Office for National Statistics

Statistical bulletin

Greenhouse gas emissions, UK: provisional estimates: 2021

Measuring the contribution of the environment to the economy, the impact of economic activity on the environment, and society's response to environmental issues.

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To be announced

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1 . Main points

- UK greenhouse gas (GHG) emissions on a [residence basis](#) increased by 6% between 2020 and 2021, to over 505 million tonnes of carbon dioxide equivalent (CO2e).

- Despite the increase, UK emissions in 2021 are below 2019 levels.

- Carbon Dioxide (CO2) accounts for 85% of all UK GHG emissions with methane (CH4) being the next largest contributor.

- The largest decrease since 2019 is seen in the transport and storage industry.

- Consumer expenditure is still the largest single contributor to UK emissions, with 27% of all UK GHG emissions in 2021.

- The consumer expenditure, electricity, gas, steam and air conditioning supply, manufacturing and transport industries account for 72% of emissions in 2021.

- The Office for National Statistics (ONS) is developing estimates of quarterly GHG emissions; a potential framework is set out in [our article, Developing quarterly greenhouse gas emissions accounts, UK: May 2020](#) , and an update is planned by the end of this year.

2 . Environmental Accounts data

[Atmospheric emissions: acid rain precursors by industry and gas](#)
Dataset | Released 01 November 2022
The emissions of sulphur dioxide, nitrogen oxide, ammonia, and total acid rain precursors, by industry (SIC 2007 group – around 130 categories), UK, 1990 to 2020 and (provisional) 2021.

[Atmospheric emissions: greenhouse gas emissions intensity by industry](#)
Dataset | Released 01 November 2022
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 2020 and (provisional) 2021.

[Atmospheric emissions: other pollutants by industry and gas](#)
Dataset | Released 01 November 2022
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 2020 and (provisional) 2021.

[Atmospheric emissions: greenhouse gases by industry and gas](#)
Dataset | Released 01 November 2022
The emissions of carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, perfluorocarbons, sulphur

3 . Measuring the data

All 2021 data in this release are provisional. To produce provisional 2021 air emissions data, the 2020 data on activities that could result in emissions are updated using information on production activities for 2021, where available, or using appropriate proxy information if necessary. Emission factors from 2021 that estimate the mass of emissions associated with those activities (by type of gas or pollutant) are then applied.

The UK 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 System of Environmental Economic Accounting (SEEA), as detailed on the United Nations website, which closely follows the UN System of National Accounts (SNA).

Air emissions and energy use

The air and energy 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).

4 . Related links

Greenhouse gas emissions intensity, UK: 2020 provisional estimates
Article | Released 21 September 2021
Measuring the contribution of the environment to the economy, the impact of economic activity on the environment, and society's response to environmental issues.

UK Environmental Accounts: 2022
Bulletin | Released 9 June 2022
Measuring the contribution of the environment to the economy, impact of economic activity on the environment, and response to environmental issues.

Low carbon and renewable energy economy, UK: 2020 Bulletin | Released 17 February 2022
Estimates of the size of the UK's green economy from the Low Carbon and Renewable Energy Economy Survey, including turnover and employment.

UK natural capital accounts: 2022
Bulletin | Released 10 November 2022
Estimates of the financial and societal value of natural resources to people in the UK.

UK environmental goods and services sector (EGSS): 2019
Bulletin | Released 21 March 2022
First estimates of the UK environmental goods and services sector (EGSS) for 2019 and revised estimates for 2010 to 2018. Included are estimates of output, gross value added, employment and exports.

Environmental protection expenditure, UK: 2020
Bulletin | Released 8 June 2022
Estimates of environmental protection expenditure by UK industries for 2015 to 2020, based on the environmental protection expenditure survey, and newly published estimates of the environmental protection expenditure accounts for 2010 to 2019.

Developing quarterly greenhouse gas emissions accounts, UK: May 2022
Article | Released 12 May 2022
Sets out a potential framework to develop annual greenhouse gas (GHG) emissions accounts on a quarterly basis. Also outlines potential issues and future work.

UK and England's carbon footprint to 2019
Webpage | Updated as and when data become available
Annual greenhouse gas and carbon dioxide emissions relating to UK and England consumption.

UK territorial greenhouse gas emissions national statistics
Webpage | Updated as and when data become available
Final and provisional estimates of UK territorial greenhouse gas emissions from 1990.

17 goals to transform our world
Webpage | Updated as and when data become available
UK data for the Sustainable Development Goals.

Climate change statistics portal
Webpage | Updated as and when data become available
Latest climate change and greenhouse gas emissions data and analysis from across government departments, agencies and public bodies.

5 . Cite this statistical bulletin

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