

SCOPE 1, 2, and 3 CARBON EMISSIONS

Report produced in September 2025

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1 Introduction

This report provides an update on the carbon footprint for Three Rivers District Council which can be used to monitor the council's carbon emission reductions for its own operations. The carbon footprint has been undertaken in accordance with best practise guidance by the [Greenhouse Gas Protocol](#) and calculated using conversion factors for the [carbon dioxide equivalent \(CO₂e\)](#) published by the Department for Energy Security and Net Zero (DESNZ)¹. The reporting compares the fiscal years of 2018/19 (the baseline) with 2024/25.

The carbon footprint is categorised into scopes, which cover:

- Scope 1 (direct) emissions are from activities owned or controlled by the council. Examples of Scope 1 emissions include emissions from combustion in council owned or controlled boilers, furnaces, and vehicles.
- Scope 2 (indirect) emissions are associated with purchased electricity, heat, steam, and cooling. These indirect emissions are a consequence of the council's energy use but occur at sources that the council do not own or control. Examples of Scope 2 emissions include grid supplied electricity and heat provided through a [heat network](#).
- Scope 3 (other indirect) emissions are a consequence of the council's actions that occur at sources the council do not own or control and are not classed as Scope 2 emissions. Examples of Scope 3 emissions include sites owned by the council but not operated by the council (e.g. leisure centres), business travel by means not owned or controlled by the council (grey fleet), disposing of the council's own waste, and purchased goods in the supply chain etc.

¹ Department for Energy Security and Net Zero - Government conversion factors for company reporting of greenhouse gas emissions: [Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK](#)

2 Carbon Footprint

2.1 Carbon Reporting Boundaries

The organisational boundaries determine which emissions are the responsibility of the council or others. This can be based on who owns, operates, or exerts control over certain assets. The buildings categorised under Scope 1 & 2 within this report are those where energy is purchased or acquired and consumed by the council. The vehicles categorised under Scope 1 are those that the council owns, leases, and operates solely for its own operations.

Scope 3 emissions reported by the council are classified under 15 different categories, as defined by the [Greenhouse Gas Protocol](#)². As Scope 3 emissions are under the council's influence, but not its direct control, obtaining the necessary data to calculate carbon emissions from some Scope 3 sources can be difficult. One of the larger contributors to carbon emissions is purchased goods and services. Emissions from assets a company owns and leases to another entity but does not operate can either be included in Scope 3 or excluded from the inventory.

[Table 2](#) shows all the sources that make up the reporting boundary for the council in this report. The emissions from these sources represent a good data set, as it is not uncommon for councils to have data available only for electricity and gas. There are missing sources, with the largest likely to be from purchased goods and services, which are generally difficult to gather data for and calculate emissions from. This category includes all upstream (i.e. cradle-to-gate) emissions from the production of products purchased or acquired by the council in the reporting year. Products include both goods and services. Cradle-to-gate emissions include all emissions that occur in the life cycle of purchased products up to the point of receipt by the council. Relevant purchases may include capital goods such as office supplies, furniture, computers, telephones, travel services, IT support, outsourced administrative functions, consulting services, janitorial and landscaping services, maintenance, repairs, and operations.

² [Scope 3 Calculation Guidance | GHG Protocol](#)

2.2 Carbon Emissions

2.2.1 Emissions for 2024/25

The data below shows a summary of the most recent year's emissions available of 2024/25.

Table 1: Council Carbon emissions by source for 2024/25

Emission Source	Scope	% Split	Tonnes of Carbon Dioxide Equivalent (tCO ₂ e)
Gas	1	4%	91
Vehicles and Machinery – Council Owned	1	42%	854
Electricity	2	10%	212
Gas – Well to Tank (WTT)	3	<1%	13
Vehicle and Machinery – Council Owned Well to Tank (WTT)	3	10%	208
Electricity – Transmission and Distribution (T&D)	3	1%	19
Electricity WTT	3	2%	47
Water Supply	3	<0.5%	3
Water Treatment	3	<0.5%	4
Vehicle – Employee	3	<0.5%	7
Leased Assets (leisure centres/golf courses)	3	29%	587
Totals			2044

