



UK Government

Annual Statement of Emissions for 2024

Reporting UK 2024 emissions to Parliament
under the Climate Change Act 2008

March 2026

Department for Energy Security and Net Zero

Annual Statement of Emissions for 2024

Presented to Parliament pursuant to section
16 of the Climate Change Act 2008



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Introduction

The Climate Change Act 2008¹ requires that the Government reports greenhouse gas (GHG) emissions to Parliament annually. This is the seventeenth Annual Statement of Emissions required under section 16 of the Climate Change Act 2008. It confirms emissions for 2024 – the second year of the fourth carbon budget. The statement required by section 16 of the Act must be laid before Parliament not later than 31st March in the second year following that to which it relates.

The fourth carbon budget covers the period 2023-2027, with an emissions cap of 1,950.0 million tonnes of carbon dioxide equivalent (tCO₂e)². This means the net UK carbon account must be on average lower than 390.0 million tCO₂e each year for the UK to meet the fourth carbon budget.

GHG emissions reported in Annual Statements of Emissions are based on the latest final UK GHG

1 <http://www.legislation.gov.uk/ukpga/2008/27/contents>.

2 This is the level of the fourth carbon budget, as legislated in 2011: <https://www.legislation.gov.uk/uksi/2011/1603/made>

emissions Accredited Official Statistics³. The Accredited Official Statistics used to compile this statement show that net UK emissions for the second year of the fourth carbon budget period (2024) were 373.4 million tCO₂e, a 53% reduction in net GHG emissions from the base year⁴.

No adjustments for carbon unit trading were made to the net UK carbon account in 2024, and therefore the 2024 net UK carbon account was 373.4 million tCO₂e. The 2024 net UK carbon account was equal to UK territorial emissions as reported in the Accredited Official Statistics.

Emissions estimates are revised annually to incorporate new data, improved methods and changes to international guidelines. Therefore, the 2024 net UK carbon account will be revised in future Annual Statement of Emissions and not be finalised until 2029 when performance against the fourth carbon budget is assessed⁵. Revisions to years within the same carbon budget period are made in line with section 16(4) of the Climate Change Act 2008.

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- 3 The final 2024 estimates of UK GHG emissions were published on 5 February 2026: <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-statistics-1990-to-2024>
 - 4 The base year varies by GHG (1990 for CO₂, CH₄ and N₂O; 1995 for Fluorinated gases): <http://www.legislation.gov.uk/ukpga/2008/27/part/1/crossheading/targeted-greenhouse-gases>
 - 5 UK GHG emissions for 1990-2027 will be published in 2029.

Structure of the report

Part one of this statement shows the total amount of UK GHGs emitted to and removed from the atmosphere in the base year, 2023, and 2024; the methods used to calculate those official estimates; and whether there was an increase or a decrease in emissions and removals between 2023 and 2024.

Part two of this statement sets out the steps taken to calculate the “net UK carbon account” for 2024.

Explaining the net UK carbon account

Section 27 of the Climate Change Act defines the “net UK carbon account”. This is what we compare against carbon budgets to determine whether we are meeting them. The net UK carbon account for the relevant budgetary period must not exceed the level of the carbon budget at the end of each budgetary period. The process for determining the net UK carbon account is summarised in Figure 1.

The starting point is UK emissions for the year, comprising emissions from all sources in the UK, excluding those from land use, land use change and forestry (LULUCF). These are then adjusted to take account of emissions and removals by sources and sinks associated with LULUCF activity, and removals associated with non-LULUCF activity of which there are none currently reported. The new total is referred to as net UK emissions. Data are sourced from the annual

