased overall in FY24/25. Total reported natural gas consumption rose from 14.84 million kWh in FY23/24 to 15.55 million kWh in FY24/25, an increase of 4.7%. Associated emissions increased from 2,715.39 tCO_2e to 2,843.45 tCO_2e, a rise of 128.06 tCO_2e (+4.7%).

7.4.2. Within the Council's directly operated estate, natural gas emissions increased from 1,078.93 tCO_2e in FY23/24 to 1,201.99 tCO_2e in FY24/25 (+11.4%), reflecting an increase in reported gas consumption from 5.90 million kWh to 6.57 million kWh. Reported natural gas emissions from all leased assets, captured within Scope 3, remained broadly stable, increasing from 1,636.46 tCO_2e to 1,641.45 tCO_2e (+0.3%). In FY24/25, natural gas accounted for approximately 72.5% of the Council's total Scope 1 emissions, confirming that it remains the dominant direct operational emissions source.

7.4.3. The Scope 1 increase was driven primarily by operated residential assets, which rose from 824.16 tCO_2e to 937.24 tCO_2e (+13.7%) and accounted for approximately 78% of all Scope 1 natural gas emissions in FY24/25. This rise is largely attributed to the development of Brodie Court, which emitted ~98 tCO_2e in FY24/25 and where tenant and landlord usage could not be split.

7.4.4. Within Scope 3, the largest contributors remained leased residential assets and leased leisure assets, which together accounted for approximately 95.3% of leased natural gas emissions in FY24/25, indicating emissions are concentrated in a small number of large residential and leisure-related sites.

7.4.5. The overall trend should be interpreted alongside the data limitation set out in Section 5. For several mixed-use housing schemes, natural gas consumption cannot yet be fully disaggregated between landlord-controlled and tenant-controlled areas due to the absence of sub-metering or sufficiently granular billing data. Reported Scope 1 natural gas emissions for some residential schemes are therefore likely to be overstated. Even with this caveat, the results clearly indicate that natural gas remains one of the Council's

principal residual emission sources and a key priority area for future estate decarbonisation activity.

Table 13.Natural gas consumption, FY23/24 and FY24/25

Category	Scope	FY23/24 (kWh)	FY24/25 (kWh)	Change (%)
Operated assets	Scope 1	5,898,092	6,571,851	+ 11.4%
Leased assets	Scope 3	8,945,857	8,974,599	+ 0.3%
Total natural gas		**14,843,949**	**15,546,450**	**+ 4.7%**

Table 14.Natural gas emissions, FY23/24 and FY24/25

Category	Scope	FY23/24 (tCO_2e)	FY24/25 (tCO_2e)	Change (%)
Operated assets	Scope 1	1,078.93	1,201.99	+ 11.4%
Leased assets	Scope 3	1,636.46	1,641.45	+ 0.3%
Total natural gas		**2,715.39**	**2,843.45**	**+ 4.7%**

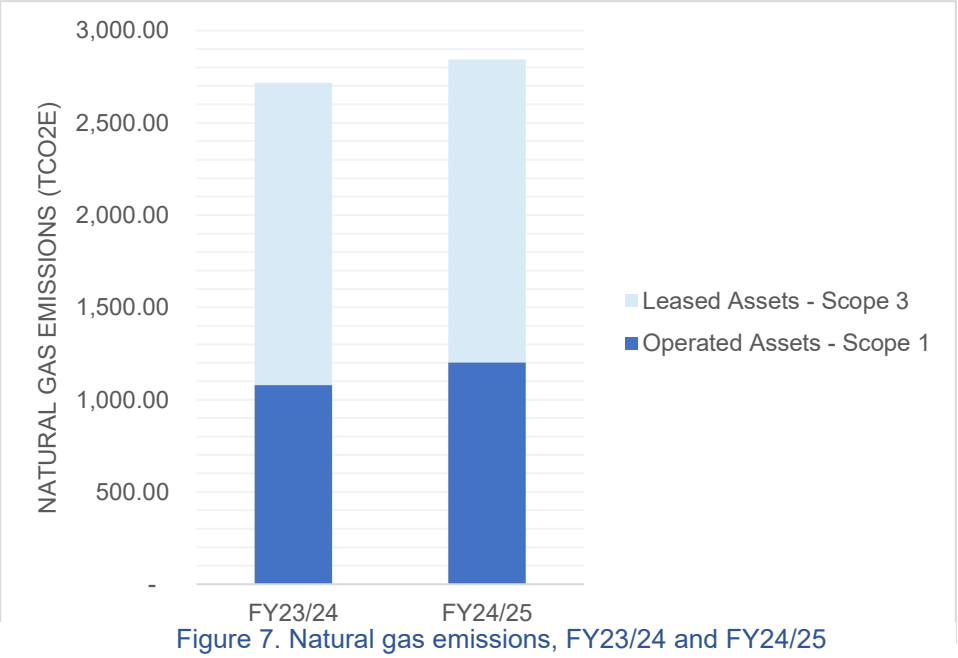


Figure 7. Natural gas emissions, FY23/24 and FY24/25

7.4.6. Top 10 Gas Consuming Sites in FY24/25

7.4.6.1. A review of the highest gas-consuming individual sites in FY24/25 shows that reported usage is concentrated in a relatively small number of assets. The top ten sites are dominated by residential schemes and major leisure-related sites, several of which sit outside the Council's direct operational control and are therefore reported within Scope 3. This is important when interpreting the results, as some of the residential schemes are affected by the current inability to fully separate landlord-controlled and tenant-controlled gas use, meaning that reported Scope 1 emissions for these assets may be overstated.

