Office for National Statistics

Article

# Beyond GDP insights – environment, climate and nature, UK: 2025

Annual review of UK progress from an environmental, climate and nature perspective, drawing on a range of official statistics. This article supplements our Measuring progress, well-being and beyond GDP in the UK releases, and our environmental and natural capital accounts.

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## Notice

### 18 November 2025

The previous environment and climate edition of Measuring progress, well-being and beyond GDP in the UK was published as part of the core, quarterly series of bulletins.

# Table of contents

# 1 . Main points

- Since the 1980s, the UK climate has been warming at a rate of approximately 0.25 degrees Celsius per decade, and the last three years (2022, 2023, 2024) have all been in the UK's top five warmest on record.
- By 2021, the index of relative abundance of priority species in the UK had declined to 37% of its 1970 baseline value.
- UK residence-based emissions intensity, or emissions per unit of gross value added, fell by 64% between Quarter 1 (Jan to Mar) 1999 and Quarter 2 (Apr to June) 2025.
- In 2023, the direct turnover of the UK's low carbon and renewable energy economy was an estimated £67.5 billion, up 68% in current prices from 2015, the first comparable figure.
- Between 3 September and 26 October 2025, the most reported ways adults in Great Britain had been affected by climate change in the last 12 months were; heatwaves (55%), strong winds (38%) and drought (26%).
- Between 2005 and 2023, there was a long-term decrease in total domestic electricity consumption (by 19%) and total gas consumption (by 31%) in Great Britain.

# 2 . Overview

We have published this article exploring UK progress from an environmental perspective to coincide with the United Nations Climate Change Conference, COP 30.

Drawing on a range of official economic, environmental and social statistics, this article complements our ongoing work on measuring progress beyond Gross Domestic Product (GDP), our environmental and natural capital accounts, and supersedes our quarterly Climate change insights bulletin.

For more information on relevant official statistics, please see the Government Statistics Service (GSS) Environment, Climate and Nature theme workplan.

# 3 . The environment, the economy and businesses

The UK is reducing its greenhouse gas emissions (GHGs), with evidence of a growing environmental economy.

All three official measures of UK greenhouse gas emissions have fallen since 1990, the first year with comparable data. See Section 6: Glossary and our Measuring UK greenhouse gas emissions article for further information about these measures.

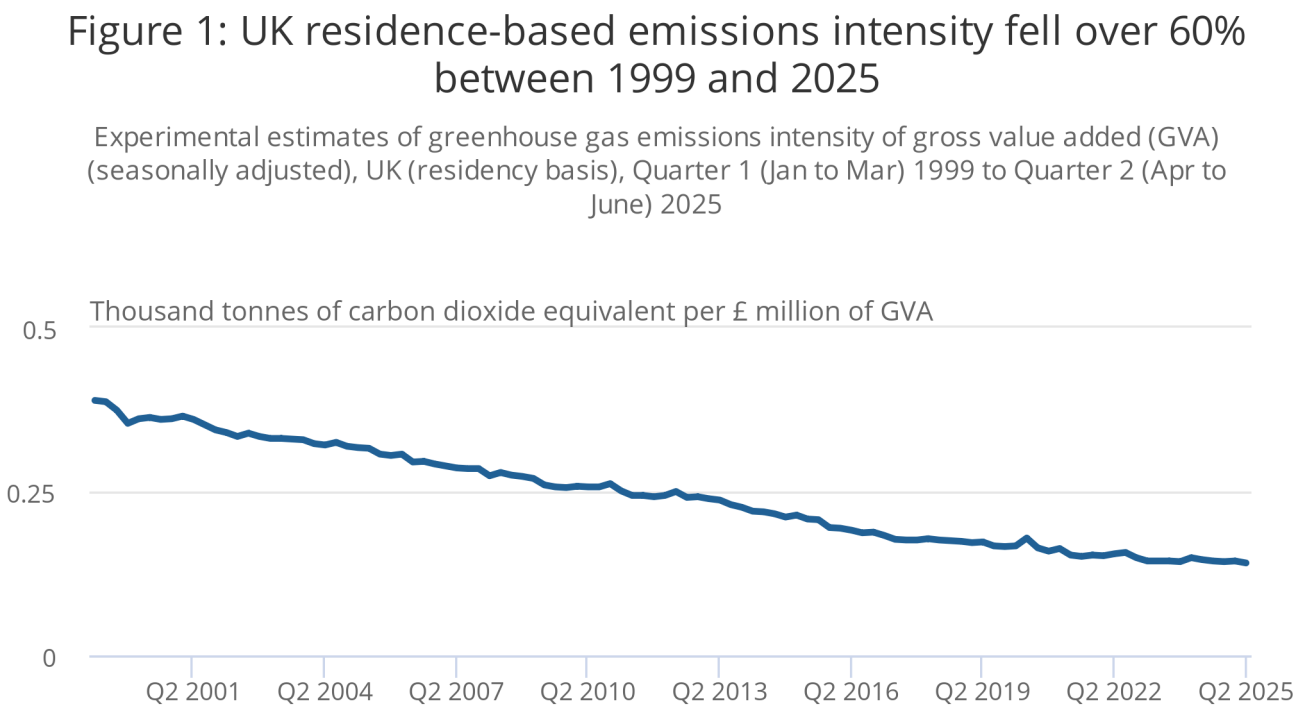
The Department for Energy Security and Net Zero (DESNZ) provisionally estimated territorial emissions at 371 million tonnes of carbon dioxide equivalent (MtCO2e) in 2024 (PDF, 304 KB), down 54% from 1990 and down 4% from 2023 levels. Domestic transport remained the highest emitting sector at 30% of the 2024 total.

