



Draft Annual Greenhouse Gas Report 2022/23

July 2023



Contents

Document Control	3
Review of Strategy	3
1.0 Introduction	4
2.0 Results	5
Table 1 – GHG emissions reported as kilograms of carbon dioxide equivalent (kg CO ₂ e).	5
Figure 1 – Annual changes in emissions	8
Table 2 – South Ribble Borough Council’s operational scopes	9
3.0 Supporting Information	9
3.1 Organisation Information.....	9
Figure 2 – Baseline carbon emissions from gas and electricity at the 5 larger energy using buildings	11
3.2 Reporting Period	11
3.3 Operational Scope	11
3.4 Assumptions and / or Omissions	12
3.5 Limitations of Assessment	13
3.6 Carbon offsetting.....	13
4.0 Changes in Emissions	13
4.1 Scope 1, 2 and 3 Emissions	13
Progress towards net zero target	14
Renewable energy installations.....	14
Purchase of renewable energy.....	15
4.2 Carbon Emission Factors.....	15
4.3 Intensity measurement.....	15
5. Borough of South Ribble	16
Figure 3, South Ribble total greenhouse gas emissions estimates from the Office for National Statistics	16
Figure 4, South Ribble carbon dioxide emissions estimates from the Office for National Statistics	17
Figure 5, Greenhouse gas emissions inventory summary for the borough of South Ribble.....	18
6. Conclusion	18
References	19
Glossary	19

Document Control

Publication Date	July 2023
Related Documents	<p>SRBC Climate Emergency Action Plan 2021</p> <p>SRBC Climate Emergency Strategy 2022</p> <p>All related documents may be viewed via the SRBC website</p> <p>South Ribble Borough Council</p>
Owner (Department)	Environmental Health
Author (Team)	Environmental Health / Climate Emergency Task Group

Review of Strategy

Review Date	July 2024
Version	1.0

Greenhouse Gas Emissions (GHG) from Local Authority own estate and operations for financial year 2022/23

1.0 Introduction

In 2019 South Ribble Borough Council declared a climate emergency, committing to the Borough becoming carbon net zero by 2030.

The Council's Climate Emergency Strategy and Action Plan affirm the Council's own commitment as a major local employer, energy user and community leader in leading by example in reducing its own corporate carbon emissions.

To this end the Council has commenced an accelerated route to tackling greenhouse gas emissions arising from our own estate and operations, particularly the powering and heating of our largest buildings, whilst also addressing our water consumption, and transition to electric fleet vehicles.

This report provides an annual overview of Greenhouse Gas (GHG) emissions from the Council's estate and operations to the end of March 2023.

The majority of the Council's greenhouse gas emissions come from:

- Gas and electricity consumption in Council operational sites (e.g. Civic Centre, Moss Side Depot, and leisure centres)
- Fuel for Council fleet vehicles
- Water consumption in Council operational sites

The GHG emissions have been calculated using guidance and emissions factors published by the department for Business, Energy and Industrial Strategy (BEIS). Where UK emissions factors are not yet available the Council has estimated carbon emissions using the methodology of One Carbon World, as used for the first detailed carbon footprint calculations for the period of 2018/19. The links to source material are provided as references.

2.0 Results

A summary of Greenhouse Gas emissions for 2022/23, along with previous reporting years, is outlined in Table 1 below.

Table 1 – GHG emissions reported as kilograms of carbon dioxide equivalent (kg CO₂e).

	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023
Scope 1					
Natural Gas	218,422.70	199,093.47	143,663.47	895,024.71	848,044.37
Petrol for Council vehicles	10,694.30	12,445.73	12,537.66	11,290.05	11,565.90
Diesel for Council vehicles *	714,557.63	1,326,358.07	1,370,161.32	1,218,887.05	841,224.98
Gas oil / Red diesel	70,091.68	67,634.07	66,018.02	68,964.25	50,763.21
Other, including lubricants, weed killer, antifreeze, etc.	20,469.79	35,363.24	32,226.52	21,721.55	25,355.87
Scope 2					
Electricity	117,441.21	197,654.71	134,636.72	381,690.03	372,646.70
Scope 3					

Electrical transmission and distribution	28,913.27	46,691.67	34,040.32	141,958.56	131,364.8
Business travel	Not included	32,515.00	15,181.15	24,520.04	21,351.89
Water supply	Not included	5,285.51	3,005.92	3,183.09**	3,343.88
Waste water	Not included	10,865.68	6,179.42	5,810.74**	6,104.27
Other, including ,material use, waste disposal and well to tank ***calculations for all fuels	605,890.96	710,544.60	632,529.00	600,907.10	596,660.77
Total gross emissions	1,786,482	2,644,452	2,450,179	3,373,957	2,908,426
Carbon off-setting	300 tonnes from One Carbon World	-	-	-	-
Total annual net emissions	1,786,182	2,644,452	2,450,179	3,373,957	2,908,426

