

Part 1: Organisational Carbon Emissions Summary

1. Aims and Purpose

This report has been developed to outline Warwick District Council's carbon emissions data and is based on the Local Partnership's methodology for calculating greenhouse gas emissions, which is widely used across the local authority sector, including within and Warwickshire. The methodology draws on UK Government carbon emission conversion factors: [Government conversion factors for company reporting of greenhouse gas emissions - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/government-conversion-factors-for-company-reporting-of-greenhouse-gas-emissions).

2. Types of Emissions - Scopes

There are three types of emissions, referred to as Scopes 1, 2 and 3 - these categorise emissions into three different types as follows.

Scope 1 - Direct emissions. These emissions relate to activities that are owned or controlled by the organisation and involve the release of emissions straight into the atmosphere. Examples include combustion emissions from gas boilers in council buildings and emissions from council owned vehicles.

Scope 2 - Energy indirect emissions. These emissions are associated with the consumption of purchased electricity, heat, steam and cooling. These emissions arise as a consequence of the organisation's activities but are not owned or controlled by them as they are released at power stations where the electricity is generated.

Scope 3 - Other indirect emissions. These are emissions that are a consequence of the organisation's actions that occur at sources that are not directly owned or controlled. Examples for the council include outsourced activities, business travel by staff using their own vehicles at work and also outsourced activities.

3. Reporting Period

The reporting period is for the financial years 2018-19, 2019-20, 2020-21, 2021-22 and 2022-3. The carbon footprint baseline year is 2018-19. Updates for 2023-24 will be collated during the summer of 2024.

4. Measuring and Reporting Approach

A number of gases contribute to climate change and six main greenhouse gases (GHGs) are covered in the Kyoto Protocol: carbon dioxide (CO₂), methane (CH₄), hydrofluorocarbons (HFCs), nitrous oxide (N₂O), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆). Different activities emit different gases; for example, burning fossil fuels releases carbon dioxide, methane and nitrous oxide into the atmosphere. It is standard practice to report GHGs in tonnes of CO₂ equivalents (CO₂e). In order to achieve this, conversion factors are used that are located on the GOV website and are produced by Defra on an annual basis.

Conversion factors help organisations convert their activities into equivalent carbon emissions. The conversion factors change annually taking into account a number of influences including fuel mix, consumption from UK power generation along with imports and exports in relation to gas and electricity. It is best practice to use the conversion factors from the calendar year in which the greatest portion of your data falls, therefore for 2022-23 reporting year, the 2022 conversion factors have been used.

There are in total around 60 conversion factors covering a range of fuels and a wide range of different vehicles. However, the most significant factors for WDC’s calculations are set out below in Figure 1:

Figure 1

| | Natural Gas | Purchased electricity | T&D Losses - Scope 2 Electricity | Water Supply | Liquid Petroleum Gas | Medium petrol car 1.4 - 2.0 litre | Electric Vehicle | Diesel (average biofuel blend) |
|----------------|------------------------------------|-------------------------|----------------------------------|------------------------------------|----------------------|-----------------------------------|------------------|--------------------------------|
| Reporting Year | kgCO ₂ e/kWh (Gross CV) | kgCO ₂ e/kWh | kgCO ₂ e/kWh | kgCO ₂ e/m ³ | | | | kgCO ₂ e/litre |
| 2014-15 | 0.185 | 0.494 | 0.043 | 0.344 | | 0.323 | 0.000 | 2.602 |
| 2015-16 | 0.185 | 0.462 | 0.038 | 0.344 | | 0.321 | 0.000 | 2.584 |
| 2016-17 | 0.184 | 0.412 | 0.037 | 0.344 | | 0.322 | 0.000 | 2.612 |
| 2017-18 | 0.184 | 0.352 | 0.033 | 0.344 | | 0.314 | 0.000 | 2.672 |
| 2018-19 | 0.184 | 0.283 | 0.024 | 0.344 | | 0.312 | 0.096 | 2.627 |
| 2019-20 | 0.184 | 0.256 | 0.022 | 0.344 | 0.214 | 0.309 | 0.089 | 2.594 |
| 2020-21 | 0.184 | 0.233 | 0.020 | 0.344 | 0.214 | 0.300 | 0.085 | 2.546 |
| 2021-22 | 0.183 | 0.212 | 0.019 | 0.149 | 0.214 | 0.302 | 0.081 | 2.512 |
| 2022-23 | 0.183 | 0.205 | 0.018 | 0.177 | | | | |

The emissions are calculated as follows: Activity Data x Emission Factor = Carbon dioxide equivalent (CO₂e)

5. Organisational Boundary

All areas of the council’s operations have been considered. However, it should be noted that energy relating to home working is excluded, not least because of the difficulty in defining and measuring this energy.