We produce quarterly residence-based GHG emissions statistics and annual residence-based GHG emissions statistics, which can be directly compared with economic indicators, such as gross domestic product (GDP). This enables us to calculate emissions intensity: emissions per unit of economic output.

In Quarter 2 (Apr to June) 2025, the UK emitted 141 tonnes of carbon dioxide equivalent (CO2e) per million British pounds of gross value added (GVA). This is down by 64% compared with 1999, when it was 389 tonnes of CO2e per million British pounds of GVA. This is an indicator that the UK is moving towards a lower carbon economy.

**Figure 1: UK residence-based emissions intensity fell over 60% between 1999 and 2025**

**Experimental estimates of greenhouse gas emissions intensity of gross value added (GVA) (seasonally adjusted), UK (residency basis), Quarter 1 (Jan to Mar) 1999 to Quarter 2 (Apr to June) 2025**




**Source: Environmental Accounts from the Office for National Statistics, and Energy Trends from the Department for Energy Security and Net Zero**

**Notes:**

1. Q1 refers to Quarter 1 (Jan to Mar), Q2 refers to Quarter 2 (Apr to June), Q3 refers to Quarter 3 (July to Sept) and Q4 refers to Quarter 4 (Oct to Dec).

2. Emissions intensity is calculated by dividing the level of greenhouse gas emissions by GVA. GVA is the difference between the value of goods and services produced (output) and the cost of raw materials and other inputs, which are used up in production (intermediate consumption), for any given industry. GVA are chained volume measures (CVM), in constant prices with 2023 as the base and reference year.