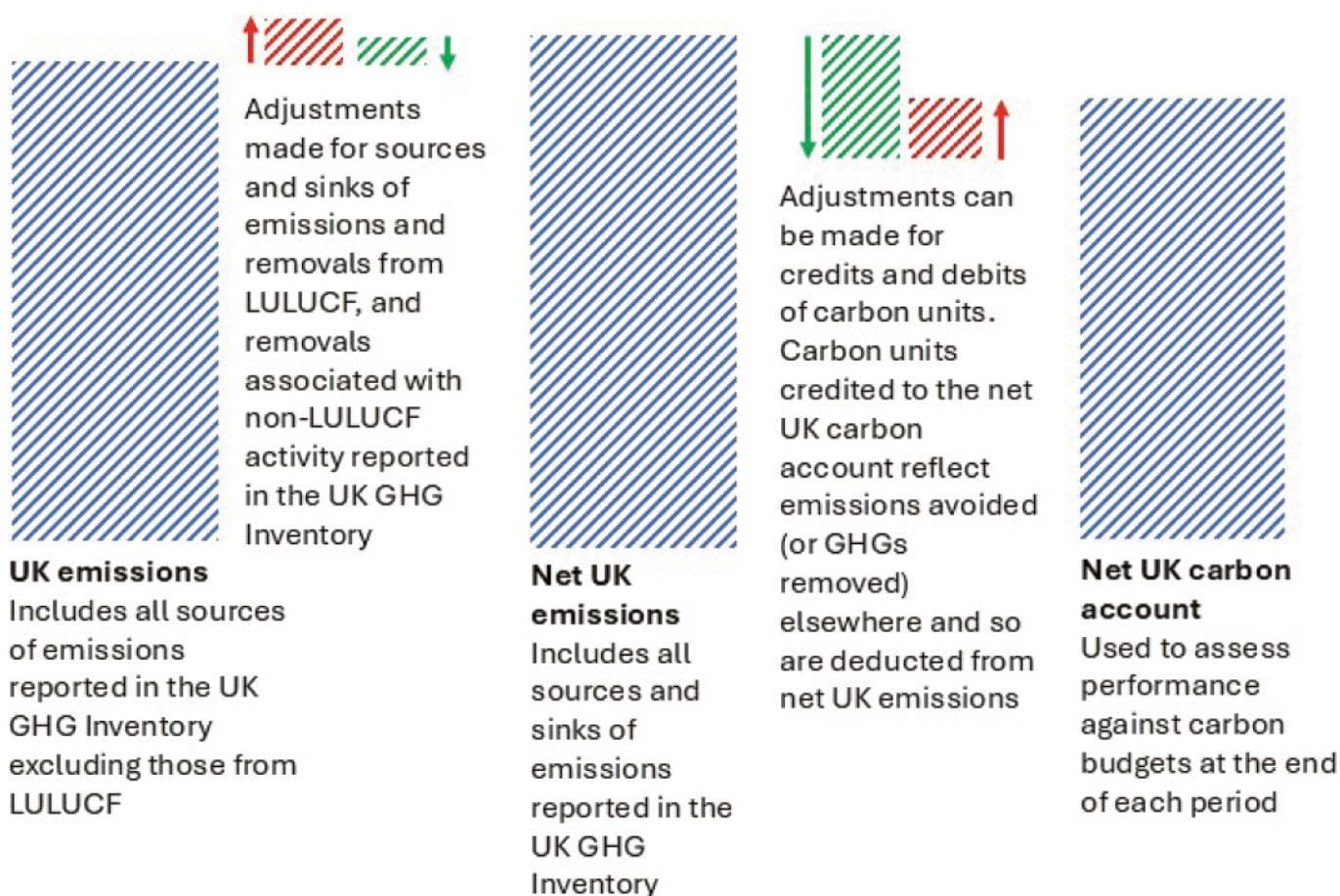
Accredited Official Statistics on territorial UK GHG emissions⁶.

Section 27 of the Climate Change Act 2008 makes provision for regulations to be made in relation to the crediting to or debiting from the net UK carbon account of specified carbon units. Up until 2020, when the UK was participating in the EU ETS, the net UK carbon account was adjusted to reflect net trading of emissions allowances. From 2021, the UK was no longer participating in the EU ETS, and no other adjustments were required for carbon unit trading. As such, the 2024 net UK carbon account reported in this Annual Statement of Emissions is equal to 2024 UK net territorial GHG emissions, pursuant to sections 29(2) and 89 of the Act.

6 The final 2024 estimates of UK GHG emissions were published on 5 February 2026:

<https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-statistics-1990-to-2024>

Figure 1. Calculating the net UK carbon account (illustrative only)



Note – LULUCF includes both emissions and removals and so can be a net source or sink of GHGs, depending on a variety of factors, including the age profile of UK forests. A negative value means the net effect is the removal of GHGs from the atmosphere, whereas a positive value means the net effect is the addition of GHGs to the atmosphere.

