

Debate Pack

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Estimates Day debate: The Spending of the Department of Business, Energy and Industrial Strategy on action on climate change and decarbonisation

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Summary

This briefing has been produced ahead of the Estimates Day debate to be held in the Commons Chamber on 5 July 2022.

The [BEIS Estimates memorandum](#) (PDF) published alongside the Main Estimate 2022-23, contains a detailed breakdown of the department's spending. This includes information on spending controls and key drivers of spending changes since last year.

Chapter 2, section 5 of the [CCC progress report to parliament](#), published on 28 June 2022, provides an assessment of Government's policies and plans, for achieving net zero including an assessment of their delivery and implementation.

1 Background

In June 2019, the Government set a target of achieving net-zero emissions by 2050. This would require a substantial reduction in emissions from current levels and require participation from all government bodies, including departments, arm's-length bodies and executive agencies.

The Department for Business, Energy & Industrial Strategy has wide remit and is responsible for:

- business
- industrial strategy
- science, research and innovation
- energy and clean growth
- climate change

The department works with [42 agencies and public bodies](#).

The commons Library briefing, [Climate change: an overview](#) provides a summary of UK climate change policy and contains links to a collection of overarching climate change-related parliamentary briefings and publications.

1.1 Net Zero strategy

In October 2021, the Government published its [Net Zero Strategy, Build Back Greener](#), which sets out its “policies and proposals for decarbonising all sectors of the UK economy and meeting its net zero target by 2050.” This builds upon the Government’s [ten point plan for a green industrial revolution](#) which was published in November 2020 and focuses on the following areas:

- advancing offshore wind
- driving the growth of low carbon hydrogen
- delivering new and advanced nuclear power
- accelerating the shift to zero emission vehicles
- green public transport, cycling and walking
- ‘jet zero’ and green ships
- greener buildings
- investing in carbon capture, usage and storage
- protecting our natural environment
- green finance and innovation

The Net Zero Strategy sets out how emissions will be reduced across the economy and how this transition will be supported. In the strategy the Government identifies four key principles as set out in the executive summary:

1. We will work with the grain of consumer choice: no one will be required to rip out their existing boiler or scrap their current car
2. We will ensure the biggest polluters pay the most for the transition through fair carbon pricing
3. We will ensure that the most vulnerable are protected through Government support in the form of energy bill discounts, energy efficiency upgrades, and more
4. We will work with businesses to continue delivering deep cost reductions in low carbon tech through support for the latest state of the art kit to bring down costs for consumers and deliver benefits for businesses.

This strategy is a long-term plan for a transition that will take place over the next three decades. Many of the policies in the strategy will be phased in over the next decade or longer. Given our success in decarbonisation to date we are confident in our approach, but this strategy does not intend to predict the exact shape of the British economy in 2050 and neither should it.¹

Funding in the Net Zero strategy

The strategy said the following about Government investment:

The policies and spending brought forward in the Net Zero Strategy mean that since the Ten Point Plan, HMG has mobilised £26 billion of government capital investment for the green industrial revolution.²

The [Autumn Budget and Spending Review 2021](#) gave a breakdown of net zero expenditure.

¹ BEIS, [Net Zero Strategy: Build Back Greener](#), 19 October 2021

² BEIS, [Net Zero Strategy: Build Back Greener](#), 19 October 2021 (p. 10)

Net zero expenditure plans					
£ billion cash					
	2021-22	2022-23	2023-24	2024-25	Total 2021-25
Transport	1.5	1.9	2.0	1.8	7.2
of which: Cars and vans	0.7	0.8	1.0	1.0	3.5
of which: Public transport and active travel	0.7	1.0	1.0	0.8	3.5
of which: Sustainable aviation fuel	0.0	0.1	0.1	0.1	0.3
Buildings	2.5	2.0	2.5	2.7	9.7
of which: Energy efficiency	1.3	0.7	1.1	1.3	4.4
of which: Clean heat	1.2	1.3	1.4	1.4	5.3
CCUS, hydrogen and industrial decarbonisation	0.0	0.1	0.5	0.8	1.4
of which: Carbon capture, usage and storage	0.0	0.0	0.3	0.4	0.7
of which: Hydrogen	0.0	0.0	0.1	0.1	0.2
of which: Industrial decarbonisation	0.0	0.1	0.2	0.2	0.5
Net zero energy	0.2	0.8	2.1	1.3	4.4
of which: Energy security	0.1	0.7	1.9	1.2	3.9
of which: Offshore wind	0.1	0.1	0.1	0.1	0.4
Natural environment and waste	0.1	0.2	0.6	0.4	1.3
of which: Tree planting and peat restoration	0.1	0.2	0.2	0.3	0.8
of which: Food waste collection	0.0	0.0	0.3	0.1	0.4
Net zero innovation	0.0	0.4	0.4	0.7	1.5
Total core net zero spend	4.4	5.5	8.0	7.7	25.6

Source: HM Treasury, [Autumn Budget and Spending Review 2021](#) (Table 2.5)

On 2 March 2022, the Public Accounts Committee published its [Achieving Net Zero: Follow Up](#) report. The inquiry took evidence from the Department for Business, Energy & Industrial Strategy (the Department), and HM Treasury, on government’s strategy to achieve net zero by 2050 and how this transition to a green economy will be funded. According to a news article published by the committee on the findings in the report, funding plans for achieving net zero remain unclear:

... after taking two years to publish its plan for achieving the target, set in law, of ‘Net Zero by 2050’, Government still has “no clear plan for how the transition to net zero will be funded” or “how it will replace income from taxes such as fuel duty”, and “no reliable estimate of what the process of

implementing the net zero policy is actually likely to cost British consumers, households, businesses or government itself”.³

1.2 Progress on Net Zero

The [Climate Change Committee](#) (CCC) is an independent, statutory body established under the [Climate Change Act 2008](#). It advises the UK and devolved governments (Scotland, Wales and Northern Ireland) on emissions targets and reports to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change.

Additionally, the Adaptation Sub-Committee, established in 2009, forms part of the CCC. It provides advice to the UK administrations on preparing for the impacts of climate change.

The CCC does not set government policy, but it can offer options and alternatives with advice on how emissions targets might be met or adaptation objectives should be set and achieved. In the years since the 2014 Triennial Review, progress monitoring year to year has developed over time.⁴

On 29 June, the CCC published its [2022 Progress Report to Parliament](#). One of the reports headline findings was that the “current programmes will not deliver Net Zero”⁵ along with the following key messages:

- The UK Government now has a solid Net Zero strategy in place, but important policy gaps remain.
- **Tangible progress is lagging the policy ambition.** With an emissions path set for the UK and the Net Zero Strategy published, greater emphasis and focus must be placed on delivery.
- **Successful delivery of changes on the ground requires active management of delivery risks.** Not all policies will deliver as planned. Some may be more successful than expected, while others will fall behind.
- **Action to address the rising cost of living should be aligned with Net Zero.** There remains an urgent need for equivalent action to

³ Public Accounts Committee, [UK Net Zero 2050: Government “without answers to key questions” on costs or funding target set in law](#), 2 March 2022

⁴ BEIS, [Tailored Review Report on the CCC](#) (PDF),

⁵ CCC, [Current programmes will not deliver Net Zero](#), 29 June 2022

reduce demand for fossil fuels to reduce emissions and limit energy bills.

- **Slow progress on wider enablers.** The Net Zero Strategy contained warm words on many of the cross-cutting enablers of the transition, but there has been little concrete progress.
- **The UK must build on a successful COP26.** The UK presidency of the UN COP26 climate summit in Glasgow last November successfully strengthened long-term global ambition and introduced new mechanisms to support delivery. It should prioritise making those new mechanisms work in practice and strengthening global 2030 ambition, while preparing for a focus on climate finance and adaptation at COP27 in 2022 and COP28 in 2023.⁶

The report also highlights that emissions rose 4% in 2021 compared with 2020 as the economy began to recover from the COVID-19 pandemic.

Chapter 2, section 5 of the [CCC report](#) makes a more detailed assessment of Government's policies and plans, including delivery and implementation. policies and plans.

Reaction to the CCC progress report

On the day the CCC published its progress report, the Chair of the BEIS Committee, Darren Jones, reacted to the findings, calling the Government's progress "dire" and highlighting the lack of action on improving insulation in the UK's homes:

The CCC's report on the Government's progress to net zero is dire, and if not acted upon, will be catastrophic for the country and the planet.

The report is scathing about the Government's delivery of its commitments to insulate UK homes; the draughtiest in Europe. Our Committee sounded the alarm on the lack of insulation in British homes, and the lack of any coherent strategy to decarbonise heat in homes at the beginning of the year.

A failed scheme to incentivise insulation is yet to be replaced and despite seeking an update we heard no assurances from the Business Secretary in our session on Tuesday that any new scheme would be announced soon and properly funded.

6

This report is a warning against complacency and a call to action, and the time to take it is running out.⁷

⁷ BEIS Committee, [BEIS Committee Chair Jones: CCC Report is a 'call to action' to avert catastrophe](#), 29 June 2022

2

Main Estimate 2022-23

One of the Department’s objectives is to reduce UK greenhouse gas emissions to net zero by 2050, while supporting green jobs and mobilising investment to deliver a green industrial revolution across the UK.

The [BEIS Estimate Memorandum](#) accompanying the 2022-23 Main Estimate indicates which of its budgets contribute to this objective. In some cases, budgets are used for multiple objectives, although the separate values are not quantified.