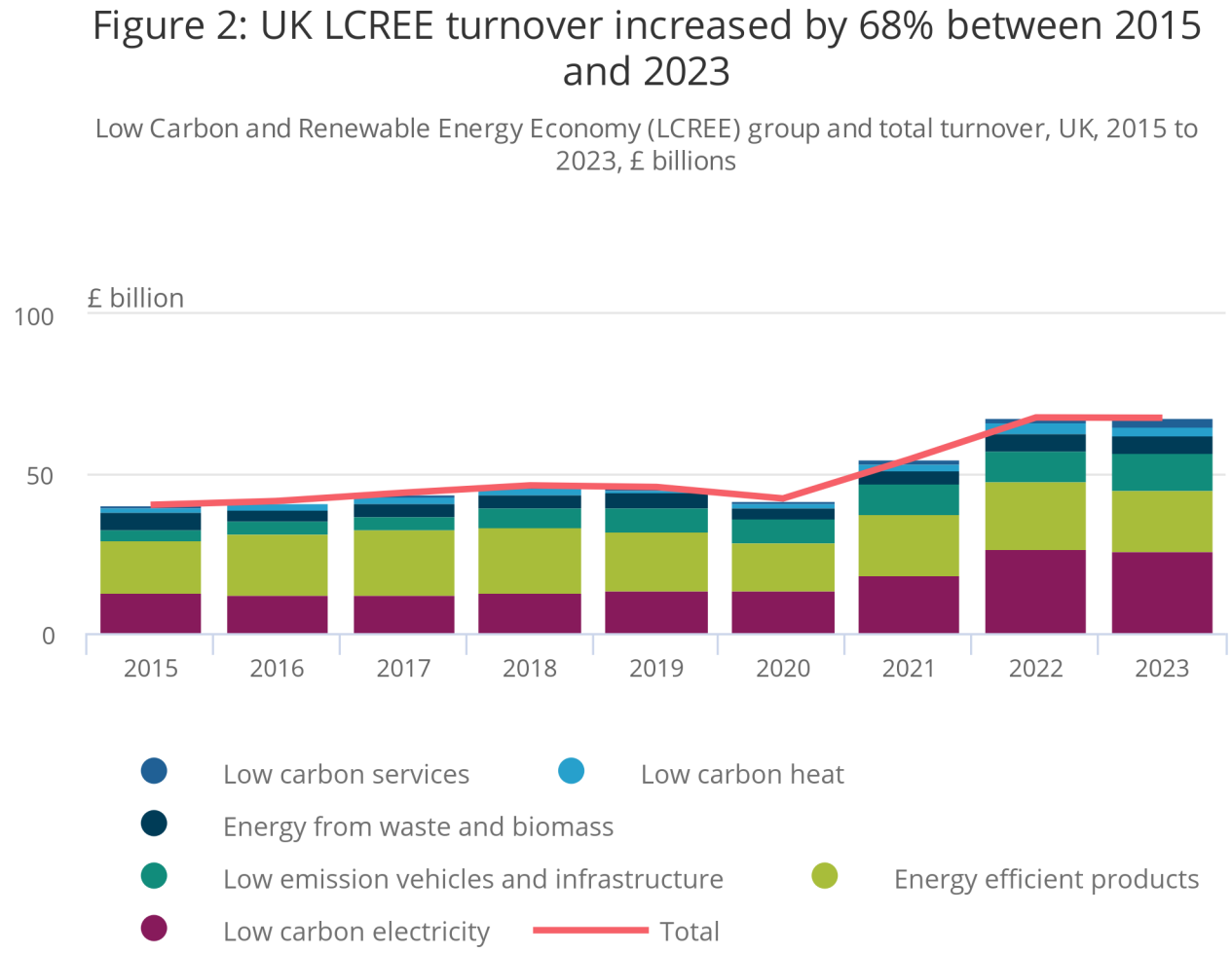
3. All emissions intensity figures are calculated using seasonally adjusted estimates of greenhouse gas emissions, excluding those from households that refer to consumer expenditure (travel and non-travel consumer expenditure).

We also track the evolution of the UK's low carbon and renewable energy economy (LCREE) through our annual survey.

In 2023, direct turnover from the LCREE was an estimated £67.5 billion, up 68% in current prices from £40.2 billion in 2015, the first year with comparable figures.

**Figure 2: UK LCREE turnover increased by 68% between 2015 and 2023**

**Low Carbon and Renewable Energy Economy (LCREE) group and total turnover, UK, 2015 to 2023, £ billions**




**Source: Low Carbon and Renewable Energy Economy (LCREE) Survey from the Office for National Statistics**

**Notes:**

1. Full definitions of each LCREE group can be found in Section 6 of our LCREE quality and methodology information report.

2. Confidence intervals can be found in our latest LCREE dataset.

3. Given the uncertainty of the estimates, rankings of the smaller groups are indicative only.

4. Please be aware that rounding may result in minor turnover percentage discrepancies.

During the same period, LCREE employment is estimated to have increased by 57% from 200,500 full-time equivalents (FTEs) to 314,300 FTEs. These data fed into DESNZ's Clean energy jobs plan: technical annex.

Our UK environmental goods and services sector (EGSS) statistics measure 17 economic activities producing goods and services for environmental protection and resource management purposes. Gross value added (GVA) from the UK EGSS totalled £60.2 billion (current prices) in 2022, accounting for just under 3% of total UK GVA for that year.

We combine LCREE and EGSS employment data in our headline estimate of "green jobs", being those in a green industry or sector. There were an estimated 690,900 FTEs in green jobs in the UK in 2023. This was up 35% compared with 2015, when there were 513,300 FTEs in green jobs.

Three activities accounted for just over half (54%) of total green jobs in 2023:

- waste (158,400 FTEs)
- energy efficient products (145,800 FTEs)
- renewable energy (71,100 FTEs)

On a quarterly basis we ask how businesses are responding to climate change and environmental issues through our Business Insights and Conditions Survey. In late September 2025, a quarter (25%) of UK businesses reported that they were concerned about the impact climate change may have on their business (5% very concerned and 20% somewhat concerned). Also 17% reported concern regarding the impact of nature or biodiversity risks on their businesses (3% very concerned and 13% somewhat concerned).

From a list of strategic actions that businesses could take to protect the environment:

- 4% confirmed they had a climate strategy
- 7% monitored climate risks
- 3% monitored nature or biodiversity-related risks

We also estimate the contribution of natural assets to the economy and society. Our UK natural capital accounts: 2024 bulletin found that the total asset value of ecosystem services in 2022, was around £1.8 trillion (in 2023 prices). Updated figures will be released on 5 December 2025, with some updated estimates already published in the UK National Accounts, The Blue Book: 2025.