Intensity measurement (kg CO2e per No. FTE employees)****	6,603	9,794	8,292	10,188	7,895
Intensity measurement (kg CO2e per Total number Employees)****	5,895	8,800	7,470	8,341	6,513

*In April 2019 Chorley FCC began to operate from the SRBC depot, including supply of fuel from the depot. As the service has operated directly by SRBC from 11 June 2022, FCC no long sold fuel)

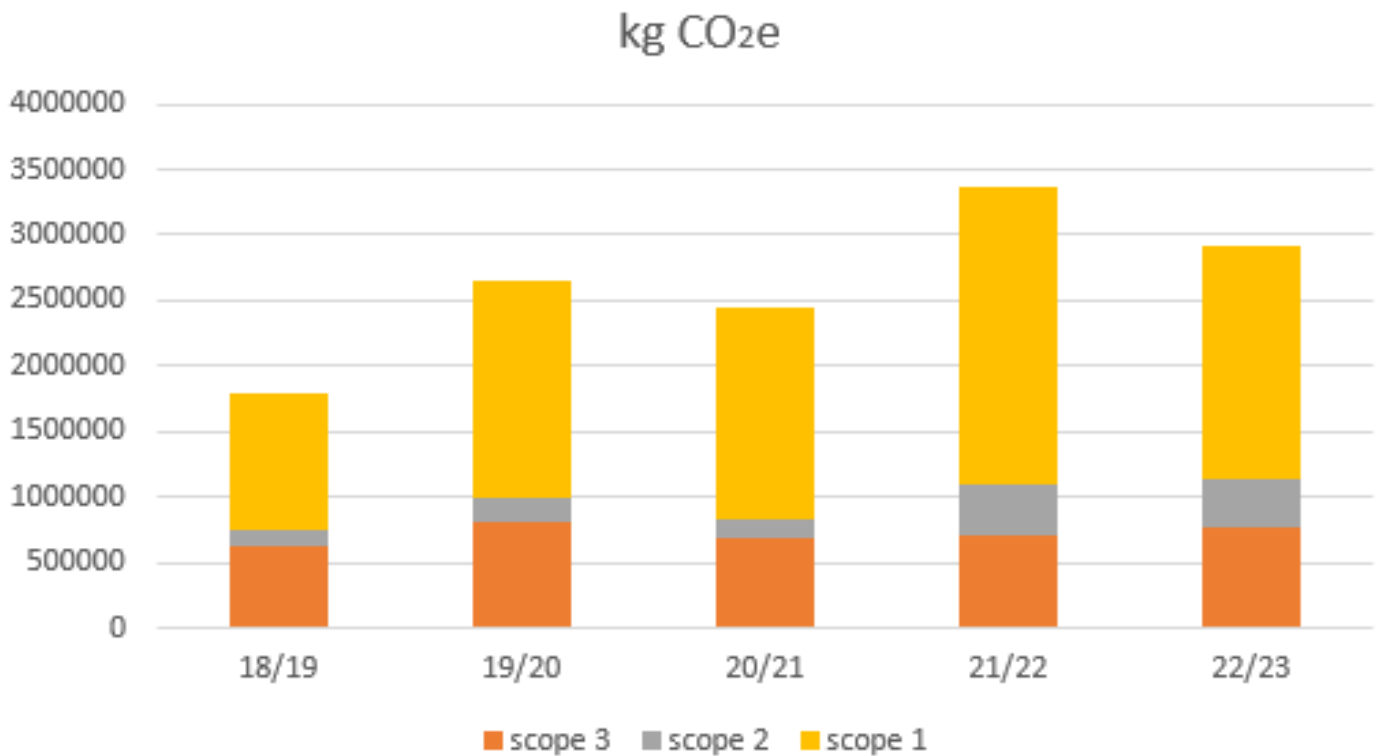
The pandemic lockdown restrictions were introduced in March 2020

**The Council's water usage increasing from April 2021, due to operation of the leisure centre returning to Council control

***Well to tank is the energy usage in the fuel supply chain, ahead of the fuel being utilised by the Council (including extraction, refining and transportation of primary fuels)

****Those staff employed in a shared service arrangement with Chorley Borough Council are classed as 0.5 of a post for the purposes of these calculations.