For the purposes of this briefing, only Departmental Expenditure Limit⁸ (DEL) budgets are included as they are deemed to be within the control of the Department. Annually Managed Expenditure⁹ (AME) budgets are largely determined by external factors and are often subject to fluctuation.

BEIS 2022-23 Main Estimate: Departmental Expenditure Limit		
	Day-to-day spending (RDEL)	Investment spending (CDEL)
Contributes to Net Zero target only	£12.8 billion, including: - £11.6 billion for the £400 energy bills reduction announced as part of the Cost-of-Living measures package	£3.6 billion
Contributes to Net Zero target and other departmental objectives	£2.6 billion	£2.8 billion
Total	£15.4 billion	£6.4 billion

Notes:
RDEL = Resource Departmental Expenditure Limit - day to day running costs;
CDEL = Capital Departmental Expenditure Limit - investment in infrastructure, Research and Development;

Source: data taken from BEIS, [Main Estimate 2022-23: Estimates memorandum](#) (PDF), 28 June 2022

Excluding the Cost-of-Living measures, 20% of the Department’s DEL budget in 2022-23 is exclusively for reducing UK greenhouse gas emissions to net zero

⁸ Resource Departmental Expenditure Limit (“Resource DEL”) - day to day running costs;

⁹ Capital Annually Managed Expenditure (“Capital AME”) - largely movements in the Post Office Working Capital Loan and surpluses in Coal Pension schemes, plus since 2020-21 the financial guarantees provided to lenders for Coronavirus business loan schemes.

by 2050, while supporting green jobs and mobilising investment to deliver a green industrial revolution across the UK.

This is a 4-percentage point increase compared to 2021-22, when 16% of the total DEL budget (excluding the £5.6 billion one-off deposit to the Nuclear Liabilities Fund) was exclusively for this objective.

BEIS 2021-22 Main Estimate: Departmental Expenditure Limit		
	Day-to-day spending (RDEL)	Investment spending (CDEL)
Contributes to Net Zero target only	£1.3 billion	£9.4 billion, including: - £5.6 billion for the Nuclear Liabilities Fund, due to changes in HM Treasury's discount rate.
Contributes to Net Zero target and other departmental objectives	£2.8 billion	£2.9 billion
Total	£4.1 billion	£12.3 billion
Notes:		
RDEL = Resource Departmental Expenditure Limit - day to day running costs; Research and Development;		

Source: data taken from BEIS, [Main Estimate 2022-23: Estimates memorandum](#) (PDF), 28 June 2022

Major programmes

The Main Estimate Memorandum also includes a list of the Department's major programmes. Of the 20 included, nine relate to reducing energy usage, of which seven are included in the [Government's Major Projects Portfolio](#) (GMPP).

The two programmes not included in the GMPP are:

1. Energy Bill Support Scheme (EBSS)
2. Carbon Capture, Utilisation & Storage (CCUS)

Within the Main Estimates, the EBSS has a Resource DEL budget of £11.7 billion, with no comparative budget for last year. This follows the announcement of universal £400 support payments, as part of the Government's £15 billion support package to help households suffering cost-of-living increases.¹⁰

¹⁰ Hm Treasury, [Millions of most vulnerable households with receive £1,200 of help with cost of living](#), 26 May 2022

CCUS has a budget for 2022-23 of £47 million in Capital DEL; however, last year there was a budget of £123 million in Capital DEL, and an additional £13 million Resource DEL.

The seven projects included in the GMPP are set out below. These are ranked by the whole of life costs of the project, as published in the [Infrastructure and Projects Authority \(IPA\) Annual Report 2021](#).

The table that follows sets out the cost and timeframe of these projects, as well as their IPA rating for likelihood of achieving objectives within time and budget. Amber indicates “successful delivery appears feasible but significant issues already exist, requiring management attention”, whilst red indicates “successful delivery of the project appears to be unachievable”.

Cost and timeframe of major BEIS projects					
Project Name	Rating	Forecast spending this year (£m)*	Forecast whole life costs (£m) *	Intended completion	Length of project (years)
Smart Metering Implementation Programme	Amber	1,140	20,137	Jun-25	15.6
Social Housing Decarbonisation Fund	Amber	63	4,626	Mar-30	9.6
Public Sector Decarbonisation Scheme	Amber	630	1,116	Mar-22	1.7
Green Homes Grant: Local Authority Delivery	Amber	505	505	Mar-22	2.1
Green Homes Vouchers Programme	Red	72	469	May-21	0.7
Heat Networks Investment Project	Amber	99	376	Mar-22	6.4
Home Upgrade Grant	Amber	Planning stage	Planning stage	Mar-23	3.1

Source: BEIS, [Infrastructure and Projects Authority annual report 2021](#), 15 July 2021

The IPA Annual Report contains the following descriptions of these projects:

Smart Metering Implementation Programme

The Programme aims to replace existing traditional gas and electricity meters across Great Britain with smart gas and electricity meters resulting in a cleaner, cheaper and more reliable energy system. Smart meters are a key enabler of technologies such as electric vehicles, smart tariffs and microgeneration to be efficiently integrated with renewable energy sources, underpinning the cost-effective delivery of Government's net zero commitment.

Social Housing Decarbonisation Fund

The programme will play a key role in decarbonising social housing over the 2020s, aligning with a number of government and departmental outcomes to help achieve legally binding carbon and fuel poverty targets.

Public Sector Decarbonisation Scheme (PSDS)

PSDS provides grants for public sector bodies to fund heat decarbonisation and energy efficiency measures.

Green Homes Grant: Local Authority Delivery (LAD)

BEIS has administered £500m funding to Local Authorities in England to support energy improvements to the worst quality homes by installing energy efficiency measures and low carbon heating.

Green Homes Vouchers Programme

The Green Homes Grant Scheme (vouchers) will provide £356m of funding support to the Energy Performance and Low Carbon Heat industries.

The scheme closed to new applications at 31 March, all existing applications and vouchers will still be honoured. Any residual funding will be transferred into other schemes.

Heat Networks Investment Project

HNIP is to help create a self-sustaining heat network market by:

- a) Increasing the volume of heat delivered by new or expanded heat network applicant projects through the provision of a proportion of their capital costs in the form of Government loan and grant finance; this will leverage private finance, and other investment funding, into the heat networks.
- b) Delivering carbon savings for carbon budgets 4 and 5 (2023-2032).
- c) Building market capability to develop optimised heat networks that will meet local needs and support heat networks development.

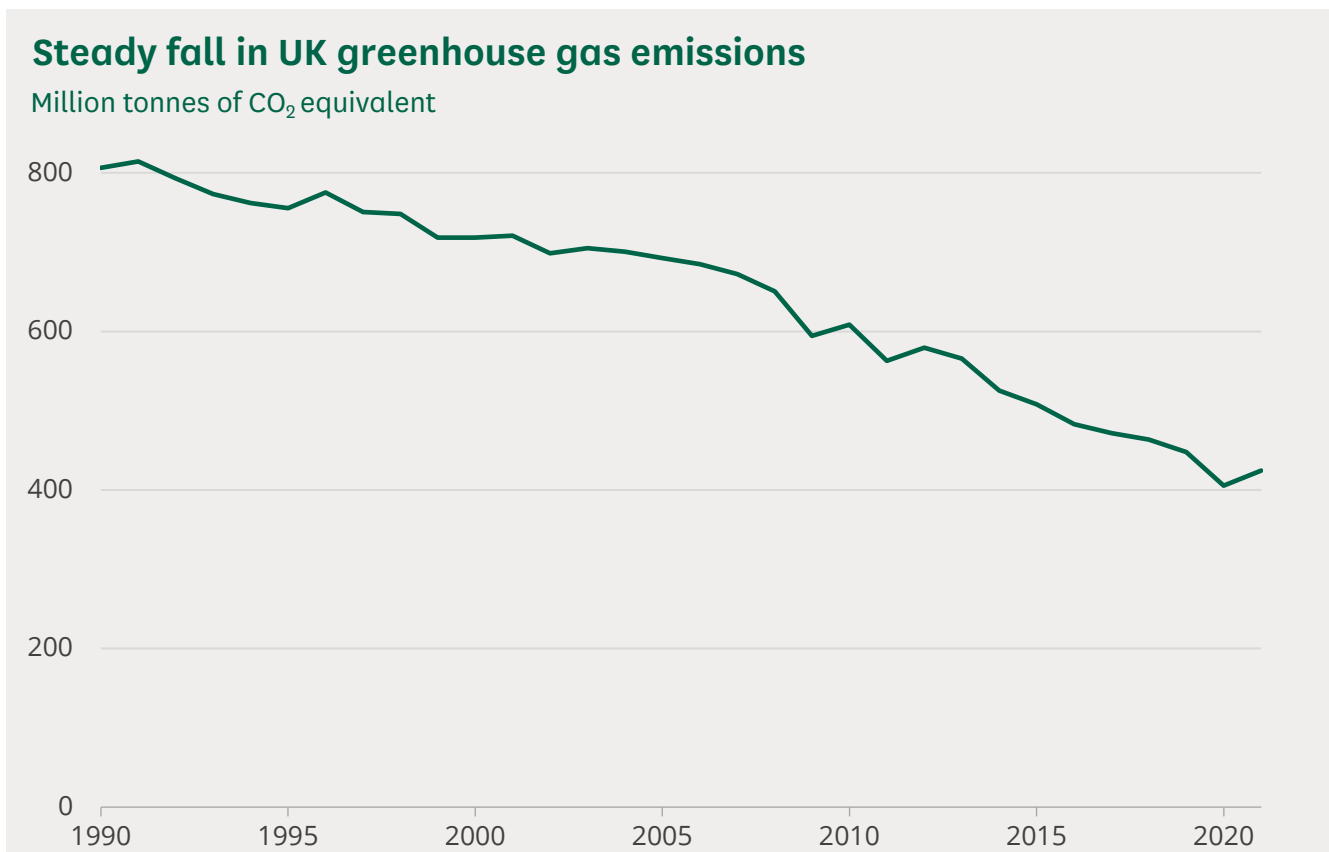
Home Upgrade Grant (HUG) - Phase 1

HUG scheme has been allocated £150m to commence the upgrades to the energy performance of the worst quality off-gas grid homes in England by installing energy efficiency measures and low carbon heating into low income households.¹¹

