2022 District-wide Emissions Report

September 2024

Summary

This report presents the latest data on district-wide, territorial greenhouse gas emissions (GHG) for 2005 - 2022, issued by the Department for Energy Security and Net Zero (DESNEZ) in June 2022.

In 2022 Rother's territorial greenhouse gas emissions were 411.2 kilotonnes CO2 equivalent (ktCO2e), 12.4% lower than 2021 and 10.5% lower than 2019.

The largest emitting sector of 2022 was Transport, responsible for 39.8% of emissions, followed by the Domestic (33.9%) and Industrial (17.2%) sectors.

Emissions across most sectors either dropped or remained stable between 2021 and 2022 in line with the national picture. The overall decrease in emissions is mainly because of the warmer temperatures in 2022, resulting in less energy being used to heat buildings, and it may have also been affected by higher energy prices, particularly towards the end of the year.

Waste Management was the only sector to see a rise in emissions against the previous year (+39%), whereas nationally this sector was stable (-0.4%). The rise seen in Rother followed a local trend, with all other District and Boroughs of East Sussex reporting a rise in Waste Management emissions.

A significant decrease was seen in emissions from the Commercial sector in 2022, however, this should be treated as an anomaly due to a previous spike from 32 ktCo2e in 2020 to 65.2 ktCO2e in 2021. The reasons for this are unclear and could be an error in the data, as emissions in 2022 returned to a more typical 31.1 ktCO2e.

Introduction

This report presents the latest data on district-wide, territorial GHG emissions for 2005 - 2022, issued by DESNEZ in June 2024.

The data provided uses nationally available datasets and provides the most reliable and consistent breakdown of GHG emissions. They cover territorial emissions of carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). Fluorinated gases are not included in regional breakdowns, though they are included in the UK territorial GHG emissions national statistics. The Technical Report provides the full methodology and dataset.

Background

In 2019, the 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 government publishes data each year on GHG emissions for each local authority in the UK from a range of sectors including Domestic, Transport, Industry, Commercial, Public Sector, Land Use, Land Use Change and Forestry (LULUCF), Agriculture, and Waste Management.

The data shows 'territorial' emissions, meaning emissions that occur within the UK's borders. The emissions are allocated on an 'end-user' basis meaning emissions are distributed according to the point of energy consumption as opposed to where it is generated. Emissions from the production of goods are assigned to where the goods are produced rather than consumed. Emissions from the production of goods which are imported are excluded.

This report uses the 'full' DESNEZ dataset. This excludes the following types of emissions:

- aviation, offshore industry, shipping, and military transport, because they cannot be allocated to local areas in a practical way.
- emissions from goods manufactured abroad but consumed in the UK, known as 'embedded' emissions, as there is currently no means to show this at a local authority level. The relative proportion of these emissions is probably increasing as the UK economy continues to transition from manufacturing to services.

The following types of emissions are included, even though they are not considered under the influence of local authorities: emissions from motorways, large industrial installations in the EU Emissions Trading Scheme, diesel trains, and from land use, land use change, and forestry. In Rother, these emissions are minimal, due to the lack of motorways.

There are some important limitations that users of these estimates should be aware of. These include:

- A proportion of national electricity sales cannot be successfully allocated to specific Local Authorities due to lack of information.
- Road Transport emission estimates rely on national road traffic estimates, and the distribution of traffic on minor roads has had to be imputed at a local level from regional level data.
- The local distribution of emissions from sources other than gas, electricity generation, or transport is largely estimated from proxy information such as population or employment data.

The data issued in June 2024 for 2022 and earlier has been updated from the dataset issued last year, this is due to the re-calculation of the 2005 to 2021 estimates to reflect the methodological changes used in calculating the 2022 data. This year's data release does not explain all revisions to the historical data series or the year-on-year changes for each local authority, so the changes are taken at face value.

Overview of Greenhouse Gas Emissions in Rother in 2022

In 2022, Rother district-wide emissions of all three GHGs totalled 411.2 ktCO2e. This is 12.4% lower than 2021 and 10.5% lower than the baseline year of 2019, as seen in Table 1. Figure 1 shows the total 2022 emissions broken down by sector.

