

Leicester  
City Council

## Leicester's City-Wide Carbon Footprint Statement 2018

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## **1. Executive Summary**

Leicester's city-wide carbon dioxide (CO<sub>2</sub>) emissions in 2018, as calculated using figures provided the UK government's Department for Business, Energy and Industrial Strategy (BEIS), were 1,273.2 ktCO<sub>2</sub>. 0.7% reduction on 2017 levels and a 46.7% reduction compared to the 1990 baseline. Emissions per capita in 2018 were 3.6 tCO<sub>2</sub>.

The figures cover three sectors: industrial, domestic and transport. In 2018 there was a fall in emissions from industry and transport, but an increase from domestic energy use. The largest reductions are due to a fall in emissions from industrial and commercial electricity, followed by domestic electricity, whereas emissions from gas use increased in both sectors. Transport emissions reduced faster than other sectors in 2018 but have still fallen much less than overall since 1990.

## **2. Introduction**

Leicester's city-wide carbon footprint reports on the carbon dioxide emissions produced by Leicester each year, reported in terms of kilotons (1000 tonnes) of carbon dioxide (ktCO<sub>2</sub>). This includes emissions from industrial and commercial gas, electricity and other fuels, domestic gas, electricity and other fuels and emissions from transport in the city.

It uses information produced by the UK government's Department for Business, Energy and Industrial Strategy (BEIS). This report covers the 2018 calendar year, as this is the most up-to-date information available.

This report compares the carbon emissions for 2018 with previous years. It identifies how emissions have changed in each sector, and measures progress on reducing them. It also shows where more work be needed to reduce emissions in the future.

## **3. Leicester's Climate Emergency**

Carbon dioxide is a greenhouse gas and is the most widely produced by human activity such as burning fuels for heat, electricity and transport. Greenhouse gases trap the sun's heat on earth and are raising the average temperature of the world. This is already causing climate change, leading to extreme weather, sea level rise and damage to nature.

Leicester City Council declared a climate emergency in February 2019. This means that we are prepared to play our part in reducing carbon emissions to prevent the impacts of climate change getting much worse.

Reducing Leicester's carbon emissions will require action from everyone, including the council, residents, communities and businesses. The council is currently producing a new strategy and action plan for the climate emergency, to outline the actions we are taking a spur further progress on emissions reduction.

#### **4. Our Targets**

Following Leicester City Council's declaration of a climate emergency a new ambition has been developed, for the city and council to reach carbon neutrality by 2030 or as soon as possible, subject to the necessary support from national government.

#### **5. Methodology**

This report uses figures produced by BEIS for each local authority area in the UK. More details about these figures, and how they are calculated is available here: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics>

#### **6. Emissions Sources Covered**

The figures in this report cover consumption-based carbon dioxide emissions in Leicester for sources considered to be within local authority influence.