¹¹ Infrastructure and Projects Authority, Cabinet Office, HM Treasury, and Modernisation and Reform, [Infrastructure and Projects Authority annual report 2021](#), 15 July 2021

3 Greenhouse gas emissions

Estimated UK greenhouse gas emissions have fallen from around 815 million tonnes of CO₂ equivalent (MTCO₂-eq) in 1991 to 425 MTCO₂-eq in 2020. The reduction since the 1990 baseline was 49%. The chart below shows that the cuts in emissions have been fairly consistent over much of this period. Emissions fell by 9% in 2020 alone as coronavirus restrictions led to large cuts in energy use, especially for transport and industry. This was the largest single-year cut in emissions in this series. The 5% increase in 2021 took emission back to their trend path.



Source: BEIS, [Provisional UK greenhouse gas emissions national statistics 2021](#)

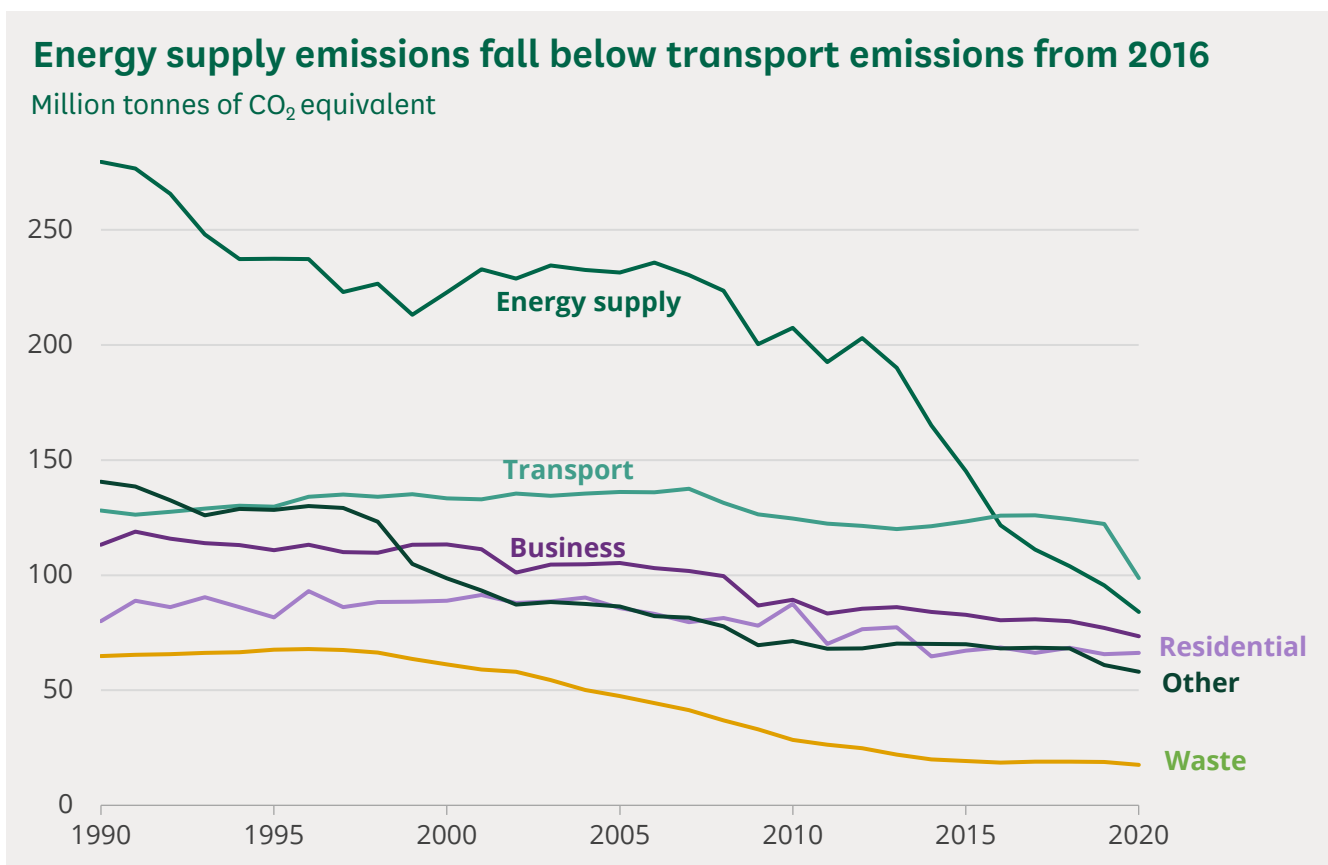
These figures include emissions that are produced in the UK, known as ‘UK territorial emissions’. They are produced in accordance to international reporting standards.

This data does not include emissions linked to the production of goods that are consumed in the UK but produced abroad, or emissions from international aviation and shipping. The Government [estimates](#) that emissions linked to the UK’s consumption of goods, including imports but not exports (the UK’s ‘carbon footprint’), were 73% higher than UK territorial emissions in 2019 at 774 MTCO₂-eq. These emissions peaked in 2004. The overall cut in the UK’s

‘carbon footprint’ from 1990 to 2019 was 30% compared with a 44% cut in territorial emissions (shown in the chart above).

Emissions by sector

The fall in emissions has not been equal between polluting sectors. Emissions from energy supply (mainly power generation) fell in the 1990s, were stable in the 2000s and fell again in the 2010s by 70% overall up to 2020. This made up around half of the total cut in emissions. This fall was driven by a reduction of coal in favour of gas for electricity during the 1990s, growth in renewables in the 2010s, particularly wind, and the recent cut in coal use. There was a larger percentage cut from waste management (73%), with smaller falls from business (35%) and the residential sector (17%). Emissions from transport hardly fell up to 2019. Transport saw the largest cut in emissions (due to the pandemic) in 2022, but was still the largest source sector.



Source: BEIS, [Final UK greenhouse gas emissions national statistics: 1990 to 2020](#)