	Emissions ktCO2			CO2e % change from	
	2019	2021	2022	2019 to 2022	2021 to 2022
Rother	459.2	469.2	411.2	-10.5%	-12.4%

Table 1 Total GHG Emissions (ktCO2e)

Year	Industry	Commercial	Public Sector	Domestic	Transport	LULUCF	Agriculture	Waste Management	Total (ktCO2e)	Per Capita (tCO_2e)	Per km^2 ($kt CO_2e$)
2019	62.5	33.3	8.3	159.8	188.6	-77.2	76.2	7.7	459.2	4.9	0.9
2020	56.0	32.0	8.8	158.3	153.7	-78.6	73.2	4.3	407.6	4.3	0.8
2021	74.1	65.2	9.1	158.4	164.8	-76.6	69.9	4.1	469.2	5.0	0.9
2022	70.7	31.1	8.5	139.5	163.6	-76.2	68.3	5.7	411.1	4.4	0.8

Table 2 GHG Emissions (ktCO2e) by Sector

The Tyndall Centre for Climate Research has developed a science-based approach for local authority 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". This method is outlined in the Centre's carbon budget tool for local authorities. The tool sets an overall area-wide carbon emissions 'budget' for local authorities through to 2100 and divides these into a series of 5-year budgets. The annual carbon reduction required to keep within The Tyndall Centre carbon budget for Rother District is 13.8% year-on-year. Reductions in Rother are below the annual levels required to keep within the long-term carbon budget.

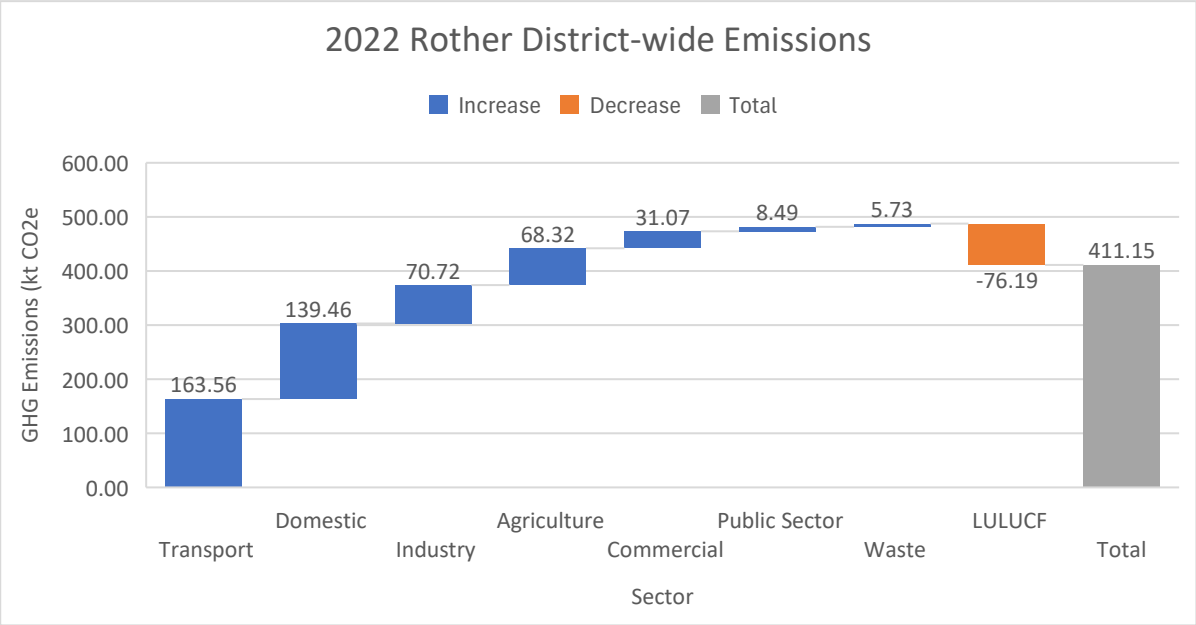

Figure 1 2022 Rother District-wide GHG Emissions by Sector

Since the baseline year of 2019, emissions from Transport, Domestic, Agriculture and Waste Management have decreased whereas emissions from Industry, Commercial and Public Sector sectors have increased, see Table 2 and Figure 2. Land Use, Land Use Change and Forestry (LULUCF) shows a slight decrease in the sequestration of emissions from the baseline year (-1.3%).