2.2.2 Comparison of Emissions for 2018/19 to 2024/25

Table 2: Council Carbon emissions by source from 2018/19 – 2024/25

Tonnes of Carbon Dioxide Equivalent (tCO ₂ e)							
	Apr 2018 - Mar 2019	Apr 2019 - Mar 2020	Apr 2020 - Mar 2021	Apr 2021 - Mar 2022	Apr 2022 - Mar 2023	Apr 2023 - Mar 2024	Apr 2024 - Mar 2025
Scope 1 – Direct Emissions	994	989	972	970	823	938	944
Natural Gas	136	131	109	92	191	91	91
Council Owned Vehicles	858	858	863	878	632	848	854
Scope 2 – Electricity Emissions	340	273	184	207	214	203	212
Total Scope 1 & 2 Emissions	1,333	1,263	1,156	1,176	1,037	1,141	1,156
Scope 3 – Indirect Emissions	894	1,268	997	936	1,063	1,018	888
Gas – Well to tank emissions	19	17	14	16	32	15	13
Council Owned Vehicles – Well to tank emissions	202	204	207	213	143	206	208
Electricity – Distribution and transmission emissions	29	23	16	18	20	18	19
Electricity – Well to tank emissions	55	41	28	59	56	45	47
Water Supply	N/A	2	3	4	0.1	3	3
Water Treatment	N/A	5	6	8	0.1	0	4
Employee Vehicle Emissions	21	7	6	9	8	7	7
Leased Assets (Leisure centres / Golf club)	569	827	718	609	804	724	587
Total Gross Emissions	2,227	2,390	2,153	2,113	2,100	2,159	2,044
Carbon Offset	0	0	0	0	0	0	0
Solar PV Exported	0	0	0	0	0	0	0
Total Net Emissions	2,227	2,390	2,153	2,113	2,100	2,159	2,044
Further Information							
Solar PV Generated (kWh)	15,098	16,981	23,362	15,995	14,206	24,159	44,275.92
Degree Days at 15.5°C ³	1,757	1,856	1,875	1,847	2,019	1,996	1,806
(An indicator of heat demand)							
Total Electricity kWh	1,199,498	1,069,206	790,348	973,354	1,107,957	979,144	1,024,135
Total gas kWh	737,763	714,341	593,671	501,245	1,039,963	491,311	490,662

³ Degree days data sourced from RAF Northolt – 6.2Km from TRDC House: [Northolt Climate, Weather By Month, Average Temperature \(United Kingdom\) - Weather Spark](#)