Figure 1 – Annual changes in emissions



Notes –

- From April 2019 onwards the data includes staff travel, water consumption and waste water within the Scope 3 emissions
- From April 2019 Chorley FCC began to operate from the SRBC depot, including supply of fuel from the depot (This service was brought back in house from 11 June 2022).
- The pandemic lockdown restrictions were introduced in March 2020
- From April 2021 the operation of the leisure services, including 4 leisure centres, was brought in house and have been included within the GHG emissions

Table 2 – South Ribble Borough Council’s operational scopes

Scope 1 (direct)	Scope 2 (energy)	Scope 3 (other indirect)
Fuel used for heating Council operated buildings (not tenanted buildings)	Electricity consumption within operated Council Buildings (not tenanted buildings)	Employee business travel
Fuel consumption from SRBC fleet vehicles		Electrical transmission and distribution
Chemical use such as anti-freeze, weed killer, Ad Blue, engine oil, etc.		Waste disposal
		Water consumption (from April 2019)
		Waste water (from April 2019)
Excluding	Excluding	Excluding
Refrigerant emissions from air conditioning and other equipment		Some material use and disposal, including items such as books, tyres, clothing / uniforms, and electrical items
		Employee and elected member commuting

3.0 Supporting Information

3.1 Organisation Information

South Ribble Borough Council is responsible for providing a wide range of services to residents of the Borough, those visiting the Borough and to businesses operating within the Borough.

The Council serves a population of approximately 111,000 and has approximately 447 employees, either employed solely by SBRC or in a shared service agreement with Chorley Borough Council.

The carbon footprint boundary includes those activities under the operational control of the Council, under Scopes 1,2 and 3 of the Greenhouse Gas protocol.

In April 2021 the operation of four leisure centres transferred back into Council control and so the data for April 2021 onwards includes the four leisure centres. However, it is anticipated that in the coming year the emissions arising from the operation of the leisure centres will reduce significantly as a result of the heat decarbonisation works underway.

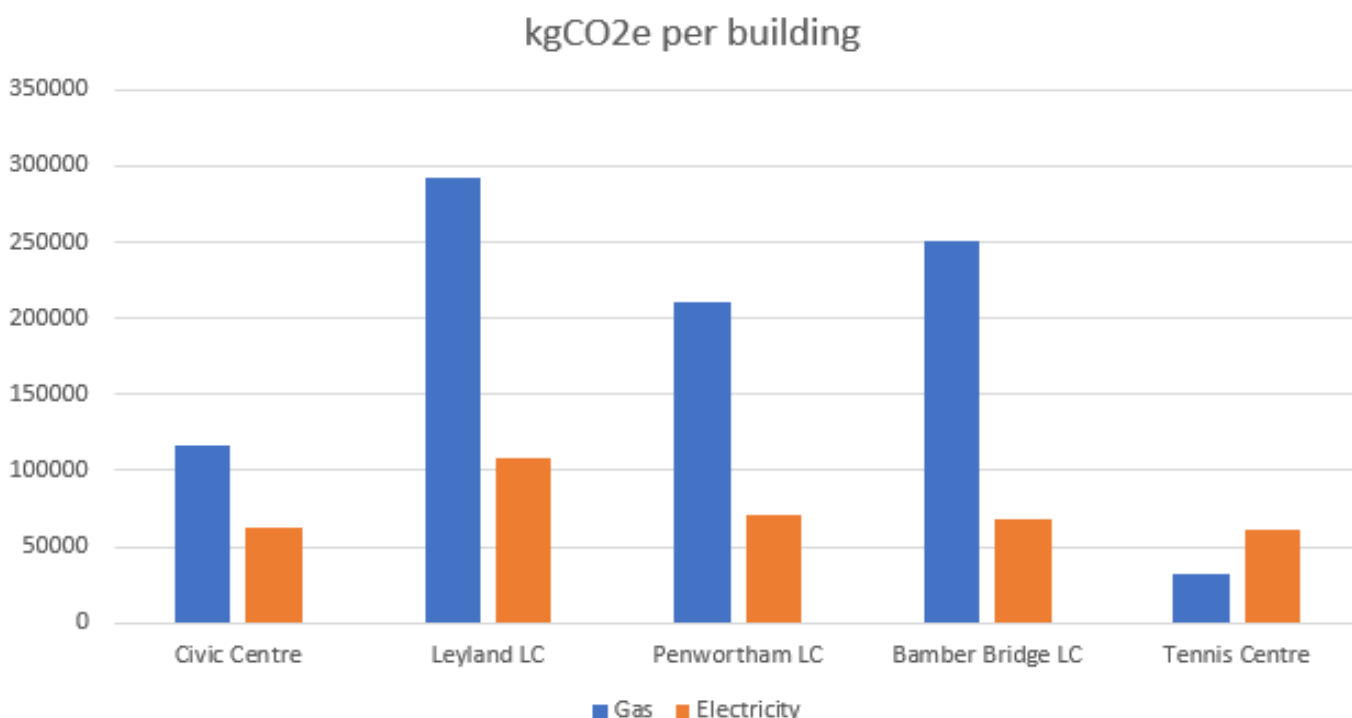
The Council has received almost £5 million grant funding to undertake heat decarbonisation works at 5 of our largest energy using buildings within our estate -

- Civic Centre, Leyland
- Leyland Leisure Centre
- Penwortham Leisure Centre
- Bamber Bridge Leisure Centre
- South Ribble Tennis and Fitness Centre

During 22/23 works have commenced to design and install measures to remove mains gas as a primary source of heating, introduce new heating technologies, e.g. air source heat pumps, and improve our use of renewable energy. The technologies are presently being installed but the final commissioning date is yet to be provided by the local distribution network operator (DNO), Electricity North West. In reporting years to come this reduced reliance on mains gas, and the resulting reduction in carbon emissions, will be evidenced.