7.4.6.2. The site-level results also help identify priority locations for further investigation. Daneshill House stands out as a high-consuming corporate asset and should be reviewed further in relation to building operating hours, heating demand and patterns of office use. The Indoor Market also remains one of the Council's highest gas-consuming operated assets in FY24/25, although it is expected to move into Scope 3 in the next reporting period following the new lease arrangement and will therefore sit outside the Council's direct target-tracking boundary going forward.[47]

7.4.6.3. The ten highest gas-consuming sites accounted for 71.3% of the Council's total reported natural gas consumption and associated emissions in FY24/25, indicating that future investigation and reduction activity should be focused on a relatively small number of high-impact assets.

[47] Refers to the 'old' Indoor Market location (St George's MSCP) as the Indoor Market operations did not migrate to the new location until late 2025. In FY25/26, emissions generated from the ground level space of the MSCP will be under operational control of the new sole lessee and therefore considered Scope 3 emissions for the Council.

Table 15.Top 10 gas-consuming sites, FY24/25

Rank	Site	Scope	Sub-category	FY24/25 gas use (kWh)	FY24/25 emissions (tCO_2e)
1	Stevenage Swimming Centre	3	Leisure	2,384,729	436.17
2	Brent Court	3	Residential	1,717,997	314.22
3	Harrow Court	3	Residential	1,407,157	257.37
4	Stevenage Arts and Leisure Centre	3	Leisure	1,314,404	240.40
5	Roundmead	3	Residential	962,821	176.10
6	Fred Millard Court	1	Residential	853,189	156.05
7	Indoor Market	1	Commercial	682,986	124.92
8	Silkin Court	1	Residential	678,481	124.09
9	Daneshill House	1	Corporate	551,295	100.83
10	Brodie Court	1	Residential	534,333	97.73
Total				11,087,392	2,027.88

7.5. Fuel Use in Council Fleet

7.5.1. Total fuel use across the Council's road fleet and machinery remained broadly stable between the two years, increasing slightly from 337,331 litres in FY23/24 to 338,993 litres in FY24/25 (+0.5%). Despite this, associated direct emissions fell sharply from 843.49 tCO_2e to 455.81 tCO_2e, a reduction of 387.68 tCO_2e (-46.0%).

Table 16.Council fleet fuel use and direct emissions, FY23/24 and FY24/25 (Scope 1)

Fuel	FY23/24 (litres)	FY24/25 (litres)	Change (%)	FY23/24 (CO_2e)	FY23/24 (tCO_2e)	Change (%)
Diesel	327,901.0	171,518.5	- 47.7%	823.71	430.99	- 47.7%
Petrol	9,430.1	9,207.3	- 2.4%	19.78	19.19	- 3.0%
HVO	-	158,267.4	-	0.00	5.63	-
Total Fleet Fuel	337,331.1	338,933.1	+ 0.5%	843.49	455.81	- 46.0%

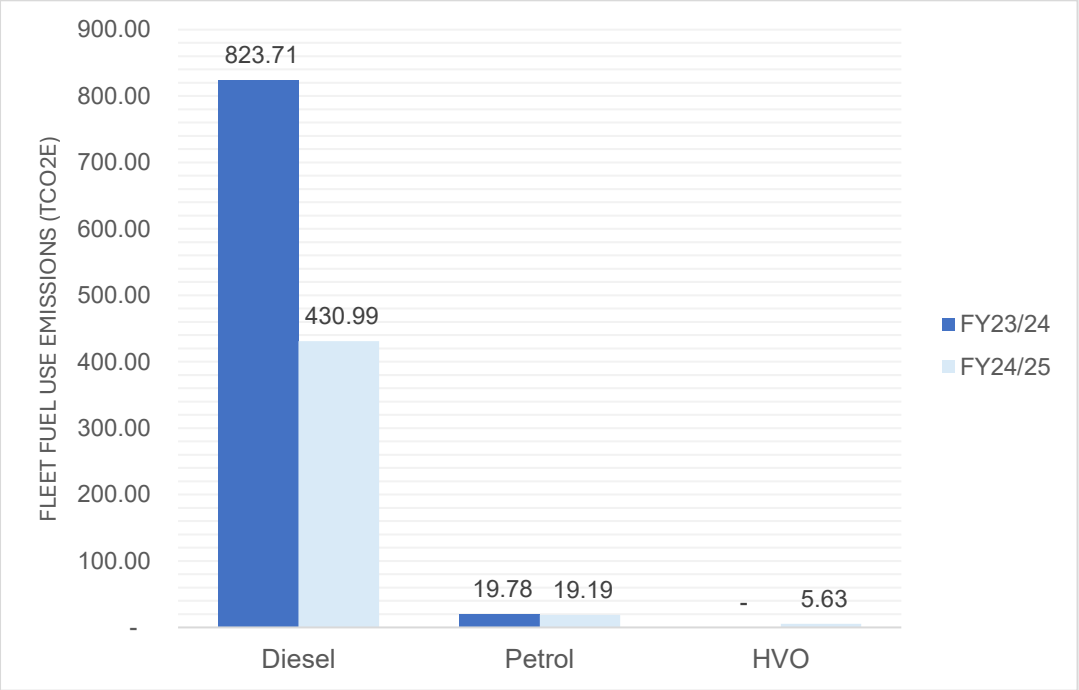


Figure 8. Fleet Fuel Use Emissions by Fuel Type, FY23/24 and FY24/25 (Scope 1)