Chart 1: Difference in Scope 1, 2 and 3 Emissions by year

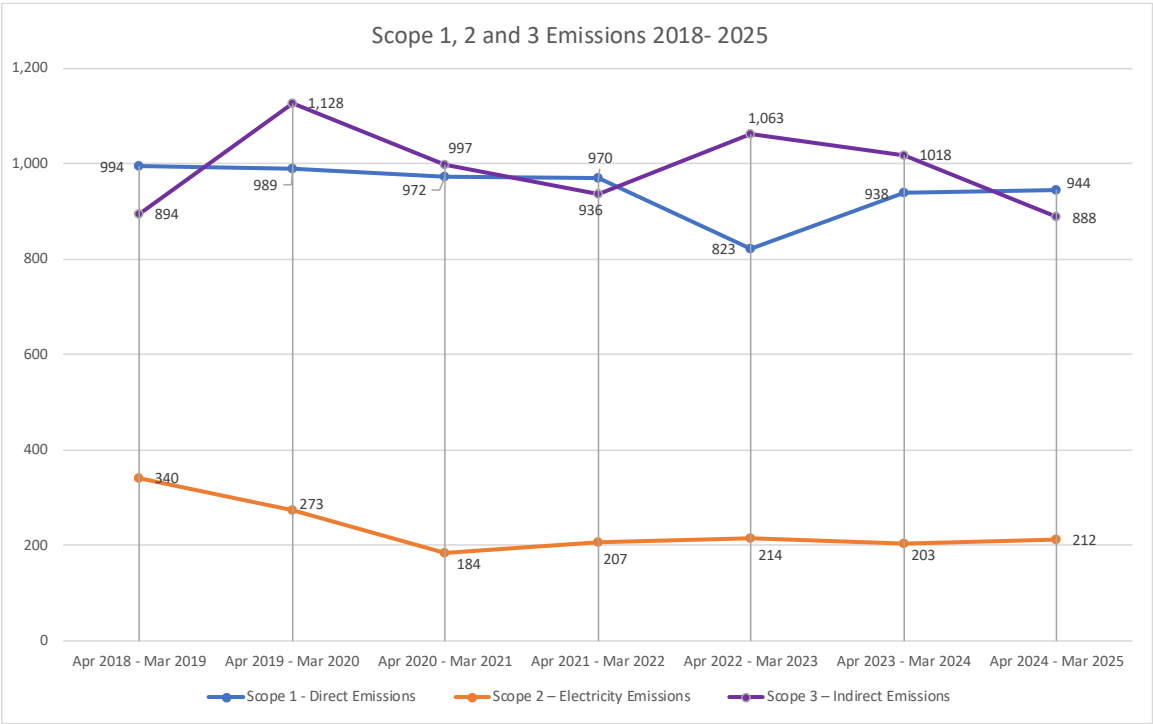
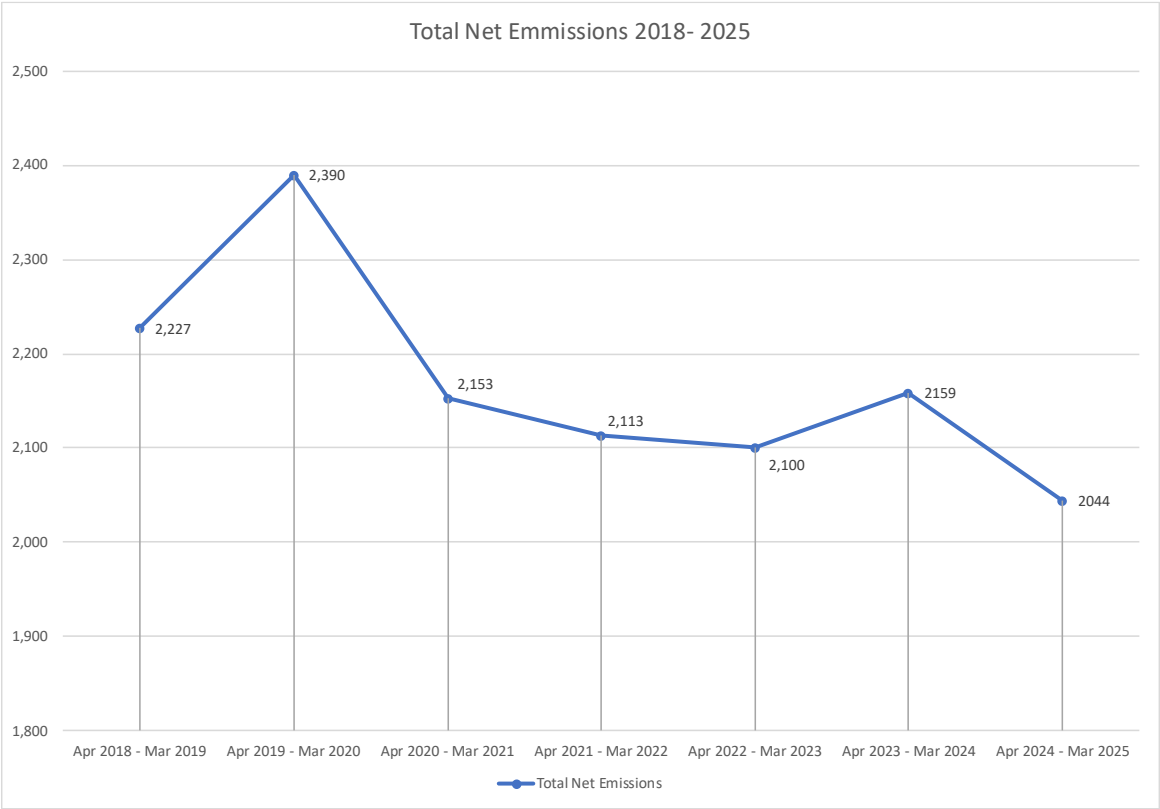


Chart 2: Difference in Total Net Emissions by year



3 Notes and Observations

3.1 Overview

This year's carbon emission report for Three Rivers District Council shows a decrease of 6% in overall emissions comparative to last year; and the lowest overall emissions since emissions were first reported for the 2018/19 fiscal year.

Last year's report provided an increased level of accuracy in the data supplied and collected, with this level of accuracy having been maintained throughout this year's data collection. As such, unlike previous years, there are minimal instances of underreporting or overreporting within the data collected.

The council has continued to make significant investments into carbon reduction projects. Of note, is the installation of [solar panels](#) at William Penn Leisure Centre in October 2024 which generated 7% of the total electricity used at William Penn Leisure Centre over the 2024/25 fiscal year.

This year has shown a significant decrease in overall carbon emissions for Three Rivers District Council. With the enhanced levels of accuracy provided in this year's and last year's reports, there can be a high level of confidence in this reduction.

