

2023 District-wide Emissions

Summary

In July 2025, the Department for Energy Security and Net Zero (DESNZ) released the latest greenhouse gas (GHG) emissions data by local authority area, covering the period from 2005 to 2023.

In 2023, Rother's district-wide GHG emissions were 378.3 kilotonnes of Carbon dioxide equivalent (ktCO₂e). Transport remains the largest emitting sector, as it has since 2016, responsible for 43% of the district's emissions, followed by the domestic sector (33.2%), with agriculture and industry joint third (both 17.3%). The district continued to benefit from higher than average negative emissions from Land Use and Land Use Change (LULUCF) compared to the rest of the South East region.

Between 2022 and 2023, Rother's emissions dropped by 8%, with reductions in every sector and sequestration from Land Use and Land Use Change (LULUCF) remaining stable. This decrease was greater than the average decreases seen both across East Sussex (-5.5%) and the UK (-4.4%).

From the Council's baseline year of 2019, Rother's emissions have dropped by 17.7%, with decreases across all sectors. This decrease is less than that seen across East Sussex over the same period (-21.9%), though is slightly higher than the UK average (-16.7%).

Between 2018 and 2022, Rother stayed within its carbon budget of 2 megatonnes of carbon dioxide (MtCO₂), however, the district has already 'spent' one third of the next 5-year budget (2023-2027) within the first year.

Introduction

This report presents the district-wide GHG emissions for Rother, taken from the latest [UK local authority statistics](#), issued by DESNZ in July 2025. The data provides a record of UK annual carbon dioxide, methane and nitrous oxide emission estimates broken down to local authority areas. (For the full methodology and dataset, see the [Technical Report](#).)

Figures are published about 18 months in arrears due to the complexity of collating and verifying the figures, with the latest data covering the period 2005 to 2023.

In 2019, Rother District Council declared a Climate Emergency and pledged to do all that was within its powers to become carbon neutral in Council operations and as a district by 2030. The Council's current [Climate Strategy](#) further sets out the ambition to achieve net zero emissions for Rother by 2030, with progress measured against an emissions baseline of 2019.

The DESNZ GHG emission statistics are split into eight sectors; Domestic, Transport, Industry, Commercial, Public Sector, Land-Use Change and Forestry (LULUCF), Agriculture, and Waste Management. The 2023 levels of each sector and its sub-categories are explored within this report, compared to levels of the previous year, the 2019 baseline and longer-term trends. The carbon dioxide data from the DESNZ GHG emission statistics is also reviewed against the district's carbon budget.

Rother's GHG Emissions in 2023

Rother's district-wide GHG emissions in 2023 totalled 378.3 ktCO₂e. Transport remains the largest emitting sector, as it has since 2016, responsible for 43% of Rother's emissions (162.8 ktCO₂e). The second largest sector was domestic, responsible for 33.2% emissions (125.6 ktCO₂e), with the agriculture and the industry sectors jointly third, each making up 17.3% of emissions (65.5 & 65.4 ktCO₂e respectively). The remaining 10% of emissions arose from the commercial sector, public sector and waste management. (Figure 1.)

Negative emissions of -80.5 ktCO₂e (-21.3%) were reported in the LULUCF sector, due to rural areas in the district which act as 'carbon sinks' and sequester carbon.

Across East Sussex, the other rural districts (Lewes and Wealden) follow the same sectoral profile, with transport emissions being highest, followed by domestic, then agriculture, and negative emissions via

LULUCF. The urban boroughs (Hastings and Eastbourne), however, are dominated by domestic emissions. (Figure 2.)