7.5.2. The main driver of this change was the replacement of diesel with hydrotreated vegetable oil (HVO) at the start of October 2024. Diesel use fell from 327,901 litres in FY23/24 to 171,519 litres in FY24/25 (-47.7%), while HVO use increased from zero to 158,267 litres. Although HVO represented 46.7% of total fleet fuel use in FY24/25, it contributed only 5.63 tCO_2e to reported Scope 1 emissions, compared with 430.99 tCO_2e from the remaining diesel use. Petrol use was limited to machinery and remained broadly stable year-on-year at around 9,200 litres.

7.5.3. The reduction was concentrated within the road fleet, where fuel use remained almost unchanged overall, increasing slightly from 320,895 litres to 321,959 litres (+0.3%), while emissions fell from 806.11 tCO_2e to 424.76 tCO_2e (-47.3%). Machinery fuel use increased from 16,436 litres to 17,035 litres (+3.6%), while emissions decreased from 37.38 tCO_2e to 31.05 tCO_2e (-16.9%). In FY24/25, the road fleet accounted for 93.2% of total fleet Scope 1 emissions, compared with 6.8% from machinery.

7.5.4. A counterfactual comparison demonstrates the scale of the HVO effect. If the 158,267 litres of HVO used in FY24/25 had instead been diesel, the Council's Scope 1 fleet emissions would have been approximately 397.69 tCO_2e higher for that fuel volume, compared with the actual reported HVO emissions of 5.63 tCO_2e. On this basis, the switch to HVO in FY24/25 is estimated to have avoided approximately 392.06 tCO_2e of direct fleet emissions over the 6-month period.

7.5.5. The shift from diesel to HVO also affected upstream (Scope 3) emissions, although less dramatically than Scope 1. Well-to-tank emissions from diesel, petrol and HVO together fell from 205.83 tCO_2e in FY23/24 to 198.62 tCO_2e in FY24/25 (-3.5%), reflecting lower diesel use partly offset by the inclusion of HVO supply-chain emissions.

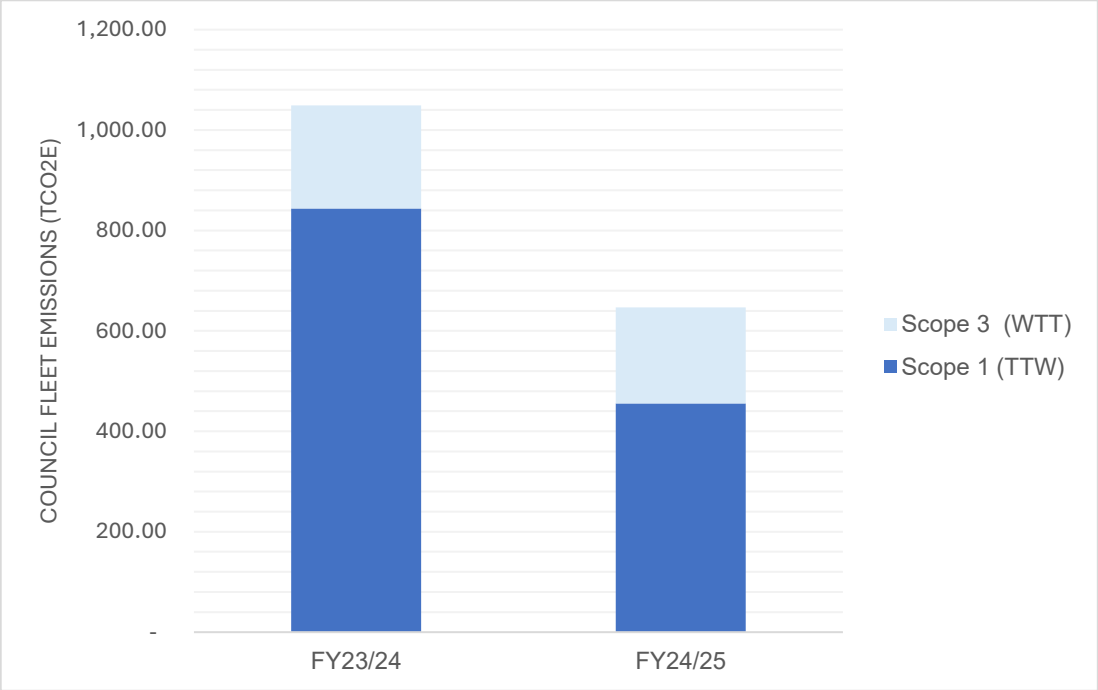


Figure 9. Total Fuel Use Emissions, FY23/24 and FY24/25, Scope 1 and 3

7.5.6. The results indicate that fleet decarbonisation has already delivered a significant reduction in the Council's direct emissions profile. However, fuel use has not yet reduced in absolute terms. This suggests that future progress will depend not only on maintaining the lower-emission fuel mix, but also on reducing overall fuel demand through measures such as fleet optimisation, route efficiency, vehicle replacement and wider service decarbonisation.