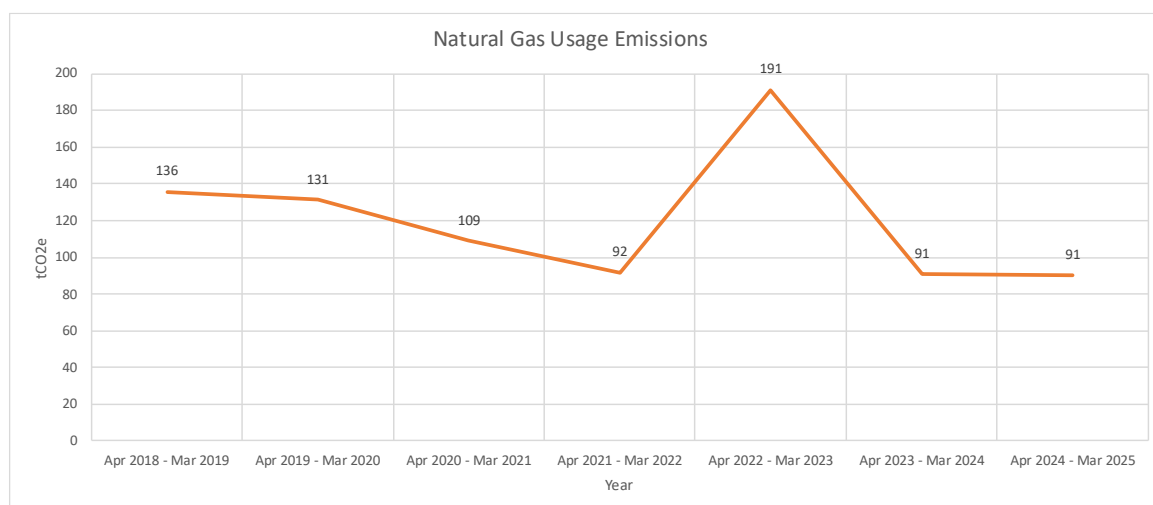
3.2 Scope 1 & 2

3.2.1 Natural Gas

The council has maintained natural gas emission levels from last year, sustaining the significant decrease in natural gas emissions achieved since March 2023. As with last year, this gas reduction can be attributed to the installation of an [Air Source Heat Pump](#) at Three Rivers House, which replaced use of gas boilers. However, for 3 weeks in November 2024, the [Air Source Heat Pump](#) at Three Rivers House was out of service, and during this time temporary gas boilers were used. This resulted in a small, increase in gas emissions from Three Rivers House.

Leavesden Country Park, having shown a sizable increase in last year's report due to underreporting in 2022/23 estimates, has returned to a consumption rate in line with that of previous years. With the increase in the accuracy of monthly meter readings and billing across water, gas and electric utilities since April 2023, the council can better identify abnormal readings. This will allow the council to better target sites for [decarbonisation](#) and shift away from natural gas heating.

Chart 3: Council natural gas usage emissions, 2018-19 to 2024-25.



3.2.2 Council Owned Vehicles

Following from large discrepancies in last year's report due to a lack of data in 2022/23, emissions produced from council-owned vehicles have remained consistent since last year. Overall, there has been an insignificant increase of less than 1% in emissions produced by council-owned vehicles. Council-owned vehicles remain the largest single source of emissions, accounting for 42% of all council emissions.

3.2.3 Electricity Emissions

The council's electricity usage has increased by 5% since last year, with Three Rivers House showing a considerable increase of 10% in electricity usage since last year. It is important to note within this figure, that during November 2024 the electricity usage decreased significantly comparative to November 2023, due to the [Air Source Heat Pump](#) at Three Rivers House being out of service, with temporary gas boilers installed. This overall increase in electricity usage could potentially be explained by the police station within Three Rivers House expanding in June 2024, leading to increased usage of electricity throughout the year. [Table 3](#) highlights this increase; excluding November, from June to March Three Rivers House produced an additional 12.8tCO₂e from electrical usage in 2024/25 compared with 2023/24.

A further significant increase in electricity usage from 2023/24 to 2024/25, was that of Barn Lea Hall. The hall, which is leased out by the council, saw a significant increase in electricity usage from 148kWh to 9393 kWh. This discrepancy appears to be due to an estimation error in previous year meter readings. However, even with this sizeable increase in reported electricity usage, Barn Lea Hall accounts for less than 1% of electrical usage by Three Rivers District Council in 2024-25.

