July 2024

Progress in reducing emissions 2024 Report to Parliament

Climate Change Committee

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The Committee

The Climate Change Committee (CCC) is an independent, statutory body established under the Climate Change Act 2008. Our purpose is to advise the UK and devolved governments on emissions targets and to report to Parliament on progress made in reducing greenhouse gas emissions and preparing for and adapting to the impacts of climate change.

Members of the Committee include:

Professor Piers Forster, Interim Chair

Piers Forster is Director of the Priestley Centre for Climate Futures and Professor of Physical Climate Change at the University of Leeds. He has played a significant role authoring Intergovernmental Panel on Climate Change (IPCC) reports, and is a coordinating lead author role for the IPCC's sixth assessment report.

Professor Keith Bell

Keith Bell is a co-Director of the UK Energy Research Centre (UKERC), a Chartered Engineer and a Fellow of the Royal Society of Edinburgh. He has been at the University of Strathclyde since 2005, was appointed to the Scottish Power Chair in Smart Grids in 2013 and has been involved in energy system research in collaboration with many academic and industrial partners.

Professor Michael Davies

Michael Davies is Professor of Building Physics and Environment at the UCL Institute for Environmental Design and Engineering (IEDE). At UCL his research interests relate to the complex relationship between the built environment and human wellbeing. He is also Director of the Complex Built Environment Systems Group at UCL and a member of the Scientific Advisory Committee of 'Healthy Polis'.

Dr Steven Fries

Steven Fries is a Senior Associate Fellow at the Institute for New Economic Thinking at the Oxford Martin School, University of Oxford, and Nonresident Senior Fellow at the Peterson Institute for International Economics. Steven has previously held roles as group chief economist at Shell and chief economist at the Department of Energy and Climate Change.

Professor Corrine Le Quéré FRS

Corinne Le Quéré is a Royal Society Research Professor at the University of East Anglia (UEA), specialising in the interactions between climate change and the carbon cycle. She was lead author of several assessment reports for the UN's Intergovernmental Panel on Climate Change (IPCC) and previously Chaired the French Haut Conseil pour le Climat.

Nigel Topping CMG

Nigel Topping was appointed by the UK Prime Minister as UN Climate Change High Level Champion for COP26. In this role Nigel mobilised global private sector and local government to take bold action on climate change, launching the Race To Zero and Race To Resilience campaigns and, with Mark Carney, the Glasgow Financial Alliance for Net Zero.

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Executive summary

The UK has a successful track record of emissions reductions, having met all its targets so far. Territorial emissions have now fallen by over half. We should celebrate this, and the Committee applauds the efforts of successive governments to achieve it. However last year, despite some progress, the previous Government signalled a slowing of pace and reversed or delayed key policies. The new Government will have to act fast to hit the country's commitments.

Recently, we've seen the wettest 18 months on record in England. Thousands of acres of farmland have been submerged for extended periods, leading to the loss of crops and animals. The impact of this is expected to be felt well into 2025. Livelihoods have been disrupted and lives lost in the UK and overseas as a direct consequence of climate impacts, which are becoming more severe.

The cost of key low-carbon technologies is falling, creating an opportunity for the UK to boost investment, reclaim global climate leadership and enhance energy security by accelerating take-up. British-based renewable energy is the cheapest and fastest way to reduce vulnerability to volatile global fossil fuel markets. The faster we get off fossil fuels, the more secure we become.

Adapting to the physical risks of climate change is a pre-requisite for delivering the path to Net Zero. Otherwise, plans risk being less effective or more costly. The UK's Third National Adaptation Programme (NAP3) lacks the pace and ambition to address growing climate risks which we are already experiencing. NAP3 must be strengthened with a vision that includes clear objectives and targets. Government policymaking needs to be reorganised so that adaptation becomes a fundamental aspect and is embedded in other national policy objectives.

Urgent action is needed to get on track for the UK's 2030 target

The UK has committed to reduce emissions in 2030 by 68% compared to 1990 levels, as its Nationally Determined Contribution (NDC) to the Paris Agreement. It is the first UK target set in line with Net Zero. Now only six years away, the country is not on track to hit this target despite a significant reduction in emissions in 2023. Much of the progress to date has come from phasing out coal-generated electricity, with the last coal-fired power station closing later this year. We now need to rapidly reduce oil and gas use as well.

Last year saw a significant fall in emissions, as well as some good progress on policy by the previous Government: confirmation of the zero-emission vehicle mandate; leaving the Energy Charter Treaty, which is not Net Zero-aligned; and an increase to total funding and individual grants for heat pumps in homes via the Boiler Upgrade Scheme, which has led to a significant increase in take-up.