7.6. Purchased Electricity Consumption

7.6.1. Total reported purchased electricity consumption increased slightly overall in FY24/25. Across both operated and leased assets, total electricity use rose from 7.03 million kWh in FY23/24 to 7.14 million kWh in FY24/25, an increase of 1.5%. On a location-based basis, associated emissions increased from 1,456.04 tCO_2e to 1,477.74 tCO_2e (+1.5%). On a market-based basis, total electricity emissions increased from 320.75 tCO_2e to 353.68 tCO_2e (+10.3%).

Table 17.Purchased Electricity Consumption, FY23/24 and FY24/25

Category	Scope	FY23/24 (kWh)	FY24/25 (kWh)	Change (%)
Operated assets, street lighting and fleet EV use	Scope 2	4,851,751	4,823,875	- 0.6%
Leased assets and parking enforcement contractor EV use	Scope 3	2,179,742.92	2,313,229.75	+ 6.1%
Total purchased electricity		**7,031,494**	**7,137,104**	**+ 1.5%**

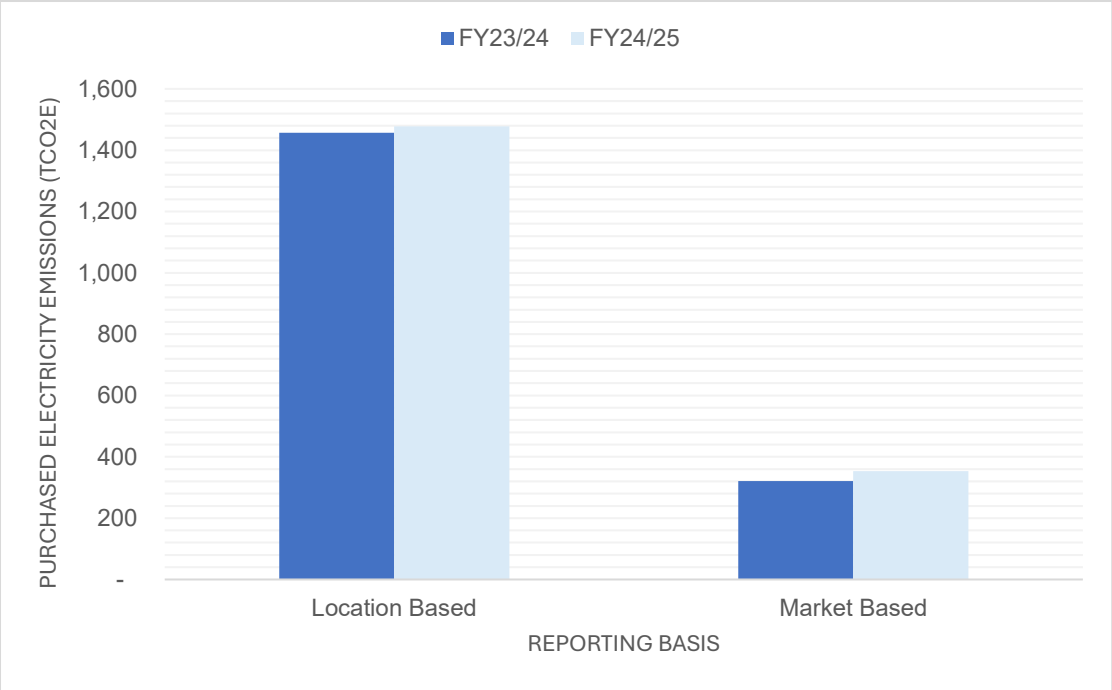


Figure 10. Purchased Electricity Emissions, FY23/24 and FY24/25 (Location-Based and Market-Based)

7.6.2. Within Scope 2, which covers electricity purchased for operated assets, street lighting and fleet EV charging, total electricity consumption remained broadly stable, decreasing slightly from 4.85 million kWh in FY23/24 to 4.82 million kWh in FY24/25 (-0.6%). Location-based Scope 2 emissions also remained mostly unchanged, falling marginally from 1,004.67 tCO_2e to 998.78 tCO_2e (-0.6%). Market-based Scope 2 emissions, however, increased from 89.68 tCO_2e to 132.53 tCO_2e (+47.8%). This increase should be interpreted in context. In both years, market-based Scope 2 emissions remained substantially lower than the corresponding location-based figures, reflecting the significant effect of the Council's EDF Zero Carbon for Business tariff. Compared with the location-based method, market-based reporting reduced Scope 2 emissions by 91% in FY23/24 and 87% in FY24/25. The year-on-year increase in market-based Scope 2 was driven mainly by a greater proportion of Scope 2 electricity being reported using the residual mix factor rather than the EDF supplier-specific factor in FY24/25.[48]