The council has significantly improved the accuracy of monthly meter readings and billing across water, gas, and electric utilities. This will enable the council to be more responsive to abnormal readings and obtain data on the impact of [decarbonisation](#) projects more easily.

Table 3: Three Rivers House electricity usage (kWh) from 2023/24 to 2024/25.

Month	2023/24 Electricity Usage (kWh)	2024/25 Electricity Usage (kWh)	Difference (kWh)	Difference (tCO ₂ e)	Increase (%)
Apr	42274.5	44925.9	2651.4	0.5	6%
May	38233.6	34906.2	-3327.4	-0.7	-9%
June	27938	34063.1	6125.1	1.3	22%
July	29456.8	36293.2	6836.4	1.4	23%
August	29587.8	34060.4	4472.6	0.9	15%
September	31340.6	36175.4	4834.8	1.0	15%
October	37567.3	43452.7	5885.4	1.2	16%
November	51710.6	42707.1	-9003.5	-1.9	-17%
December	52579.5	59242.2	6662.7	1.4	13%
January	67357.9	76263.8	8905.9	1.8	13%
February	49530.9	64392	14861.1	3.1	30%
March	53179.7	57254.5	4074.8	0.8	8%

November shows a significant decrease from 2023/24 to 2024/25 due to the [Air Source Heat Pump](#) having been broken during this period at Three Rivers House.

3.3 Scope 3

3.3.1 Water

Chorleywood Road Cemetery Lodge has been removed from the council's emissions as the property has been sold, and Sir James Altham pool has been disconnected.

Emissions for three properties (Maple Cross Pavilion, Woodcock Hill Cemetery Lodge and Scout Hut, and Chorleywood House Estate) are no longer included as they have been leased, and the council does not have responsibility for the water bills.

Overall, emissions produced by water supply for Three Rivers District Council, remain constant, contributing to less than 1% of total emissions.

The council has significantly improved the accuracy of monthly water meter readings and billing, further helped by switching suppliers and updating meters at sites. This will enable the council to be more responsive to abnormal readings, address leaks where they occur, and improve the accuracy of reporting.

3.3.2 Employee Vehicle Emissions

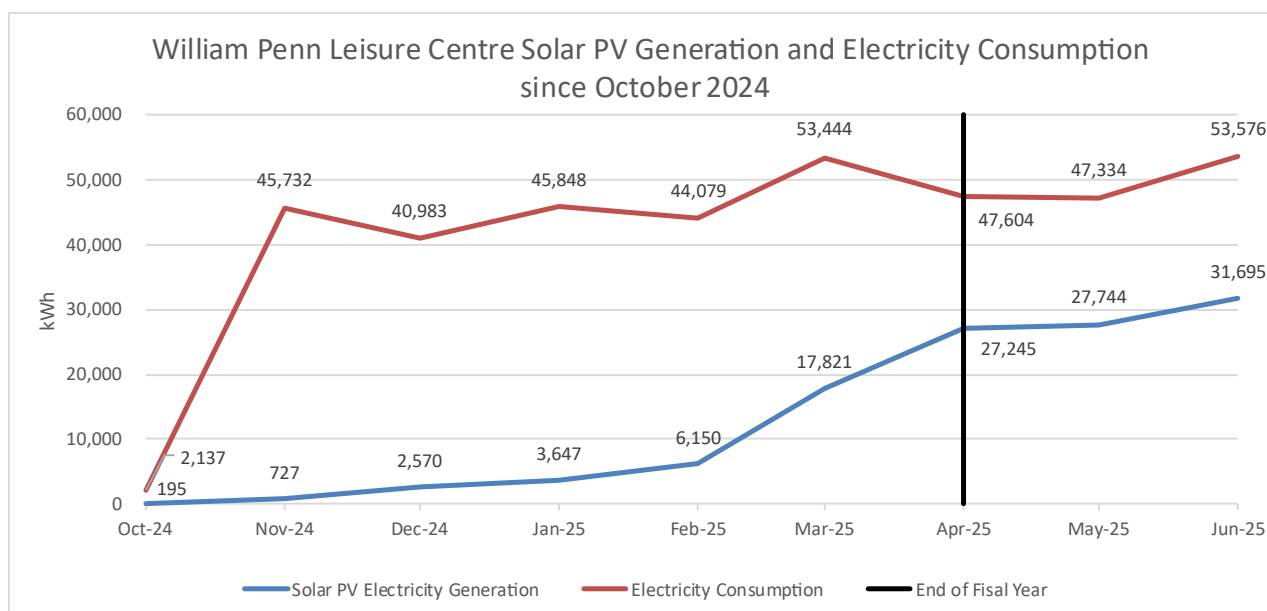
This accounts for miles claimed by staff for business mileage (not their personal commutes to work). There has been an increase in miles claimed by approximately 2,000 miles since last year. However, we have seen an increase in mileage claims made

on low-carbon vehicles with 9% of claims made by electric or hybrid electric vehicles compared with 6% last year.