These natural capital accounts statistics will be vital for delivering on the requirement to measure the depletion of natural resources in a revised Net Domestic Product statistic under the 2025 System of National Accounts. For details, see our Developing estimates of depletion for the UK natural capital accounts: 2024 article and the plan for ONS economic statistics.

# 4 . UK’s changing climate and environment

The Met Office's State of the UK Climate 2024 publication reports that since the 1980s the UK has been warming at a rate of approximately 0.25 degrees Celsius per decade.

The most recent decade, 2015 to 2024, has been 0.41 degrees Celsius warmer than 1991 to 2020 and 1.24 degrees Celsius warmer than 1961 to 1990. The last three years (2022 to 2024) have all been among the top five warmest on record. There has also been a gradual trend of increasing sea temperatures. This is highlighted in our Marine and coastal margins natural capital accounts, UK: 2025 bulletin.

Climate change, alongside other factors such as changes in the extent and use of habitats, have been increasing pressure on native biodiversity. Since 1969 the number of invasive non-native species in or along 10% or more of Great Britian's coastline has more than doubled, from 15 in 1969 to 40 in 2023. For more information, see the Joint Nature Conservation Committee's Pressure from invasive species indicator report.

The Department for Environment, Food and Rural Affairs note in their Wild bird populations in the UK and in England publication, that bird populations are considered a useful indication of the broad state of wildlife in a given habitat. Our Marine and coastal margins natural capital accounts, UK: 2025 bulletin indicated an index of seabird numbers (smoothed index) decreased by 25% between 1996 and 2023 in the UK, with little recent change from 2018.

In Great Britain's marine and coastal margins, the number of harbour seals increased by 12% and grey seals increased by 58% between 2000 and 2021, while the average total number of bumblebees per kilometre in coastal margins decreased by 12% between 2010 and 2021.

### Figure 3: Compositional marine and coastal margins species for seabirds, bumblebees, harbour seals and grey seals, Great Britain or UK

**Notes:**

1. The gap in the time series for birds is because of the limited availability of 2020 data because of coronavirus (COVID-19) pandemic restrictions.

2. Unsmoothed indices show year-to-year fluctuation in populations, reflecting the observed changes in the survey results, and smoothed trends, which are used to formally assess the statistical significance of change over time

### Downloac

Across the UK the index of relative abundance of priority species had declined, by 2021, to 37% of its baseline value in 1970, although this has remained relatively stable since 2016. Priority species are defined as those appearing on one or more of the biodiversity lists of each UK country and the combined list contains 2,890 species in total.

Between 2019 and 2024, the total extent of UK protected areas both on land and at sea has increased by 12 million hectares (MHa), or 42%, from 28.6 MHa in 2019 to 40.6 MHa in 2024. Most of this increase is because of a designation of marine protected areas, with the extent of protected areas on land increasing by 5,564 hectares since 2019.

Our UK natural capital accounts: 2024 bulletin shows that enclosed farmland accounted for 50% of the UK's land area in 2021, down from 54% in 1990, an 8% decrease. In the same period, the extent of urban areas increased by 41%, coastal margins by 38% and woodlands by 26%.

Pollution removal by broadleaved woodland habitats contributed the highest percentage of the annual value of air pollution regulating services, which help maintain the quality of the environment we rely on, in 2022 at 39%, followed by urban trees at 21%.

UK use of raw materials provided by the environment has also changed over time. Total domestic extraction of raw materials has declined by around 44% from just over 700 million tonnes in 1992, to just over 390 million tonnes in 2023. While fossil fuel extraction fell by 72% and non-metallic minerals extraction fell by 40%, the extraction of biomass, such as crops and wood, decreased by 14%.

## 5 . Environment, climate change and society

Our Public opinions and social trends, Great Britain: October 2025 bulletin provided insights on public and business attitudes towards environmental issues, using data from our Opinions and Lifestyle Survey and our Business and Conditions Survey.

Just over half (51%) of adults in Great Britain reported climate change and the environment as an important issue in the latest data for October 2025. Since first asking this question in October 2022, the proportion has decreased over time compared with a high of 69% in July to August 2023.