6. Operational Scopes

The Scope 1 emissions include the gas emissions from the council's buildings, council owned vehicles and all business lease vehicles such vans and pool cars. Fugitive emissions relating to air conditioning and refrigeration units have been excluded because it has been considered too complex to calculate at the current time.

The Scope 2 emissions are those associated with the mains electricity consumption from the council’s buildings.

The Scope 3 emissions include the gas and electricity consumption from outsourced activities, the business mileage from private and leaseholder vehicle use. Rail, bus and air travel where appropriate would usually be included but were not available at the time of reporting. Buildings that are managed by outsourced contracts are also included where the contractor is responsible for bill payments. Data on refuse and recycling trucks, road sweepers, grounds maintenance mowers and vans used by for the Neighbourhood Services contract are also included. Emissions from commuter travel have been excluded due to this not being available. The emissions arising from water use from supply and distribution also fall into Scope 3 along with biomass pellets used for heating some buildings.

7. Carbon Emissions Data

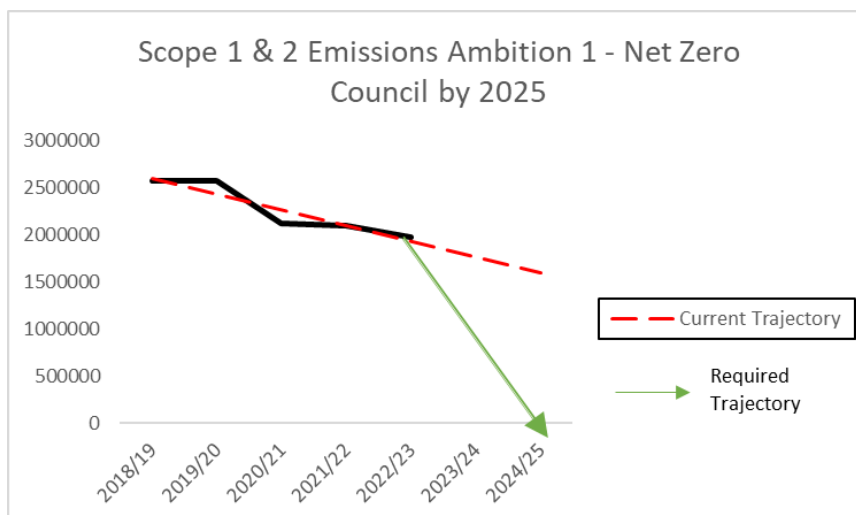
Figure 2 – Warwick District Council Top Level Data Summary

WDC Carbon Emissions Summary Table

| Scope / Activity | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 |
|---|------------------|------------------|------------------|------------------|------------------|
| | (base year) | | | | |
| | Kg CO2e | Kg CO2e | Kg CO2e | Kg CO2e | KgCO2e |
| Scope 1 | | | | | |
| Gas | 1,251,217 | 1,249,158 | 1,200,938 | 1,152,444 | 1,087,798 |
| LPG | 36,760 | 32,774 | 35,229 | 3,646 | 3,646 |
| Lease Vehicles | 21,002 | 14,980 | 13,204 | 30,314 | 9,947 |
| Total (Scope 1) | 1,308,978 | 1,296,912 | 1,249,370 | 1,186,405 | 1,101,391 |
| Scope 2 | | | | | |
| Electricity | 1,260,865 | 1,280,251 | 874,164 | 910,791 | 873,783 |
| Total (Scope 2) | 1,260,865 | 1,280,251 | 874,164 | 910,791 | 873,783 |
| Scope 3 | | | | | |
| Biomass | 4,248 | 4,426 | 14,050 | 9,987 | 5,563 |
| Water | 11,767 | 13,980 | 4,202 | 18,505 | 2,223 |
| T&D Losses | 107,470 | 108,691 | 75,178 | 80,600 | 15,492 |
| Neighbourhood Services Transport (waste, grounds and cleansing) | 1,703,971 | 1,682,688 | 1,651,509 | 1,629,662 | 1,516,111 |
| Neighbourhood Services Buildings (waste contract) | 37,092 | 34,543 | 32,470 | 30,506 | 63,584 |
| Business travel from greyfleet (staff own vehicles) | 53,599 | 54,427 | 33,665 | 43,964 | 44,402 |
| Leisure Centres | 805,945 | 1,717,232 | 598,506 | 814,093 | 668,471 |
| Total (Scope 3) | 2,724,091 | 3,615,988 | 2,409,580 | 2,627,317 | 2,315,845 |
| Total Gross Emissions (kg) | 5,293,934 | 6,193,152 | 4,533,115 | 4,724,513 | 4,291,019 |
| Total Gross Emissions (t) | 5,294 | 6,193 | 4,533 | 4,725 | 4,291 |