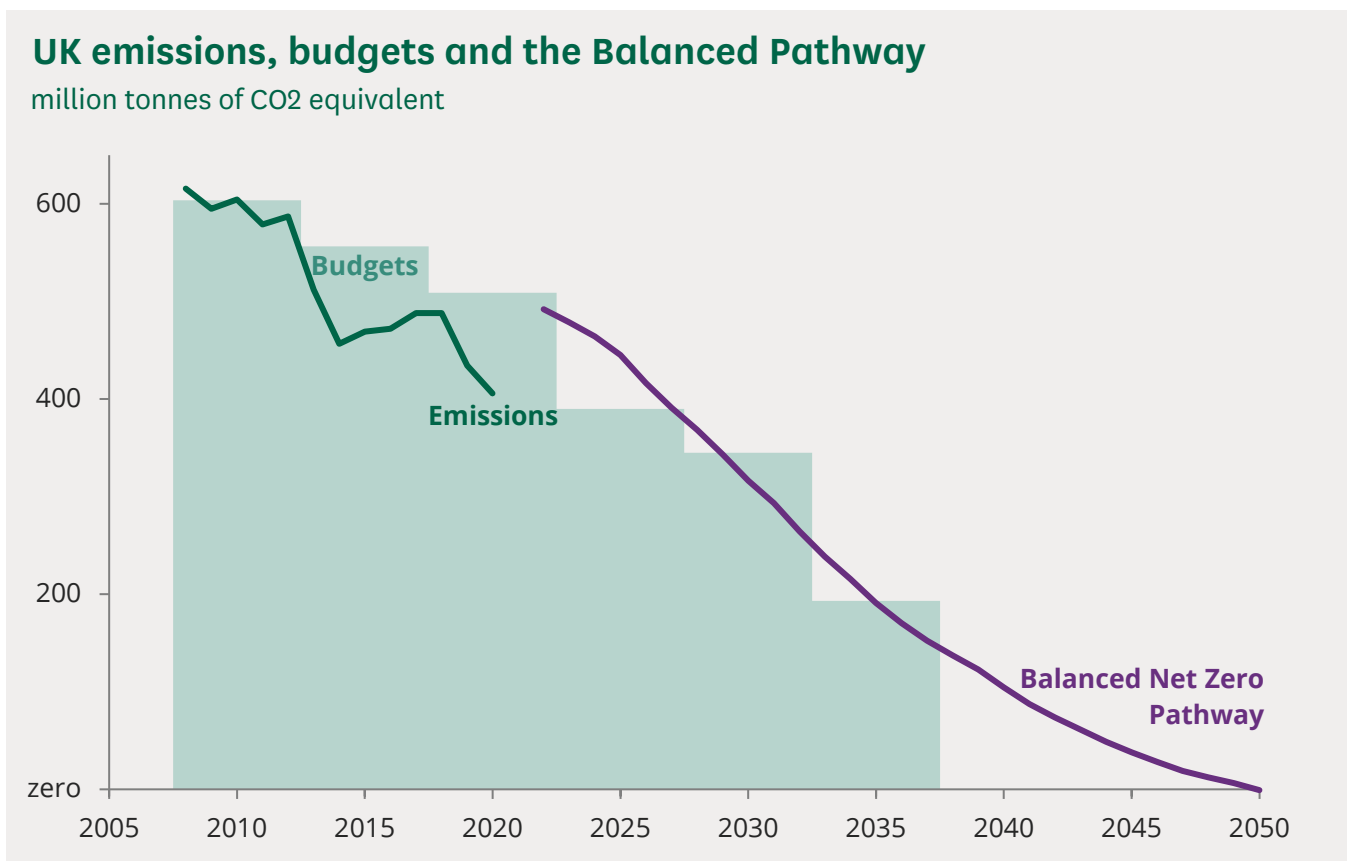
Performance against carbon budgets

Emissions are measured against five-year [carbon budgets](#) after allowing for trading under the EU emissions trading system (ETS). The UK's emissions were below the budgets for 2008-12 and 2013-17. They are [projected](#) to be below

budget in 2018-22 with current policies, but are not currently expected to fall enough to meet the following two budgets.

The chart below shows how emissions have compared to five-year budgets set by the Committee on Climate Change (CCC). They include the most recent sixth carbon budget for 2033-2037 which was [accepted by the Government](#) last April. The chart also includes the CCC's Balanced Net Zero Pathway. They developed this pathway to net zero emissions in 2050 as part of their sixth carbon budget and describe it as:

...illustrative of what a broadly sensible path based on moderate assumptions would look like



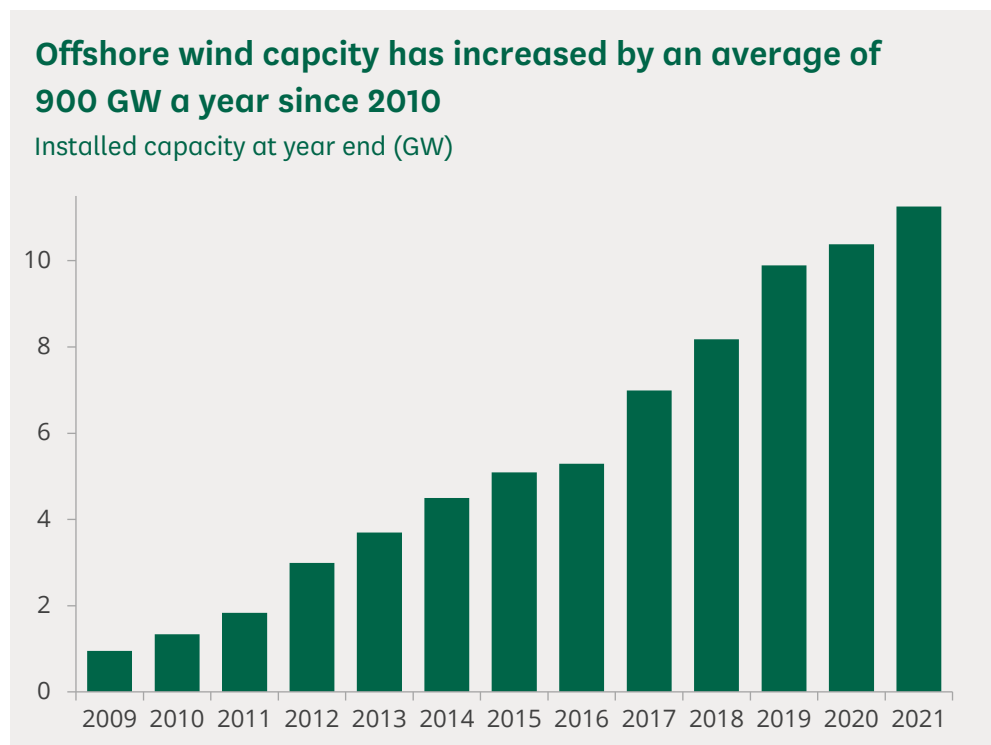
Sources: BEIS, [Final UK greenhouse gas emissions national statistics: 1990 to 2020](#); Committee on Climate Change [The Sixth Carbon Budget. The UK's path to Net Zero](#),

4 The Ten Point Plan for a Green Industrial Revolution

The following chapter outlines the policy aims of the Government's [ten point plan for a green industrial revolution](#) and, where possible, provides data on progress in those areas. Chapter 2, section 5 of the [CCC progress report to parliament](#) also provides an assessment of Government's policies and plans, including delivery and implementation policies and plans.

4.1 Point 1: Advancing offshore wind

The chart below shows the growth of offshore wind capacity over the past decade or so. It reached 11.3 TW at the end of 2021. This was still 22% less than onshore wind, but much slower onshore growth in recent years has cut this gap; onshore capacity was double offshore in 2013.¹²



Source: BEIS, [Energy Trends: UK renewables \(Table 6.1\)](#)

In April 2022 there was a further 3.8 GW of offshore wind capacity under construction and a further 16.0 GW of capacity with planning permission but “awaiting construction”. The average time between planning permission

¹² BEIS, [Energy Trends: UK renewables \(Table 6.1\)](#)

being granted and a site becoming operational for existing offshore wind farms was just over four years.¹³

Offshore wind generation has grown at a similar rate to its capacity. It peaked in 2020 at 40.7 TWh, before falling to 35.4 TWh in 2021 due to lower load factors (wind speeds). The 2021 figure was 11.4% of all UK generation and 22% above onshore wind generation.¹⁴

4.2 Point 2: Driving the growth of low carbon hydrogen

On 17 August 2021, the Government published the [UK hydrogen strategy](#). It sets out the Government's approach to developing a low carbon hydrogen sector in the UK and meet its ambition for 5GW of low carbon hydrogen production capacity by 2030. Section 2 of the strategy show a road map of how the Government expects the UK's hydrogen economy to develop beyond 2030.

In the [ten point plan for a green industrial revolution](#) the Governments stated that this aim would “be supported by a range of measures, including a £240 million Net Zero Hydrogen Fund”, and “hydrogen business models and a revenue mechanism for them to bring through private sector investment.”¹⁵

On 10 June 2022, a debate was held on the future hydrogen economy. A Commons Library debate pack on [The future hydrogen economy](#) contains further information and a [transcript of the debate](#) is also available.

4.3 Point 3: Delivering new and advanced nuclear power

The Ten Point plan stated that the Government were “pursuing large-scale nuclear, whilst also looking to the future of nuclear power in the UK through further investment in Small Modular Reactors and Advanced Modular Reactors.”

The document also set out information on planned Government investment in nuclear technology:

¹³ BEIS, [Renewable Energy Planning Database: quarterly extract \(April 2022\)](#)

¹⁴ BEIS, [Energy Trends: UK renewables \(Table 6.1\)](#)

¹⁵ BEIS, [The ten point plan for a green industrial revolution](#), 18 November 2020

Subject to value-for-money and future spending rounds, we are announcing up to £385 million in an Advanced Nuclear Fund. This will enable investment of up to £215 million into Small Modular Reactors to develop a domestic smaller-scale power plant technology design that could potentially be built in factories and then assembled on site. It will unlock up to £300 million private sector match-funding.¹⁶

The Government also committed to £170 million for a research and development programme on Advanced Modular Reactors.¹⁷

In the Net Zero strategy the Government set out further policy aims in relation to nuclear energy, including securing “a final investment decision on a large-scale nuclear plant by the end of this Parliament.” The strategy also highlighted plans for a £120 million Future Nuclear Enabling Fund, [which was launched in May 2022](#).¹⁸ The fund aims to support a limited number of nuclear projects through grants. The

