

Fylde Borough Council Carbon Emissions Report

June 2023

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1.0 Introduction

This report provides the carbon footprint for the area of Fylde. Within the Fylde Borough, the Council has an important role as a major employer, significant energy user and community leader in leading by example in reporting its own carbon emissions and seeking to reduce them.

This report also provides an annual overview of Greenhouse Gas (GHG) emissions from the Council's estate and operations to the end of March 2020. The GHG emissions have been calculated using guidance and emissions factors published by the department for Business, Energy, and Industrial Strategy (BEIS).

2.0 Results for the Borough

2.1 Carbon footprint report for the area of Fylde

The UK Office for National Statistics (ONS) has published UK local authority estimates of carbon dioxide emissions statistics from 2018 - 2020. Figures 1 - 3 below shows the ONS estimated figures for the Borough of Fylde.

Figure 1 – Total emissions, 2018 - 2020

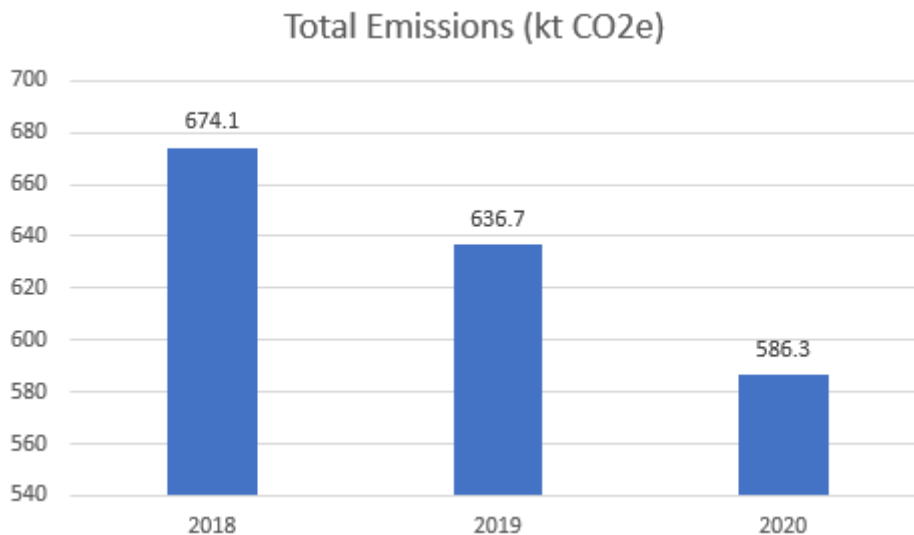


Figure 2 – Emissions per capita, 2018 – 2020

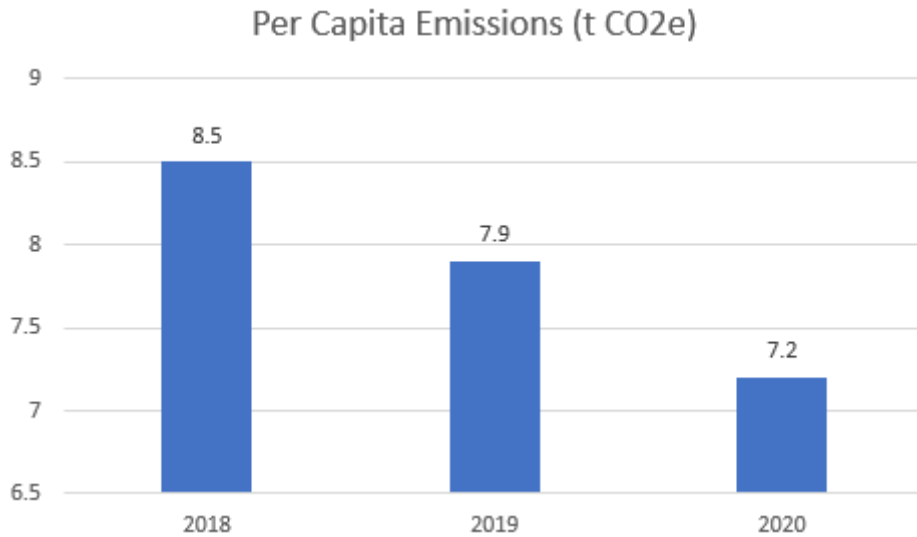
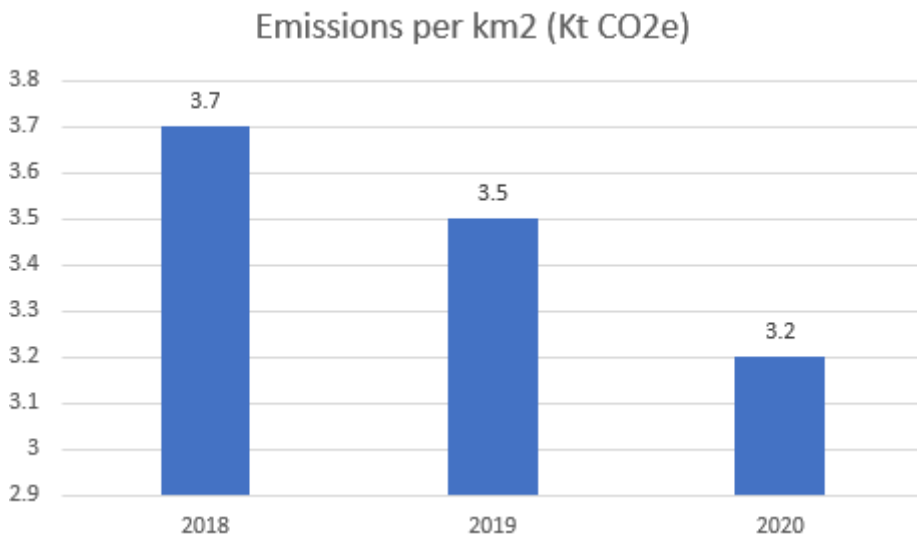


Figure 3 – Emissions per km2, 2018 – 2020



Data source – [UK local authority and regional greenhouse gas emissions national statistics, 2005 to 2020 - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

ktCO2 = Kilotonnes Carbon Dioxide

The data supporting these figures, including breakdown by sector, is provided as Appendix 1.

To compare these trends to regional and national trends for the same period, further information is available from the Department for Business, Energy and Industrial Strategy (BEIS) - [UK local authority greenhouse gas emissions estimates 2020 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk)

The total value can be broken down (Figures 4 and 5) to show those sectors making the greatest contribution to emissions across the borough.

Figure 4 - Borough CO2 emissions by subsector (tCO2e)