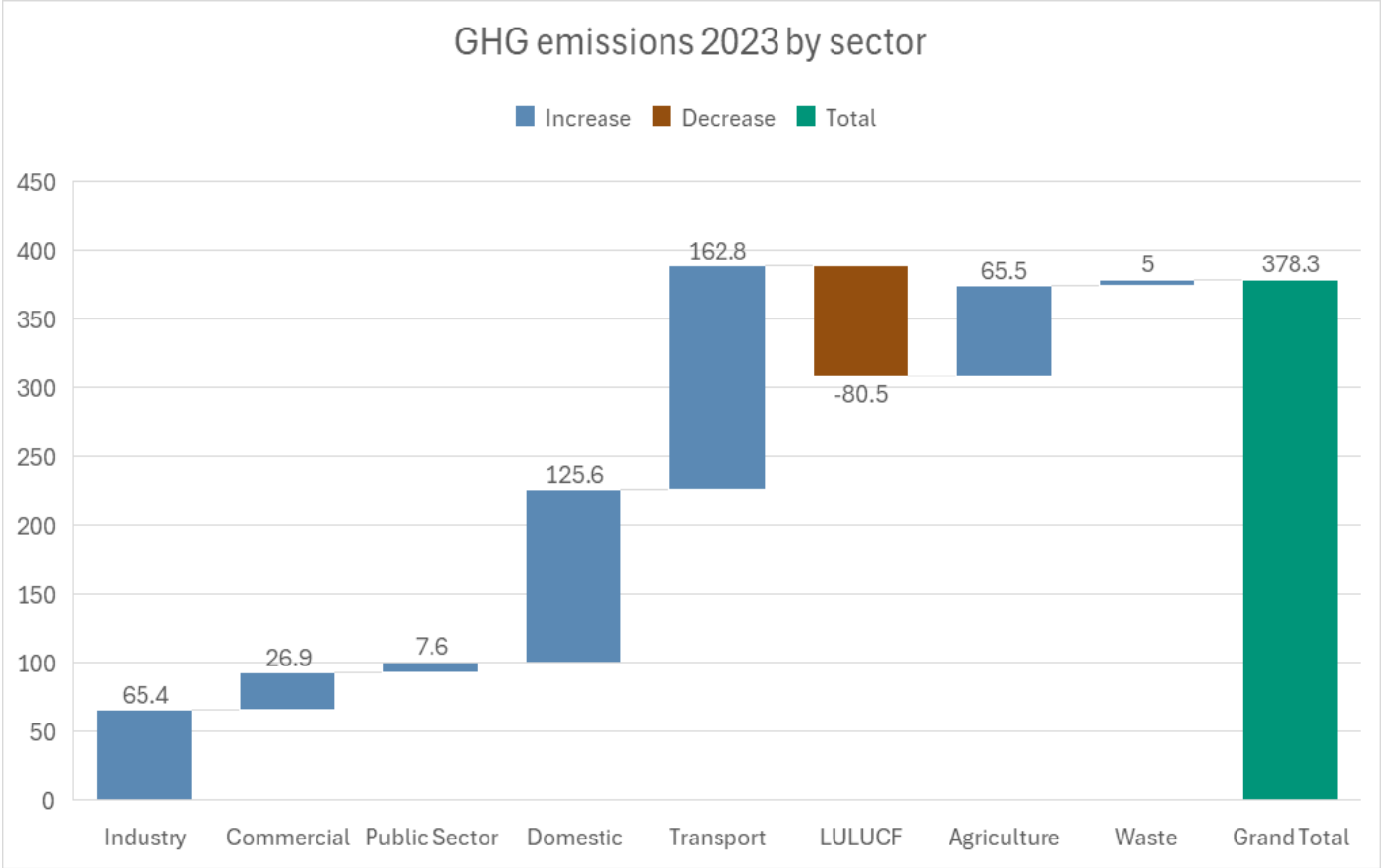


Figure 1: Rother district-wide GHG emissions (ktCO2e) by sector in 2023

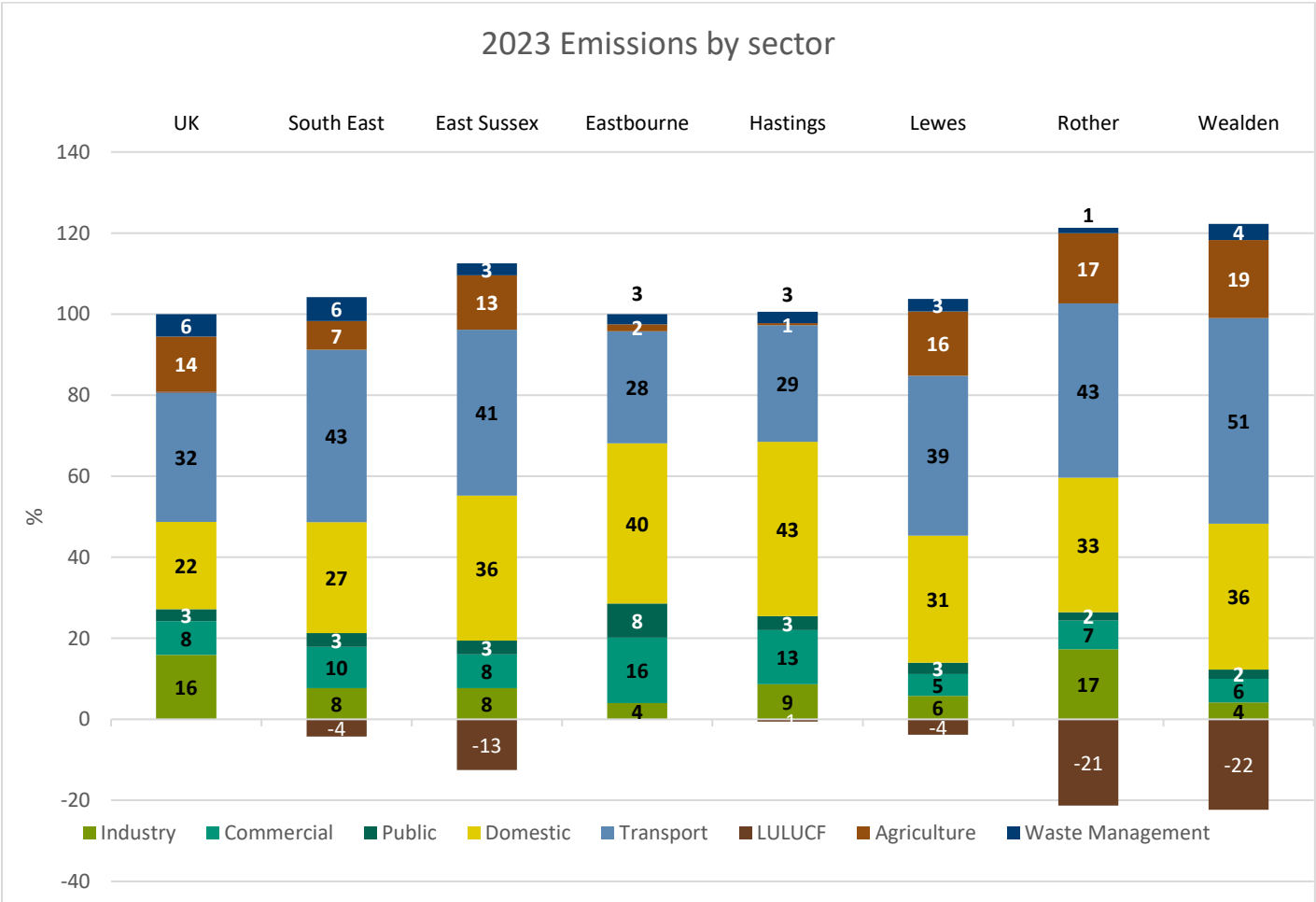


Figure 2: East Sussex district and borough GHG emissions (%) by sector

East Sussex continues to have one of the lowest per capita GHG emissions of counties in England, at 3.3 tCO₂e compared to the UK average of 5.2 tCO₂e. This is mainly due to the lack of motorways, the relative lack of heavy industry and relatively higher carbon removals from LULUCF. Rother has the highest per capita GHG emissions of the East Sussex district and boroughs, at 4.4 tCO₂e, followed by Lewes (3.8), Wealden (3.7) and Eastbourne (2.5), with the lowest per capita emissions in Hastings (2.4).