3.3.3 Leased Assets

The council, in partnership with Sports and Leisure Management Ltd (SLM) using a grant from Sport England installed 500 [solar panels](#) onto the roof of William Penn Leisure Centre providing a capacity of 220kWp. Between the commissioning in November 2024 and 31st March 2025, the solar array provided 13% of the total electrical used at William Penn Leisure Centre during the winter months, saving 15tCO₂e. However, in the first 3 months of the new financial year (April – June 2025) the panels saved 41tCO₂e; the [solar panels](#) are forecast to save approximately 80tCO₂e per annum.

Chart 4: Solar PV electrical generation and consumption for Willilam Penn Leisure Centre per month since installation



3.4 Carbon Offsets

The council does not currently utilise any [carbon offsets](#). All [Solar PV](#) energy generated on council-owned buildings is currently used on site to reduce the use of grid electricity.

4 Future Projects

4.1 Overview

The council is continuing to develop processes for gathering and storing data to ensure its carbon reporting process is streamlined and progress towards targets can be tracked.

The council has ringfenced £1.5m capital funding for 3 years from 25/26 to support the delivery of feasible [decarbonisation](#) projects, with the current project pipeline forecast to reduce emissions by a further 200tCO₂e by 2029.

4.2 Scope 1 and 2 Emissions

Scope 1 and 2 emissions refer to direct emissions from council-owned or controlled sources (Scope 1) and indirect emissions from the consumption of purchased electricity, heat, or steam (Scope 2). These emissions are key areas of focus for the council as we continue to strive towards our 2030 operational [net-zero](#) target. Improving the energy efficiency of council-owned buildings is central to the council's carbon reduction strategy.

The council has agreed to install an additional 47.7kWp rooftop [solar PV](#) system on Three Rivers House. Combined with the existing 17kWp system, this 64.7kWp system will further reduce Three Rivers House's reliance on the grid-supplied electricity and save an estimated 6tCO₂e per annum.

The Council is investigating options to install cavity wall insulation at Watersmeet Theatre and Three Rivers House. These installations will help to reduce heat loss and, consequently, the amount of energy needed for heating, which will contribute to reducing our overall carbon footprint saving an estimated 13tCO₂e per annum.

Utilising a grant from the [Greater South-East Net Zero Hub](#), the council are investigating the installation of [solar canopies](#) on the Rose Garden car park adjacent to Three Rivers House.

4.3 Scope 3 Emissions

Scope 3 emissions are divided into 15 different categories², including waste, staff travel, and the purchased goods supply chain. Scope 3 emissions can account for a higher proportion of total emissions than Scope 1 and 2 combined, representing the most significant opportunity to reduce carbon emissions and [mitigate climate change](#). Understanding these risks through accurate and consistent measurement, evaluation, and reporting can improve both resilience and reputation.

- The council have agreed to install 145 kWp [solar array](#) consisting of 320 x 445W panels onto the roof of South Oxhey Leisure Centre – a leased asset. This is

estimated to generate 133MW per year, reducing emissions by 25.73tCO₂e per year.

5 District Emissions

District emissions are the [greenhouse gas emissions](#) generated by activities within the district, including those from businesses, homes, transport, and waste management. These emissions represent a critical aspect of the council's wider sustainability objectives, as reducing them involves engaging with the community, improving infrastructure, and adopting innovative technologies that can drive significant reductions in carbon output. Overall, emissions have declined by 18% from 2018 (baseline year) to 2023 (most recent data available)⁴.

The government data also reports on emissions the council has more influence over – the emissions within the council's influence typically excludes transport emissions such as motorways and trains which pass through our district. Emissions within the council's influence have declined by 22.4% since 2018. Domestic emissions - an area where the majority of the council's climate action projects have been focussed - have fallen slightly faster at 23.1%.