Part 1 – UK GHG emissions

The information contained in this part of the statement is derived from the UK 1990-2024 GHG emissions statistics⁷, which were published on 5th February 2026. Emissions coverage under the Climate Change Act 2008 comprises UK territory only (i.e. England, Wales, Scotland and Northern Ireland)⁸. Unless otherwise stated, all official estimates in this section are stated in tonnes of carbon dioxide equivalent (tCO₂e)⁹.

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- 7 The final 2024 estimates of UK GHG emissions were published on 5 February 2026: <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-statistics-1990-to-2024>
 - 8 Section 89 of the Climate Change Act specifies that this includes UK coastal waters and the UK sector of the continental shelf. <http://www.legislation.gov.uk/ukpga/2008/27/section/89>
 - 9 This is the usual way of reporting GHGs to account for the different global warming potentials of each gas. The global warming potential (GWPs) of a gas is a measure of its impact on global warming relative to carbon dioxide. The GWPs used for each gas in the UK inventory in this publication are based on those published in the Intergovernmental Panel on Climate Change's (IPCC's) 5th Assessment report: <https://www.ipcc.ch/assessment-report/ar5/>

1.1 Base year, 2023, and 2024 GHG emissions by gas

Section 16(2)(a), 16(2)(c), 16(3) and 16(8) of the Climate Change Act

Table 1 below sets out the base year¹⁰ emissions – the emissions in the year against which progress is measured – for each GHG covered by the Climate Change Act. The table also sets out the total UK emissions for 2024, and whether any of those amounts represent an increase or decrease compared to the equivalent amount for the previous year. Emissions are grouped into:

- a) emissions (excluding LULUCF)
- b) net LULUCF emissions/removals
- c) net emissions/removals (including net LULUCF)

10 The base year varies by GHG (1990 for CO₂, CH₄ and N₂O; 1995 for Fluorinated gases)
<http://www.legislation.gov.uk/ukpga/2008/27/part/1/crossheading/targeted-greenhouse-gases>

Table 1: UK GHG emissions/removals by gas (tCO2e)

Emissions	Greenhouse gas	Base year	2023	2024	2023 to 2024 change
Emissions (excluding net LULUCF emissions/ removals)	Carbon dioxide (CO2)	594,979,743	305,474,702	297,313,655	-8,161,047
	Methane (CH4)	126,464,190	51,099,605	49,700,856	-1,398,749
	Nitrous oxide (N2O)	44,325,488	19,937,123	19,585,519	-351,604
	Hydrofluorocarbons (HFC)	15,486,111	6,619,921	6,106,156	-513,765
	Perfluorocarbons (PFC)	533,270	145,323	134,952	-10,371
	Sulphur hexafluoride (SF6)	1,290,991	319,559	274,201	-45,358
	Nitrogen trifluoride (NF3)	256	63	63	0
	Total	783,080,050	383,596,295	373,115,401	-10,480,894

Table 1: UK GHG emissions/removals by gas (tCO2e) (continued)

Emissions	Greenhouse gas	Base year	2023	2024	2023 to 2024 change
Net LULUCF emissions/removals	Carbon dioxide (CO2)	2,774,581	-6,729,046	-6,761,776	-32,730
	Methane (CH4)	5,571,174	5,752,844	5,745,636	-7,208
	Nitrous oxide (N2O)	1,921,127	1,314,735	1,300,990	-13,745
	Hydrofluorocarbons (HFC)	0	0	0	0
	Perfluorocarbons (PFC)	0	0	0	0
	Sulphur hexafluoride (SF6)	0	0	0	0
	Nitrogen trifluoride (NF3)	0	0	0	0
	Total		10,266,883	338,533	284,850

Table 1: UK GHG emissions/removals by gas (tCO2e) (continued)