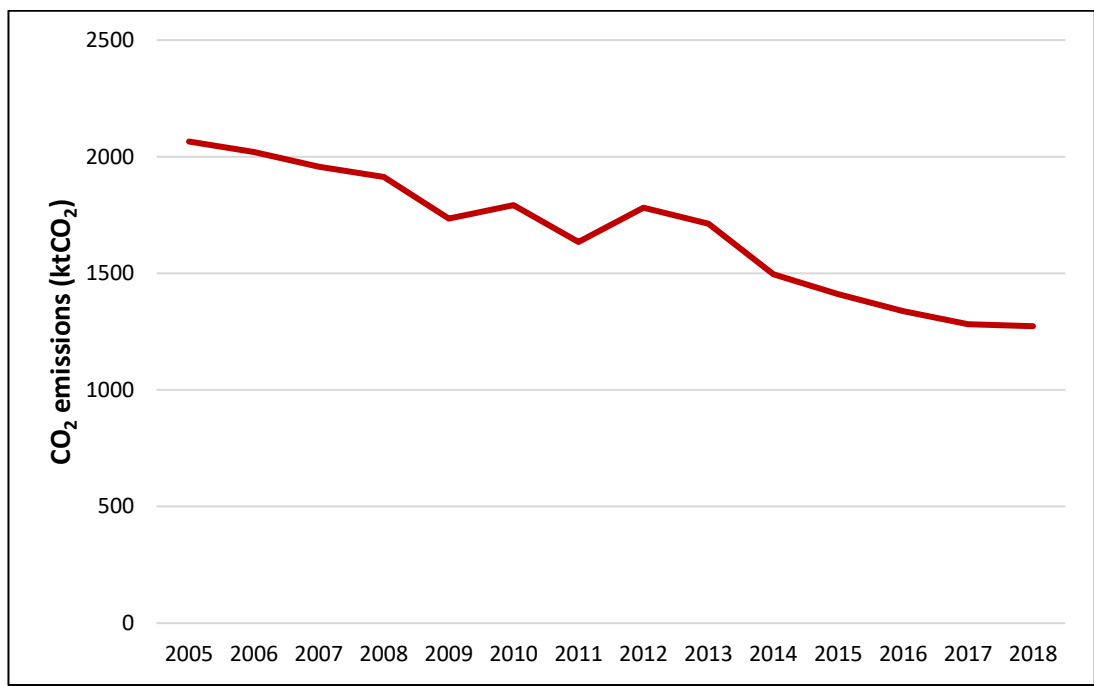
As a result, the figures do not cover the following areas:

- Emissions of gases other than carbon dioxide emissions for Leicester. Although carbon dioxide is the most commonly produced greenhouse gas, other greenhouse gases produced in Leicester include Methane (CH<sub>4</sub>) and Nitrous Oxide (N<sub>2</sub>O).
- Emissions from areas outside of local authority influence, including aviation, shipping, land use and waste.
- Emissions generated by the production of goods elsewhere, that are consumed within the city.

If these sources were included, the greenhouse gas emissions of Leicester would be significantly higher. As a result, in order to reach carbon neutrality in Leicester significant work will be needed to identify, monitor and reduce emissions from the areas above.

### 7. Leicester’s Emissions in 2018

In 2018 Leicester’s city-wide carbon emissions were 1,273.2 ktCO<sub>2</sub>. This is a 0.7% reduction on 2017 CO<sub>2</sub> emissions and a 46.7% reduction on the 1990 baseline. The first year for which emissions are available by sector is 2005, and these figures are used for comparison elsewhere in the report. As can be seen in Figure. 1, this is now the sixth year in a row in which emissions have fallen.



**Figure 1.** Leicester’s city-wide CO<sub>2</sub> emissions 2005 – 2018.

Between 1990 and 2018 Leicester’s population has increased from 280,100 to 355,200. This means that emissions per capita (per person) have fallen from 8.5tCO<sub>2</sub> per capita in 1990 to 3.6tCO<sub>2</sub> per capita in 2017, a fall of 57.8%.

It seems highly likely that, as emissions have fallen by 45.7% so far and the growth of renewables has continued since 2017, our previous target of reducing emissions by 50% by 2025/26 will be achieved. However, it is unlikely that the current pace of reductions

will be continue in the long term without further work. This means that the ambition to make Leicester carbon neutral by 2030 will require far reaching and radical action in the city and country.

For context the Committee on Climate Change reported in 2018 that, even with significant further action by national government, 2050 is the earliest date by which carbon neutrality could practically be achieved in the UK<sup>1</sup>.

Much of the reduction so far is due to a reduction in the carbon emissions produced when generating electricity (it's carbon factor) in the UK. This is a result of the closure of coal-fired power plants and their replacement with renewables such as wind and solar power. As more renewables are added to the electricity grid the pace of reductions will slow as the carbon factor of electricity gets closer to zero.