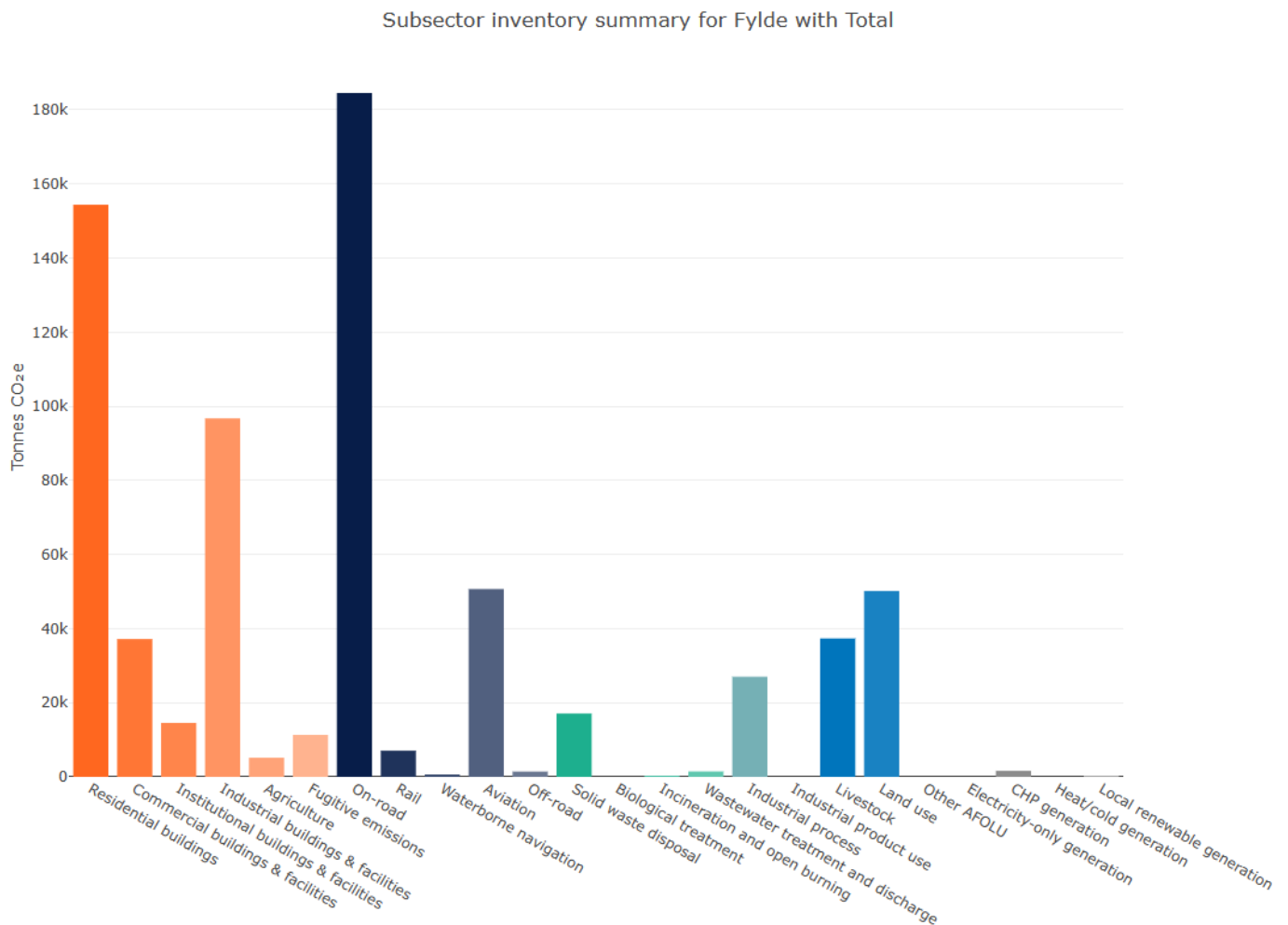