7.6.3. Electricity use within Scope 2 remained concentrated in operated buildings. In FY24/25, operated buildings accounted for 4.74 million kWh, equivalent to approximately 98% of all Scope 2 purchased electricity consumption. The

[48] Largely due to the development of Brodie Court which was not placed on the EDF Zero Carbon for Business tariff.

largest operated-asset sub-categories were residential and corporate buildings. Within the corporate estate, Daneshill House and Cavendish Road Depot and Offices were the most significant electricity users. Within operated residential assets, the highest-consuming sites included Harrow Court, Brent Court, Brodie Court, Wellfield Court and Silkin Court. These sites represent sensible priorities for further review of direct electricity demand and potential cost-saving measures. This remains relevant even where sites are supplied under the EDF tariff, as lower consumption would reduce energy costs and location-based emissions, while improving resilience against potential tariff changes.

7.6.4. Street lighting increased from 64,973 kWh to 77,692 kWh (+19.6%), while electricity used for SBC fleet EV charging increased from 1,415 kWh to 6,079 kWh. Although still small in absolute terms, the latter more than quadrupled year-on-year and reflects increased recorded charging activity.

7.6.5. Within Scope 3, electricity consumption from leased assets and contractor EV use increased from 2.18 million kWh in FY23/24 to 2.31 million kWh in FY24/25 (+6.1%). On a location-based basis, associated emissions increased from 451.37 tCO_2e to 478.95 tCO_2e (+6.1%). On a market-based basis, however, emissions fell from 231.06 tCO_2e to 221.15 tCO_2e (-4.3%). This suggests that changes in supplier-specific factors and residual mix treatment had a meaningful effect on the market-based result for leased assets, particularly for high-consuming leisure sites.

7.6.6. A review of the highest electricity-consuming sites in FY24/25 shows that demand is concentrated across a relatively small number of large corporate, leisure, transport and residential assets, with both directly operated and leased sites represented in the top ten, presented in Table 18 below.

Table 18.Top 10 Purchased Electricity Sites by Consumption, FY24/25

Rank	Site	Scope	Sub-category	FY24/25 electricity use (kWh)	FY24/25 emissions (tCO_2e)
1	Stevenage Arts and Leisure Centre	3	Leisure	1,240,334	138.05
2	Daneshill House	2	Corporate	1,079,261	0.00
3	Business and Technology Centre	3	Commercial	481,785	0.00
4	Car Park - St George's Way MSCP	2	Transport	379,330	0.00
5	Cavendish Road Depot and Offices	2	Corporate	355,979	0.00
6	Stevenage Swimming Centre	3	Leisure	293,066	32.62
7	Indoor Market	2	Commercial	282,187	0.00
8	Harrow Court	2	Residential	137,897	0.00
9	Brent Court	2	Residential	134,386	0.00
10	Car Park - Railway North MSCP	2	Transport	131,963	0.00

7.6.7. The inclusion of both Scope 2 and Scope 3 sites in this table helps show the relative scale of major electricity users across the wider estate, including sites that sit outside the Council's formal net zero target-tracking boundary.

Table 19.Top 10 Purchased Electricity Sites by Market-Based Emissions, FY24/25

Rank	Site	Scope	Sub-category	FY24/25 electricity use (kWh)	FY24/25 emissions (tCO_2e)
1	Stevenage Arts & Leisure Centre	3	Leisure	1,240,334	138.05
2	Brodie Court	2	Residential	94,311	40.09
3	Stevenage Swimming Centre	3	Leisure	293,066	32.62
4	CCTV Cameras (UMS)	2	Miscellaneous	68,465	29.10
5	Street Lighting/EV Charging (unassigned)	2	n/a	75,004	19.89
6	Highfield Court	2	Residential	38,464	13.37
7	Stevenage Golf and Conference Centre	3	Leisure	116,265	12.94
8	Grosvenor Court (Wardens House)	2	Residential	21,084	8.96
9	Ridlins Stadium	3	Leisure	38,988	4.34
10	Town Square (4)	3	Commercial	8,746	3.72

7.7. Other Reported Emission Sources

7.7.1. In addition to natural gas, fleet fuel use and purchased electricity, the Council reports a few smaller emission sources that improve the completeness of the inventory. These include staff business travel, water supply and treatment, fugitive emissions, transmission and distribution (T&D) losses, and well-to-tank (WTT) emissions associated with gas, electricity and fuel use. Collectively, these sources totalled 796.87 tCO_2e in FY23/24 and 780.03 tCO_2e in FY24/25, a reduction of 16.84 tCO_2e (-2.1%).

7.7.2. The largest part of this section relates to upstream energy and fuel emissions, particularly WTT emissions and electricity T&D losses. Total well-to-tank emissions increased slightly from 634.81 tCO_2e in FY23/24 to 646.26 tCO_2e in FY24/25 (+1.8%). Within this, WTT emissions from natural gas increased from 178.18 tCO_2e to 198.54 tCO_2e, reflecting the rise in gas consumption discussed in Section 7.4. WTT emissions from fleet fuels fell overall from 205.83 tCO_2e to 198.62 tCO_2e (-3.5%), as lower diesel-related upstream emissions were partly offset by the introduction of HVO supply-chain

emissions in FY24/25. WTT emissions associated with purchased electricity and related T&D losses remained mostly unchanged at 241.96 tCO_2e in FY23/24 and 240.57 tCO_2e in FY24/25.