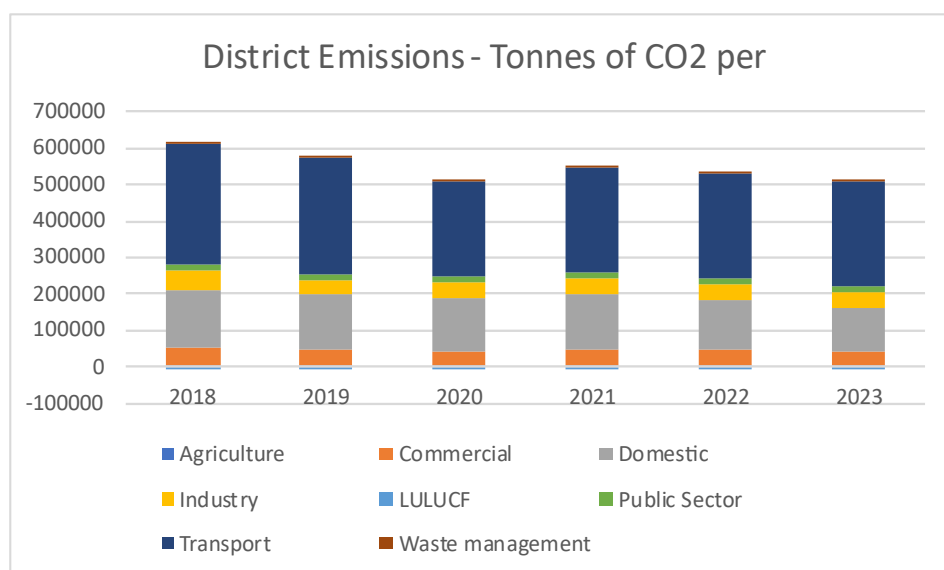
Table 4: Three Rivers District emissions from 2018 to 2023⁴

Three Rivers District Emissions						
Year	ktCO ₂ e Total	% reduction since 2018	ktCO ₂ e Within LA scope of influence	% reduction since 2018	ktCO ₂ e Domestic emissions	% reduction since 2018
2018	609		401		155	
2019	583	-4%	382	-5%	148	-4%
2020	520	-15%	347	-14%	146	-5%
2021	556	-9%	367	-9%	149	-3%
2022	524	-14%	333	-17%	130	-16%
2023	501	-18%	312	-22%	119	-23%

Three Rivers District Emissions by sector show that domestic and transport emissions are the largest contributor to the district's emissions. Transport emissions fell during Covid-19 but have not rebounded to pre-covid levels.

⁴ [UK local authority and regional greenhouse gas emissions statistics - GOV.UK](#)

Chart 5: Three Rivers District emissions by sector 2018 to 2023⁴



5.1 Projects

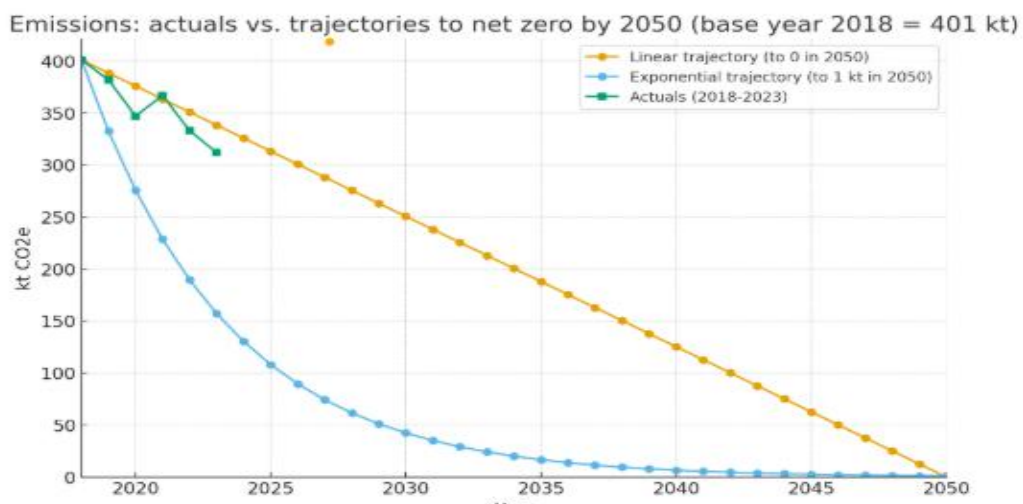
- Grand Union Community Energy (GUCE), supported by the Council, secured Community Energy Funding to investigate the feasibility of installing [solar canopies](#) on 7 council car parks using community funding and established that business cases should be developed for three car parks – South Oxhey and William Penn Leisure Centres, and Rose Garden car park. Whilst South Oxhey and the Rose Garden will reduce council emissions, William Penn, if feasible, will reduce district emissions.
- We are developing projects to improve the Electric Vehicle charging infrastructure and walking and cycling infrastructure across the district, enabling residents to make more [sustainable transport](#) choices. This includes an ongoing project to install electric vehicle charge points at 9 council owned car parks. As of September 2025, 2 of these installations have been completed and 6 are in the process of being installed⁵.
- We are delivering the Warm Homes Local Grant to improve the energy efficiency of local, lower-income households living in energy inefficient privately owned and privately rented homes. For homes that are not eligible for grant-funded [retrofit](#), we are encouraging renewable installations and home energy efficiency improvements through education and engagement by working with our partners Grand Union Community Energy, the National Energy Foundation and through the delivery of the Hertfordshire [Retrofit](#) Strategy.