From the summary data in *Figure 2* for Warwick District Council, the Scope 3 emissions account for more than half of all emissions and the emissions from Scope 3 transport account for approximately a third of total emissions. Emissions overall have decreased by 1000 tonnes CO₂e (19%) since the 2018/19 baseline. The 2020/21 data was heavily impacted by covid, with many operations not running as normal (such as Leisure Centres). The table does demonstrate, however, that emissions for 2022/23 are now lower than 2020/21 by around 5%.

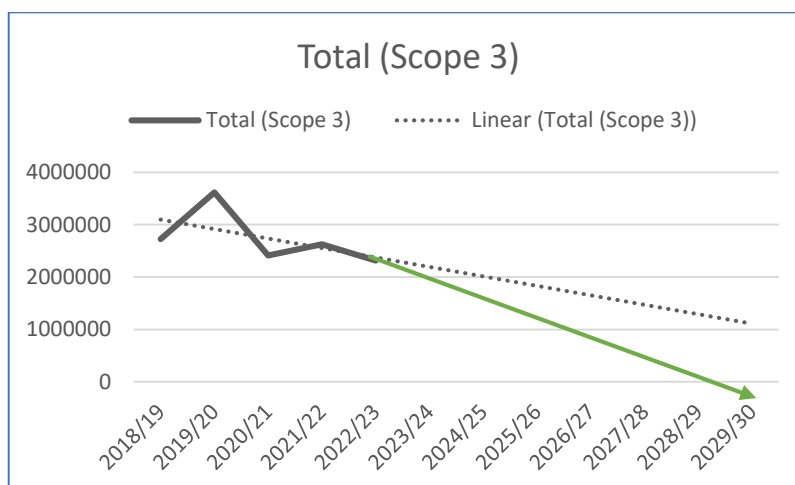
Figure 3 – Warwick District Council Scope 1 and 2 Emissions. Net Zero District 2025



The Council has set itself the ambition of reaching net zero for its organisational carbon emissions (excluding contracted services) by 2025. The scope 1 and scope 2 emissions provide a measure of progress towards this ambition. *Figure 3* Shows the Warwick District Council scope 1 and 2 emissions (KGCo2e) observed since 2018/19 base year and the current trajectory. The green arrow represents the required trajectory to meet our net zero council 2025 target. To date, scope 1 and scope 2 emissions have fallen by 23%. Following current trends, the scope 1 and 2 emissions will have reduced by around 35% by 2024/25 and by 41% by 2025/26. This shows that unless there is a dramatic increase in the annual level of carbon reduction achieved over the next 2 to 3 years, the ambition will be missed without carbon offsetting.

Figure 4 shows the progress and trends towards our ambition for our contracted services (scope 3) to be net zero by 2030.

Figure 4: Warwick District Council Scope 3 Emissions. Net Zero Contracted Services by 2030



With regard to contracted services (scope 3 emissions), the most significant sources of carbon emissions are transport (predominantly refuse collection vehicles) and leisure centres. The new contract with Biffa appears to be helping to reduce waste contract emissions to a degree, although for the reasons explained below, this data needs to be treated with some caution. Improvements in this area need to be accelerated to achieve the 2030 ambitions for contracted services. This will require the introduction of alternative fuels ahead of or at the time of the new waste contract in

2029/30. The trends relating to leisure centres are harder to identify due to current and previous rebuilding programmes.

Whilst it is hard to directly relate WDC actions to any particular trends, three things should be noted

- The report to Overview and Scrutiny Committee in July 2023 set out progress that is being made on the current CCAP. The report showed significant progress in key areas and given these actions have been designed to impact on carbon emissions, it is not unreasonable to suggest that, at least in part, these actions are related to the trends.
- Once in place, the measures set out in Appendix 2 may provide better and more responsive insights into the impact that key elements of the CCAP are having on the organisational (and potentially, District) carbon emissions data.
- The conversion factors set out in figure 1 are also having an impact, particularly in relation to transport and electricity use. These reductions are as a result of cleaner fuels at a national level.