4.4

Point 4: Accelerating the shift to zero emission vehicles

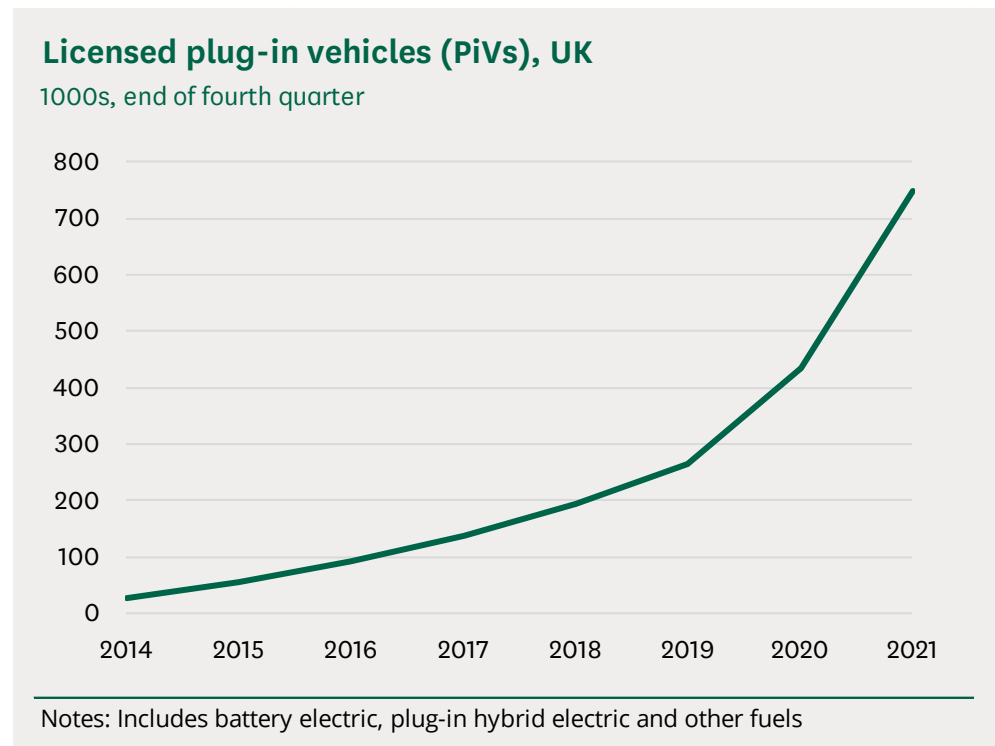
Number of electric vehicles

The number of electric vehicles licensed in the UK has steadily increased. At the end of 2021, there were 747,811 licensed plug-in vehicles in the UK. This is a 2,679% increase from 27,916 at the end of 2014.

¹⁶ BEIS, [The ten point plan for a green industrial revolution](#), 18 November 2020

¹⁷ BEIS, [The ten point plan for a green industrial revolution](#), 18 November 2020

¹⁸ BEIS, [Future Nuclear Enabling Fund \(FNEF\)](#), May 2022

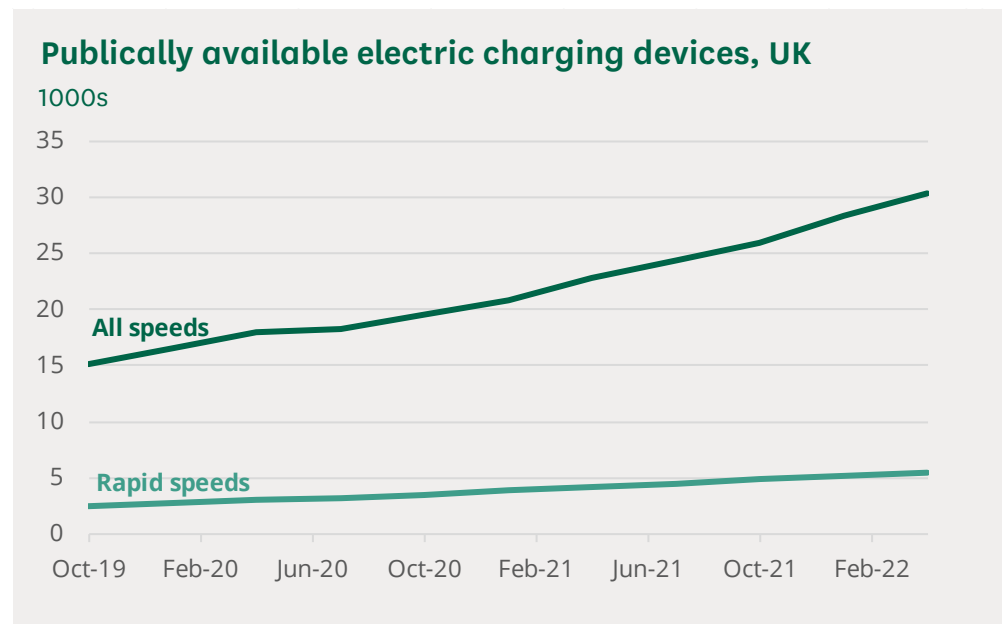


Source: [DfT, Vehicle licensing statistics data tables, VEH0141](#)

The proportion of vehicles that are electric has also increased. At the end of 2021, 1.9% of licensed vehicles were plug-in vehicles (PiVs), compared to 0.1% at the end of 2014.

Number of charging devices

In April 2022, there were 30,290 publicly available electric vehicle charging devices, of which 5,494 were of rapid speed, in the UK. This equates to 45.2 all speeds devices per 100,000 population and **8.2** rapid speeds devices per 100,000.



Source: [DfT, Electric vehicle charging device statistics: April 2022](#)

There is an uneven geographical distribution of charging devices within the UK. An [interactive map](#) of this data is available and shows the density of all and rapid charging devices by local authority.

Publicly available electric charging devices, by region

Apr-22

	All Speeds		Rapid Speeds	
	All devices	per 100,000 population	Rapid devices	per 100,000 population
UK	30,290	45.2	5,494	8.2
England	25,884	45.8	4,541	8.0
London	10,020	111.3	736	8.2
North East	1,011	37.7	252	9.4
North West	1,883	25.6	432	5.9
Yorkshire & the Humber	1,514	27.4	439	7.9
East Midlands	1,627	33.4	408	8.4
West Midlands	2,020	33.9	531	8.9
East of England	1,887	30.1	439	7.0
South East	3,831	41.6	835	9.1
South West	2,091	36.9	469	8.3
Wales	1,105	34.9	185	5.8
Scotland	2,953	54.0	743	13.6
Northern Ireland	348	18.4	25	1.3

Source: [DfT, Electric vehicle charging device statistics: April 2022](#)

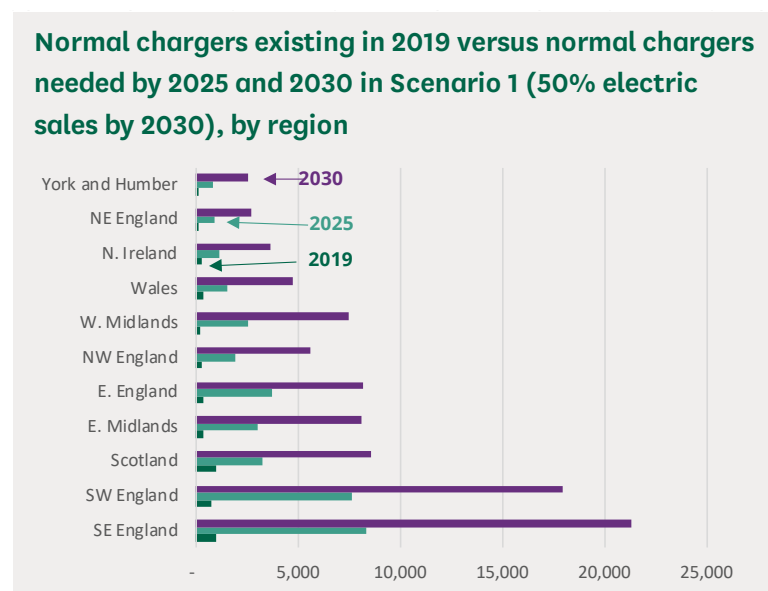
London and Scotland had the highest level of charging provision per 100,000 of population, with 111 and 54 devices per 100,000 respectively. Northern

Ireland had the lowest level of charging device provision in the UK, with 18 devices per 100,000.

Future requirement for charging devices

Whilst the number of chargers has steadily increased, many more chargers will be needed to support the growth in electric vehicles.

The graphs and tables below depict the electric vehicle charger counts needed in 2025 and 2030 for scenario 1, which assumes 50% electric car sales by 2030, and scenario 2, which assumes 70% electric car sales by 2030, compared to total 2019 charger counts for selected regions.¹⁹



Source: [International Council on Clean Transportation \(ICCT\), Quantifying the electric vehicle charging infrastructure gap in the United Kingdom, August 2020](#)

Many more chargers will be needed across all regions to support scenario 2's 70% goal, compared to scenario 1's 50% goal, for electric car sales. In Scenario 1 (50%) electric sales by 2030, the UK is expected to need 325,701 normal chargers by 2030. This is a 1,539% increase from 19,874 normal chargers that exist in 2019. In Scenario 2 (70%) electric sales by 2030, the UK is expected to need 410,168 normal chargers by 2030. This is a 1,963% increase from 19,874 chargers normal chargers that exist in 2019.

¹⁹ These scenarios come from the International Council on Clean Transportation's (ICCT) working paper, [Quantifying the electric vehicle charging infrastructure gap in the United Kingdom](#), August 2020

4.5

Point 5: Green public transport, cycling and walking

The Ten Point Plan for a Green Industrial Revolution set out Government spending plans for increasing the number of journeys taken by public transport, cycling and walking:

We will invest tens of billions of pounds in enhancements and renewals of the rail network, £4.2 billion in city public transport and £5 billion on buses, cycling and walking, as announced by the Prime Minister in February. We will electrify more railway lines; end the complicated franchising model and create a simpler, more effective system; and create integrated bus and train networks in more places, with smart ticketing, more frequent services, and bus lanes to speed journeys. We will invest £120 million next year to begin the introduction of at least 4,000 more British built zero emission buses. Early next year, we will publish the first-ever National Bus Strategy, funded through the £5 billion of new money for buses and cycling announced by the Prime Minister, including more frequent and cheaper "superbus" networks and integrated ticketing between operators and modes. We will fund at least two all-electric bus towns, beginning this financial year, as well as developing the first fully zero-emission city centre.²⁰

In March 2021, the Government published [Bus Back better](#), a long-term strategy for buses in England, outside London. This sets out how the government intends to achieve its aim of getting more people to travel by bus:

this strategy will make buses more frequent, more reliable, easier to understand and use, better co-ordinated and cheaper: in other words, more like London's, where these type of improvements dramatically increased passenger numbers, reduced congestion, carbon and pollution, helped the disadvantaged and got motorists out of their cars.