However, this is not enough. Our assessment is that only a third of the emissions reductions required to achieve the 2030 target are currently covered by credible plans. Action is needed across all sectors of the economy, with low-carbon technologies becoming the norm.

Priority actions

The previous Government gave inconsistent messages on its commitment to the actions needed to reach Net Zero, with cancellations of, and delays and exemptions to, important policies. It claimed to be acting in the long-term interests of the country, but there was no evidence backing the claim that dialling back ambition would reduce costs to citizens. Of particular concern to the Committee

were changes to buildings policy, including exempting 20% of households from the phase-out of fossil-fuel boilers by 2035. These could seriously undermine the UK's ability to reach its targets.

The UK should now be in a phase of rapid investment and delivery. Yet almost all our indicators for low-carbon technology roll-out are off track, with rates needing to significantly ramp up. By 2030:

- Annual offshore wind installations must increase by at least three times, onshore wind installations will need to double and solar installations must increase by five times.
- Approximately 10% of existing homes in the UK will need to be heated by a heat pump, compared to only approximately 1% today.
- The market share of new electric cars needs to increase from 16.5% today to nearly 100%.

These ramp-up rates are possible to achieve, with low-carbon technologies becoming mainstream, but only with urgent and decisive action. The Committee will publish its advice on the Seventh Carbon Budget and an updated path to Net Zero early in 2025. Here, we set out ten priority actions for the remainder of this year. Rapid progress is needed to make up lost ground.

- **Make electricity cheaper.** Removing policy costs from electricity prices will support industrial electrification and ensure the lower running costs of heat pumps compared to fossil-fuel boilers are reflected in household bills (R2024-011).
- **Reverse recent policy rollbacks.** Remove the exemption of 20% of households from the 2035 fossil-fuel boiler installation phase-out, address the gap left by removing obligations on landlords to improve the energy efficiency of rented homes and reinstate the 2030 phase-out of new fossil-fuel car and van sales. The damage of these rollbacks can be limited by quickly reinstating these policies (R2024-016, R2024-017, R2024-029).
- **Remove planning barriers for heat pumps, electric vehicle charge points and onshore wind** (R2024-015, R2024-032 and R2024-019).
- **Introduce a comprehensive programme for decarbonisation of public sector buildings** (R2024-013).
- **Effectively design and implement the upcoming renewable energy CfD auctions.** Ensure funding and auction design for the Sixth and Seventh Allocation Rounds are appropriate to deliver at least 50 GW of offshore wind by 2030 (R2024-007).
- **Accelerate electrification of industrial heat.** Strengthen the UK Emissions Trading Scheme to ensure that its price is sufficient to incentivise decarbonisation and that support is available for a rapid transition to electric heat across much of industry (R2023-080, R2024-012).
- **Ramp up tree planting and peatland restoration.** Tree planting must be scaled up in the 2020s for abatement to be sufficient for later carbon budgets and Net Zero. There must be no more delays to addressing the barriers to delivery (R2023-192, R2023-171).
- **Finalise business models for large-scale deployment of engineered removals.** Finalise and open to the market the business models for engineered removals (R2024-006).
- **Publish a strategy to support skills.** Support workers in sectors which need to grow or transition and in communities that may be adversely impacted (R2022-128, R2023-169).
- **Strengthen NAP3** with a vision that sets clear objectives and targets and reorganise government adaptation policy. Adaptation must become a fundamental aspect of

policymaking across all departments and be integrated into other national policy objectives (R2024-030).*

The new Government has an opportunity to reset the UK's direction. It must send long-term consistent messages on the importance of climate action to businesses and households, back that up with key policies to support investment and focus on removing barriers to deployment.

Emissions and the Third Carbon Budget

Final emissions data confirm that the UK has achieved its Third Carbon Budget, covering the period 2018 to 2022. The UK has now achieved all three of its carbon budgets to date, demonstrating strength in the UK's legal framework. The UK's territorial emissions (excluding emissions from the UK's contribution to international aviation and shipping) are now less than half the levels in 1990.

- The largest contribution to emissions reduction over the first three carbon budgets (since the start of the Climate Change Act in 2008) was from the phase-out of coal and ramp-up of renewable electricity generation. More than half of the emissions reductions seen over this period were from energy supply sectors. Looking forwards, more than three quarters of the required emissions reductions for the next three carbon budgets are expected to come from other sectors. In particular, contributions from transport, buildings, agriculture and land will need to accelerate fast.