Emissions	Greenhouse gas	Base year	2023	2024	2023 to 2024 change
Net emissions (including net LULUCF emissions/ removals)	Carbon dioxide (CO ₂)	597,754,325	298,745,656	290,551,879	-8,193,778
	Methane (CH ₄)	132,035,364	56,852,449	55,446,491	-1,405,958
	Nitrous oxide (N ₂ O)	46,246,615	21,251,857	20,886,509	-365,348
	Hydrofluorocarbons (HFC)	15,486,111	6,619,921	6,106,156	-513,765
	Perfluorocarbons (PFC)	533,270	145,323	134,952	-10,371
	Sulphur hexafluoride (SF ₆)	1,290,991	319,559	274,201	-45,358
	Nitrogen trifluoride (NF ₃)	256	63	63	0
	Total		793,346,933	383,934,828	373,400,251

Note - A negative value in the base year, 2023 and 2024 means the net effect is the removal of GHGs from the atmosphere, whereas a positive value means the net effect is the addition of GHGs to the atmosphere.

1.2 Method used to calculate GHG emissions and removals

Section 16(2)(b) and 16(4) of the Climate Change Act

The UK GHG Inventory is compiled in line with international guidance from the Intergovernmental Panel on Climate Change¹¹ (IPCC). Each year the inventory is updated to include the latest data available. Methodological changes are made to take account of new data sources, or new guidance from the IPCC, and new research, sponsored by DESNZ or otherwise. Improvements to the methodology are backdated as required under the Climate Change Act. The UK National Inventory Document¹² (NID), which is submitted each year to the United Nations Framework Convention on Climate Change (UNFCCC), provides details of the methods used to estimate emissions.

11 Further detail on IPCC guidance is available from: <https://www.ipcc-nggip.iges.or.jp>

12 The NID is accessible from the UNFCCC website: <https://unfccc.int/ghg-inventories-annex-i-parties/2024> The NID covering methodologies used to estimate 1990-2024 GHG emissions will be published in April 2026. Alternatively, further details on how the UK GHG Inventory is compiled can be accessed from: <https://www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics>.

Emission inventories will always have some uncertainty. It is not possible to measure all the emissions from a country directly, so inventories are largely based on statistical activity data and emission factors¹³, both of which are subject to uncertainty. The UK GHG Inventory assesses uncertainties according to internationally agreed good practice guidance¹⁴, and this uncertainty information helps prioritise efforts to improve the accuracy of inventories in the future and guide decisions on methodological choice. The uncertainty analysis provides us with a high confidence that UK emissions have declined since 1990. The uncertainty associated with estimates of emissions is small at approximately 2.6%, ranging from 2.5% below to 2.8% above the central estimate, based on 2024 emissions data published in 2026. Furthermore, since 2011, DESNZ has funded the Greenhouse Gas Emissions Monitoring and Verification Programme¹⁵. The UK is one of only four countries in the world currently reporting the validation of greenhouse gas emissions based on measurements. The contribution of evidence from observations supports our assessment

13 The emissions factor is the emissions per unit of activity. Emission factors are typically derived from measurements of a number of representative sources and the resulting factor applied to all similar sources in the UK.

14 IPCC guidelines, as adopted by the UNFCCC.

15 <https://www.metoffice.gov.uk/blog/2023/uk-greenhouse-gas-emission-verification-system>

of the robustness of the UK's National Atmospheric Emissions Inventory (NAEI).

To ensure transparency and credibility in carbon budgets reporting, it is important that any changes to GHG reporting – made in accordance with international practice – are clearly stated. Section 16(4) of the Climate Change Act requires that, where adjustments in the official emissions estimates for an earlier year in the same budgetary period are required as a result of changes to international carbon reporting practice, the Annual Statement of Emissions must specify the adjustment required and state the adjusted amount.

GHG emissions reported in this publication are expressed in terms of carbon dioxide equivalent (CO₂e), recognising the different global warming potentials (GWPs) of each gas. GWPs are set out by the IPCC in Assessment Reports and are updated on a regular basis. Official estimates contained within this Annual Statement of Emissions use 100-year GWPs (without climate-carbon feedback) as set out in the fifth assessment report of the IPCC (AR5), consistent with Paris Agreement transparency framework reporting.

Detailed information on the impact of methodology changes on GHG emissions estimates is published annually, with the latest covering the 1990-2024 UK

GHG Inventory¹⁶. A summary of total adjustments made to emissions figures reported in the Annual Statement of Emissions 2023 can be found in Annex A.