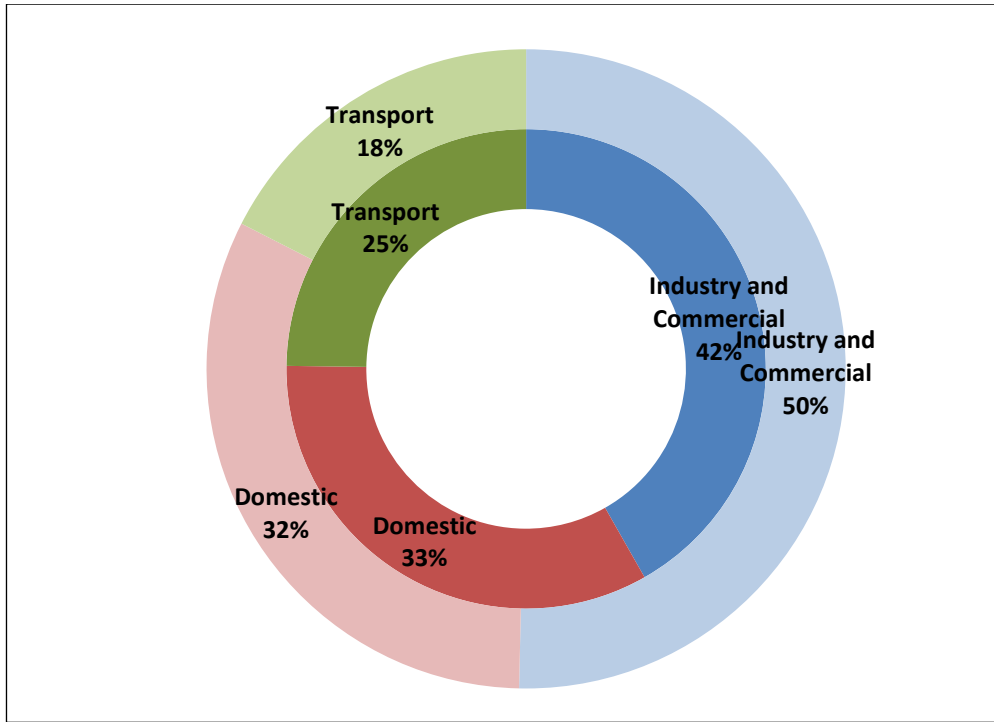
Emissions from gas use for heating and from transport have fallen much more slowly, becoming a larger portion of Leicester's overall emissions. Achieving carbon neutrality by 2030 in Leicester would require radical actions in all areas, especially heating and transport.

## **8. Sector Analysis**

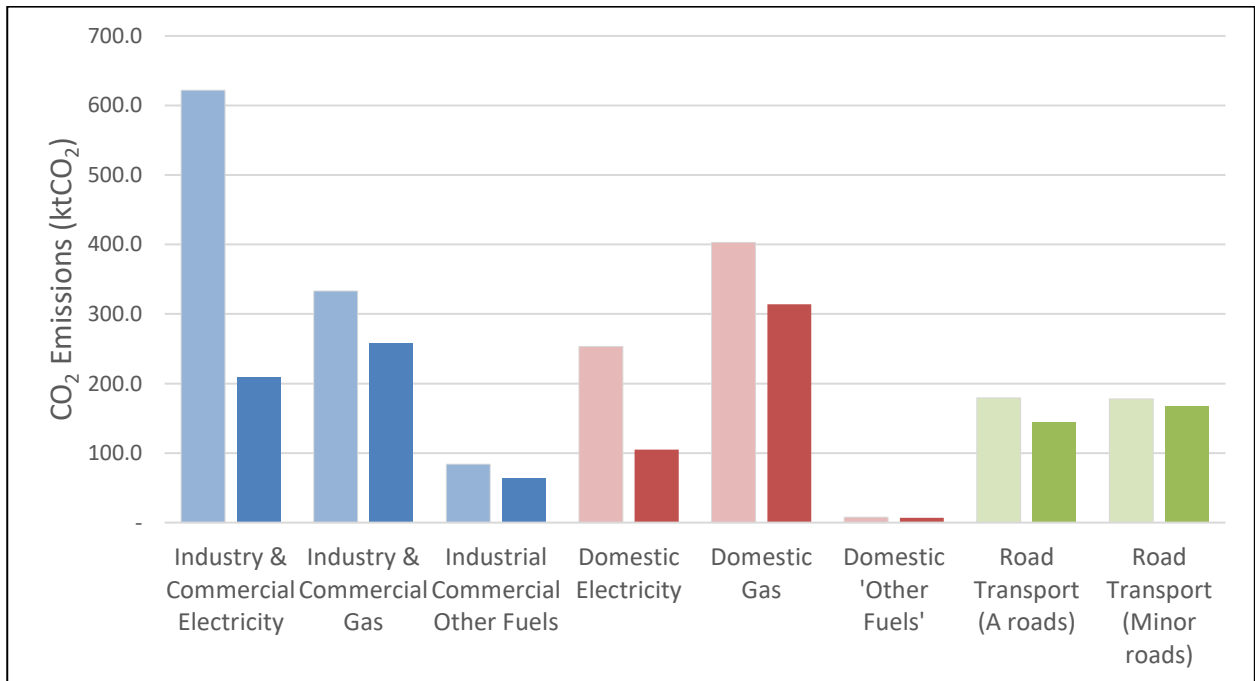
Leicester's city-wide emissions are divided into three sub-sectors; 'Domestic', 'Transport' and 'Industry and Commercial'. As can be seen in Figure. 2, emissions from the industry & commercial and domestic sectors are responsible for the largest proportion of Leicester's city-wide CO<sub>2</sub> emissions, with transport making up the smallest portion. Between 2005 and 2017, however, transport has grown as a percentage of the total, due to falling emissions from the other sectors. The changes in the actual emissions from each of these sectors, split between their constituent subsectors, are shown in more detail in Figure 3.