Limitations on the data:

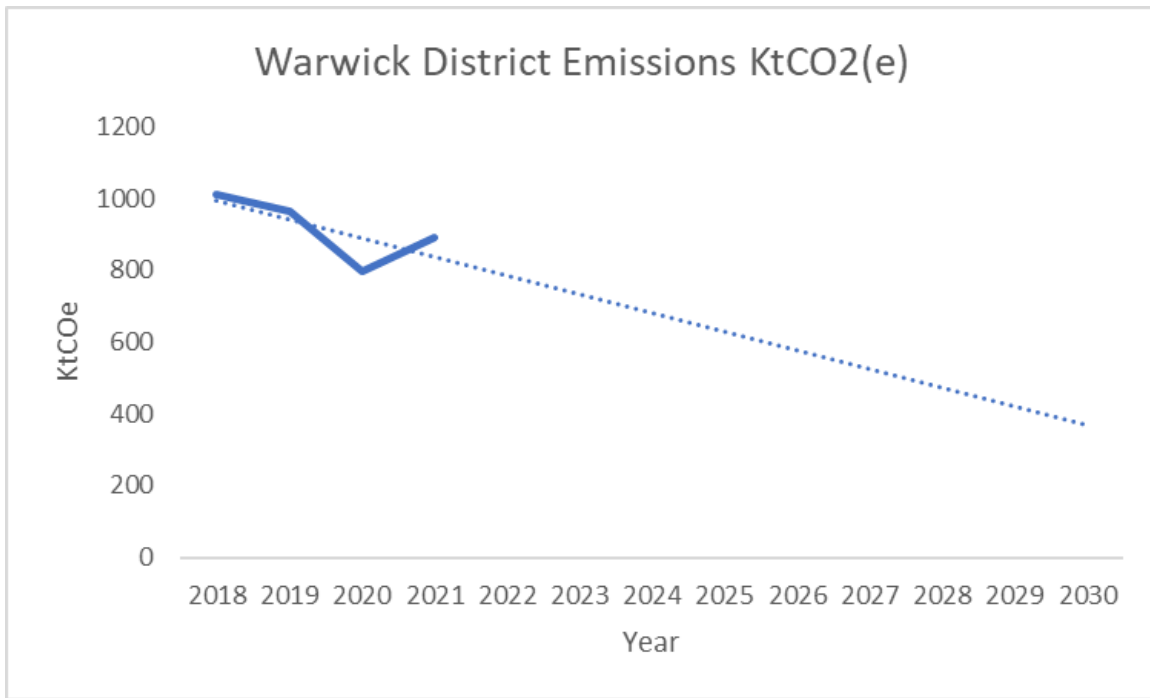
- The waste contract changed part way through the last financial year which means the first part of the year's emissions are estimated. The emissions for the latter part of the financial year represent half of the emissions on the joint South Warwickshire waste contract. For future we hope to present a more accurate breakdown of these figures for the Warwick District Area.
- The leisure centre data is limited compared to previous years owing to the closure of Abbey Fields and Castle Farm
- Greyfleet Travel data does not account that some of these vehicles may be taken in electric vehicles and assumes that all vehicles are medium petrol cars.
- LPG is a small contribution to the district's emissions however the data is an estimate based on last years data owing to a lack of available data.
- For fleet electric vehicles, it is assumed these are charged away from the district estate. Knowing that some charging is on the district estate there will inevitably be some double counting here and so this should be considered an over-estimate.
- Water, Electric and Gas meter data points occasionally read a negative figure where a previous overestimate is corrected. These occasionally cross a financial year, however the impact on the overall total is negligible.

Part 2: District-wide Carbon Emissions at 2023

Figure 5 shows the district wide emissions from the 2018 base year until the most recent emissions data published for 2021 using UK Government data. Although the trendline for this looks to be on target for a 55% reduction by 2030 in line with our targets, there is not enough data to be confident of this. 2020 sees a reduction because of the Covid lockdowns which restricted numerous institutions from operating fully. The data shows a rebound for 2021 as lockdowns ease. However, there is not enough data for the period after 2020 to be clear how the trend is continuing.

Figure 5: Districtwide Emissions (Source UK Government)

<https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics>)



It should also be noted that previous data and update reports have been based on a somewhat different data set known as “Scatter Cities” and indeed the Scatter data underpinned the analysis undertaken in 2021 to set the ambition of a 55% reduction by 2030. Whilst the Scatter data is broadly based on the UK Government data set out in Figure 5 and can therefore be expected to show broadly similar trends, the Scatter data collates data from other sources as well and breaks down the data into sources of emissions. However, the annual Scatter data update has not been published in 2023 and is expected to be delayed until Spring 2024. We are not therefore able to directly compare the data provided in Figure 5 with the Scatter data that has been reported in previous years. A paper will be circulated to members as soon as the Scatter data becomes available. In the meantime, the data in Figure 5 above is intended only as a reflection on the state of play.