Office for National Statistics

Statistical bulletin

Greenhouse gas emissions, UK: provisional estimates, 2022

Measuring the air emissions generated by UK economic activities.

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Next release:
To be announced

Correction

19 October 2023 09:42

Due to a technical issue the Atmospheric emissions: greenhouse gas emissions intensity by industry dataset for 2021 and Atmospheric emissions: other pollutants by industry and gas dataset for 2021 were uploaded in error. Data for 2022 have now been published. We apologise for any inconvenience.

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1 . Main points

- UK greenhouse gas (GHG) emissions on a residence basis increased by 2% between 2021 and 2022 (provisional), having increased 3% in 2021 following the coronavirus (COVID-19) pandemic which particularly affected 2020.
- UK emissions stood at 512 million tonnes of carbon dioxide equivalent (Mt CO2e) in 2022, 7% below the pre-coronavirus pandemic level of 550 Mt CO2e in 2019.
- The sector with the largest increase in UK emissions was transport, up 34% in 2022 compared with 2021, following a fall of 28% in 2020 during the coronavirus pandemic and a 9% decrease in 2021.
- Consumer expenditure remains the largest single contributor to UK emissions, at 25% of total UK GHG emissions in 2022, followed by the energy sector at 16%.
- In 2022, 190 tonnes of Co2e were emitted per million pounds of UK economic activity (gross value added) on a residence basis; this is down 67% since 1990.
- The sector with the highest increase in emissions intensity in 2022 was transport, up 20% from 2021.

We refer to residence-based emissions in this release. This is one of three official measures of UK greenhouse gas emissions. Territorial emissions, published by the Department for Energy Security and Net Zero (DESNZ), is the measure used for greenhouse gas emissions targets. Footprint emissions, published by the Department for Environment, Food and Rural Affairs (DEFRA), account for emissions from trade.

2 . Environmental accounts data

Atmospheric emissions: acid rain precursors by industry and gas
Dataset | Released 9 October 2023
The emissions of sulphur dioxide, nitrogen oxide, ammonia, and total acid rain precursors, by industry (SIC 2007 group – around 130 categories), UK, 1990 to 2021 and (provisional) 2022

Atmospheric emissions: greenhouse gas emissions by industry and gas
Dataset | Released 9 October 2023
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 2021 and (provisional) 2022.

Atmospheric emissions: greenhouse gas emissions intensity by industry
Dataset | Released 9 October 2023
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 2021 (provisional) 2022.

Atmospheric emissions: other pollutants by industry and gas
Dataset | Released 9 October 2023
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 2021 and (provisional) 2022.

3 . Measuring the data

All 2022 data in this release are provisional. To produce provisional 2022 greenhouse gas and other air emissions data, 2021 data on activities (for example, distance in kilometers driven by cars) are updated using information on production activities for 2022, where available, or using appropriate proxy information if necessary. Emission factors from 2022 that estimate the mass of emissions associated with those activities (by type of gas or pollutant) are then applied.

These provisional estimates form part of the UK Environmental Accounts. The Environmental Accounts are "satellite accounts" to the main UK National Accounts (accounts that are linked to the economy but are not part of the core UK National Accounts). They are compiled in accordance with the United Nations's (UN's) System of Environmental Economic Accounting (SEEA), which closely follows the UN System of National Accounts (SNA).

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

For more quality and methodology information on strengths, limitations, appropriate uses, and how the data were created, see our Environmental accounts on air emissions quality and methodology information (QMI).

4 . Related links

UK Environmental Accounts: 2023
Statistical bulletin | Released 5 June 2023
Final 2021 estimates. Measuring the contribution of the environment to the economy, impact of economic activity on the environment, and response to environmental issues.

5 . Cite this statistical bulletin

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