In order to report the difference in emissions that these works provide, the energy use for these 5 buildings is given below, as a baseline for future greenhouse gas reports. This data has already been included within Table 1 above, so Figure 2 below represents the baseline energy use in the year preceding commissioning of the heat decarbonisation works.

Figure 2 – Baseline carbon emissions from gas and electricity at the 5 larger energy using buildings



For the reporting period 22/23 the major change across these sites have been the provision of new floodlights and sports pavilion, operational from September 2022 and February 2023 respectively.

3.2 Reporting Period

For the period 2018/2019 One Carbon World calculated the annual GHG emission report for the Council

For the periods 19/20, 20/21, 21/22 and 22/23 the Council has undertaken these assessments internally, using the methodology and data provided by the department for Business, Energy and Industrial Strategy. Where this data does not provide for activities undertaken by the Council (for example the use of engine oil and weed killer) then these have been estimated using the data and methodology of One Carbon World. As the UK provides for the calculation of emissions from such goods, the Council will transfer to the use of the UK methodology and data.

This report is for the period 1 April 2022 – 31 March 2023.

3.3 Operational Scope

This report includes Scope 1, 2, and 3 emissions.

Scope 1 emissions are direct emissions resulting from the Council's activities, including the use of fuels and chemicals

Scope 2 emissions are indirect emissions, associated with the use of electricity. These indirect emissions arise as a result of the Council's electricity consumption, but the emissions occur at sources not owned or controlled by the Council

The Scope 1 and Scope 2 emissions have been measured for all properties and vehicles that the Council owns and controls. Those buildings within the Council

estate that are rented out have been excluded from the scopes.

Scope 3 emissions are other indirect emissions, where the choices and actions of the Council result in emissions occurring at sources not owned or controlled by the Council, for example consumption of goods and waste disposal.

Scope 3 emissions are reported based on the availability of comprehensive and reliable data. The Council will continue to improve the capture of GHG emissions data, which will allow for future enhanced reporting of Scope 3 emissions. For example, the original calculation for 2018/2019 did not include staff travel, water use and waste water. These have been added from April 2020 to more accurately reflect the full range of activities and fuel usage.

In April 2021 the Council's leisure services transferred back to Council control from a partner organisation. Therefore, from April 2021 our emissions calculations also include these leisure services and their staff.

The activities / emissions included within these calculations are:

- Fuels
- Material use
- Transmission and Distribution
- UK electricity
- Water use and water disposal
- Other waste disposal
- Additional factors (WTT – well to tank related emissions) for fuels and electricity

Links to the precise methodology and data utilised are provided as references below, but as a guide the Greenhouse Gas equivalent (CO₂e) emissions are calculated by multiplying the resources used during the reporting year by the relevant emissions factor for that year.

SRBC annual data x emission factor = Greenhouse Gas emissions

All conversion factors used in this report are in units of kilograms of carbon dioxide equivalent (kg CO₂e).

3.4 Assumptions and / or Omissions

To maintain consistency of reporting the same assumptions are used in each of the accounting periods -

Emissions from waste production have been calculated over a 52-week period and using

0.5 tonnes weight for a full 1,100 litre bin

Emissions from use of lubricant and hydraulic oils based on assumption that 1,149 litres weigh 1 tonne (<https://www.quora.com/How-many-litres-of-oil-will-make-one-tonne-oil>).

Emissions from use of compost based on 700 litres = 1 tonne.

Other emissions not included in the scope of this report include emissions from leased commercial properties (such as industrial units), or Council owned housing stock where the tenants pay the utility bills.

3.5 Limitations of Assessment

To date, gas and electricity has been measured as a whole for the entire Council estate. In order to better understand our consumption and evidence the effect of future heat decarbonisation plans, the report also includes specific calculations relating to the use of energy at the Council's largest energy using buildings –

- Civic Centre, Leyland
- Leyland Leisure Centre
- Penwortham Leisure Centre
- Bamber Bridge Leisure Centre
- South Ribble Tennis and Fitness Centre

3.6 Carbon offsetting

The Council has not committed to the use of carbon offsetting, prioritising instead carbon reduction measures.

However, in 2019 the Council commenced a programme to plant 110,00 trees across the Borough – one for each of our residents. Whilst this is not provided as an off-setting figure it forms an important part the Council's response to the climate emergency and improving biodiversity across the Borough.

To date, this programme has seen the planting of 139,381 trees within the Borough and going forwards, the Council has committed to planting a further 200,000 trees in the coming four years.