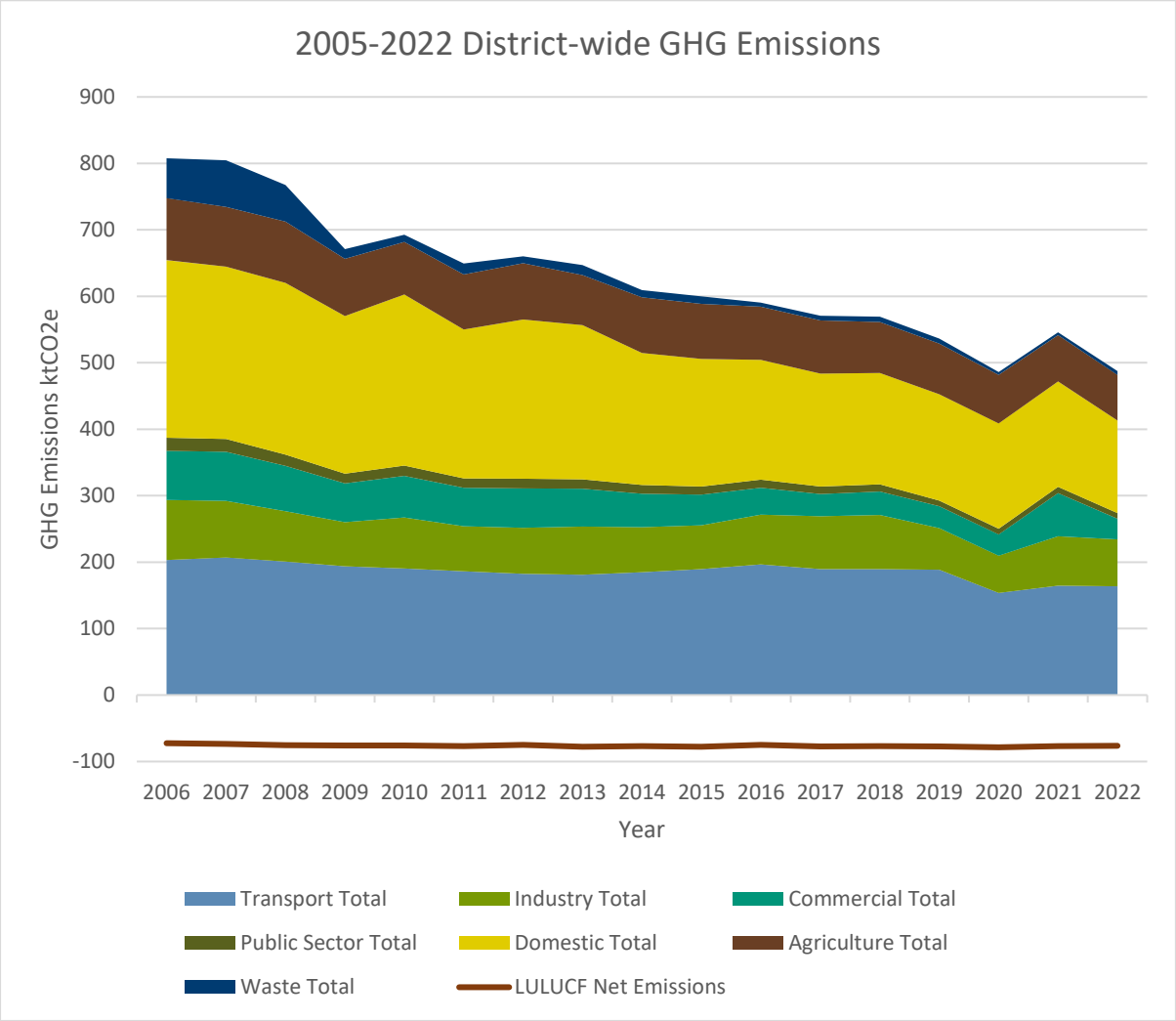

Figure 2 2005 - 2022 District-wide GHG Emissions by Sector

CO2 emissions have decreased between 2021 and 2022 across all parts of the UK and Rother is no exception. This was mainly a result of warmer temperatures in 2022, resulting in less energy being used to heat buildings, and it may have also been affected by higher energy prices, particularly towards the end of the year. The dataset indicates a particularly significant decrease in Rother between 2021 and 2022 compared with the other District and Boroughs of East Sussex. This may be a re-adjustment from last year's data, when Rother saw a much greater increase in emissions than the other areas, with a particular spike in Commercial emissions. The reasons for this are unclear and could be due to an error in the data.

