Office for National Statistics

Statistical bulletin

Greenhouse gas emissions, UK: provisional estimates, 2024

Measuring the air emissions generated by UK economic activities.

Contact:
Environment Accounts team
environment.accounts@ons.gov.uk
+44 845 601 3034

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Next release:
To be announced

Table of contents

1 . Main points

- Provisional 2024 UK greenhouse gas emissions on a residence basis decreased by 0.5% compared with 2023.
- UK emissions were 476 million tonnes of carbon dioxide equivalent (Mt CO2e) in 2024 (provisional), 43.3% below 1990 levels, the first year for which we have data.
- The manufacturing sector saw the largest emissions decrease among industries, with emissions falling by 7.4%, from 70 Mt CO2e in 2023 to 65 Mt CO2e in 2024.
- Transport sector emissions increased by 4.5%, continuing a general rise for this industry since 2021.
- Consumer expenditure remained the largest single contributor to UK emissions on a residence basis, at 26.0% of the 2024 UK total, followed by the transport sector at 16.1%.
- Between 2023 and 2024, UK emissions intensity fell from 0.16 to 0.15 thousand tonnes of CO2e per £ million of gross value added (GVA).

2 . Greenhouse gas emissions

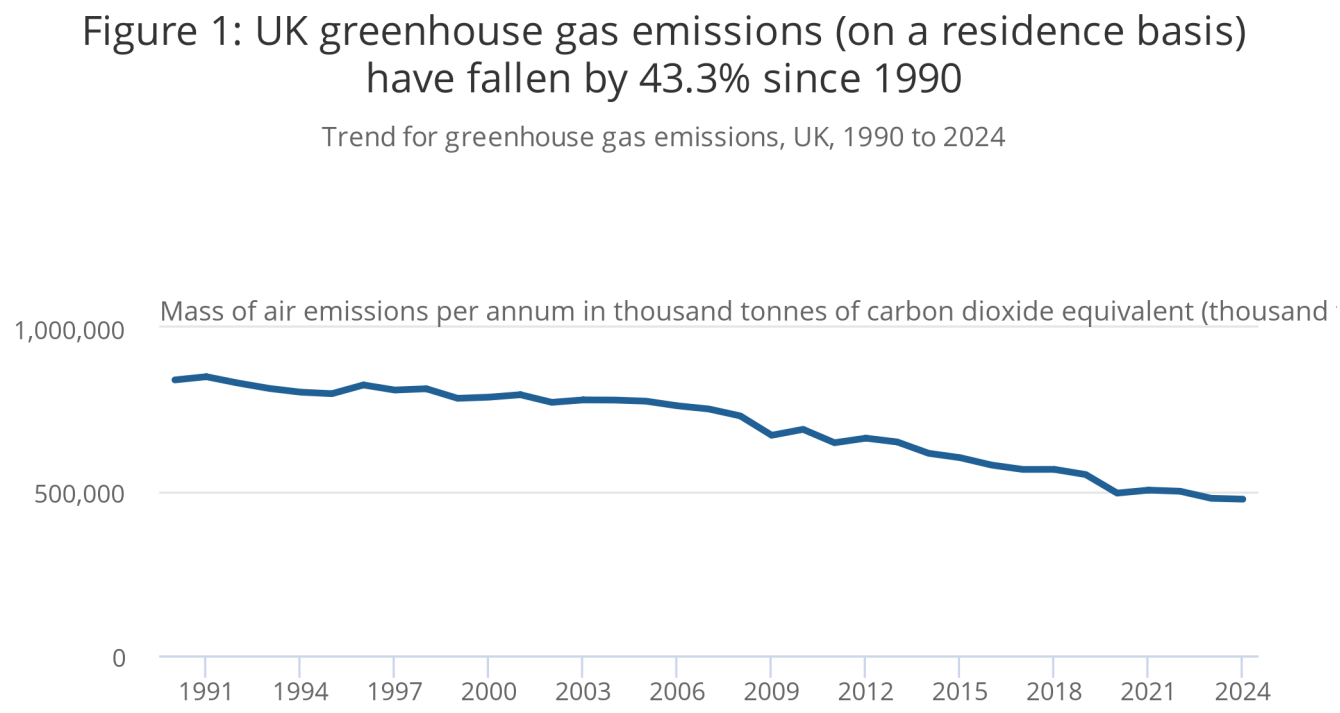
Provisional UK greenhouse gas emissions on a residence basis were an estimated 476 million tonnes of carbon dioxide equivalent (Mt CO2e) in 2024. The 0.5% fall from 2023 continues a general downward trend since the data time series began in 1990. More information about different emissions measures can be found in our Measuring UK greenhouse gas emissions article.