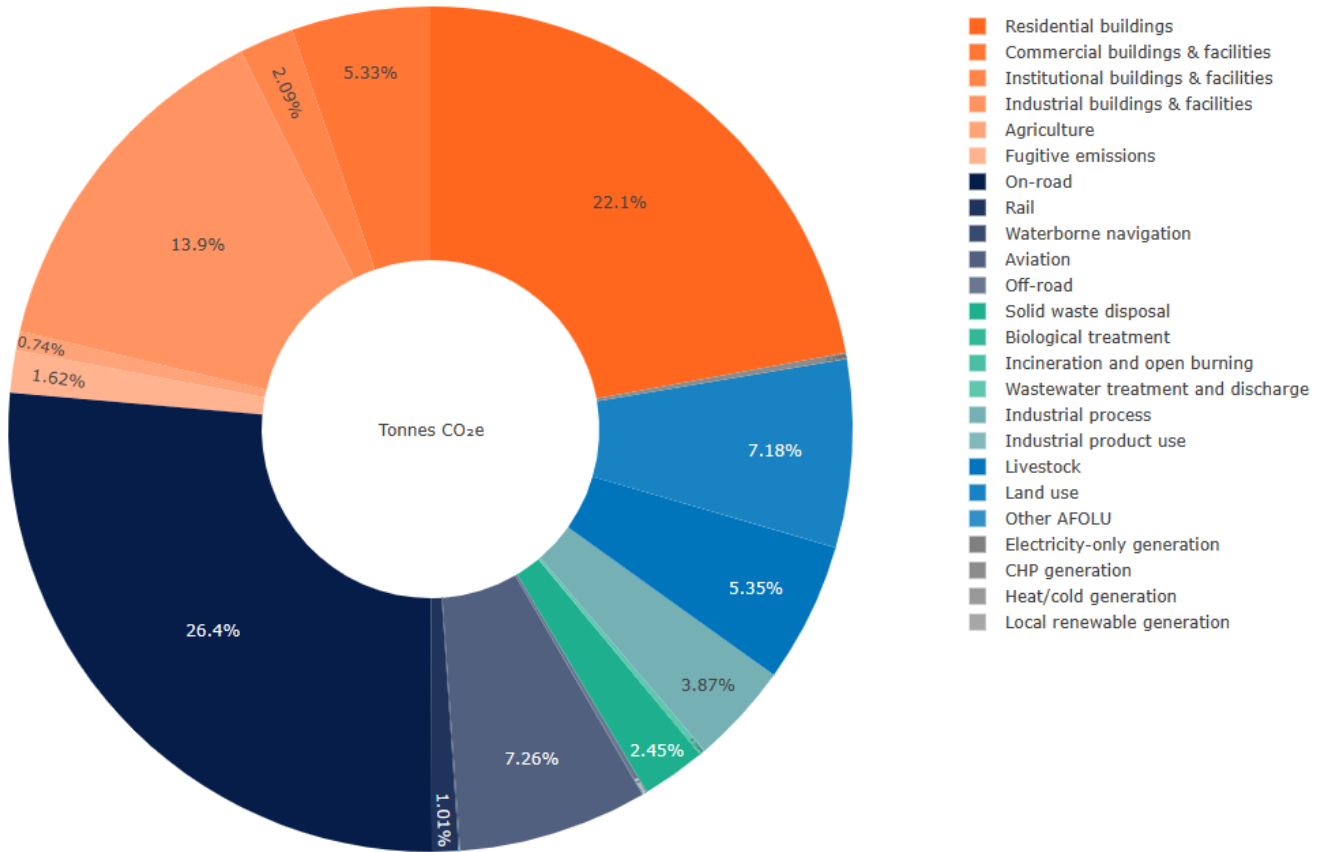