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<sup>1</sup> <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>



**Figure 2.** Percentage of Leicester's city-wide emissions attributable to each sector in 2018 (darker inner circle) in comparison to 2005 (lighter outer circle).



**Figure 3.** Leicester's actual city-wide emissions attributable to each sector in 2018 (darker bars to the right for each category) in comparison to 2005 (lighter bars to the left for each category).

Further details of CO<sub>2</sub> emissions changes in each sector, both in the last year and from 2005 can be found below.

### **8.1. Domestic emissions**

Domestic emissions (emissions from electricity, gas and other fuel consumption in homes) have fallen 0.9% since 2017 and 35.9% on 2005 levels. This year's reduction is almost entirely due to a 9.2% decrease in emissions from electricity consumption. Emissions from gas have risen by 3.8% over the year, following a reduction last year. There is also a 0.1% reduction in emissions from other fuels, but these remain a very small part of the sector's footprint.

The reduction in emissions from electricity is largely due to the changing carbon factor of electricity generation in the UK. The usage of coal-fired power stations has continued to decrease, with a greater share of electricity coming from renewable energy sources including wind and solar. One of the main reasons for the increase in emissions from gas use is likely to be the cold winter weather experienced locally during winter 2018, compared to the warmer winter in 2017.

### **8.2. Industry and Commercial emissions**

Industry and commercial emissions (emissions primarily from the burning of fuel and consumption of electricity and gas for business) have fallen by 0.8% since 2017 and 48.8% since 2005. As with domestic emissions the reduction is mainly due to a 7.7% annual reduction in electricity emissions, with a smaller 2.3% reduction in emissions from other fuels, against an increase in emissions from gas use of 5.9%.

The reduction in emissions from electricity use is likely largely due to a change in the carbon factor of electricity generation in the UK, as with emissions from domestic electricity consumption. The smaller rise in emissions from gas use than for domestic buildings may be due to the greater sensitivity of home heating use to temperatures, especially in evenings, as well as the use of gas for other industrial processes.