Using data collected between 3 September to 26 October 2025, nearly three-quarters of adults in Great Britain (74%) reported they had been affected by climate change in at least one way (from a list provided) in the last 12 months. The most reported ways were:

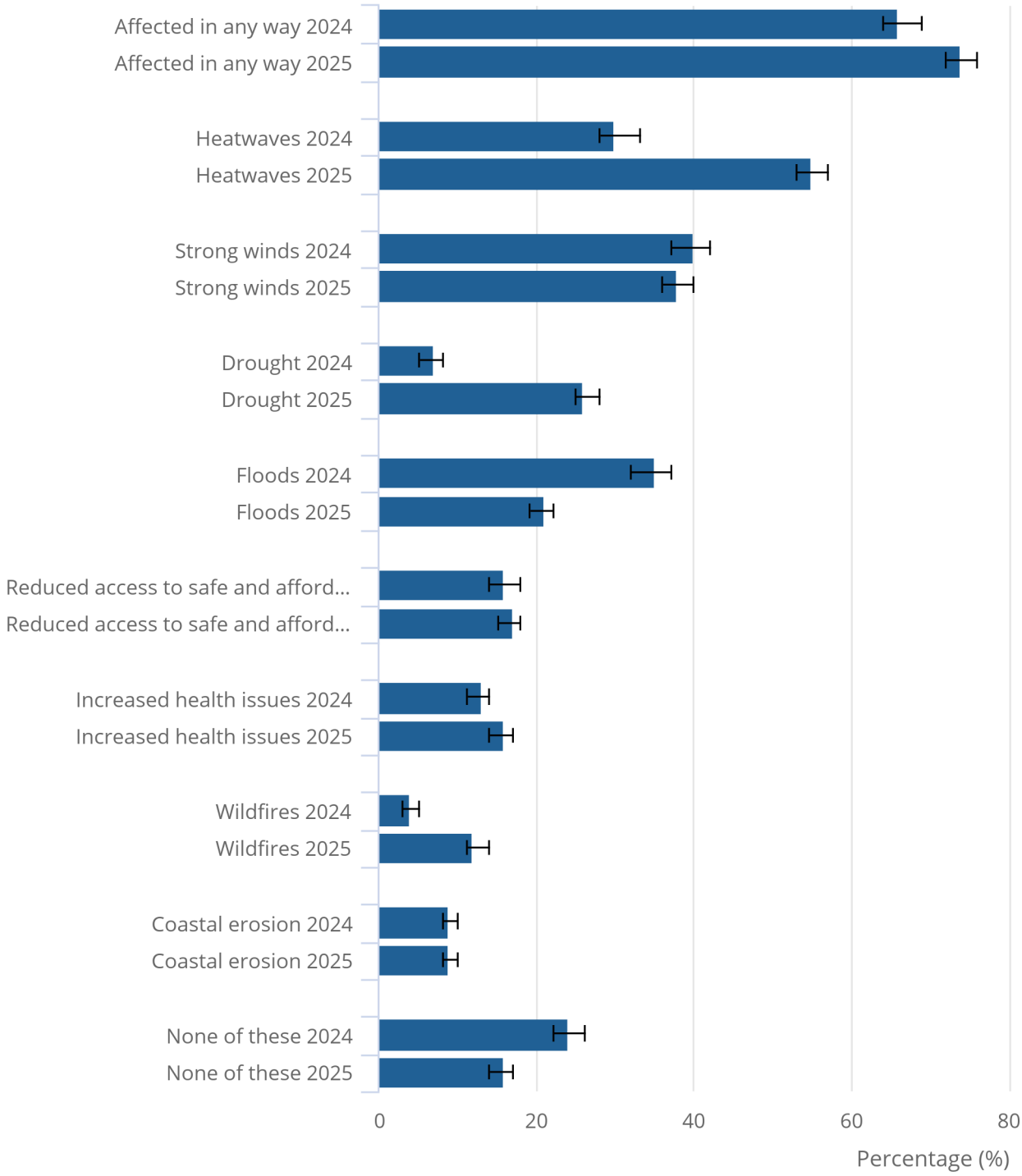
- heatwaves (55%)
- strong winds (38%)
- drought (26%)

## Figure 4: Just over half (55%) of adults said they were affected by heatwaves in the past 12 months

**Proportion of adults reporting ways climate change had affected them in the last 12 months, Great Britain, 3 September to 26 October 2025 and 2 to 27 October 2024**

# Figure 4: Just over half (55%) of adults said they were affected by heatwaves in the past 12 months

Proportion of adults reporting ways climate change had affected them in the last 12 months, Great Britain, 3 September to 26 October 2025 and 2 to 27 October 2024



**Source: Opinions and Lifestyle Survey from the Office for National Statistics**

**Notes:**

1. Question: "In the past 12 months, in which of the following ways, if any, do you think climate change has affected you?".

2. Respondents could select more than one option. The category “Affected in any way” represents the proportion of respondents who selected at least one option apart from “None of these" or “Don’t know”.