The manufacturing industry was the largest contributor to this decrease in 2024, falling by 7.4% from 2023.

Emissions from the transport sector continued to rise, increasing to 77 Mt CO2e in 2024, a rise of 4.5% from 2023

Figure 1: UK greenhouse gas emissions (on a residence basis) have fallen by 43.3% since 1990

Trend for greenhouse gas emissions, UK, 1990 to 2024



Source: Ricardo Energy and Environment, UK Environmental Accounts from the Office for National Statistics

Notes:

1. Industry aggregations are based on the UK Standard Industrial Classification (SIC) 2007. Households include "consumer expenditure" and "activities of households as employers; undifferentiated goods and services - producing activities of households for own use" (for example, employing a cleaner and growing vegetables for your own consumption). The electricity, gas, steam and air-conditioning supply sector is referred to as the energy supply sector. The transport and storage sector is referred to as the transport sector.

2. Greenhouse gas emissions include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF6) and nitrogen trifluoride (NF3).

3. The Air Emission Accounts these data come from only include direct residence-based emissions, defined as "scope 1" under the greenhouse gas protocol guidance.

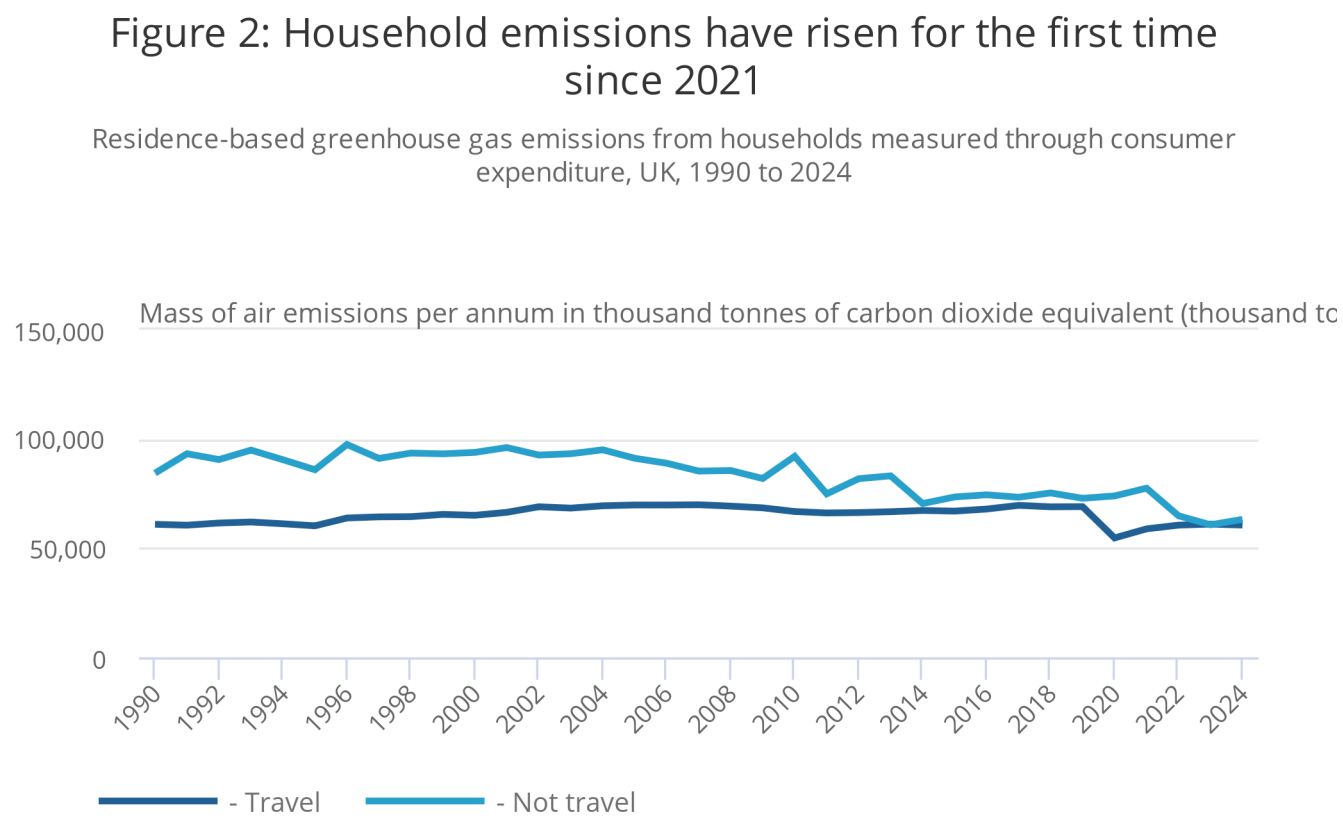
3 . Household emissions

Emissions from consumer expenditure remained the single largest contributor to greenhouse gas emissions on a residence basis.