We want the same fully integrated service, the same simple, multi-modal tickets, the same increases in bus priority measures, the same high-quality information for passengers and, in larger places, the same turn-up-and-go frequencies. We want services that keep running into the evenings and at weekends.

We want buses to be both tools of inclusion and the transport of choice. We want to demystify buses for non-users, tackle misconceptions about bus travel and address the negative perceptions some still hold about it.²¹

²⁰ BEIS, [The ten point plan for a green industrial revolution](#), 18 November 2020

²¹ DfT, [Bus Back Better: national bus strategy for England](#), 15 March 2021

The Commons Library briefing [The National Bus Strategy: Bus policy in England outside London](#) provides further details.

4.6

Point 6: Jet zero and green ships

Jet zero consultation

In 2021, the Government ran a [consultation on, jet zero, the strategy for net zero aviation](#). The consultation closed in September 2021 and will inform the final jet zero strategy. A response to the consultation is due later in 2022. On the consultation page the Government set out that its ambition is to:

- decarbonise aviation in a way that preserves the benefits of air travel
- maximise the opportunities that decarbonisation can bring²²

The Government proposed a set of policies aimed at supporting the aviation industry to reduce and, where possible, eliminate carbon dioxide emissions from aviation. The policies cover 5 different measures that aim to:

- improve the efficiency of our aviation system
- accelerate the development and deployment of sustainable aviation fuels
- support the development of zero emission flight
- ensure we use markets to drive down emissions in the most cost-effective way
- influence the behaviour of consumers²³

The Commons Library briefing [Aviation, decarbonisation and climate change](#) provides an overview and analysis of UK and international policies to decarbonise the aviation sector.

Green shipping

At COP26, the UK signed up to the Clydebank declaration along with 23 other countries. The declaration calls for the establishment of green shipping corridors, zero-emission shipping routes between 2 ports, and aims to

²² DfT, [Jet zero: our strategy for net zero aviation](#), updated 25 February 2022

²³ DfT, [Jet zero: our strategy for net zero aviation](#), updated 25 February 2022

establish 6 of them by the middle of this decade.²⁴ Signatories to the declaration pledge to:

- facilitate the establishment of partnerships, with participation from ports, operators and others along the value chain, to accelerate the decarbonisation of the shipping sector and its fuel supply through green shipping corridor projects
- identify and explore actions to address barriers to the formation of green corridors. This could cover, for example, regulatory frameworks, incentives, information sharing or infrastructure
- consider the inclusion of provisions for green corridors in the development or review of National Action Plans
- work to ensure that wider consideration is taken for environmental impacts and sustainability when pursuing green shipping corridors.²⁵

4.7

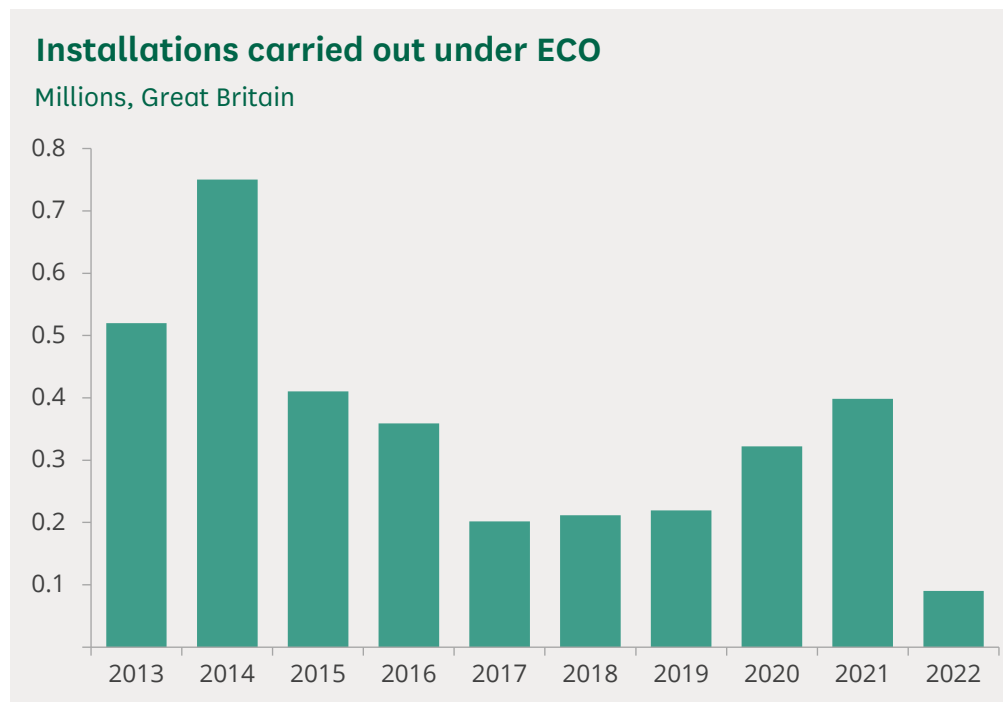
Point 7: Greener buildings

Installations under the Energy Company Obligation

Between January 2013 and March 2022, a total of nearly 3.5 installations were carried out under ECO (ECO1, ECO2, ECO help-to-heat and ECO 3) benefiting 2.4 million households across Great Britain. The following table shows that ECO installations peaked in 2014 at 0.75 million. They fell over the following three years and were just over 0.2 million in 2017 to 2019. ECO 3 ran from October 2018 to March 2022 and installations during this period increased consistently, apart from a short lockdown-related hiatus in April and May 2022, to a peak in summer 2021. The number were lower in the final nine months of ECO3.

²⁴ DfT, [COP 26: Clydebank Declaration for green shipping corridors](#), Updated 13 April 2022

²⁵ DfT, [COP 26: Clydebank Declaration for green shipping corridors](#), Updated 13 April 2022



Source: BEIS, [Household Energy Efficiency Statistics, headline release June 2022](#)

The table below shows the total number of installations under ECO by type. Cavity wall installation, new boilers and loft insulation were the most common type and together they made up almost 75% of the total.

ECO measures installed by type

GB January 2013 to March 2022

Measure Type	Number	Percentage of total
Cavity Wall Insulation	1,020,332	29.3
Boiler	814,415	23.4
Loft Insulation	672,100	19.3
Other Heating	606,722	17.4
Solid Wall Insulation	209,344	6.0
Other Insulation	151,631	4.4
Windows and Doors	6,447	0.2
Micro-generation	1,895	0.1
Total	3,482,886	100.0

Source: BEIS, [Household Energy Efficiency Statistics, headline release June 2022](#)

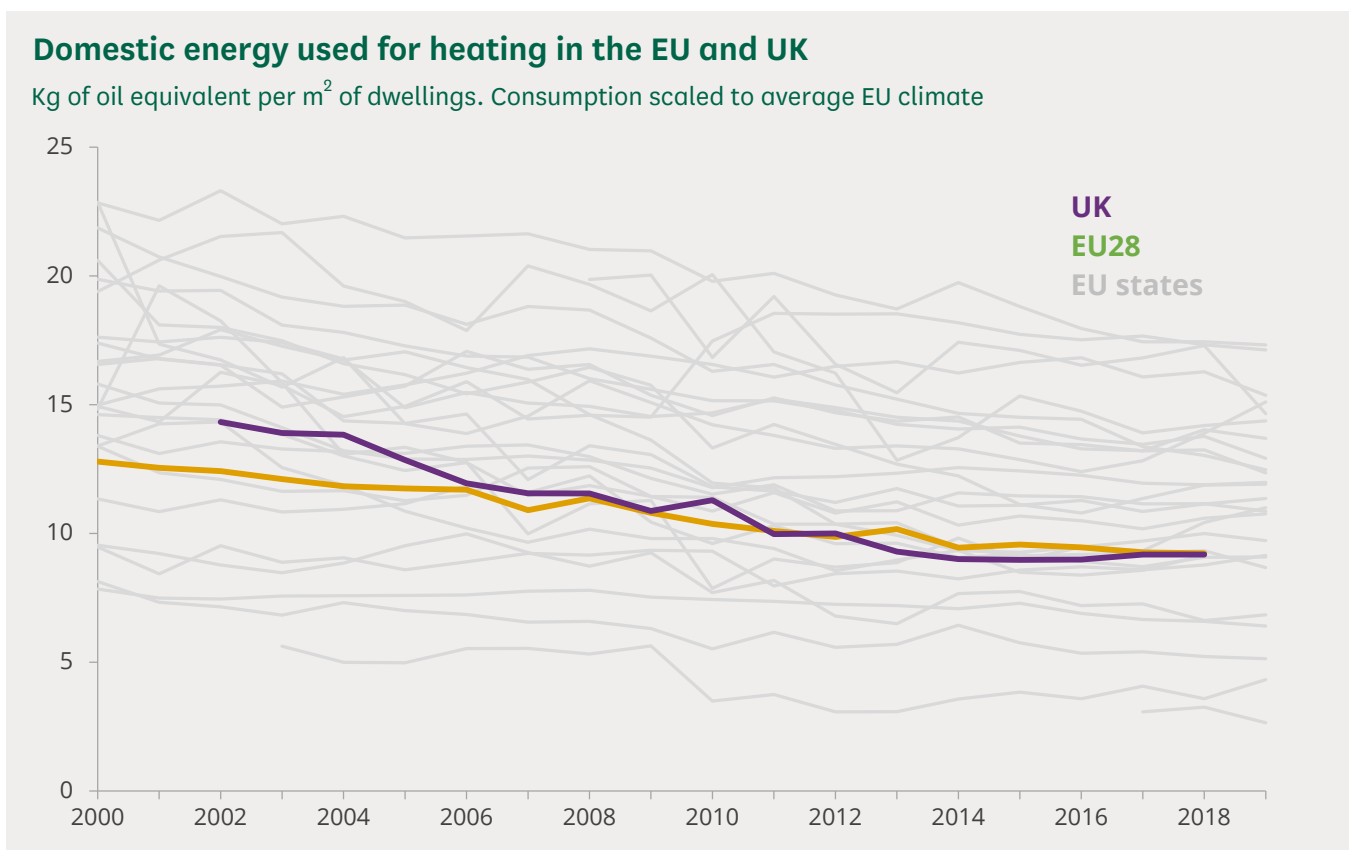
The type of installation has changed over time. Cavity wall installations peaked in 2014 at around 320,000, fell soon after and were below 60,000 in the last full year of ECO. New boilers peaked in 2013 at almost 170,000, fell to around 35,000 in 2018 and have increased more recently to just over 100,000 in 2021. Loft installations also peaked in 2014 at just over 200,000 and fell to