Higher emissions per capita are observed in rural areas because there are fewer transport options, leading to higher private car ownership, along with many properties not connected to the gas grid. (Whilst benchmarking on a per capita basis is a useful measure for domestic emissions, emissions from industry and transport are largely driven by national factors, so comparisons for these sectors should be treated with caution.)

Changes in GHG emissions since the previous year

Rother's emissions decreased by 8% (33.1 ktCO₂e) between 2022 and 2023 (Table 1), which is greater than the decrease seen across East Sussex (-5.5%) and the average decrease for UK local authorities (-4.4%).

Year	Industry	Commercial	Public Sector	Domestic	Transport	LULUCF	Agriculture	Waste Management	Total (ktCO ₂ e)	Per Capita (tCO ₂ e)	Per km ² (kt CO ₂ e)
2005	101.4	70.7	19.8	264.4	206.8	-75.6	92.6	68.5	748.5	8.5	1.4
2019	73.1	33	8.5	158.1	187.8	-82.7	73.8	8	459.7	5	0.9
2022	78.7	34	8.6	133.2	164.6	-80.6	67.1	5.9	411.4	4.4	0.8
2023	65.4	26.9	7.6	125.6	162.8	-80.5	65.5	5	378.3	4	0.7

Table 1: Rother district-wide GHG Emissions (ktCO₂e) by sector

UK-wide reductions from 2022 were the result of reduced emissions from electricity supply, a continued decrease in electricity demand, and an increased share of renewables to meet remaining demand ([UK local and regional greenhouse gas emissions statistics, 2005-2023](#)).

Rother's emissions decreased across all sectors, though only slightly in the transport sector (-1%), with a reduction of 1.8 ktCO₂e. By percentage, the greatest change was seen in the commercial sector (-21%), equating to 7.1 kt CO₂e. Industry, however, contributed the most to the overall reduction in kilo tonnes, reducing by 13.3 ktCO₂e (-16.9%).

LULUCF sequestration in Rother remained stable, at -80.5 ktCO₂e in 2023 compared to -80.6 ktCO₂e in 2022, as was the case across East Sussex. Nationally, LULUCF emissions rose by over 100%, due to less carbon sequestration from forestry.

Changes in GHG emissions since the baseline year

From the Council's baseline year of 2019, Rother's GHG emissions have dropped by 17.7% (81.4 ktCO₂e), with decreases seen across all sectors (Table 1/Figure 3). The overall decrease is less than that seen across East Sussex over this period (-21.9%), though it is slightly higher than the national average decrease for local authorities (-16.7%).

By sector, since 2019, the least change has been seen in industry (-10.5% or -7.7 ktCO₂e) and the greatest change was in domestic emissions (-20.6% or 32.5 ktCO₂e).