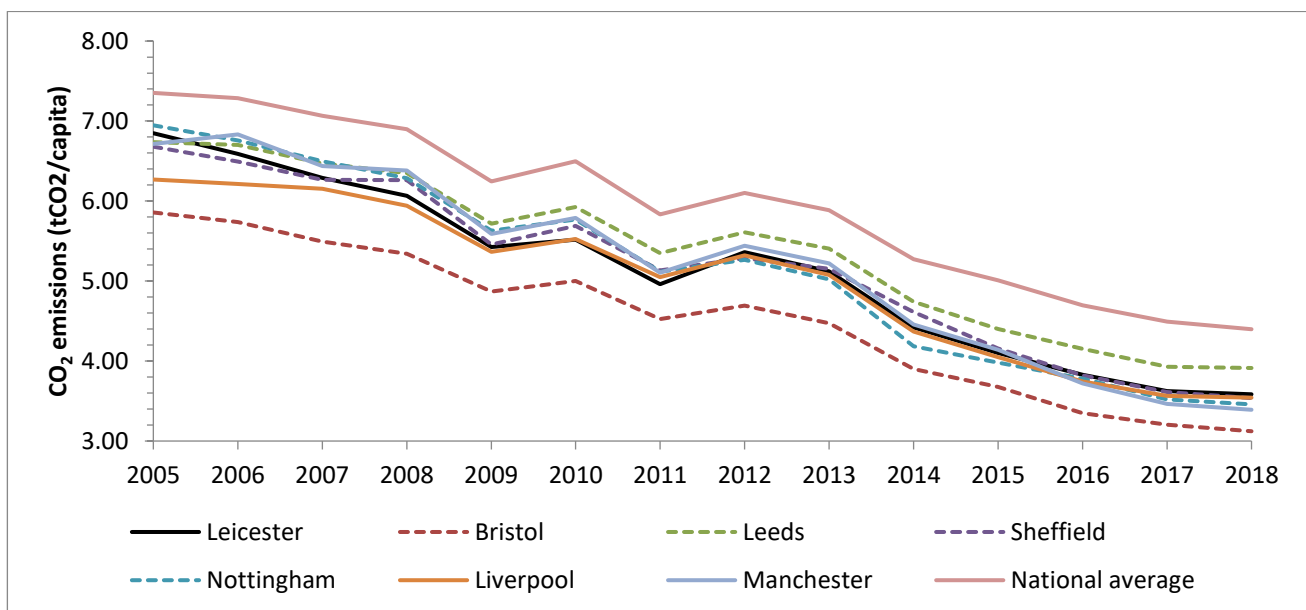
### **8.3. Transport emissions**

Emissions of CO<sub>2</sub> from transport have decreased by 1.6% since 2017, however they are still only 12.6% lower than in 2005 and remain above their lowest level in 2013. The reduction is likely due to ongoing increases in vehicle efficiency over time. The

lack of longer-term reductions, both locally and nationally, reflect the ongoing slow pace of action in decarbonising transport through the introducing significant numbers of Low-Emission Vehicles in the UK, and slow progress in increasing levels of sustainable transport use, such as walking and cycling.

## 9. Carbon Emissions Per Person

Dividing the city’s carbon emissions by the number of residents is another way of showing how emissions have fallen. Since the 1990 and 2005 baselines Leicester’s population has increased significantly. As the city’s carbon emissions have fallen in this time, emissions per capita (per person) have therefore fallen faster than for the city as a whole. Figure 4 shows a comparison of Leicester’s emissions per capita since 2005 with other, similar local authorities and the national average. It’s important to note though that there are many factors which affect emissions by area, such as the types of industry in each area. As a result, these figures should be treated with caution.



**Figure 4.** Leicester’s CO<sub>2</sub> emissions per capita (person) in comparison to other local authority areas and the national average 2005 - 2017.

In 2018 Leicester’s carbon emissions per capita were 3.6 tCO<sub>2</sub>, compared to 6.9 tCO<sub>2</sub> in 2005. This is similar to the other cities shown, and below the national average of 4.4 tCO<sub>2</sub>. Leicester’s emissions per capita have fallen by 47.7% since 2005, which is also in line with the other cities and ahead of the national average reduction of 40.2%



## **10. Contact Details**

This report was prepared by Aidan Davis, Sustainability Officer, on behalf of Leicester City Council.

For further information about Leicester City Council's sustainability actions, please visit:

<https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-sustainability/climate-emergency/>

If you wish to contact us, please email: [sustainability@leicester.gov.uk](mailto:sustainability@leicester.gov.uk)