around 30,000 in 2021. Other heating installations have increased over time and were the most common ECO installation in 2021 with just over 150,000.²⁶

International comparisons

The [ODYSSEE database](#) includes a range of [key indicators](#) of energy use and efficiency under the households sector. The chart below looks at trends in energy used for heating per m² of floorspace adjusted for differences in temperature.

The chart shows that the UK improved its energy efficiency more than the EU average, but most of this improvement happened between 2002 and 2014. The UK's energy efficiency got slightly worse in each year from 2016 to 2018. In 2018 the UK ranked 9th lowest in terms of energy used for heating per m² of floorspace out of 27 countries and hence the 9th best energy efficiency on this measure. The UK's energy efficiency was slightly better than the EU 28 average.



Source: ODYSSEE-MURE, [Odyssee key indicators](#)

²⁶ BEIS, [Household Energy Efficiency Statistics, headline release June 2022](#)

4.8 Point 8: Investing in carbon capture, usage and storage

The Net Zero Strategy sets out the role carbon capture, usage and storage (CCUS) will play in the UK's path to net zero. It states that the UK is well positioned to develop these techniques:

The UK is well placed to take a leading role in GGR policy development and deployment. We have world-leading academic and industry expertise in relevant sectors, as well as a rapidly developing carbon capture usage and storage (CCUS) sector and access to large volumes of quality geological CO₂ storage. Enabling GGR deployment will not only help us hit net zero but can support the UK's ability to export skills and expertise to other nations with comparable ambitions for the sector.²⁷

A specific aim set out in the strategy is the delivery of "four carbon capture usage and storage (CCUS) clusters, capturing 20-30 MtCO₂ across the economy, including 6 MtCO₂ of industrial emissions, per year by 2030."²⁸

4.9 Point 9: Protecting our natural environment

[The ten point plan for a green industrial revolution](#) sets out how the Government aims to align its net zero objectives with protecting the environment:

We will protect our natural environment through the creation of new National Parks and Areas of Outstanding Natural Beauty (AONB). We will start the process for designating more of England's beautiful and iconic landscapes as National Parks and AONBs, safeguarding these areas for future generations and bringing more people within closer reach of nature. These new National Landscapes will play a key role in meeting the Government's commitment to protect and improve 30% of UK land by 2030.

We will immediately create more green jobs with a £40 million second round of the Green Recovery Challenge Fund. This fund will help create and retain thousands of jobs to work on nature conservation and restoration projects across England helping to improve biodiversity and tackle climate change.²⁹

²⁷ BEIS, [Net Zero Strategy: Build Back Greener](#), 19 October 2021

²⁸ BEIS, [Net Zero Strategy: Build Back Greener](#), 19 October 2021

²⁹ BEIS, [The ten point plan for a green industrial revolution](#), 18 November 2020

It also sets out how the new Environmental Land Management scheme would help combat climate change whilst also delivering other environmental benefits.

In March 2021, the Government published [Environmental Land Management schemes guidance](#) which set out its 3 new schemes:

- Sustainable Farming Incentive
- Local Nature Recovery
- Landscape Recovery

The guidance explains that:

These schemes are intended to support the rural economy while achieving the goals of the 25 Year Environment Plan and a commitment to net zero emissions by 2050.

Through these schemes, farmers and other land managers may enter into agreements to be paid for delivering the following:

- clean and plentiful water
- clean air
- thriving plants and wildlife
- protection from environmental hazards
- reduction of and adaptation to climate change
- beauty, heritage and engagement with the environment
- Sustainable Farming Incentive³⁰

A January 2022 [Defra blog article](#), [Get ready for our 3 new environmental land management schemes](#), provides additional detail and contains links to further information.

4.10

Point 10: Green finance and innovation

In the [ten point plan for a green industrial revolution](#) the Government set out its vision to become a world leader in decarbonisation technologies and how it aims to achieve this:

³⁰ Defra, [Environmental Land Management schemes: overview](#), 15 March 2021

To accelerate the commercialisation of innovative low-carbon technologies, systems and processes in the power, buildings, and industrial sectors, we will launch the £1 billion Net Zero Innovation Portfolio. The portfolio will focus on ten priority areas that correspond with this Ten Point Plan, including: floating offshore wind; nuclear advanced modular reactors; energy storage and flexibility; bioenergy; hydrogen; homes; direct air capture and advanced CCUS; industrial fuel switching; and disruptive technologies such as artificial intelligence for energy. We have already launched the first phase of a £100 million investment in brand-new Greenhouse Gas Removals including Direct Air Capture in November 2020, which captures carbon dioxide emissions directly from the air. We will provide £100 million for Energy Storage and Flexibility innovation challenges – essential technology as we move towards an increasingly renewables-heavy system to allow us to store energy over hours, days and even months.³¹

The Net Zero strategy sets out the Government’s key policies to support cross-cutting action on emissions reductions:

- Deliver at least £1.5 billion of funding to support net zero innovation projects.
- Use the UK Infrastructure Bank (UKIB) to crowd in private finance, support more than £40 billion of investment, and pull through low carbon technologies and sectors to maturity and scale.
- Introduce a new Sustainability Disclosures Regime, including mandatory climate related financial disclosures and a UK green taxonomy.
- Reform the skills system so that training providers, employers and learners are incentivised and equipped to play their part in delivering the transition to net zero.
- Publish an annual progress update against a set of key indicators for achieving our climate goals.³²

³¹ BEIS, [The ten point plan for a green industrial revolution](#), 18 November 2020

³² BEIS, [Net Zero Strategy: Build Back Greener](#), 19 October 2021

5

Size of the Green Economy

LCREE employment and turnover

In 2020, businesses active in the UK low carbon and renewable energy economy (LCREE) generated £41.2 billion in turnover, with employment of 207,800 full-time equivalent (FTE) employees.³³

In 2020, businesses active in the UK LCREE economy generated £41.2 billion in turnover and employed 207,800 FTE employees

	Turnover (£ billions)			Employment (FTE)		
	Estimate	Lower CI	Upper CI	Estimate	Lower CI	Upper CI
England	32.6	30.0	35.1	171,100	153,200	189,000
Scotland	5.5	5.1	5.8	20,500	16,800	24,100
Wales	2.2	2.0	2.5	11,300	9,400	13,200
N. Ireland	0.9	0.7	1.1	5,000	3,900	6,100
UK	41.2	38.6	43.9	207,800	189,000	226,700

Notes:

Figures may not sum because of rounding.

Confidence intervals (CI), are a standard way of expressing the statistical accuracy of a survey-based estimate.

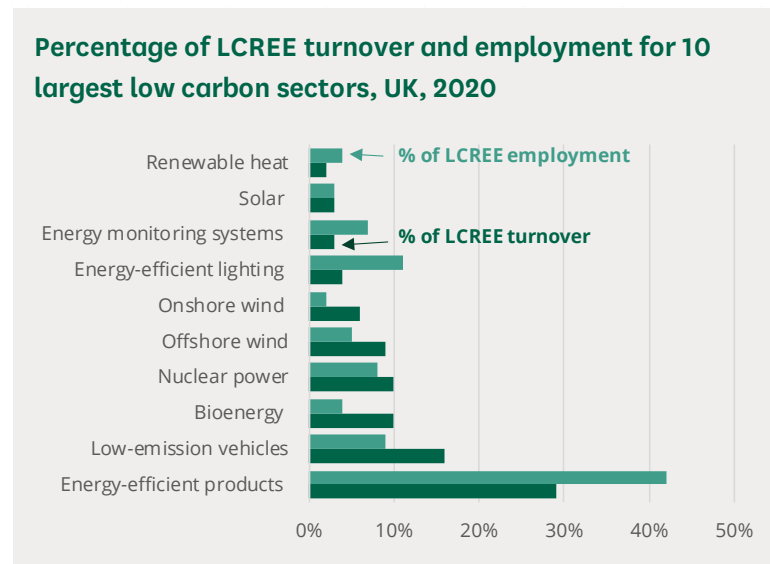
Source: ONS, [Low Carbon and Renewable Energy Economy Survey 2020](#), Table 1

The LCREE accounted for around 1% of total UK non-financial employment in 2020 and around 1% of total UK non-financial turnover in 2019, the latest year for which a comparison is possible.