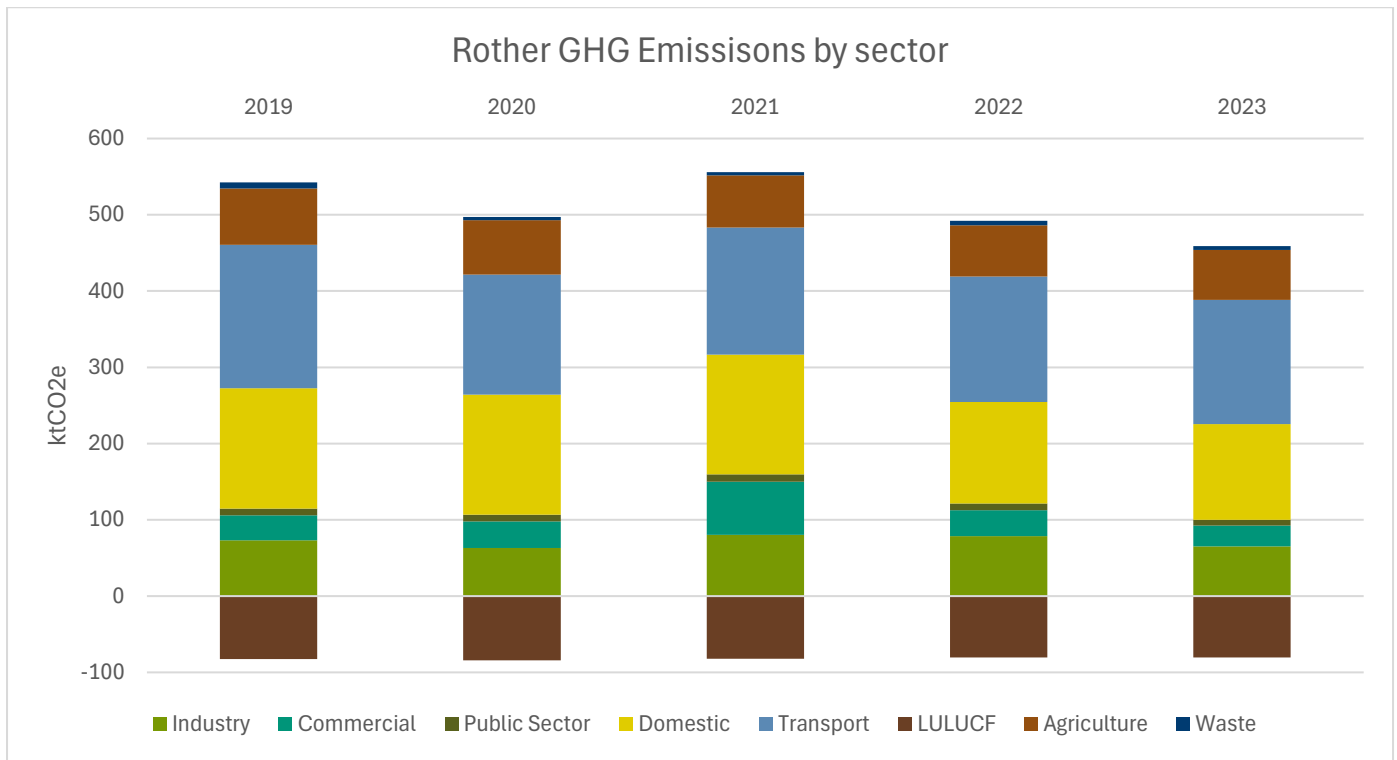


Figure 3: district-wide GHG emissions by sector 2019-2023

Transport Emissions

Transport emissions include freight and passenger transport, both for private and business purposes, broken down into 5 categories: motorways, A roads, minor roads, diesel railways, and transport 'other'. The category of transport 'other' includes the combustion of lubricants, LPG vehicles, inland waterways, coal railways, and aircraft support vehicles. Note that transport emissions do not include electric railways, and there are no motorways in Rother, so this category is not included in Figure 4.

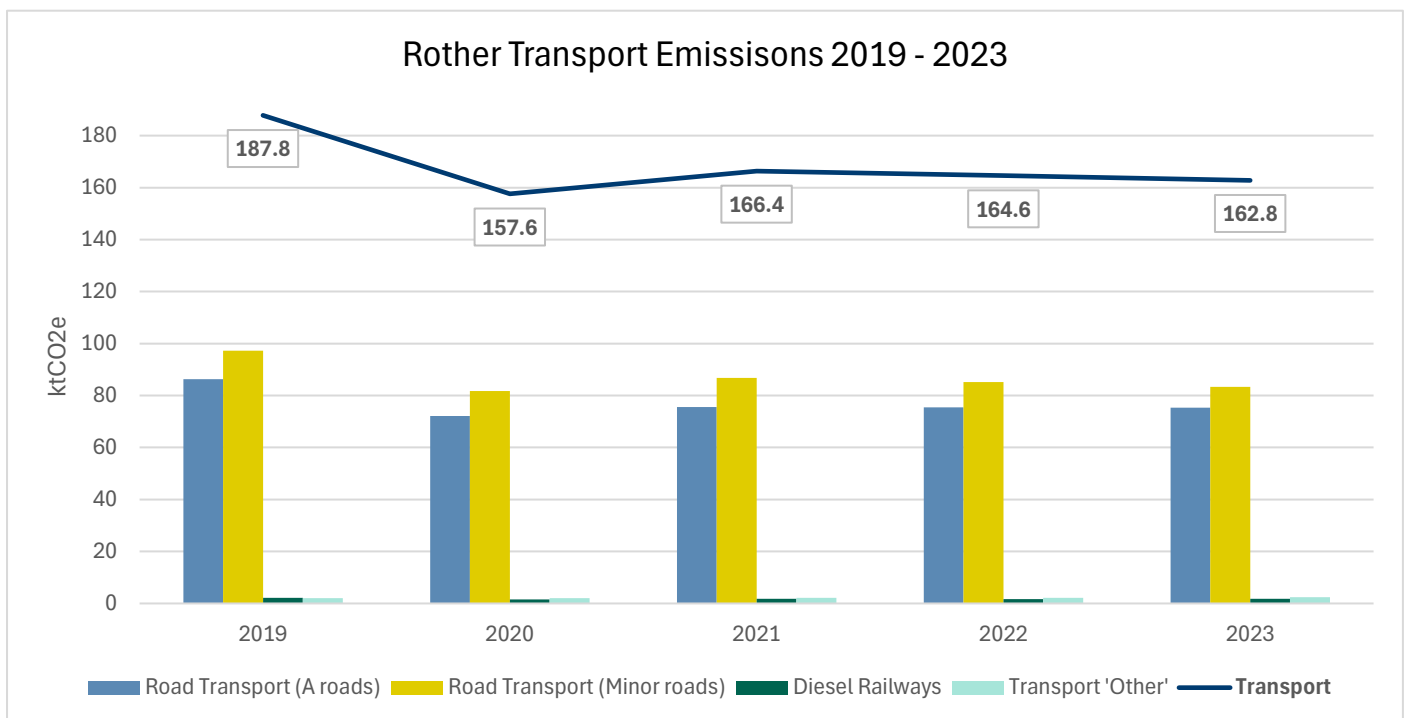


Figure 4: District-wide transport category emissions (columns) and total annual transport emissions (line/figures)

Between 2019 and 2023, Rother's transport emissions fell by 13.3%, which is similar to reductions seen at the national level (-12.4%), but not as great as the reductions seen across East Sussex over this period (-17.78%).

Rother's transport emissions in 2023 are not at their lowest, remaining higher than those of 2020 in every subcategory (Figure 4).

Domestic Emissions

Emissions from the domestic sector are influenced by the fuel types used, the type and condition of housing, the average temperature, average household size, type of household and the income and preferences of the occupiers. Emissions per household in urban areas tend to be lower than rural areas, due to smaller homes, a larger proportion of terraced houses and flats, and less reliance on high-carbon heating fuels such as oil and coal.