Figure 5 - Borough CO2 emissions by subsector (%)

Subsector inventory summary for Fylde with Total



Data source - [Inventory Summary \(scattercities.com\)](https://scattercities.com), relating to the 2019 reporting period as the latest inventory data available.

2.2 Current Emissions Profile – Lancashire

In 2022, Atkins produced a report, Lancashire Net Zero Pathways Options, on behalf of Lancashire County Council, Blackburn with Darwen Council, Blackpool Council and the Lancashire Economic Partnership (<https://www.lancashire.gov.uk/media/933543/lancashire-net-zero-pathways-report.pdf>). It provides an evidence-based assessment of Lancashire's current carbon footprint and generates carbon reduction pathways that would put the region on track to achieve three targets as follows (against the national target of Net Zero by 2050):

- Net Zero emissions by 2030 (100% reduction relative to 1990 levels);
- 68% reduction of emissions by 2030 (relative to 1990 levels); and
- 78% reduction of emissions by 2035 (relative to 1990 levels).

The report details those measures necessary across the County, including but not exclusively relating to –

- Transport – providing sustainable modes of transport, the infrastructure for clean transport and the need for behavioural change,
- Buildings – key improvement measures including fabric improvements, LED lighting, decarbonisation of heating and renewable energy sources,
- Industrial installations – including energy efficiency, fuel sources, and carbon capture and storage.

3 Carbon footprint report for Fylde Borough Council organisation

This report provides a greenhouse gas (GHG) report for Fylde Borough Council operations, for the year April 2019 – March 2020. It is comprised using methodology guidance and standardised conversion factors provided nationally by the Department for Business, Energy, and Industrial Strategy.

It serves as a baseline report, which future annual greenhouse gas reports can be compared against to demonstrate changes in emissions arising from Council activities.

Corporate GHG annual reporting is based upon activities undertaken during the year, which are divided into 3 emission types –

- Direct emissions, (Scope 1 emissions) - are those from activities owned or controlled by Fylde Borough Council. Examples of Scope 1 emissions include emissions from combustion in owned or controlled boilers, furnaces, and vehicles; and emissions from chemical production in owned or controlled process equipment.
- Indirect energy emissions, (Scope 2 emissions) - are those released into the atmosphere that are associated with the Council's consumption of 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 does not own or control.
- Other indirect energy emissions, (Scope 3 emissions) – other emissions that occur as a result of Council activities, including waste disposal and travel / mileage undertaken by staff as part of their Council duties.

For all of these emission types the Greenhouse Gas equivalent (CO₂e) emissions are calculated by multiplying the resources (e.g., amount electricity used, or distances travelled) during the reporting year by the relevant BEIS national emissions factor for that year.

Fylde 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).