Around 4 in 5 (84%) adults in Great Britain reported having made changes to their lifestyle to help tackle environmental issues (73% some, 11% a lot).

The Department for Energy Security and Net Zero's Subnational electricity and gas consumption summary report 2023 provides statistics in terms of energy use. Despite increases in average (mean) domestic electricity consumption (2%) and gas consumption (2%) in 2023 compared with 2022, there has been a longer-term downward trend.

Between 2005 and 2023, there was a 19% decrease in total domestic electricity consumption and a 31% decrease in total domestic gas consumption in Great Britain. Electricity and gas consumption rates by country, region and local authority areas can also be found on our Explore local statistics indicators.

In 2024, through heating and travelling, households remain the single largest contributor to greenhouse gas emissions on a residence basis, an increase of just under 2% compared with 2023. This accounts for 26% of the UK total 476 million tonnes of carbon dioxide equivalent on this measure.

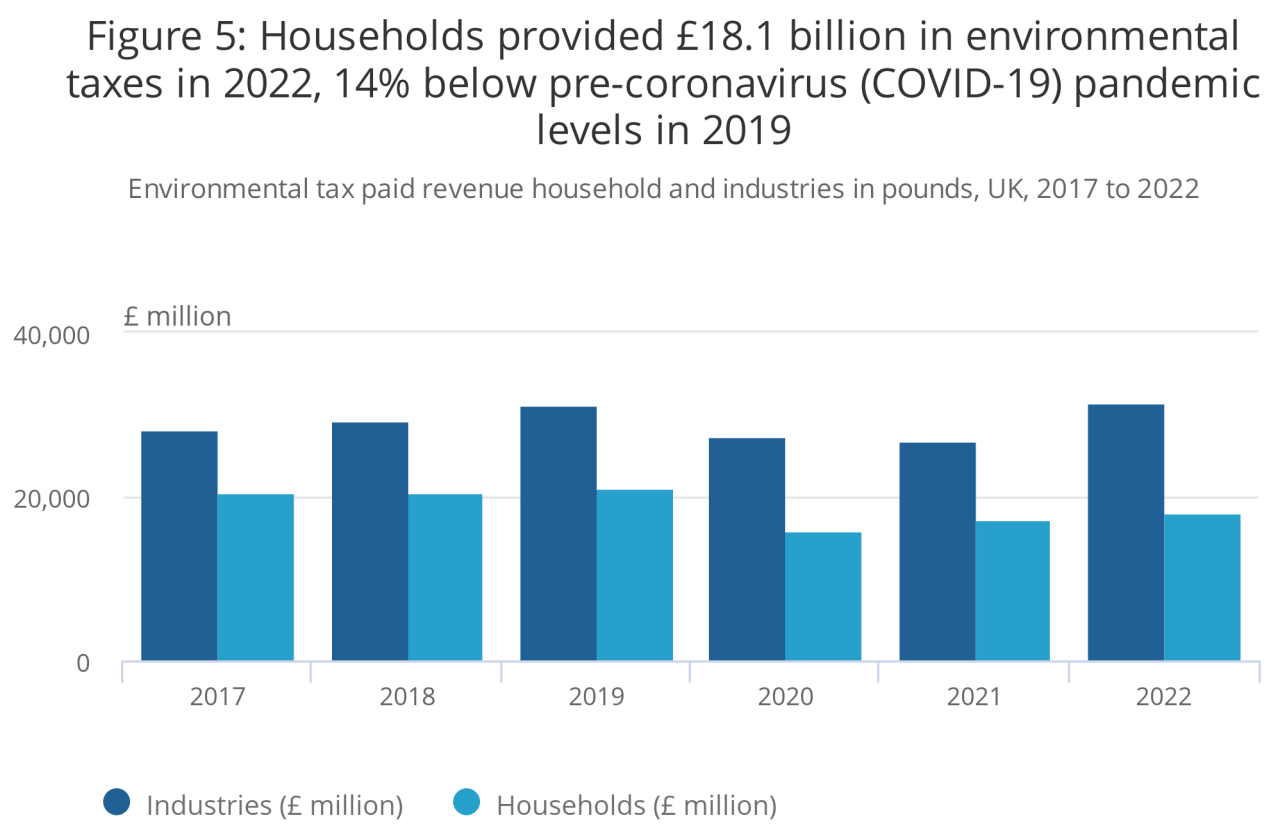
One way to reduce energy use at home is through increased efficiency. This can be measured though Energy Performance Certificates (EPCs), ranging from band A (most efficient) to band G (least efficient).

In the 10 years to 2025, while homes in England had an average rating in band C and Wales had an average rating in band D, new homes had an average rating in band B in England and Wales.