Since 2019, Rother's domestic emissions have decreased more than any other sector, by 20.6% (-32.5 ktCO₂e), though significant reductions were only realised over the past two years. This has been driven by domestic gas emissions, now down by 16.4 ktCO₂e from 2019 levels (-18.3%), and domestic electricity emissions reducing by 10.8 ktCO₂e (-26%) (Figure 5). This is likely due to gradual energy efficiency improvements, coupled with high energy prices, resulting in reduced consumption of energy (East Sussex Climate Emergency: Analysis of Greenhouse Gas Emissions Data for 2005-23 for County, District and Borough Areas, East Sussex County Council, July 2025).

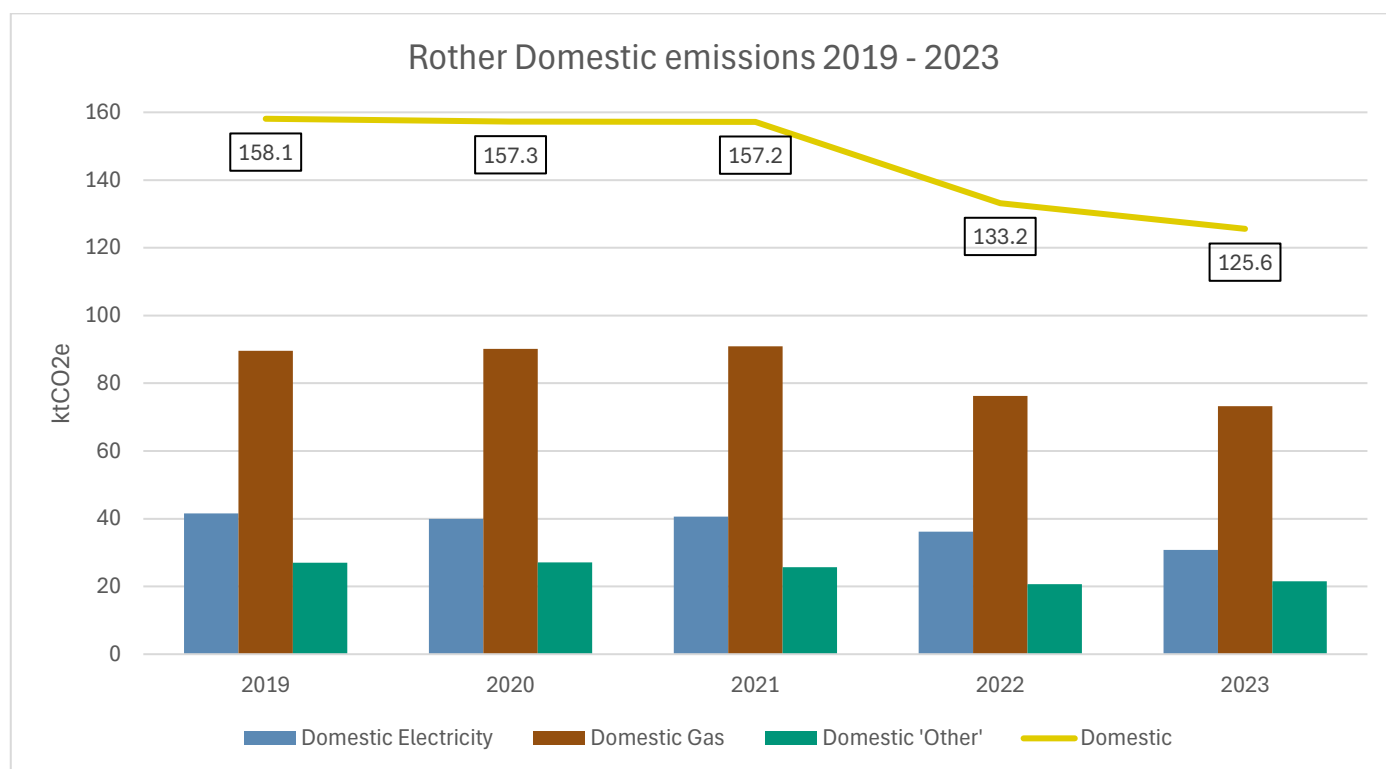


Figure 5: District-wide domestic category emissions (columns) and total annual domestic emissions (line/figures)

Domestic 'Other' emissions, which includes domestic oil and solid fuel use, have reduced by 20.4% since 2019 (-5.5 ktCO₂e), however, is the only category in this sector that saw an increase in 2023 compared to 2022 levels (+0.8 ktCO₂e).

Industrial and Commercial Emissions

Industrial emission sub-categories are: electricity usage, gas usage, other fuels (eg. oil) and large industrial installations. Due to the lack of heavy industry in Rother, figures can be significantly affected by a relatively small number of businesses. The only large industrial installation of note in the County included within the DESNZ data is the British Gypsum plant in Rother, resulting in Rother's industrial emissions making up almost 50% of industrial emissions for East Sussex.

Rother's industrial emissions rose to above 2019 levels in 2021 and 2022. In 2023, they dropped below those of 2019 but remain higher than in 2020 (Figure 6). Nationally, industrial emissions had dropped below 2020 levels by 2022 and continued to fall in 2023.

Compared to 2019 levels, emissions have dropped in every category, except for 'Other', which has seen a steady increase since 2020; 'Other' emissions in 2023 were 5.6% (1.2 ktCO₂e) higher than 2022, and 13.6% higher (2.7 ktCO₂e) than 2019.