Table 1 – GHG emissions reported as kilograms of carbon dioxide equivalent (kg CO₂e), April 2019 – March 2020.

| Reference | Activity Type | Class | GHG emissions (kg CO ₂ e) |
|---|-------------------------------|----------------------------------|--------------------------------------|
| Scope 1 | | | |
| Natural Gas | Fuels | Natural Gas kWh | 363,232.81 |
| Fleet diesel / petrol, for Council vehicles | Fuels | Diesel, litres Petrol, litres | 640,724.42 |
| Red Diesel / Gas Oil | Fuels | Gas Oil, litres | 6,465.24 |
| Scope 2 | | | |
| Electricity | UK Electricity | Electricity, UK kWh | 175,946.80 |
| Scope 3 | | | |
| Electrical transmission and distribution | Transmission and distribution | Electricity, UK kWh | 14,937.58 |
| Business travel | Business travel - land | Miles, average car | 22,276.85 |
| Water supply | Water supply | water supply, cubic metres | 11,979.80 |
| Waste water | Water treatment | water treatment, cubic metres | 24,656.10 |
| Paper recycling | Waste disposal | Paper | 338.67 |
| General waste disposal | Waste disposal | Municipal waste | 96,446.33 |
| Other, including well to tank calculations for fuels * | | | 254,990.90 |
| Total gross emissions | - | - | 1,611,995.50 |
| Carbon off-setting | - | - | - |
| Total annual net emissions | - | - | 1,611,995.50 |

| | | | |
|--|---|---|-----------------|
| Intensity Measurement (kg CO2e per No. employees)** | - | - | 6,579.57 |
|--|---|---|-----------------|

*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)

**Based upon estimated 245 employees at time of 19/20 reporting period

Table 2 – Fylde Borough Council’s operational scopes

| Scope 1 (direct) | Scope 2 (energy) | Scope 3 (other indirect) |
|---|---|---|
| Gas and oil used for heating Council operated buildings | Electricity consumption within operated Council Buildings | Employee business travel |
| Fuel consumption from Fylde BC fleet vehicles | | Electrical transmission and distribution |
| | | Waste disposal, including paper recycling |
| | | Water consumption |
| | | Waste water |
| <i>Excluding</i> | <i>Excluding</i> | <i>Excluding</i> |
| Refrigerant emissions from air conditioning and other equipment | | Some material use and disposal, including items such as books, tyres, clothing / uniforms, and electrical items. Paper use |
| | | Employee and elected member commuting |
| | | Mileage undertaken by elected members |

Figure 6 – Baseline carbon emissions from gas per building

The chart illustrates how the baseline carbon emissions resulting from gas use may be compared per building, to allow the Council to target any future decarbonisation works to those with the greatest carbon footprint.