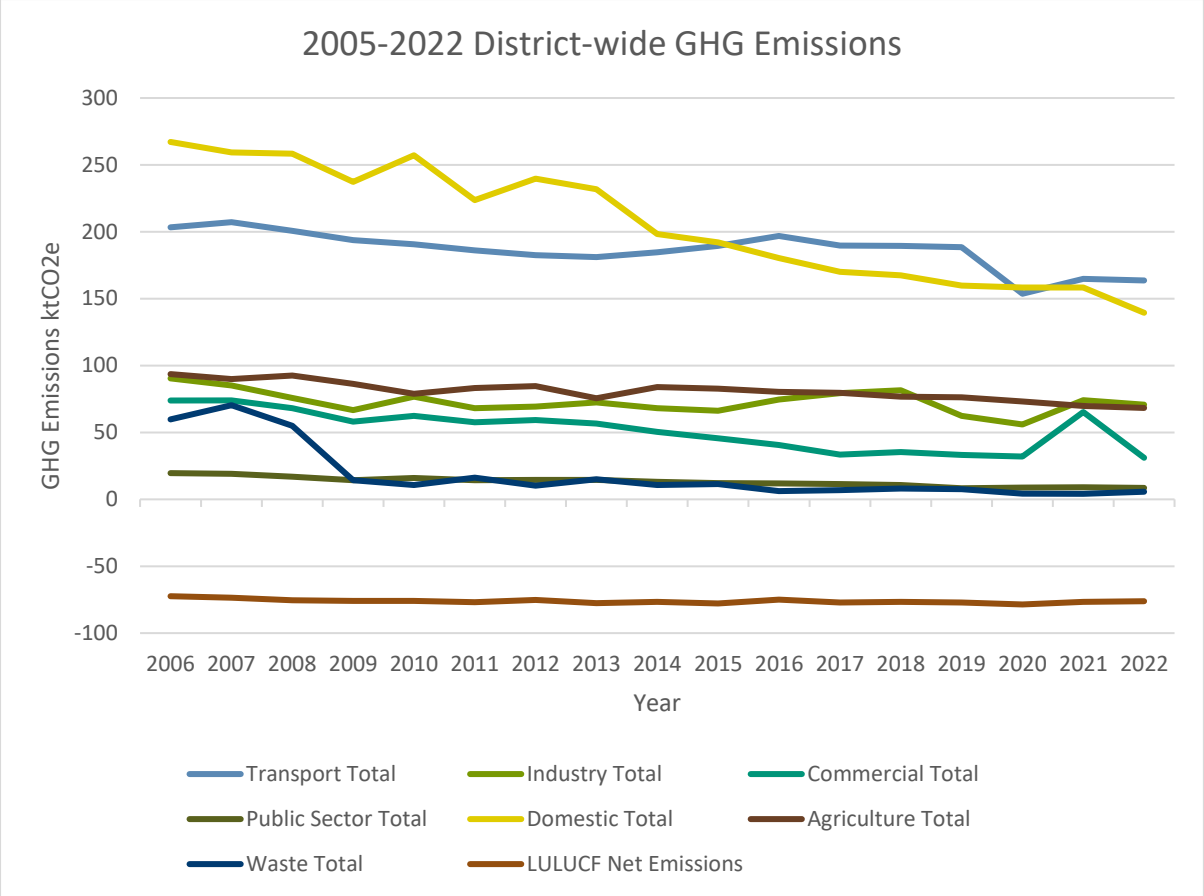

Figure 3 2005 - 2022 District-wide GHG Emissions

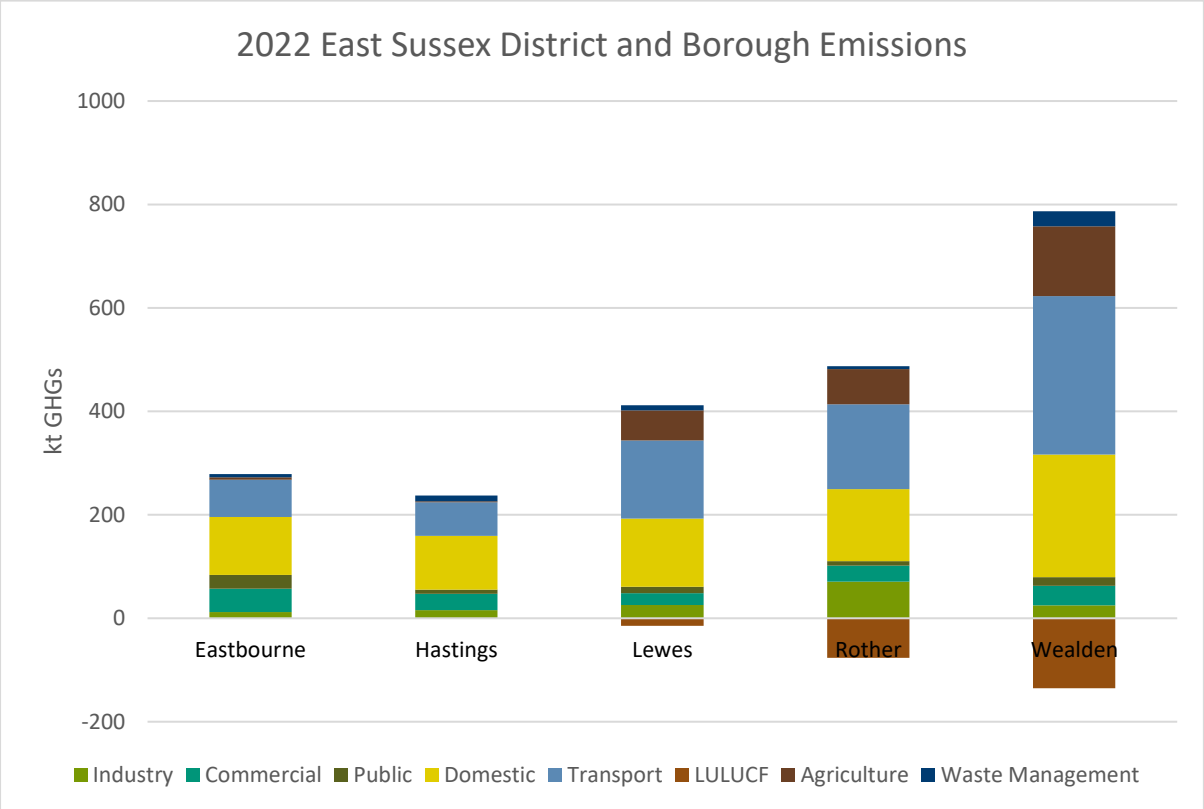

Figure 4 East Sussex District and Borough Emissions

East Sussex currently has one of the lowest per capita GHG emissions of counties in England, 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 in East Sussex, see Figure 5. However, it's important to note that, 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.