4.0 Changes in Emissions

4.1 Scope 1, 2 and 3 Emissions

When One Carbon World was employed to calculate the GHG emissions for the Council's activities for 2018-2019, the resulting report made the following recommendations:

1. 'The amount of natural gas used is reviewed and if possible reduced. As natural gas is primarily used for heating purposes, there could be some very quick wins with a thorough audit of the system. On the back of the audit and identification of energy use over time, there could be better/more efficient methods to insulate Council buildings, improve heating systems, or supply alternative/renewable energy sources for heating, e.g. infrared panel heaters, air source heat pumps (ASHPs), ground source heat pumps (GSHPs), solar thermal, solar PV plus others.'

In 2020, the Council was awarded a Public Sector Decarbonisation Scheme round 1 grant of £145,004. This provided heat decarbonisation measures at the Civic Centre, Leyland including the installation of further solar PV panels, the installation of LED lighting, and the provision of an improved building management system, to allow for better energy control and efficiency within the building.

In 2021, the Council was awarded a further grant under round 3 of the Public Sector Decarbonisation Scheme, for the sum of £4,841,414. These works will take place during 2023 and see the removal of mains gas as the primary heat energy source from the

Council's largest energy using buildings, including all of the lesiure centres. They will improve the energy efficiency of the buildings and increase our use of renewable energy sources. It is anticipated that this will have a significant impact upon the Council's carbon footprint.

2. 'The amount of diesel/petrol used is reviewed and if possible reduced. On the back of a thorough audit and identification of diesel/petrol use over time, better/more efficient use of vehicles can be achieved through planning to reduce journey numbers. Also, more and more hybrid and electric vehicles are available in the marketplace with much lower emissions. By phasing out over time vehicles that run on diesel/petrol and replacing them with vehicles that use hybrid technology or that are electric powered, South Ribble Council will be able to reduce the carbon footprint of its operations (and potentially reduce fuel costs).'

The Council has a rolling programme to replace end of life fleet vehicles with electric vehicles, where technology allows.

The Council is working to ensure that as our electric vehicle fleet increases, we will have the infrastructure installed to meet this changing demand.

3. 'To effectively monitor the Carbon Footprint of South Ribble Council over time, it is also recommended that a relevant performance indicator is chosen e.g. tonnes CO₂e per Employee.'

4305.41 tonnes CO₂e / 250 employees = 17.22 tonnes of CO₂e per person per year.

Other performance indicators could also be used, such as those based on financial data

e.g. KgCO₂e per £, with the cost indicator linked to financial turnover and/or profit.'

This has been implemented as part of the data provided within Table 1 of this report, with the both options of total number of employees and full time equivalents (FTE) provided to allow representative benchmarking

Progress towards net zero target

It is anticipated that as the decarbonisation works to the Council's largest energy using buildings are commissioned within the coming months, that the decrease in the use of mains gas, and increase in use of solar powered electricity will provide for a significant reduction in greenhouse gas emissions.

Further to this as the Council transitions to green energy tariffs, then the greenhouse gas emissions associated with electricity use, will also reduce.

Renewable energy installations

During 2020 and 2021 the Council installed an array of PV solar panels and a solar battery package at the Civic Centre, Leyland.

During 2022/23 the installation of solar panels has commenced at the Council's lesiure centres, works which will continue into 23/24. These installations form part of the wider decarbonisation works at the lesiure centres to reduce the greenhouse emissions arising from the operations of these leisure facilities.

During 2022/23 the Council has completed its construction of 15 new Council owned properties at the McKenzie Arms site in Bamber Bridge. These affordable rented homes include PV solar panels, and due to their energy efficiency standards appear as a case study on the UK100 knowledge hub

<https://www.uk100.org/projects/knowledgehub/energy-efficient-high-quality-affordable-rented-homes-south-ribble>

Similarly, for Council projects going forward such as the Leyland Town Deal, renewable energy installations form an integral part of their design.

Recently installed solar panels at Bamber Bridge leisure centre



Purchase of renewable energy

The Council's Climate Emergency Action Plan provides a commitment that '*All electricity will be purchased via green tariffs*', which will be actioned on a '*rolling programme as present Council tariffs expire.*'

As the Council is able to move its estate to green energy tariffs this will further reduce the greenhouse gas emissions arising from the heating and use of the Council's estate.

4.2 Carbon Emission Factors

These are revised and published on an annual basis, for the calendar year. The annual Greenhouse Gas emissions depend not only on the resources used by the Council, but the national emission conversion factors, which may change annually. Links to the emissions factors are provided as references.

4.3 Intensity measurement

We have taken the approach of measuring the Council's emissions per total number of employees, and also per full time employee equivalent so we are able to benchmark against other organisations, to learn

from best practice and help others in making improvements within their own organisations.

For the year 22/23 the intensity measurements have declined. This is in part due to the employment of 43 staff during June 2022 as the waste contract was brought back in house from FCC.