LCREE sectors

The energy efficient products (excluding energy efficient lighting) and low emission vehicles sectors were the largest sectors in the LCREE economy in 2020, accounting for £12.1 billion (29%) and £6.8 billion (16%) of turnover respectively. The energy efficient products sector is particularly important in terms of employment, accounting for 42% (87,000 FTE) of total LCREE employment. Activities within this sector tend to be more labour intensive compared with other sectors such as bioenergy, and onshore and offshore wind.

³³ [ONS, Low Carbon and Renewable Energy Economy Survey, 2020](#)



Source: ONS, [Low Carbon and Renewable Energy Economy Survey 2020](#), Figure 1

LCREE over time

There has been no significant change in turnover generated by the LCREE between 2015 and 2020. There has been no significant change in the size of the LCREE between 2015 and 2020. In 2015 the turnover generated by LCREE was £40.2 billion and in 2020 it was £41.2 billion. Employment has also remained relatively stable, in 2015 there were 200,500 full-time equivalent employees in the LCREE and in 2020 there 207,800.

6 Parliamentary material

6.1 Statements

Climate Change Update

I am today providing an update on the UK's CCUS Cluster Sequencing Process which was launched in May this year. Carbon Capture, Usage and Storage, or CCUS, will be essential to meeting our Net Zero ambitions and will be an exciting new industry to capture the carbon we continue to emit and revitalise the birthplaces of the first Industrial Revolution.

The Prime Minister's 10 Point Plan established a commitment to deploy CCUS in a minimum of two industrial clusters by the mid-2020s, and four by 2030 at the latest. Our aim is to use CCUS technology to capture and store 20-30 MtCO₂ per year by 2030, forming the foundations for future investment and potential export opportunities. CCUS will be crucial for industrial decarbonisation, low carbon power, engineered greenhouse gas removal technologies and delivering our 5GW by 2030 low carbon hydrogen production ambition.

Our cluster sequencing process, which has, through the CCS Infrastructure Fund, £1 billion to provide industry with the certainty required to deploy CCUS at pace and at scale, has completed the first phase of the evaluation of the five cluster submissions received by my Department.

I am today, confirming that the Hynet and East Coast Clusters have been confirmed as track 1 clusters for the mid-2020s and will be taken forward into Track-1 negotiations. If the clusters represent value for money for the consumer and the taxpayer then subject to final decisions of Ministers, they will receive support under the government's CCUS Programme. We are also announcing the Scottish Cluster as a reserve cluster if a back-up is needed. A reserve cluster is one which met the eligibility criteria and performed to a good standard against the evaluation criteria. As such, we will continue to engage with the Scottish Cluster throughout Phase-2 of the sequencing process, to ensure it can continue its development and planning. This means that if government chooses to discontinue engagement with a cluster in Track-1, we can engage with this reserve cluster instead.

Deploying CCUS will be a significant undertaking, these are new major infrastructure projects for a new sector of the economy and carry with them significant risks to deliver by the mid-2020s. Government will continue to play a role in providing long-term certainty to these projects to manage these risks and bring forward the UK's first CCUS clusters.

We remain committed to helping all industrial clusters to decarbonise as we work to reach net zero emissions by 2050, and we are clear that CCUS will continue to play a key role in this process. Consequently, the government continues to be committed to Track-2 enabling 10Mtpa capacity operational by 2030. This puts these places - Teesside, the Humber, Merseyside, North Wales and the North East of Scotland - among the potential early SuperPlaces which will be transformed over the next decade.

19 Oct 2021 | Written statements | House of Commons | HCWS325

Member: Greg Hands

Department: Department for Business, Energy and Industrial Strategy

6.2

Debates

[Future Hydrogen Economy](#)

Motion, That this House has considered the future hydrogen economy. Agreed to on question. Sitting adjourned without Question put.

14 Jun 2022 | Backbench debates | House of Commons | 716 cc104-119WH

Lead member: Young, Jacob | **Answering member:** Hands, Greg

Department: Department for Business, Energy and Industrial Strategy

[Climate and Ecological Emergency: UK's Response](#)

Agreed to on question.

09 Feb 2021 | Adjournment debates | House of Commons | House of Commons chamber | 689 cc282-290

Lead member: Lucas, Caroline | **Answering member:** Trevelyan, Anne-Marie

Department: Department for Business, Energy and Industrial Strategy

[Climate Change Assembly UK: The Path to Net Zero](#)

Motion that this House welcomes the report of Climate Assembly UK; gives thanks to the citizens who gave up their time to inform the work of select committees, the development of policy and the wider public debate; and calls on the Government to take note of the recommendations of the Assembly as it develops the policies necessary to achieve the target of net zero emissions by 2050. Agreed to on question. Sitting suspended.

26 Nov 2020 | Backbench debates | House of Commons | House of Commons chamber | 684 cc1041-1067

Lead member: Jones, Darren | **Answering member:** Kwarteng, Kwasi

Department: Department for Business, Energy and Industrial Strategy

6.3

PQs

Climate Change

Asked by: McCarthy, Kerry | **Party:** Labour Party

To ask the Secretary of State for Business, Energy and Industrial Strategy, with reference to the Glasgow Climate Pact, whether his Department plans to amend the UK's Nationally Determined Contribution before the end of 2022.

Answering member: Greg Hands | **Party:** Conservative Party
| **Department:** Department for Business, Energy and Industrial Strategy

The Government is continuing to review the latest available evidence to ensure that its target remains aligned with the Paris temperature goal and exploring other ways to strengthen its Nationally Determined Contribution (NDC).

The Government will publish any updates to the NDC ahead of the UN synthesis report deadline on 23 September and urges other parties to do the same.

22 Jun 2022 | Written questions | Answered | House of Commons | 20231

Climate Change and Environment: Research

Asked by: Whitehead, Dr Alan | **Party:** Labour Party

To ask the Secretary of State for Business, Energy and Industrial Strategy, what steps he plans to take to ensure that the Advanced Research and Invention Agency invests in projects that are compatible with the (a) Climate Change Act 2008 and (b) Environment Act 2021.

Answering member: George Freeman | **Party:** Conservative Party
| **Department:** Department for Business, Energy and Industrial Strategy

Decisions on which programmes and research to fund will be taken by ARIA's CEO once they are appointed and take office.

ARIA's sole focus will be to fund the most ambitious high-risk research with the potential to provide long-term benefits to our society and economy. ARIA's Framework Document will require ARIA to have regard to the contribution its projects and programmes make to the UK Government's climate change targets and environmental goals.

23 May 2022 | Written questions | Answered | House of Commons | 4442

[Climate Change](#)

Asked by: Liz Twist | **Party:** Labour Party

The UK's credibility as COP President over the next year rests on demonstrable climate action at home, but the Government's net zero strategy has been torpedoed by the Treasury. Without the scale of investment needed to support households and industry, the Government cannot guarantee that they would put us on track for their 2030 or 2035 targets. Labour would invest £28 billion every year until 2030. What representations is the Minister making to the Treasury to get us back on track to meet our targets and deliver the benefits of a green transition?

Oral questions - 1st Supplementary

Answering member: Greg Hands | **Party:** Conservative Party
| Department: Business, Energy and Industrial strategy

I thank the hon. Lady for her question and for her engagement on this, but the basis of her question is not quite right. Actually, BEIS had more capital uplift in the spending review than, I believe, any other Department. We have doubled the amount of money going into international climate finance. My right hon. Friend the COP26 President is working tirelessly to show UK leadership in this space. In the time that we have had the presidency, the amount of the world's GDP covered by net zero commitments has increased from 30% to more than 90%.

22 Feb 2022 | Oral answers to questions | House of Commons | House of Commons chamber | 709 c158

[Climate Change: Research](#)

Asked by: Maskell, Rachael | **Party:** Labour Party · Cooperative Party

To ask the Secretary of State for Business, Energy and Industrial Strategy, how much funding he has allocated to climate science and research in each year since 2010.

**Answering member: Paul Scully | Party: Conservative Party
| Department: Department for Business, Energy and Industrial Strategy**

UK Research and Innovation (UKRI) estimates that around £116 million per annum has been committed over the last ten years through their Natural Environment Research Council (NERC) into research related to climate science. In addition funding for the Met Office Hadley Centre Climate Programme has almost doubled since 2010.

10 Nov 2021 | Written questions | Answered | House of Commons | 68361

7

Press coverage

Independent, [UK 'underspend' on climate crisis to be used to bolster military aid for Ukraine](#), 30 June 2022

The Guardian, [Government policies will not get UK to net zero, warns damning report](#), 29 June 2022

Politicshome.com, [Net Zero: mission impossible?](#), 22 June 2022

Telegraph, [Net-zero plans 'risk being a waste of taxpayer money', says spending watchdog](#), 19 June 2022

UK Government News, [Government invests over Pound 31 million to help industry slash emissions and energy costs, May 31, 2022](#)

Utility Week, [Community energy 'ignored and abandoned' by government](#), 10 Jan 2022 [Subscription only]

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