⁵ [Electric vehicles and charging points | Three Rivers District](#)

5.2 District Trajectory to 2025

For Emissions within the local authority control, the chart below shows the trajectory to the government's legislated [net zero](#) by 2050 target. Following the linear trajectory, the council are progressing slightly ahead of the target.

Chart 6: Three Rivers District emissions trajectory to 2050⁶



⁶ <https://assets.publishing.service.gov.uk/media/68653c7ee6c3cc924228943f/2005-23-uk-local-authority-ghg-emissions-CSV-dataset.csv>

6 Conclusion and Recommendations

Council emission reductions from buildings are making good progress. [Decarbonising](#) the fleet is a challenge and will need to wait for Local Government Reform to complete to establish a cost effective and practical solution that works with the new unitary organisation.

District emissions are falling in line with the linear projection to achieve the government's legislated [net zero](#) target. The council's focus will continue [decarbonising](#) homes and businesses to ensure the District benefits from the National Grid [decarbonisation](#).

Appendix A – Glossary

Air Source Heat Pump (ASHP)

A low-carbon heating technology that extracts heat from outside air to heat buildings and water, even in cold temperatures.

Carbon Dioxide Equivalent (CO₂e)

A unit used to measure the global warming potential of different **Heat Network** [gases](#), expressed as the amount of CO₂ that would have the same impact. Usually represented as tCO₂e (tonnes of Carbon Dioxide equivalent).

Decarbonisation

The process of reducing or eliminating carbon dioxide and other [greenhouse gas](#) emissions from activities such as transport, heating, and power generation.

Emissions Scope (1, 2, 3)

- Scope 1: Direct emissions from sources controlled by the council (e.g. gas boilers, fleet vehicles).
- Scope 2: Indirect emissions from purchased energy.
- Scope 3: Indirect emissions from activities not owned or controlled by the council, like procurement or business travel.

Greater South-East Net Zero Hub

A regional government-funded body that works with local authorities and other public sector organisations to support the development of local [net-zero](#) projects.

Greenhouse Gases (GHGs)

Gases that trap heat in the atmosphere and contribute to climate change, including CO₂, methane (CH₄), and nitrous oxide (N₂O).

Greenhouse Gas Protocol (GHGP)

The most commonly used global standard for measuring and managing greenhouse gas emissions.

Heat Network

A system for distributing heat generated in a centralised location to residential and commercial buildings through a network of insulated pipes.

Mitigation (Climate Mitigation)

Actions that reduce the amount or speed of future climate change, usually by cutting emissions or enhancing carbon sinks.

Net Zero Carbon

Achieving a balance between the [greenhouse gases](#) put into the atmosphere and those removed or offset.

Offsetting (Carbon Offsetting)

Compensating for carbon dioxide emissions resulting from council operational activity by investing in projects that reduce or remove emissions elsewhere, such as tree planting or renewable energy production. .

Retrofit (Home Energy Retrofit)

Improving the energy efficiency of existing buildings through insulation, heating system upgrades, glazing improvements, etc.

Solar Canopies

Structures installed over car parks or other open spaces with [solar photovoltaic \(PV\) panels](#) to generate renewable electricity.

Solar Photovoltaic (PV)

A renewable energy technology that converts sunlight directly into electricity using solar panels.

Three Rivers District Council Carbon Dashboard

Sustainable Travel

Transport options that are environmentally friendly, such as walking, cycling, public transport, and electric vehicles.