7.7.3. Transmission and distribution losses from purchased electricity also remained stable, increasing slightly from 86.92 tCO_2e in FY23/24 to 88.28 tCO_2e in FY24/25 (+1.6%), due to the stability of Scope 2 electricity consumption across the two years. Staff business travel decreased modestly from 33.75 tCO_2e to 32.38 tCO_2e (-4.1%), while water-related emissions fell from 15.40 tCO_2e to 13.12 tCO_2e (-14.8%).

7.7.4. Fugitive emissions fell from 25.98 tCO_2e in FY23/24 to zero in FY24/25. No fugitive emissions were recorded for the Council's directly operated sites in either year; the fugitive emissions reported in FY23/24 originate from the leisure sites, with no leaks recorded in FY24/25, explaining the year-on-year reduction. As noted in Section 5, fugitive emissions are currently derived from maintenance and servicing records, and the absence of recorded refrigerant additions does not necessarily confirm the absence of leakage.

Table 20.Summary of other reported emission sources, FY23/24 and FY24/25

Emission Source Group	FY23/24 (tCO_2e)	FY24/25 (tCO_2e)	Change (tCO_2e)	Change (%)
Transmission and distribution losses	86.92	88.28	+ 1.36	+ 1.6%
WTT – natural gas	178.18	198.54	+ 20.35	+ 11.4%
WTT – purchased electricity and related T&D	241.96	240.57	- 1.4	- 0.6%
WTT – fuel fleet use	205.83	198.62	- 7.2	- 3.5%
WTT – grey fleet	8.84	8.53	- 0.31	- 3.5%
Staff business travel (grey fleet)	33.75	32.38	- 1.37	- 4.1%
Water	15.40	13.12	- 2.27	- 14.8%
Fugitive emissions	25.98	0.00	- 25.98	- 100%
Total	796.87	780.03	-16.84	- 2.11%

7.8. Outside of Scope Emissions

7.8.1. In addition to the core Scope 1, 2 and 3 inventory, the Council has separately recorded biogenic CO_2 emissions[49] associated with the use of diesel, petrol and hydrotreated vegetable oil (HVO) in the fleet. These emissions are reported as outside of scopes in accordance with GHG reporting conventions and do not form part of the Council's core inventory totals or progress tracking against the net zero target. They are included separately for transparency only.

7.8.2. Outside of scope biogenic CO_2 emissions increased from 47.04 tCO_2e in FY23/24 to 413.23 tCO_2e in FY24/25. This increase was driven by the introduction of HVO in FY24/25, which contributed 384.59 tCO_2e of reported biogenic CO_2. By comparison, biogenic CO_2 associated with diesel fell from

[49] Biogenic CO_2 reported outside of scopes represents the biomass-derived share of combustion emissions arising from Scope 1 fuel use. These emissions occur at the point of fuel combustion but are excluded from the core Scope 1 total and disclosed separately in line with standard greenhouse gas accounting practice. This is because these emissions are sequestered during the growth stage of the biomass and are therefore considered net zero carbon.

45.91 tCO_2e to 27.44 tCO_2e, reflecting the reduction in diesel use, while petrol-related biogenic CO_2 remained broadly stable at 1.13 tCO_2e in FY23/24 and 1.20 tCO_2e in FY24/25.

7.8.3. The increase in reported outside of scope emissions should not be read as a deterioration in the Council's core emissions performance. Rather, it reflects the change in fleet fuel mix, with a much greater proportion of fuel use coming from bio-based fuel, particularly HVO, during FY24/25. Reporting these emissions separately provides a fuller picture of fleet fuel use while maintaining consistency with standard GHG accounting practice.

8. Further Work

To strengthen the Council's emissions reporting framework and improve the completeness, consistency and efficiency of future inventories, several priority areas for further work have been identified. These relate both to preparation of the next annual inventory and to the continued development of the underlying data collection, management and reporting processes. Together, they are intended to support a more repeatable annual reporting cycle, improve data quality and expand the scope of emissions covered over time.

8.1. Financial Year 2025/26 Reporting and Priority Improvements

8.1.1. The immediate priority is to prepare and report the Council's greenhouse gas inventory for financial year 2025/26, maintaining continuity with the methodology established in this framework and enabling year-on-year comparison against the updated baseline.

8.1.2. As part of this process, priority should be given to reviewing the 207 utility meters identified through the later reconciliation exercise (see Section 4.3.4) to determine whether underlying activity data can be recovered, validated and incorporated into future inventories. This would help improve coverage of the utility dataset and reduce the number of potentially in-scope assets carried forward as exclusions. Priority should be given to exclusions most likely to affect Scope 1 and Scope 2 completeness before wider Scope 3 recovery work is undertaken.

8.1.3. Alongside preparation of the FY25/26 inventory, the Council should begin implementing a small number of immediate priority improvements. These include establishing an internal building emissions working group to support coordination of utility, asset and facilities data across relevant service areas, and progressing the agreed investigation into the division of natural gas consumption between landlord-controlled and tenant-controlled areas within the independent living schemes, beginning with priority assets such as Silkin Court and Fred Millard Court.