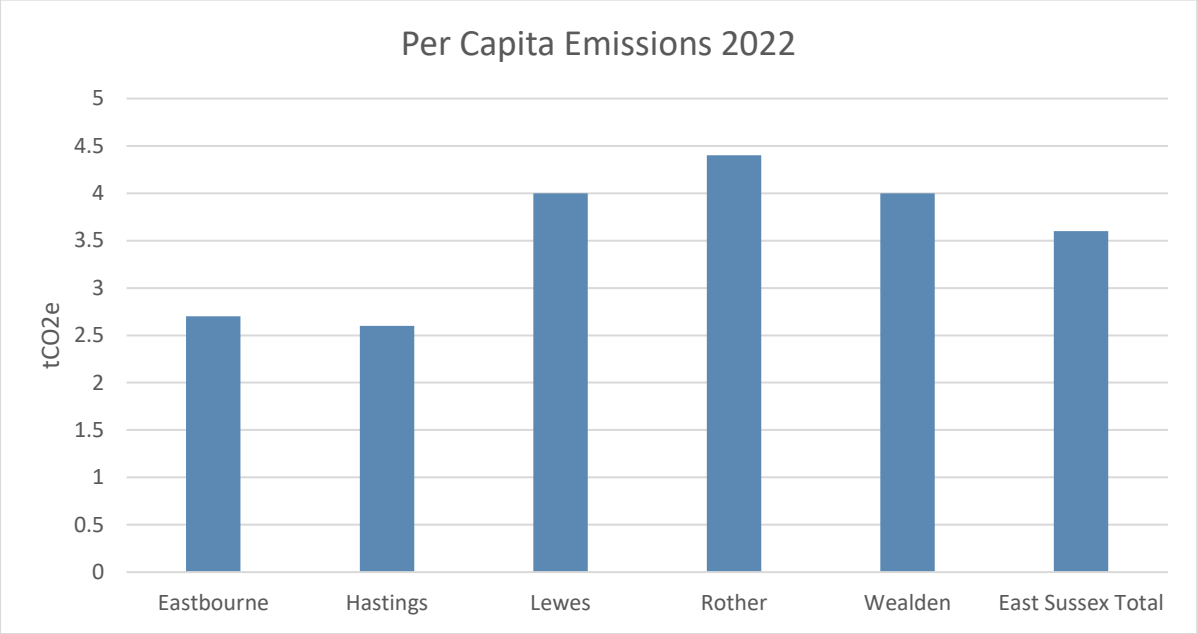

Figure 5 Per Capita Emissions in East Sussex

Transport Emissions

Transport emissions include freight and passenger transport, both for private and business purposes. The DESNZ data is 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.

At a national level, Transport emissions increased by 0.6% between 2021 and 2022, following the removal of the last Covid 19 restrictions, though East Sussex bucked this trend with transport emissions falling by 0.6% to about 15% below the pre-pandemic levels of 2019. A similar picture is seen in Rother, with Transport emissions falling 0.7% between 2021 and 2022, and now 13.3% below 2019 levels. Transport was the sector with the highest emissions for both Rother and the County in 2022, which was the same for 55% of all local authorities.

Figure 6 shows the emissions split by different transport categories in Rother from 2019 - 2022.

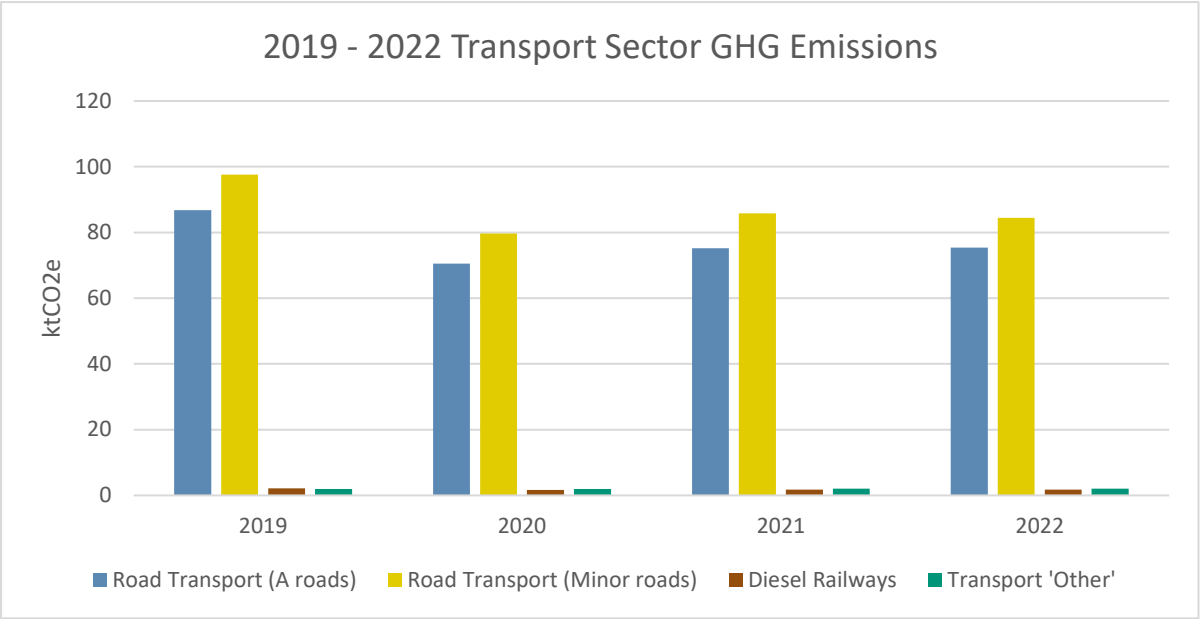

Figure 6 2022 GHG Emissions from Transport

Domestic Emissions

Emissions from the Domestic sector are influenced by the fuel types used, the type and condition of housing, the average temperature, the average household size, the type of household and the income and preferences of the occupiers. Emissions from 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.