- Last year, 2023, saw an increase in the rate of emissions reductions. A provisional estimate suggests emissions, excluding contributions from international aviation and shipping which are not included in the UK's 2030 target, fell by 22 $MtCO_2e$ (5.4%) from 415 $MtCO_2e$ in 2022 to 393 $MtCO_2e$ in 2023. In part, this was due to a more normal pattern in imports and exports of electricity with neighbouring countries, after an unusual 2022. Excluding electricity supply, which has driven the bulk of emissions reduction so far, the fall was 12 $MtCO_2e$ (3.2%), still a significantly greater reduction compared to the annual average of 6 $MtCO_2e$ (1.6%) seen in the preceding seven years.

  - The fall in emissions in 2023 came primarily from a 10.5% fall in total gas demand due to increased electricity imports, reduced electricity exports and reductions in gas consumption in buildings and industry, which may in part reflect continuing high gas prices.

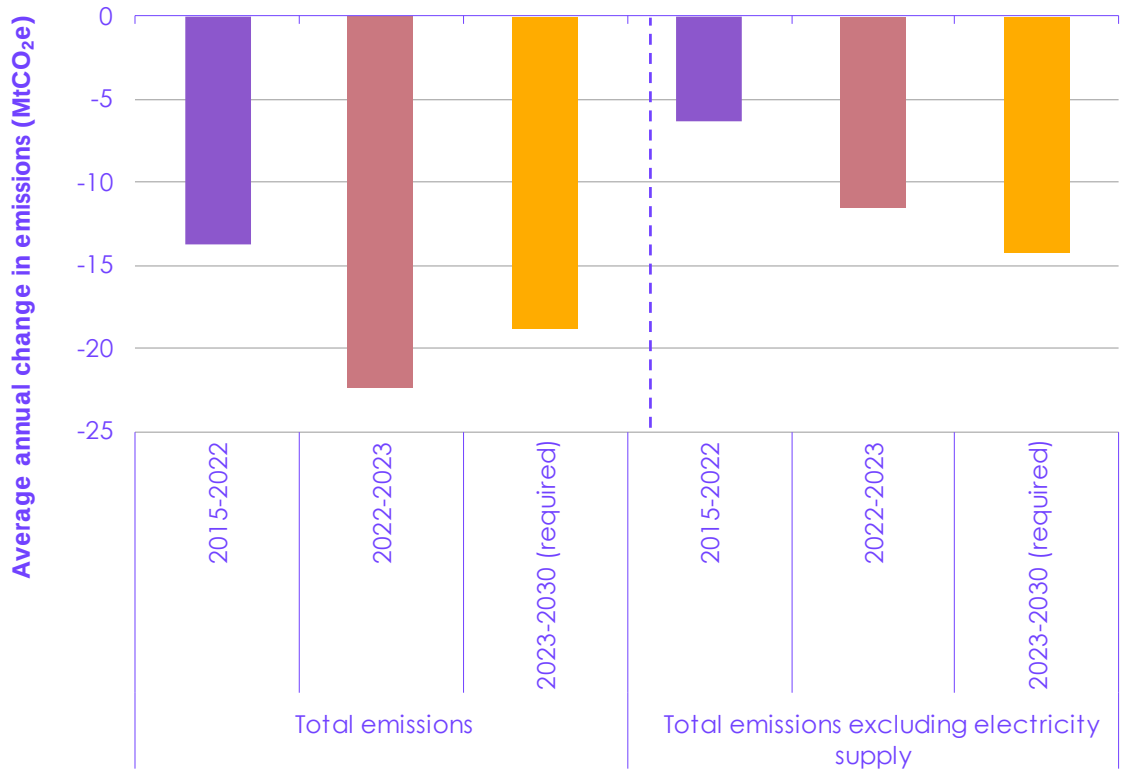
  - There was a small decrease in surface transport emissions, despite an increase in traffic levels. Rapid growth in electric car sales is now beginning to have a measurable impact on emissions, with one million (2.8% of the overall car fleet) now on the road.

  - The rate of reduction outside the electricity supply sector needs to accelerate to an annual average of 14 $MtCO_2e$ (4.6%) per year over the next seven years in order to meet the UK's 2030 target.

  - From now on, emissions reductions will need to be driven by sustained decarbonisation action including the rapid roll-out of key low-carbon technologies, tree planting and peatland restoration.