8.1.4. The proposed working group would also help identify suitable decarbonisation projects and support the proactive collection of consumption, asset and site data in advance of any future Public Sector Decarbonisation Scheme (PSDS), or similar funding opportunities. As such funding rounds can have short application windows, having the necessary data, approvals and cross-service input available in advance would place the Council in a stronger position to respond quickly in developing bids.

8.2. Automation and Data Management

8.2.1. Over time, the Council should seek to reduce reliance on manual extraction and processing by introducing a more structured and partially automated reporting process. This could include the use of existing tools such as Excel and Power BI to support annual data processing, quality checks and dashboard-style reporting, improving both efficiency and transparency.

8.2.2. This should also be aided by the consolidation of utility accounts into a smaller number of providers, helping to streamline data access and reduce the complexity of annual reporting.

8.2.3. In addition, this should be supported by clearer data ownership across service areas, standardised collection templates and an agreed annual reporting timetable.

8.2.4. Regarding improvements to core data management arrangements, further work includes maintaining an up-to-date register of utility meters and supply identifiers across the estate, particularly where sites undergo supplier changes, are newly brought into use, or are decommissioned. Additionally, operational teams should aim to secure at least one physical electricity, gas and water meter reading per meter annually, embedding this within existing procedures where practicable to reduce estimates.

8.2.5. For fleet management, the database should include new attributes such as vehicle weight, where applicable, to support closer alignment with Local

Partnerships tool classifications and improve consistency of reporting over time.

8.2.6. Further process improvements should also include creation of a central internal register for refrigeration and air conditioning systems, recording key information such as asset location, refrigerant type, system charge capacity, servicing history, leakage volumes, procurement and decommissioning dates, and relevant supporting records, helping to reduce uncertainty in fugitive emissions reporting.

8.2.7. The aforementioned improvements will aid in improving data quality and strengthening the audit trails that underpin future inventories.

8.3. Expanding Scope 3 Emissions Coverage

8.3.1. A key area for further work is the gradual expansion of Scope 3 coverage, prioritising categories where activity data are likely to be both significant and reasonably obtainable.

8.3.2. This should include seeking energy consumption data from third-party managed community centres and exploring contractual mechanisms requiring tenants to provide annual energy consumption data, thereby improving the completeness of downstream leased asset reporting.

8.3.3. Further work is also recommended with the procurement team to assess the feasibility of capturing supply chain emissions, and with waste contractors to obtain activity and emissions data for waste arising from Council operations.

8.3.4. In addition, the Council should assess whether existing HR or expenses systems could be adapted to capture public transport business travel more systematically, allowing reported business travel emissions to move beyond grey fleet mileage alone.

8.3.5. Given the complexity of Scope 3 reporting, these areas should be developed gradually and in line with data availability, significance and staff capacity.

8.4. Renewable Energy and Carbon Sequestration

8.4.1. As the reporting framework matures, the Council should also strengthen its approach to renewable energy and sequestration-related data. This includes collecting and integrating annual electricity export data from Council-owned solar photovoltaic systems, where available, in order to improve understanding of on-site generation and exported electricity associated with Council assets.

8.4.2. In parallel, the Council should explore the availability of carbon sequestration data associated with newly created woodland, other tree planting schemes, and the wider carbon stock of Council-managed green spaces. Although sequestration does not form part of the core organisational emissions inventory in the same way as Scope 1, 2 and 3 emissions, improved understanding of these data would support wider climate strategy development.

9. Considerations

9.1. Council Target Considerations

a) Approve the change of base year from the initial GHG base year, developed using data provided by CLS Energy Consultancy, to an updated FY2023/24 inventory that accounts for a wider scope of operational activities. The original base year was not previously approved by Cabinet, having been established as an operational decision within the Planning and Regulation department.

b) Approve the emissions accounting and reporting framework outlined in the report (methodology), aligned with financial year reporting, and based on operational control of assets, rather than financial control or the equity share approach. The operational control approach has been used historically by the Council.

c) Recognise that to follow reporting procedures outlined in Recommendation (b), third party-managed large-consumption sites such as the leisure centre, swimming centre, indoor market, and BTC will be reported on within the Council's Scope 3 (indirect) emissions.

d) Approve the proposed scope boundary for tracking progress against the Council's 2030 net zero target: market-based Scope 1 and Scope 2 emissions plus a limited subset of significant Scope 3 emissions relating to Stevenage Arts and Leisure Centre, Stevenage Swimming Centre, Stevenage Golf and Conference Centre, Ridlins Stadium and Fairlands Valley Aqua Park.

e) Continue to report both location-based and market-based emissions annually and clearly specify which reporting basis is used for formal target tracking.