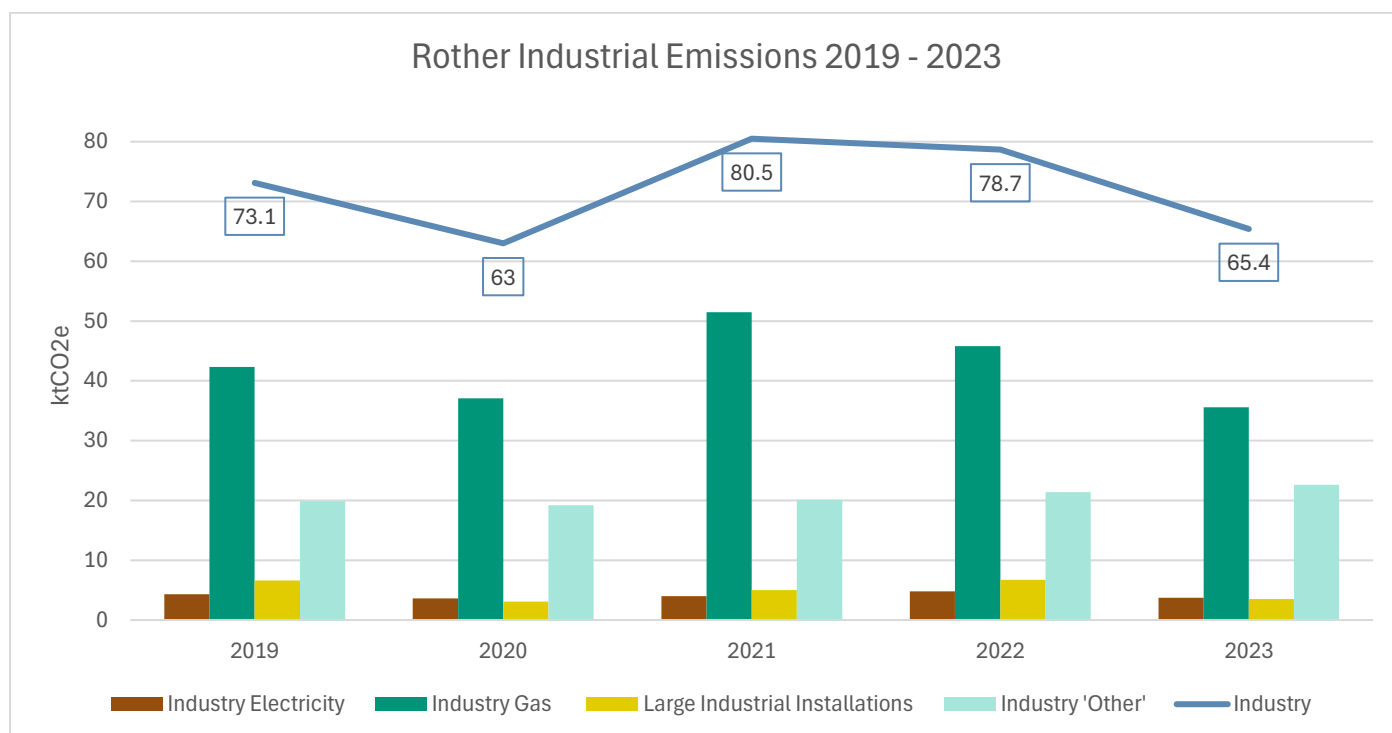


Figure 6: District-wide industrial category emissions (columns) and total annual industrial emissions (line/figures)

The commercial sector made up 7% of Rother's total emissions in 2023, at 26.8 ktCO₂e. Commercial emissions are down 6.1% (-18.48 ktCO₂e) since 2019. Around 70% of these emissions arise from electricity use, which highlights the opportunity for the commercial sector to decarbonise more easily than all other sectors, as much of this is likely to be achieved through the decarbonisation of the national grid.

Land Use, Land Use Change & Forestry and Agriculture Emissions

LULUCF includes activities such as liming, farming practices, afforestation/deforestation and changes in vegetative cover that can remove or produce atmospheric CO₂. For example, changing land from natural woodland (a net absorber of CO₂) to urban development would mean that the land no longer acts as a carbon sink.

LULUCF emissions have remained relatively stable in Rother since 2019, though slightly more carbon (2.7%) was sequestered in 2019 compared to 2023 (from -82.7 ktCO₂e to -80.5 ktCO₂e). Forested land and, to a lesser extent, grassland, act as the district's carbon sinks, with croplands continuing to be the largest source of emissions in this sector (Figure 7).

Research carried out on behalf of the Council for the new Local Plan suggests LULUCF will peak and remain stable at 2024 levels next year ([Rother Climate Change Study - Net Zero Carbon Evidence Base Report](#)).

Rother's agricultural emissions have fallen 11.25% (-8.3 ktCO₂e) since 2019. The livestock category made up 60% of emissions in this sector in 2023, but has seen the greatest decrease, down 5.4 ktCO₂e (-15.5%) on 2019 levels. The soils category also came down by 2.2 ktCO₂e (-14.8%), with all other categories seeing little change since the baseline year.