* These actions, as well as a wider set of other priority recommendations for the next year, are given in the tables in Annex 1 and on our website. The unique recommendation IDs link to the specific recommendations in those tables. Our website also contains additional recommendations from previous Progress Reports that will be assessed next year.

Figure 1 Pace of emissions reduction 2015–2022, 2022–2023 and required for 2023–2030 (excluding international aviation and shipping)



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023*; DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; DESNZ (2023) *Carbon Budget Delivery Plan*; Climate Change Committee (CCC) analysis.
Notes: The orange bars show the annual pace of emissions reductions that will be required starting from the published provisional 2023 emissions data to meet the 2030 NDC.
Description: The rate of emissions reduction seen in 2023 represents a significant increase from recent sustained rates and is roughly in line with the pace of change needed out to 2030. This pace will need to be maintained. In addition, the action to achieve it needs to spread across a broader range of sectors, with much of the reduction so far coming from electricity supply.

Delivery indicators

The significant fall in emissions in the last year was driven by a reduced demand for gas. This is reflected by good progress in our indicators for energy demand in buildings. Also on track is our indicator for car traffic levels, which did not fully rebound to pre-pandemic levels, although van traffic remains too high. However, our delivery indicators for low-carbon technology roll-out, tree planting and peatland restoration are off track from what is required to meet the UK's 2030 and Net Zero targets.

Costs for some key low-carbon technologies, such as electric vehicles, batteries and solar panels, are lower than ever. However, we have not yet reached the point where markets alone will drive the Net Zero transition. Policy is needed to provide confidence to investors and consumers; manage risks in new markets; remove barriers to delivery; and, in some cases, provide financial incentives where that is still necessary, especially in home heating. Action has been insufficient to support the required pick-up in pace.

- The growth in the market share of battery-electric cars stagnated last year despite preceding years of rapid growth, bringing levels to 16.5%, and below our recommended pathway for the first time. Some other European countries such as the Netherlands, France and Ireland saw a continued growth. Sales of electric vans remain significantly off track, with a market share of only 6% in 2023. Sales of both electric cars and vans will need to significantly ramp up to approach 100% by 2030. Installation rates of public electric vehicle charging points are on track, but they need to reach treble current rates by 2030.

- Progress slowed on offshore wind installations. Operational capacity will need to at least triple by 2030. This will require a three-fold increase in annual installation rates compared to the average rate seen since the start of this decade. Onshore wind installation rates will need to double and solar installation rates will need to increase five times. All three indicators are judged to be off track.

- Annual heat pump installations in homes were just over 60,000 in 2023, only a 4% increase compared to the previous year. An increase has been seen in recent months following the increase to the grant available to install heat pumps via the Boiler Upgrade Scheme. The total installation rate seen in 2023 will need to increase substantially by the end of the decade, to ensure that approximately 10% of current homes are heated by a heat pump, compared to around 1% today. The UK is significantly behind other European countries.

- Tree planting and peatland restoration rates are significantly off track and will both need to more than double to get as close as possible to the UK's targets of 30,000 ha new woodland creation per year by 2025 and 32,000 ha peatland restoration per year by 2026.

Delivery needs to ramp up in these key areas in the next year to ensure the UK's 2030 target remains within reach.

Policy assessment

Our assessment is that the previous Government's policies and plans were insufficient to achieve the UK's targets in the 2030s. There were a few good developments in some areas in the past year. However, policy reversals and delays in other areas, together with inconsistent messaging, have hindered progress just when acceleration was needed. With the 2030 target only six years away, and the impacts of climate change intensifying, rapid action is needed to get things back on track.

- Only around one third of the emissions reductions required to meet the 2030 target are covered by credible plans, mostly in the electricity supply and surface transport sectors (Figure 2). This was a quarter last year.

  - Improvements have come predominantly from the confirmation of the zero-emission vehicle mandate and a deal for industrial electrification, although a strategy for workers in communities experiencing job losses in sectors affected by the Net Zero transition is urgently needed to support the latter.

  - The increase to total funding and to individual grants available from £5,000 to £7,500 for installing heat pumps in homes via the Boiler Upgrade Scheme also demonstrated good progress.

- However, these positive steps forward have been undermined by confusing and inconsistent messaging and actions. In particular, the previous UK Government announced:

  - Delays to phase-out dates of fossil-fuel vehicles and boilers, sending mixed messages to investors, businesses and consumers on the UK's plans.