9.2. Council Operations Considerations

a) Develop an internal building emissions working group comprised of varied officer levels who can support in prioritising and developing site decarbonisation projects through the provision of accurate energy consumption data, floor plans, site audits, procurement options and legal

advice, for example. This will aid in streamlining the decision-making and project management process.

b) Prioritise investigating the emissions split, resultant from natural gas usage, between landlord-controlled areas and tenant-controlled areas in housing schemes, specifically independent living schemes. Where sub-metering is not viable, floor plans with the area size of landlord-controlled areas should be created, allowing for more accurate Scope 1 emissions allocation.

c) Consolidate utilities to as few providers as possible with all consumption data accessible via an online portal. Transfer eligible sites promptly once contracts expire and debts are cleared and maintain an up-to-date list of non-consolidated sites and meter numbers.

d) Consider switching sites on non-green electricity tariffs to the EDF zero carbon corporate contract or another similar green tariff.

e) Where smart-meter upgrades are not feasible, agree to mandate a physical meter read once per annum for all Council operated sites and areas, ideally around the financial year end period to improve activity data.

f) Consider the collection of waste data from key corporate sites including Daneshill House, Cavendish Road, and the Stevenage Museum whereby the volume or weight of waste type is recorded pre-collection.

10. Glossary

Activity Data: Data on the magnitude of human activity resulting in GHG emissions, e.g., litres of fuel consumed, kilowatt-hours of electricity used.

Baseline Year: The reference year against which emissions reductions or increases are measured.

Carbon Dioxide Equivalent (CO_2e): A metric measure used to compare the emissions from various greenhouse gases based on their global warming potential (GWP), expressed as the amount of CO_2 that would have the same warming effect.

Emission Factor: A coefficient that quantifies the emissions or removals of a gas per unit activity, e.g., kilograms of CO_2 emitted per litre of fuel consumed.

Equity Share: A method for setting organisational boundaries where a company accounts for emissions from operations according to its share of equity in the operation.

GHG Emissions Reduction Target: A quantitative goal set by an organisation to reduce its GHG emissions over a specified timeframe.

Global Reporting Initiative (GRI): An international independent standards organisation that helps businesses and governments report their environmental, social, and governance (ESG) impacts.

Global Warming Potential (GWP): A factor describing the radiative forcing impact of a GHG relative to CO_2 over a specific time horizon, typically 100 years.

Greening Government Commitments (GGCs): UK Government targets for reducing the environmental impact of public sector operations, including commitments to reduce GHG emissions and increase renewable energy use.

Greenhouse Gas (GHG) Protocol: A widely used international accounting tool for government and business leaders to understand, quantify, and manage greenhouse gas emissions.

Greenhouse Gases (GHGs): Gases that trap heat in the atmosphere, contributing to the greenhouse effect. Common GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases.

International Sustainability Standards Board (ISSB): A global standard-setting body established by IFRS Foundation to develop sustainability-related financial disclosure standards.

Inventory: A comprehensive accounting of GHG emissions and removals associated with an organisation's activities during a specified time period.

Local Partnerships Greenhouse Gas Accounting Tool: An excel document developed to assist local authorities and public sector organisations in the UK with calculating and reporting their GHG emissions in alignment with recognised standards.

Location-Based Emissions: Scope 2 emissions calculated using average grid emission factors based on the physical location where electricity consumption occurs.

Market-Based Emissions: Scope 2 emissions calculated using specific contractual instruments such as renewable energy certificates (RECs) or purchase power agreements (PPAs) to reflect the emissions associated with purchased electricity.

Net Zero: Achieving a balance between emitted and removed GHGs, often through reductions and/or offsets, so that the net emissions equal zero.

Offsets / Carbon Offsets: Reductions or removals of GHG emissions from outside the organisation's boundary used to compensate for emissions occurring within the boundary.

Operational Control: A method for setting organisational boundaries where the company accounts for 100% of emissions from operations over which it has full authority to introduce and implement operating policies.

Organisational Boundary: The boundary that defines which operations and activities are included in the GHG inventory, based on control or equity share approaches.

Residual Mix Factor: A factor used to represent the average emissions intensity of electricity consumed after accounting for supplier-specific or contractual instruments, used in market-based Scope 2 accounting.

Scope 1 Emissions (Direct Emissions): Emissions from sources that are owned or controlled by the organisation, such as fuel combustion in company vehicles or on-site manufacturing processes.

Scope 2 Emissions (Indirect Emissions from Purchased Energy): Emissions from the generation of purchased electricity, steam, heating, or cooling consumed by the organisation.

Scope 3 Emissions (Other Indirect Emissions): Emissions that are a consequence of the activities of the organisation but occur from sources not owned or controlled by the organisation, such as business travel, waste disposal, and supply chain emissions.

Streamlined Energy and Carbon Reporting (SECR): A UK government regulation requiring large companies to report their energy use, carbon emissions and energy efficiency actions annually.

Task Force on Climate-related Financial Disclosures (TCFD): An industry-led initiative providing recommendations for companies to disclose climate related financial risks and opportunities.

Verification / Assurance: The process of independent review and validation of GHG emissions data and reports to ensure accuracy and reliability.

11. Appendices

1. Appendix A – Historic Stevenage Borough Council GHG Emissions Report (2012/2013)
2. Appendix B – Shared Internal Audit Service (SIAS) 2024/25
3. Appendix C – Asset List (Operational and Non-Operational Control)
4. Appendix D – Residual Mix Factor Calculation
5. Appendix F – Emission Group and Asset Specific GHG Calculations
6. Appendix G – Voluntary Carbon Market (VCM) Pricing: Ecosystem Marketplace