Households provided £18.1 billion in environmental taxes in 2022, averaging £642 per household. This is up by 4.2% since 2021 when the average was £616. However, this has not returned to the pre-coronavirus (COVID-19) pandemic levels of £759 per household in 2019.

**Figure 5: Households provided £18.1 billion in environmental taxes in 2022, 14% below pre-coronavirus (COVID-19) pandemic levels in 2019**

**Environmental tax paid revenue household and industries in pounds, UK, 2017 to 2022**




**Source: Environmental taxes from HM Revenue and Customs and the Office for National Statistics**

**Notes:**

1. All data are presented in current prices, for example, not adjusted for inflation.

2. This measure of environmental taxes, also paid by businesses, covers those taxes where the base is a physical unit, for example, a litre of petrol or a passenger flight, that has a proven negative impact on the environment. These taxes should reduce the activity related to these units and therefore reduce negative environmental impacts.

The Department for Environment, Food and Rural Affairs uses a range of datasets to estimate the percentage of households with access to green space in England. This varied between 5% and 93%, depending on the definitions of "green space" and "accessible" used. For example, an estimated 87% of households are within 1 kilometre of accessible green spaces of 2 hectares or larger.

Our UK natural capital accounts: 2024 bulletin shows that the asset value of health benefits from recreation in nature in the UK were £489 billion in 2022, the highest value among ecosystem services measured, with an estimated 20 million people gaining such health benefits.

The UK Health Security Agency (UKHSA) in their Chemical hazards and poisons report: issue 28 has found that long-term exposure to UK air pollution in 2019 had an effect equivalent to 29,000 to 43,000 deaths for adults aged 30 and over. The UKHSA also recognised poor air quality as the largest environmental risk to public health in their Health Effects of Climate Change in the UK: 2023 report.

Between 2001 and 2023 there were 662 suicides attributable to extreme heat in England and Wales. This is according to official statistics in development produced by the Office for National Statistics (ONS)-led Standards for official statistics on climate-health interactions project. Future releases on climate and health will update previously published estimates of temperature-related mortality.

# 6 . Glossary

## Abundance

The relative quantity or frequency of a species within a given area or ecosystem.

## Asset value

While annual valuations look at flows in a given year, asset values measure the stream of services from, or stock of, a natural resource in terms of the future expected supply and use over a reasonably predictable time horizon.

## Depletion

Depletion is the decrease in the quantity of the stock of a natural resource because of extraction exceeding rates of regeneration, affecting the asset's ability to deliver continued flows of services.

## Domestic consumption

This refers to consumption by households (residential sector) rather than non-domestic consumption from all other sectors, for example, commercial, industrial and the public sector.

## Ecosystem services

Ecosystem services estimate the contribution of natural assets to the economy and society, in either physical volume or monetary value.

## Environmental economy

We produce a range of environmental economy measures, many of which are "satellite" or extended accounts, complementing the UK's National Accounts which include gross domestic product (GDP). These are compiled in accordance with the System of Environmental Economic Accounting (SEEA), which closely follows the UN System of National Accounts (SNA).

## Greenhouse gas emissions

Territorial emissions estimates produced by the Department for Energy Security and Net Zero form the basis for monitoring the UK's net zero greenhouse gas (GHG) emissions by 2050 targets. They cover emissions that occur within the UK's borders and are used to track UK-wide progress towards international and domestic targets, such as net zero emissions by 2050.

Residence (production) emissions estimates are produced by the Office for National Statistics (ONS) and are aligned with the UK National Accounts, enabling emissions to be linked to economic sectors and activity in them.

Footprint (consumption) emissions estimates are produced by the Department for Environment, Food and Rural Affairs and cover consumption of all goods and services by the UK, sometimes referred to as "carbon footprint".

For a comparison between all three official measures of UK greenhouse gas emissions, see our Measuring UK greenhouse gas emissions explainer article.

For a list of greenhouse gases, please see the glossary of our UK Environmental Accounts: 2025.

## Green jobs

Green jobs are defined as "employment in an activity that contributes to protecting or restoring the environment, including those that mitigate or adapt to climate change". How we measure green jobs, including a list of activities that underpin the definition can be found in our Developing estimates of green jobs in the UK methodology, with these data forming an extension of our labour market statistics.

## Gross domestic product (GDP)

The total value of output in the economic territory. It is the balancing item on the production account for the whole economy. Domestic product can be measured as gross or net. It is presented in the accounts at market (or purchasers') prices.

## Gross value added (GVA)

GVA is the difference between output and intermediate consumption for any given industry. This means the difference between the value of goods and services produced (output) and the cost of raw materials and other inputs that are used up in production (intermediate consumption).