Rother's emissions from the Domestic sector decreased between 2005 and 2022 by about 47%, in line with the national trend, despite an increase in population and the number of homes. The main drivers for this have been the decarbonisation of grid electricity and a gradual improvement in the energy efficiency of homes.

Domestic emissions decreased by 12% between 2021 and 2022 and by 13% since the 2019 baseline. **Error! Reference source not found.** shows gas central heating systems to be the largest source of emissions, although gas use is relatively lower in rural areas as fewer homes are connected to the gas grid than in urban areas.

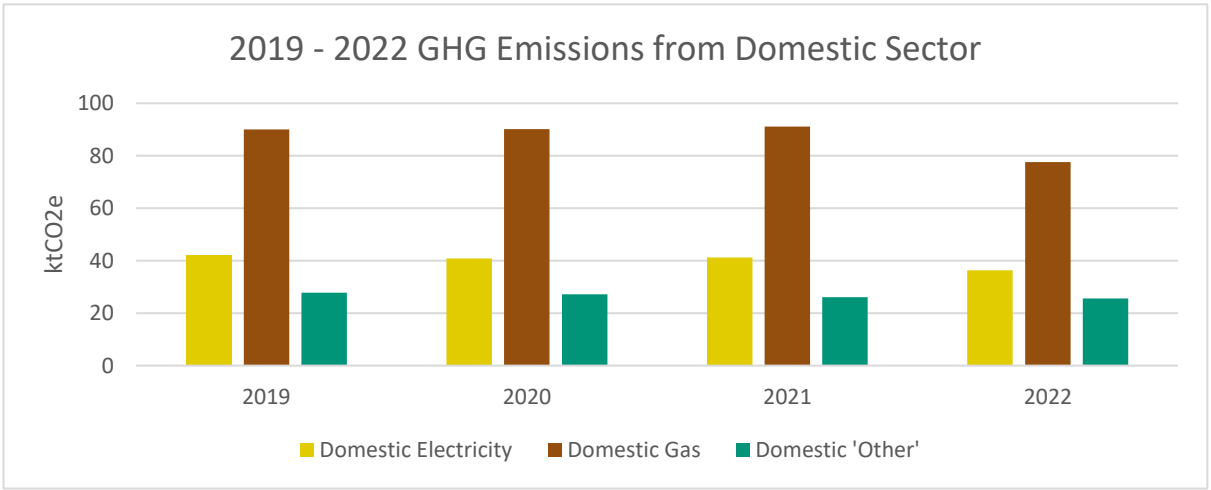

Figure 7 2019 - 2022 GHG Emissions from the Domestic Sector

Industrial Emissions

Industry is the third largest sector contributing to emissions in Rother. Industrial emissions are broken down into the following categories: electricity usage, gas usage, other fuels (e.g. oil) and large industrial installations.

Industrial GHG emissions increased UK-wide by 5% between 2020 and 2021, no doubt largely due to the gradual post-COVID economic recovery, with a much larger increase of 32% in Rother. This was driven by a particularly large increase in industrial gas usage, see Figure 9, for which reasons are unknown. Between 2021 and 2022 Rother's industrial gas emissions decreased by 5% but were still +13% of 2019 levels (UK emissions in this sector being -5% of 2019 levels).