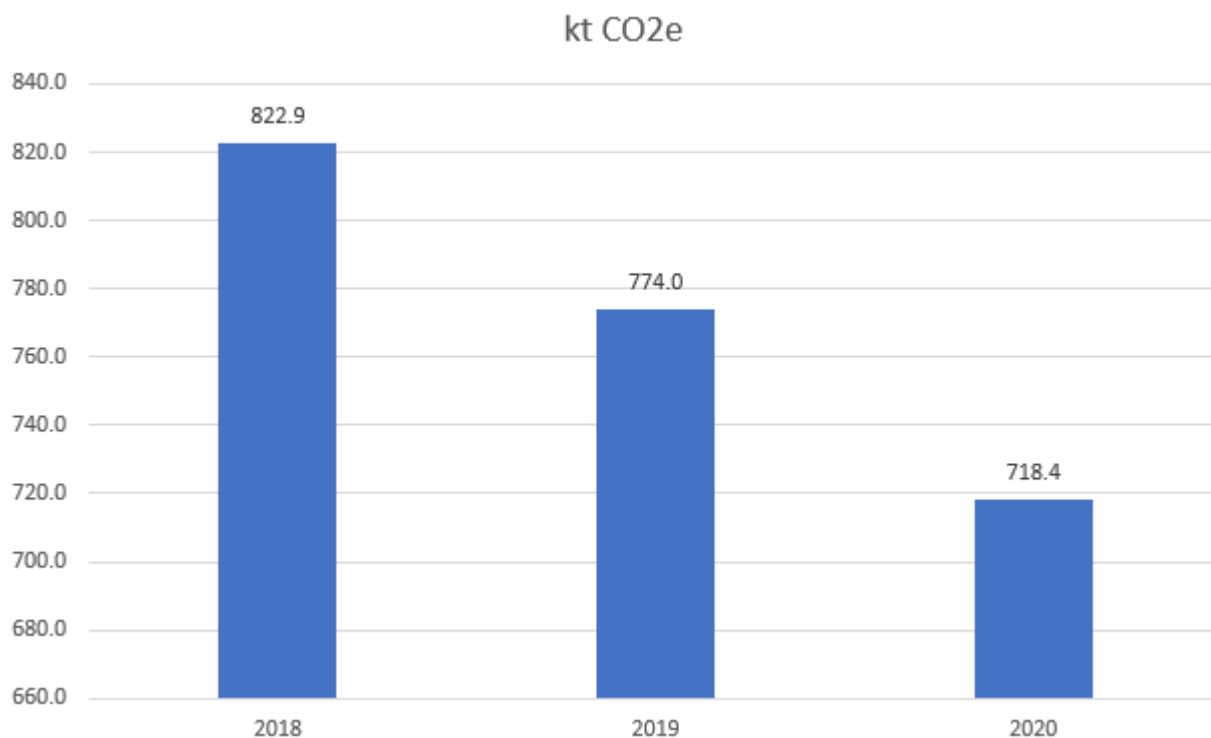
Those employees classed as shared service employees with Chorley Borough Council will be classed as 50% SRBC employees, 50% Chorley Borough Council employees for the purposes of the GHG emissions calculations.

5. Borough of South Ribble

Supplementary to the Borough wide information within the Council's Climate Emergency Strategy 2022, national data, 'UK local authority and regional greenhouse gas emissions national statistics, 2005 to 2020' shows that Borough wide greenhouse gas emissions have decreased in recent years.

Figure 3 below, provides the total greenhouse gas emissions for the Borough, from the first available year of 2018 to the most recent year of 2020.

Figure 3, South Ribble total greenhouse gas emissions estimates from the Office for National Statistics