1.3 International aviation and international shipping

Section 16(5) of the Climate Change Act

Emissions from international aviation and international shipping are not included in the UK's emissions as reported under section 16(2) of the Climate Change Act 2008.

In June 2021, the UK government set the Sixth Carbon Budget (covering 2033-37) to include the UK's share of international aviation and shipping emissions, as recommended by the Climate Change Committee. This will be the first time emissions from international aviation and shipping will be included carbon budgets. Until then, international aviation and international shipping emissions are reported under section 16(5) of the Climate Change Act 2008 and appear as a memo item in the UK GHG Inventory.

Emissions from international aviation and international shipping can be estimated from refuelling from bunkers

16 The final 2024 estimates of UK GHG emissions were published on 5 February 2026: <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-statistics-1990-to-2024>

at UK airports and ports, whether by UK or non-UK operators. Table 2 below shows GHG emissions from these sources in the base year, 2023 and 2024.

Table 2 shows GHG emissions from international aviation and international shipping totalled 41.2 million tCO₂e in 2024.

Table 2: International aviation and shipping GHG emissions by gas (tCO₂e)

Emissions	Greenhouse gas	Base year	2023	2024	2023 to 2024 change
International aviation	Carbon dioxide (CO ₂)	15,375,058	32,981,487	35,886,060	2,904,574
	Methane (CH ₄)	9,322	2,489	2,545	56
	Nitrous oxide (N ₂ O)	129,343	279,451	308,350	28,899
	Total	15,513,723	33,263,426	36,196,955	2,933,529
International shipping	Carbon dioxide (CO ₂)	6,426,972	5,036,998	4,956,389	-80,609
	Methane (CH ₄)	13,982	51,630	42,148	-9,482
	Nitrous oxide (N ₂ O)	59,380	45,225	44,530	-695
	Total	6,500,334	5,133,853	5,043,067	-90,786
International aviation and shipping	Carbon dioxide (CO ₂)	21,802,030	38,018,485	40,842,449	2,823,965
	Methane (CH ₄)	23,304	54,119	44,694	-9,426
	Nitrous oxide (N ₂ O)	188,723	324,675	352,880	28,205
	Total	22,014,057	38,397,280	41,240,023	2,842,743

Part 2 – The net UK carbon account

Section 27 of the Climate Change Act 2008 makes provision for regulations to be made in relation to the crediting to or debiting from the net UK carbon account of specified carbon units. As no adjustments are required for carbon unit trading, the 2024 net UK carbon account reported in this Annual Statement of Emissions is equal to 2024 UK net territorial GHG emissions, pursuant to sections 29(2) and 89 of the Act.

2.1 Total amount of units credited to and debited from the net UK carbon account

Section 16(6) of the Climate Change Act

In respect of 2024, no carbon units were credited to or debited from the net UK carbon account. Emissions are reported on a territorial basis without adjustments for trading, pursuant to Climate Change Act 2008 sections 29(2) and 89.

2.2 Net UK carbon account for the year

Section 16(7) of the Climate Change Act

The net UK carbon account is calculated by taking net UK emissions and adjusting them to account for units debited from and credited to the net UK carbon account. No carbon units were credited to or debited from the net UK carbon account in 2024. The net UK carbon account in 2024 is 373,400,251 tCO₂e.

Annex A

Section 16(4) of the Climate Change Act

Summary of total adjustments made to 2023 emissions estimates and net UK carbon account figures reported in the Annual Statement of Emissions (ASE) 2023.

Table 3: Adjustments to 2023 emissions and net UK carbon account calculations published in Annual Statement of Emissions 2023

a) Annual Statement of Emissions 2023

		2023
ASE 2024	Emissions (excluding net LULUCF emissions)	383,596,295
	Net LULUCF emissions	338,533
	Net emissions (including net LULUCF emissions)	383,934,828
	Net UK Carbon Account	383,934,828
ASE 2023	Emissions (excluding net LULUCF emissions)	383,852,842
	Net LULUCF emissions	1,119,714
	Net emissions (including net LULUCF emissions)	384,972,556
	Net UK Carbon Account	384,972,556
Difference	Emissions (excluding net LULUCF emissions)	-256,547
	Net LULUCF emissions	-781,181
	Net emissions (including net LULUCF emissions)	-1,037,728
	Net UK Carbon Account	-1,037,728

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