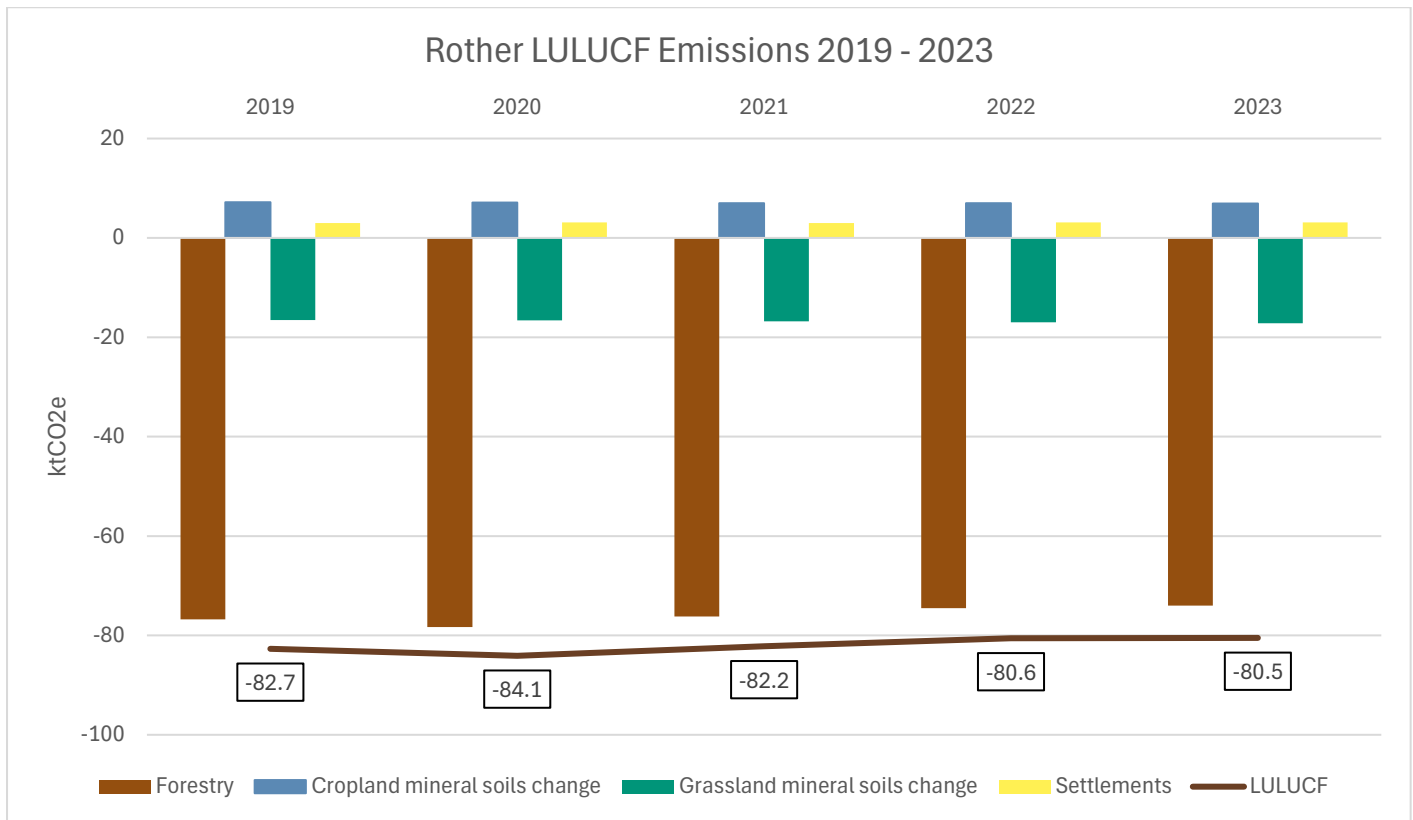


Figure 7: District-wide LULUCF category emissions (columns) and total annual LULUCF emissions (line/figures)

Longer-term trends

From the start of the DESNZ data in 2005, Rother's emissions have reduced by 49.5% (-370.2 ktCO₂e), which is in line with the East Sussex reduction (-50.8%), and higher than the national average for local authorities (-45.8%).

Figure 8 shows Rother's emissions by sector since 2005, demonstrating that the domestic and transport sectors have always been the largest sources of emissions. Since 2005, transport emissions have decreased the least of all sectors in the district, at -21.3% (-44 ktCO₂e). The domestic sector has decreased by 52.5% (-138.8 ktCO₂e), mostly thanks to national grid decarbonisation.