All estimates of GVA are subject to revisions. For more information, please see Section 8: Revisions to GDP in our GDP quarterly national accounts, UK: April to June 2025

## Invasive non-native species

Invasive non-native species have one or more negative impacts on native species such as through disease or the consumption of resources, and a high capacity to spread to natural and semi-natural habitats.

## Low carbon and renewable energy economy (LCREE)

Economic activities that deliver goods and services that are likely to help the UK generate lower emissions of greenhouse gases, predominantly carbon dioxide.

We produce annual estimates of LCREE activity in the UK and constituent countries for turnover, employment, exports, imports, acquisitions, disposals, and number of businesses, with data collected from our annual LCREE survey.

# 7 . Data sources and quality

This article provides an opportunity to provide wider context to our gross domestic product (GDP) data. It supplements our UK Measuring progress, well-being and beyond GDP releases which bring together existing published measures of progress to provide a more holistic view of quality of life in the UK.

We have been developing and improving new measures of national prosperity and well-being to improve understanding. For example in 2023, we reviewed our UK measures of national well-being, taking on board stakeholder feedback to update our measures and interactive UK Measures of National Well-being dashboard, enhancing the range of environmental indicators. We will be developing and updating a smaller set of measures on our dashboard quarterly, with the next release planned for 2026.

Our UK inclusive wealth and income accounts augment GDP to account for, for example, unpaid household and ecosystem services, and depreciation of human capital. Our UK inclusive wealth and income accounts: 2005 to 2023 are scheduled to be published on 23 December 2025.

## Data coverage, strengths and limitations

This release brings together a wealth of published statistics to look holistically at how the environment contributes to the economy, the impact that the economy has on the environment, and how society responds to environmental issues.

Please note that, as this release brings together statistics across different geographies, sampled populations and time periods, caution should be used when making comparisons.

Figures and percentages may not sum because of rounding. Where possible, trends over time have been commented upon using the latest available data.

These statistics include accredited official statistics (previously called National Statistics), official statistics under development (previously known as experimental statistics) and other statistics. See the Office for Statistics Regulation's blog, What does it mean to be an accredited official statistic? and the Code of Practice for Statistics for further detail on the standards for official statistics.

Each statistic has been hyperlinked in the text to help users find the source publication or data and related methodologies.

For indicators where the UK-wide data are not available, alternative data sources may exist for England and/or the devolved administrations (Wales, Scotland and Northern Ireland). However, differences in methodology may affect data comparability.

## Comparability and uncertainty

Where changes over time are presented in this bulletin, associated confidence intervals are used to assess the statistical significance of the differences, explained in our Uncertainty and how we measure for it for our surveys web page.

Our surveys use a sample of a population, and so are subject to measurable sampling uncertainty. This should be considered when looking at changes in the estimates over time. There is also the potential for respondent bias from self-reported data, which may lead to differences from other data sources.

For some of the indicators that are not based on survey data, confidence intervals are not available. In those cases, change over time has not been assessed or has been assessed based on guidance from the data owner.

# 8 . Future developments

Many of the statistics used in the publication are produced annually, some on a twice-yearly or quarterly basis.

Our UK natural capital accounts: 2025 release will be published on 5 December 2025. Our next quarterly Measuring progress, well-being and beyond GDP bulletin is scheduled to be published in 2026.

If you have any feedback on this bulletin, please email environmental.accounts@ons.gov.uk.

# 9 . Related links

Measuring progress, well-being and beyond GDP
Landing page | Updated regularly
Exploring progress in the UK using statistics on economy, environment and society.

UK Measures of National Well-being Dashboard
Dashboard | Released 11 February 2025
An overview of well-being in the UK on an individual, community and national level. Considers change across 59 measures of well-being, grouped by 10 topic areas.

UK environmental accounts
Landing page | Updated regularly
How the environment contributes to the economy, the impact that the economy has on the environment, and how society responds to environmental issues. This page also hosts the development of natural capital accounts.

Greenhouse gas emissions, UK: provisional estimates 2024
Bulletin | Released 24 October 2025
Measuring the air emissions generated by UK economic activities.

Low carbon and renewable energy economy, UK: 2023
Bulletin | Released 9 July 2025
Estimates of the size of the UK's low carbon and renewable energy economy, including turnover and employment.

Public opinions and social trends, Great Britain: September 2025
Bulletin | Released 14 November 2025
Social insights on daily life and events, including insights on public and business attitudes towards environmental issues, using data from our Opinions and Lifestyle Survey (OPN) and Business and Conditions Survey (BICS) in this edition.

# 10 . Cite this bulletin

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