Data source - <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2020>

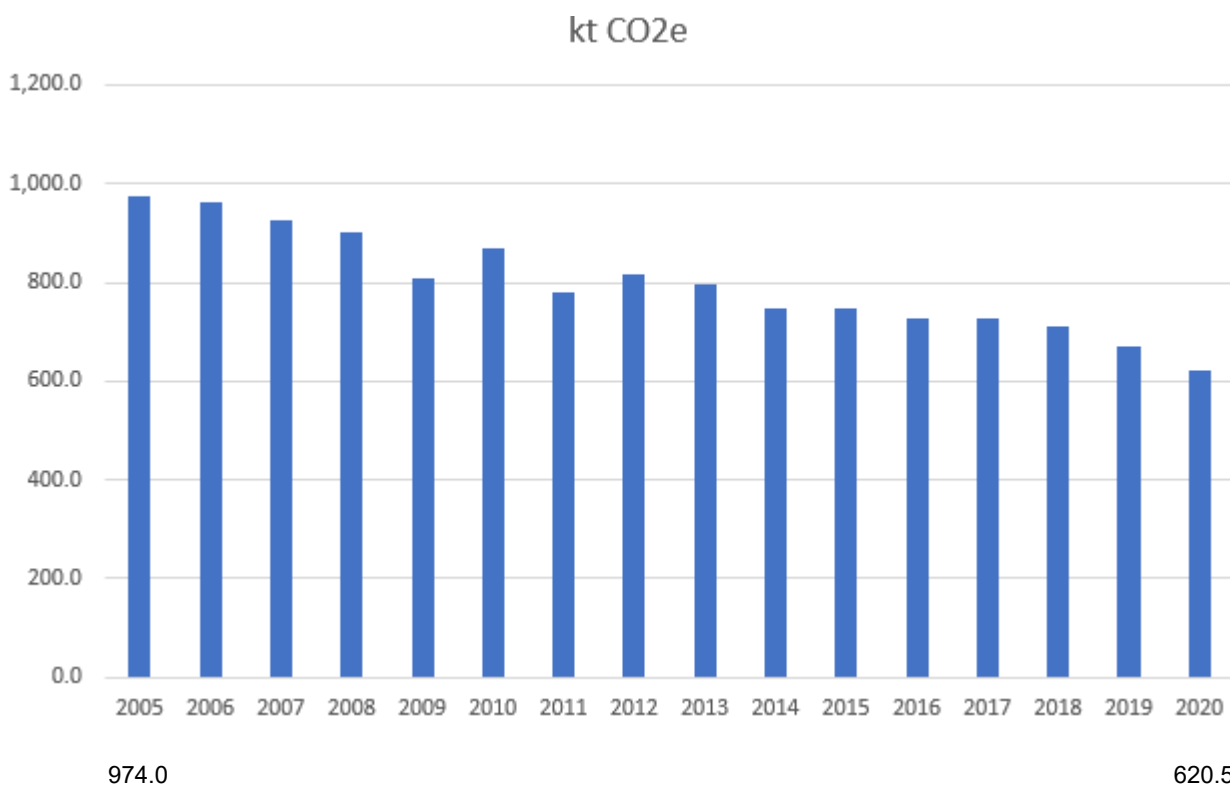
Because estimates of methane and nitrous oxide emissions are not available for all sources prior to 2018, national data and trends going back to 2005 is presented as carbon dioxide (CO2) emissions. The table above provides for all greenhouse gas emissions, whilst figure 4 below, is for carbon dioxide.

Within the report 'UK local authority greenhouse gas emissions estimates 2020' the decline in emissions is examined, and broken down by region. The report states that 'When the local authority emissions are aggregated, estimated total CO2 emissions decreased by around 43% since 2005 (the earliest year for which data are available at local authority level) – falling from 539 million tonnes to 306 million tonnes.' A full copy of the report can be found at

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1086967/uk-local-regional-greenhouse-gas-emissions-2005-2020-release.pdf

For South Ribble specifically, the national statistics supporting this report show that from 2005 – 2020 the total carbon dioxide emissions for the Borough have decreased, as illustrated in Figure 4 below.

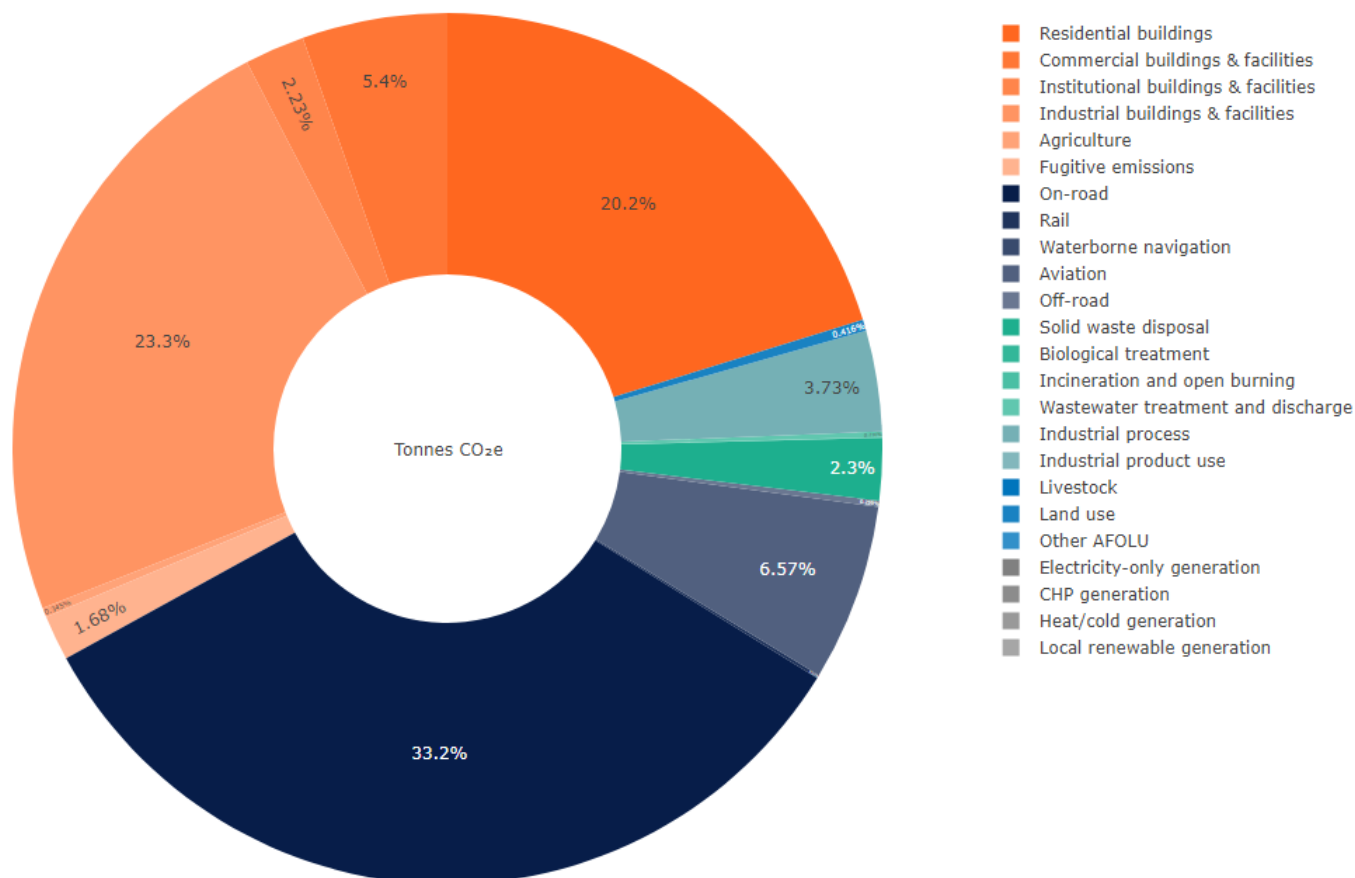
Figure 4, South Ribble carbon dioxide emissions estimates from the Office for National Statistics