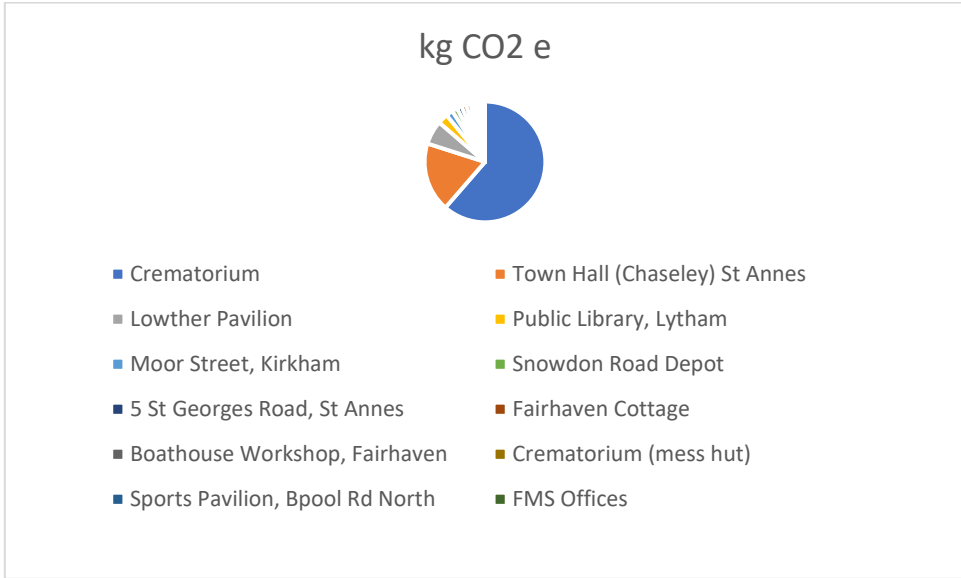
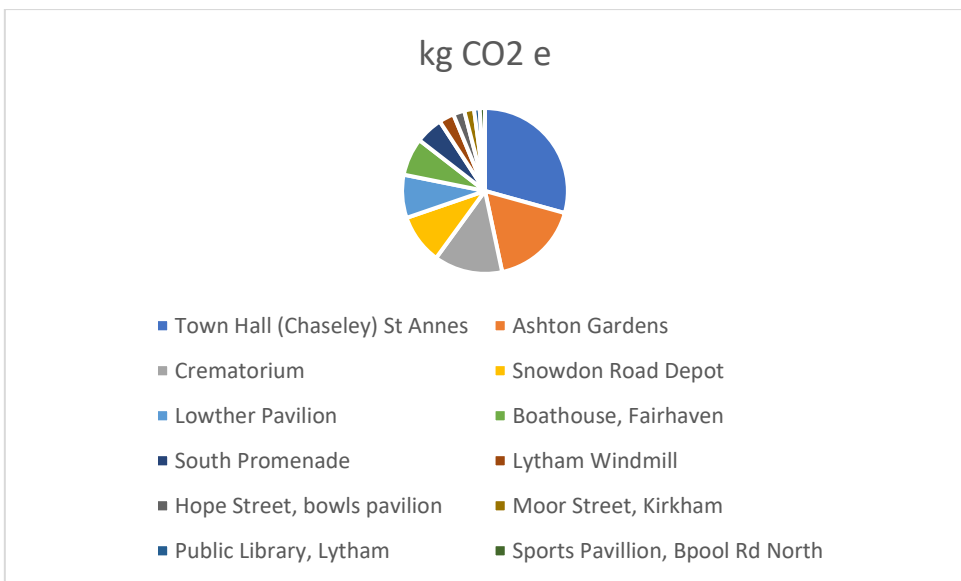


Figure 7 – Baseline carbon emissions from electricity per building / facility

The chart illustrates how the baseline carbon emissions resulting from electricity use may be compared per building / facility, to allow the Council to target any future renewable energy installations to those with the greatest carbon footprint.



3.1 Organisation Information

Fylde 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 81,000 and has approximately 245 employees.

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

3.2 Reporting Period

The emissions provided are for the footprint period of April 2019 to March 2020, as a recent but reliable period before the full effects of pandemic restrictions upon Council activities (accepting there may have been some change of use caused by pandemic restrictions towards the end March 2020)

The methodology used is the national methodology to allow for consistent reporting and benchmarking against similar organisations.

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.

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 activities / emissions which may be 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
- Staff mileage

3.4 Gases included within the GHG annual reporting.

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). Different activities emit different gases, and you should report on the Kyoto Protocol GHG gases produced by your particular activities.

All conversion factors presented the BEIS national reporting methodology are in units of 'kilograms of carbon dioxide equivalent of Y per X' (kg CO₂e of Y per X), where Y is the gas emitted and X is the unit activity. CO₂e is the universal unit of measurement to indicate the global warming potential (GWP) of GHGs, expressed in terms of the GWP of one unit of carbon dioxide.

The GWPs used in the calculation of CO₂e are based on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) over a 100-year period (this is a requirement for inventory/national reporting purposes).

As a minimum, for each activity there is a factor that can be used to calculate emissions of all relevant GHGs combined (kg CO₂e per unit activity).

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.

Fylde 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).

3.5 Assumptions and / or Omissions

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

Emissions arising from unmetered electrical consumption have been estimated using the total cost over the twelve month period and an average kWh charge for commercial contracts during 2019/2020.

3.6 Limitations of Assessment

Within the greenhouse gas calculations gas and electricity have been measured as a whole for the entire Council estate. In order to better understand consumption and evidence the effect of future heat decarbonisation plans, the report also includes as Figures 6 and 7, comparisons relating to the carbon emissions arising from the use of mains gas and electricity at the Council's largest energy using buildings and facilities.