These rose by 1.7% in 2024 compared with 2023. This is the first time annual consumer expenditure emissions have risen since 2021, during the coronavirus (COVID-19) pandemic. The main contributor was a 4.1% rise in residential natural gas combustion. More information can be found in the Digest of UK Energy Statistics from the Department for Energy Security and Net Zero.

Figure 2: Household emissions have risen for the first time since 2021

Residence-based greenhouse gas emissions from households measured through consumer expenditure, UK, 1990 to 2024



Source: Ricardo Energy and Environment, UK Environmental Accounts from the Office for National Statistics

Notes:

1. Industry aggregations are based on the UK Standard Industrial Classification (SIC) 2007. Households include "consumer expenditure" and "activities of households as employers; undifferentiated goods and services - producing activities of households for own use" (for example, employing a cleaner and growing vegetables for your own consumption).

2. Non-travel related emissions are from the consumption of fuels and other products by individuals in the UK, as opposed to the production of these by industry. Travel-related emissions consist almost entirely of road transport emissions.

3. The Air Emission Accounts these data come from only include direct residence-based emissions, defined as "scope 1" under the greenhouse gas protocol guidance.

4 . Environmental accounts

Atmospheric emissions: acid rain precursors by industry and gas
Dataset | Released 24 October 2025
The emissions of sulphur dioxide, nitrogen oxide, ammonia and total acid rain precursors, by industry (SIC 2007 group - around 130 categories), UK, 1990 to 2024.

Atmospheric emissions: greenhouse gas emissions by industry and gas
Dataset | Released 24 October 2025
The emissions of carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, perfluorocarbons, sulphur hexafluoride, nitrogen trifluoride and total greenhouse gas emissions, by industry (SIC 2007 group - around 130 categories), UK, 1990 to 2024.

Atmospheric emissions: greenhouse gas emissions intensity by industry
Dataset | Released 24 October 2025
Greenhouse gas and carbon dioxide emissions intensity - the level of emissions per unit of economic output, by industry (SIC 2007 group - around 130 categories), UK, 1990 to 2024.

Atmospheric emissions: other pollutants by industry and gas
Dataset | Released 24 October 2025
The emissions of PM10, PM2.5, carbon monoxide, non-methane volatile organic compound, benzene and 1,3-butadiene, by industry (SIC 2007 group - around 130 categories), UK, 1990 to 2024.

5 . Measuring the data

These provisional estimates form part of the UK Environmental Accounts. The Environmental Accounts are "satellite" or "extended" accounts - aligned with but not part of the main UK National Accounts.

They are compiled in accordance with the System of Environmental Economic Accounting (SEEA), as detailed on the United Nations website, which closely follows the UN System of National Accounts (SNA).

All 2024 data in this release are provisional. To produce provisional 2024 greenhouse gas and other air emissions data, 2023 data on activities (for example, distance in kilometres driven by cars) are updated using information on production activities for 2024, where available, or using appropriate proxy information if necessary. Emission factors from 2024 that estimate the mass of emissions associated with those activities (by type of gas or pollutant) are then applied.

Air emissions

The air accounts in the UK Environmental Accounts are compiled by Ricardo Energy and Environment on behalf of the Office for National Statistics (ONS).

The main source of information for this reporting is the National Atmospheric Emissions Inventory (NAEI). This provides air emissions data, calculated from activity data and emission factors, for all relevant sources in the UK as a starting point for generating the air emissions accounts.

The residence principle is then applied to these datasets, which assigns the emissions to an industrial classification based on Standard Industrial Classification: SIC 2007.

Quality

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in our Environmental accounts on air emissions quality and methodology information (QMI).

6 . Related links

UK Environmental Accounts: 2025
Bulletin | Released 5 June 2025
Measuring the contribution of the environment to the economy, impact of economic activity on the environment, and response to environmental issues. Final 2023 estimates.

7 . Cite this statistical bulletin

Office for National Statistics (ONS), released 24 October 2025, ONS website, statistical bulletin, Greenhouse gas emissions, UK: provisional estimates, 2024