Data source - <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2020>

The chart below shows the sectors and activities that contribute to the greenhouse gas emissions for the Borough

Figure 5, Greenhouse gas emissions inventory summary for the borough of South Ribble



Source – Scattercities, <https://scattercities.com/data/inventory>, from data relating to the most recent, 2019, reporting period

Further information relating to borough wide emissions and actions can be found with the Council’s Climate Emergency Strategy and Climate Emergency Action Plan at <https://www.southribble.gov.uk/article/1254/Climate-Change-Emergency>

6. Conclusion

The annual emissions for the Council’s own estate and operations, for the year April 2022 – March 2023 was 2,908,426 kgCO₂e.

As the Council progresses with works to decarbonise its estate and operations, and move to green energy tariffs it is anticipated that emissions will decrease within the coming years, affirming the Council’s commitment to be carbon net zero by 2030.

In respect to the borough as a whole emissions are identified as reducing, with an approximate 300Kt reduction since 2005. However, the borough still has an emission rate of 630Kt in 2020, indicating a significant way to go to achieve the Council’s goal of net carbon-zero by 2030.

Emissions are concentrated within the boroughs Housing Stock, on-road emissions, and agriculture. Identifying areas that need to be concentrated on to achieve the net zero goal.

References

Greenhouse gas protocol: Corporate accounting and reporting standard, (online) available from <https://ghgprotocol.org/corporate-standard> (accessed 7 June 2023)

Greenhouse gas reporting: conversion factors 2018, (online) available from <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2018> (accessed 7 June 2023)

Greenhouse gas reporting: conversion factors 2019, (online) available from <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019> (accessed 7 June 2023)

Greenhouse gas reporting: conversion factors 2020, (online) available from <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020> (accessed 7 June 2023)

2021 Government Greenhouse Gas Conversion Factors for Company Reporting. Methodology Paper for Conversion factors, (online) available from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1049346/2021-ghg-conversion-factors-methodology.pdf (accessed 7 June 2023)

Greenhouse gas reporting: conversion factors 2020, (online) available from <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021> (accessed 7 June 2023)

Greenhouse gas reporting: conversion factors 2020, (online) available from <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2022> (accessed 7 June 2023)

Glossary

BEIS - Department for Business, Energy and Industrial Strategy

Carbon neutral – having no net release of carbon dioxide into the environment

Carbon offsetting – practices to neutralise remaining emissions that cannot be removed entirely

CO₂e - the universal unit of measurement to indicate the global warming potential (GWP) of GHGs, expressed in terms of the GWP of one unit of CO₂.

Cubic metre (m³) – volume made by a cube that is 1 metre on each side. It is equivalent to 1000 litres or 220 gallons

GHG – greenhouse gases - There are seven main GHGs that contribute to climate change, as covered by the Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

Solar PV – Solar Photovoltaic

Kilowatt (kW) – a measure of power, a universal standard for measuring gas and electricity

kWh – a kilowatt hour, the amount of energy being used per hour