3.7 Carbon offsetting

No off-setting data was provided for inclusion within this report.

3.8 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 below.

3.9 Intensity measurement

We have taken the approach of measuring the Council's emissions per total number employees, so we are able to benchmark against other organisations, to learn from best practice and help others in making improvements within their own organisations.

1,611,995.50 kgCO₂e / 245 employees = 6,579.57 kgCO₂e per employee per year.

3.10 Carbon footprint reduction recommendations

The most significant source of CO₂e emissions for the Council organisation are fuel use, primarily natural gas.

To reduce these emissions it is recommended that:

The amount of natural gas used across the Council's estate is reviewed and reduced where possible. An energy audit of the Council estate may provide for possible savings, which may include –

- Review of operations at the crematorium, to ensure facility operating to maximum efficiency.
- Decarbonisation of Council buildings to move from mains gas to electricity-based heating systems such as air source heat pumps or ground source heat pumps.
- Improved insulation
- Greater use of renewable energy sources such as solar panels (PV)

Some decarbonisation projects may be eligible for grant funding. For further information on public sector grant funding opportunities see [Public Sector Decarbonisation Scheme - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

In addition, it is recommended that the amount of diesel / petrol used is reviewed and reduced where possible. An audit of the Council's fleet may provide for possible savings, which may include –

- Efficient use of fleet through improved journey planning and driving styles
- The phasing out of conventional vehicles (petrol and diesel) in favour of electric vehicles, reducing not only carbon emissions but potentially fuel costs.
- Utilising the services of the Energy Saving Trust fleet support service to provide a bespoke analysis of the Council's fleet, and recommendations for savings. Details of this service can be found at <https://energysavingtrust.org.uk/service/fleet-support/>

References

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

Greenhouse gas reporting: conversion factors 2019, (online) available from [Greenhouse gas reporting: conversion factors 2019 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019)

2019 Government Greenhouse Gas Conversion Factors for Company Reporting. Methodology Paper for Conversion factors, (online) available from [Greenhouse gas reporting: conversion factors 2019 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019)

Glossary

BEIS - Department for Business, Energy, and Industrial Strategy

Carbon budget – the amount of carbon dioxide that can be emitted to be in line with keeping temperatures well below 2°C and pursue a 1.5°C limit to rising temperatures.

Carbon dioxide – a key greenhouse gas with a long lifetime in the atmosphere.

Carbon neutral – having no net release of carbon dioxide into the environment. Carbon Neutral may be used as shorthand for Net Zero Greenhouse Gas emissions, taking into account our direct emissions in the city from energy use and transport but also our total indirect emissions which includes aviation and the consumption of goods and service produced elsewhere.

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 one metre on each side. It is equivalent to 1000 litres or 220 gallons.

Decarbonisation - reducing the carbon emissions from an energy system.

DEFRA - Department for Environment, Food and Rural Affairs

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).

IPCC – Intergovernmental Panel on Climate Change, the United Nations body for assessing the science relating to climate change.

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.

Kyoto Protocol – this commits industrialised countries to limit and reduce GHG emissions based upon the 1990 levels. (United Nations)

Scope 1 emissions– direct GHG emissions – these occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.; emissions from chemical production in owned or controlled process equipment (Greenhouse Gas Protocol.org). They are mainly energy related.

Scope 2 emissions– Electricity indirect GHG emissions – this accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated. (Greenhouse Gas Protocol.org).

Scope 3 emissions – all other greenhouse gas emissions that occur as a result of activities taking place within wider operations, supply chains, investments, etc.

Solar PV – Solar Photovoltaic

Further information

Net Zero Strategy: Build Back Greener, October 2021 -

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf

Lancashire Net Zero Pathways Options, March 2022 -

<https://www.lancashire.gov.uk/media/933543/lancashire-net-zero-pathways-report.pdf>

State of the Environment: Renewable Technology Input. A technical report on renewable energy deployment opportunities across Lancashire to 2030, November 2021 –

<https://www.lancashire.gov.uk/media/933547/state-of-the-environment-renewable-technology-input.pdf>

(Lancashire) Climate Resilience Study, December 2021 -

<https://www.lancashire.gov.uk/media/933545/climate-resilience-study.pdf>

UK Local Authority Greenhouse Gas Emissions Estimates 2020 – [UK local authority greenhouse gas emissions estimates 2020 \(publishing.service.gov.uk\)](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/933545/uk-local-authority-greenhouse-gas-emissions-estimates-2020.pdf)