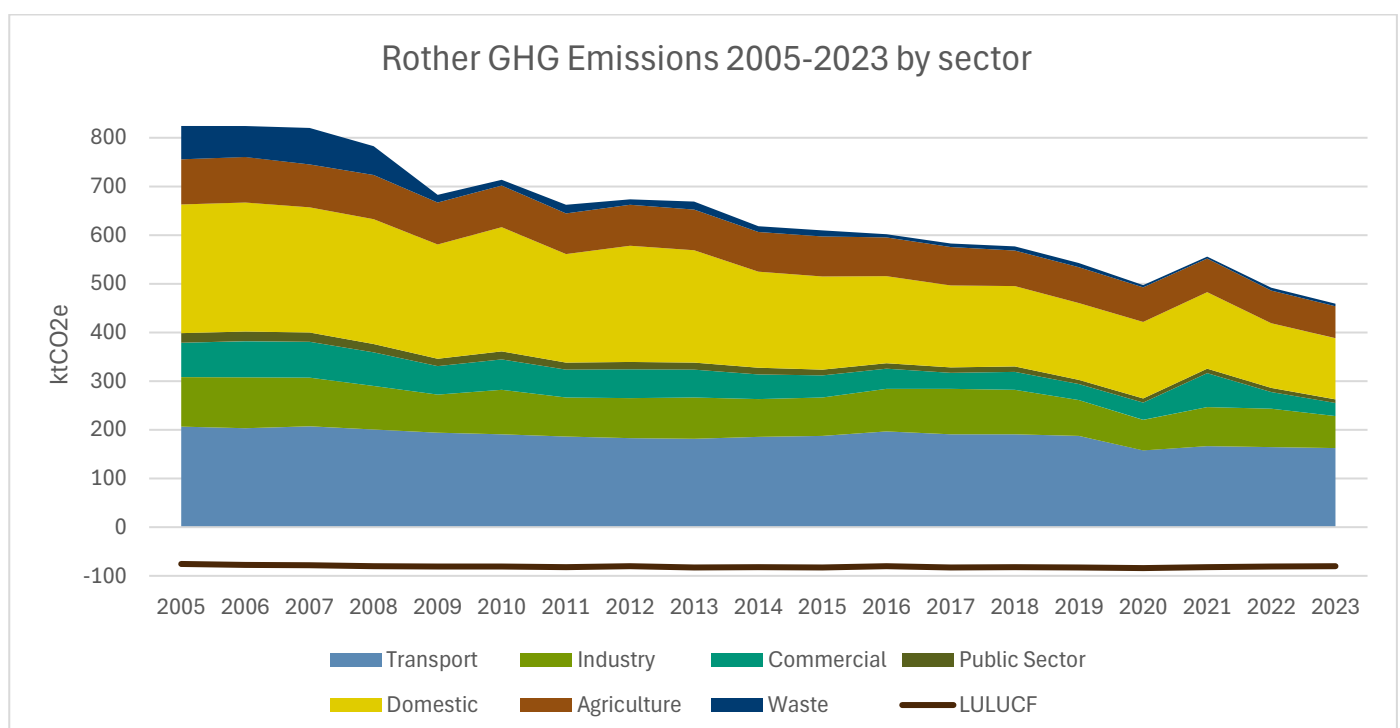


Figure 8: District-wide emissions

By percentage, waste management emissions have decreased the most, by -92.7% (-63.5 ktCO₂e), due to closing landfill sites, and made up only 1% of Rother's district-wide emissions in 2023.

Rother's Carbon Budget

The Tyndall Centre for Climate Research has developed area-wide carbon targets that align with meeting the UN's Paris Agreement goal of "limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C". The tool sets recommended carbon dioxide 'budgets' through to 2100, divided into 5-year terms. The DSNEZ GHG emissions data for carbon dioxide emissions only are used here to evaluate Rother's carbon emissions against its carbon budgets.

[Rother's carbon budget](#) for 2018 – 2022 was two mega tonnes of carbon dioxide (MtCO₂). Rother stayed within this budget, with total carbon emissions of 1.9 MTCO₂ (Figure 9).

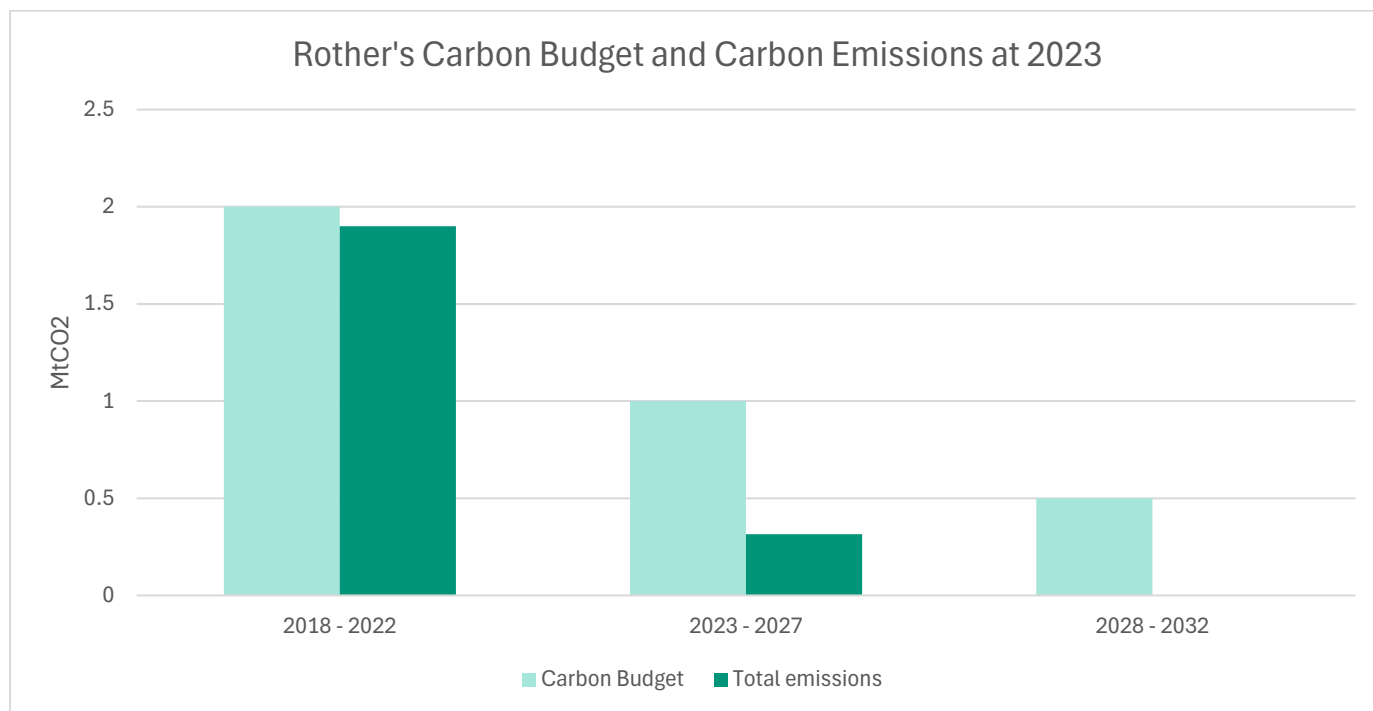


Figure 9: Rother's carbon budget and actual emissions

The Tyndall Centre recommends Rother reduce its CO₂ emissions by 13.8% year-on-year from 2020 to 2100 to meet the Paris Agreement. The actual CO₂ reduction achieved between 2022 and 2023 fell short of this, at 8.8%.

The district's next carbon budget (2023 – 2027) is 1 MTCO₂. With emissions of 0.32 MtCO₂ in 2023, Rother has used up one third of its 5-year budget within the first year. This means a reduction of around 18% each year is now required up to 2027 to stay within the next carbon budget.