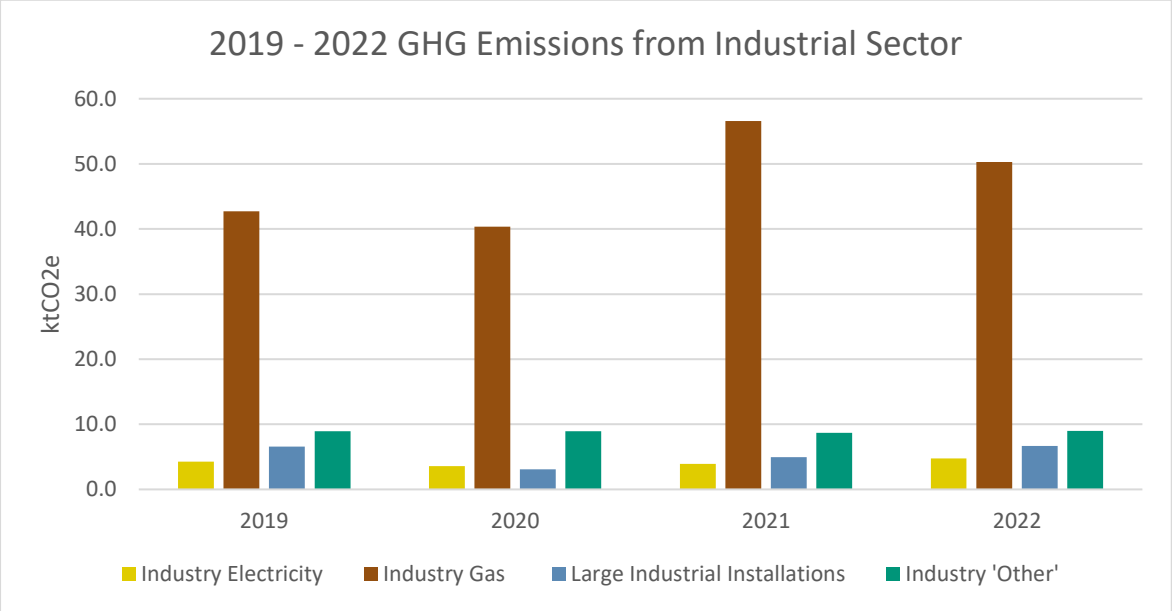

Figure 8 2019 - 2022 GHG Emissions from Industry

Land Use, Land Use Change and Forestry

Land Use, Land Use Change & Forestry (LULUCF) are 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.

Emissions have remained relatively stable since 2019 with Forested Land and Grassland acting as carbon sinks, see Figure 9. Croplands continue to be the largest source of emissions.

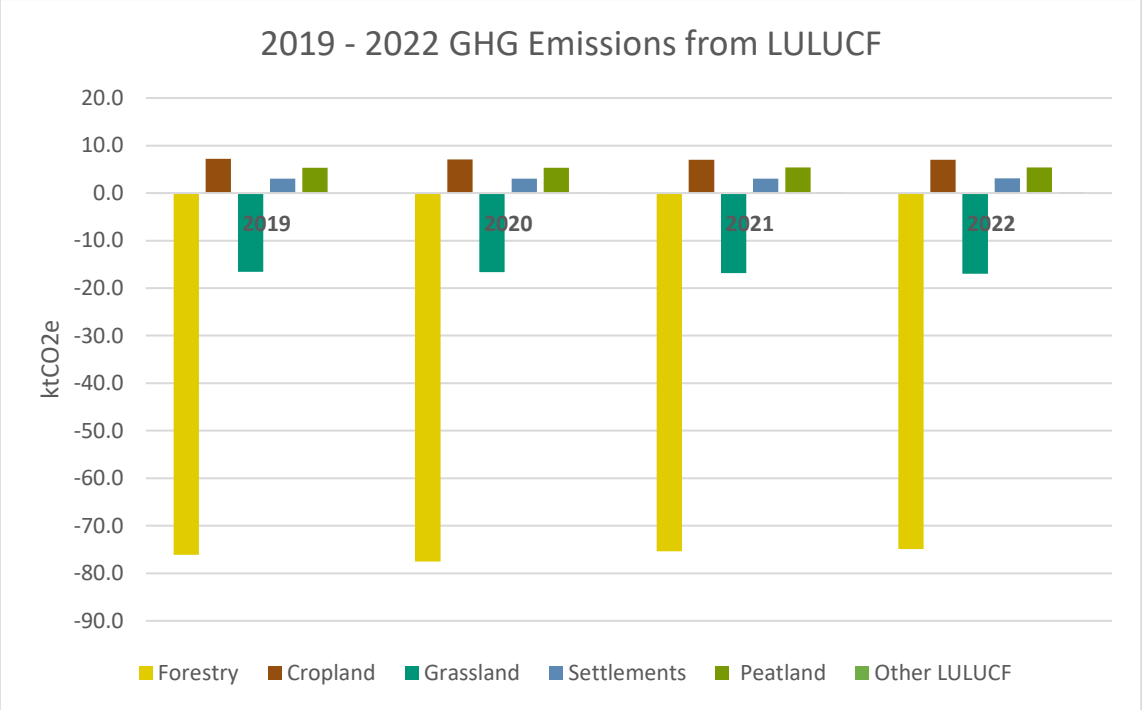

Figure 9 2019 - 2021 GHG Emissions from LULUCF