Appendices

Appendix 1 – Local Authority territorial greenhouse gas emissions estimates 2005 -2020 (Kt CO₂e) Summary for Fylde

| Calendar Year | Industry Total | Commercial Total | Public Sector Total | Domestic Total | Transport Total | LULUCF Net emissions | Agriculture Total | Waste management Total | Grand Total | Population ('000s, mid-year estimate) | Per capita Emissions (t CO ₂ e) | Area (km ²) | Emissions per km ² (kt CO ₂ e) |
|---------------|----------------|------------------|---------------------|----------------|-----------------|----------------------|-------------------|------------------------|-------------|---------------------------------------|--|-------------------------|--|
| 2005 | 207.8 | 70.5 | 38.6 | 225.4 | 212.1 | 53.5 | [x] | [x] | [x] | 74.8 | [x] | 182.6 | [x] |
| 2006 | 216.8 | 73.6 | 39.6 | 227.7 | 204.2 | 53.6 | [x] | [x] | [x] | 74.8 | [x] | 182.6 | [x] |
| 2007 | 200.5 | 67.3 | 34.1 | 219.6 | 212 | 53.4 | [x] | [x] | [x] | 75.3 | [x] | 182.6 | [x] |
| 2008 | 223.3 | 79.8 | 39.2 | 219.8 | 201.3 | 53.3 | [x] | [x] | [x] | 75.2 | [x] | 182.6 | [x] |
| 2009 | 211 | 67.3 | 37.2 | 200.2 | 190.7 | 53.3 | [x] | [x] | [x] | 75.4 | [x] | 182.6 | [x] |
| 2010 | 234.6 | 70.2 | 41.9 | 214.6 | 189.8 | 53.3 | [x] | [x] | [x] | 75.6 | [x] | 182.6 | [x] |
| 2011 | 207.1 | 60.6 | 35.1 | 187.6 | 190.6 | 53.2 | [x] | [x] | [x] | 76.1 | [x] | 182.6 | [x] |
| 2012 | 178.9 | 50.3 | 22.6 | 201.9 | 186.1 | 53.4 | [x] | [x] | [x] | 76.1 | [x] | 182.6 | [x] |
| 2013 | 174.4 | 45.2 | 20.9 | 195.5 | 186.3 | 53.3 | [x] | [x] | [x] | 76.5 | [x] | 182.6 | [x] |
| 2014 | 161.8 | 40 | 17.7 | 165.4 | 187.6 | 53.5 | [x] | [x] | [x] | 77.1 | [x] | 182.6 | [x] |
| 2015 | 139.5 | 33.1 | 15.6 | 162.4 | 192.5 | 53.4 | [x] | [x] | [x] | 77.5 | [x] | 182.6 | [x] |
| 2016 | 131.7 | 29.2 | 14.3 | 153.6 | 191.1 | 53.8 | [x] | [x] | [x] | 78.2 | [x] | 182.6 | [x] |
| 2017 | 119.6 | 27 | 14 | 145.9 | 188.7 | 53.8 | [x] | [x] | [x] | 78.9 | [x] | 182.6 | [x] |
| 2018 | 121.5 | 27.3 | 15.4 | 144.6 | 191.2 | 54 | 81 | 39.2 | 674.1 | 79.8 | 8.5 | 182.6 | 3.7 |
| 2019 | 98.6 | 23.5 | 14.3 | 140.6 | 191.7 | 54 | 80.9 | 33.1 | 636.7 | 80.8 | 7.9 | 182.6 | 3.5 |

| | | | | | | | | | | | | | |
|------|------|------|------|-------|-------|------|------|------|-------|------|-----|-------|-----|
| 2020 | 95.4 | 17.7 | 13.1 | 137.2 | 159.3 | 54.1 | 78.2 | 31.3 | 586.3 | 81.2 | 7.2 | 182.6 | 3.2 |
|------|------|------|------|-------|-------|------|------|------|-------|------|-----|-------|-----|

A copy of the full dataset can be accessed at [UK-local-authority-ghg-emissions-2020.xlsx \(live.com\)](#)