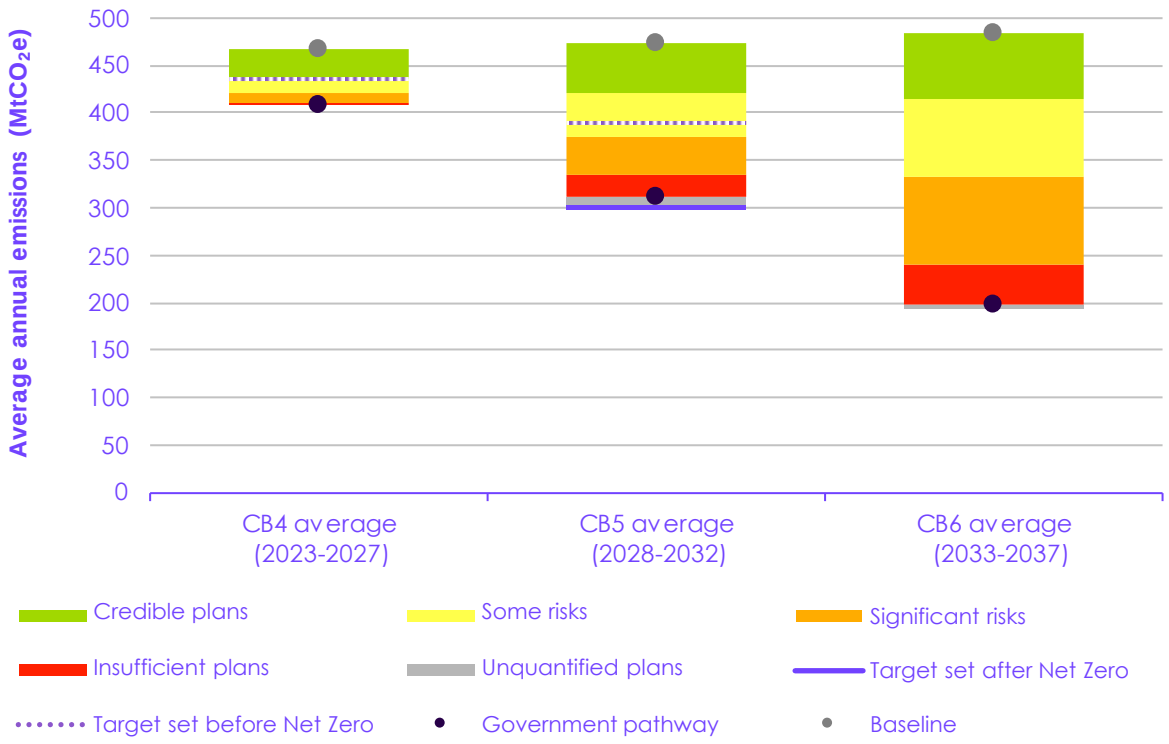
  - An exemption of 20% of households from the phase-out of fossil-fuel boilers by 2035, which is of particular concern, making Net Zero harder to achieve. The motivation for this exemption is unclear, and it creates widespread uncertainty for consumers, investors and businesses at a time where significant build-up in supply chains is needed. Coupled with the delay to the phase-out of oil boilers from 2026 to 2035 and an announcement to delay the start of the clean heat market mechanism by a year just weeks before it was due to start, our assessment of the policies for low-carbon heat has got worse this year.

  - A decision not to regulate for improved energy efficiency of rented homes.

- Public support is essential for the delivery of Net Zero. The above announcements were given with the justification that they will make the transition more affordable for people, but with no evidence backing this claim. Confusing and inconsistent messaging risks having the opposite effect, by undermining consumer confidence and the development of UK supply chains. Removing regulations on energy efficiency for rented homes misses an opportunity to reduce energy bills for tenants at a time when gas prices are particularly high. The cost-of-living crisis is affecting people right now, yet these delays and exemptions will have most impact in the mid-2030s. It is particularly unclear how the 20% exemption to the fossil-fuel boiler ban will help reduce costs when the cost of maintaining the gas distribution networks would need to sit with such a small proportion of households.

- There remains a significant proportion (14%) of the required emissions reductions covered by completely insufficient plans and an additional 4% gap between the former Government's quantified pathway and the 2030 NDC target. These insufficient plans are predominantly from the delays and exemptions announced in the last year; in the industry sector; and from a lack of policies for agriculture and land.

Figure 2 Assessment of policies and plans



Source: Department for Energy Security and Net Zero (DESNZ) (2023) *Carbon Budget Delivery Plan*; DESNZ (2023) *Energy and emissions projections: 2021 to 2040*; Department for Business, Energy and Industrial Strategy (BEIS) (2021) *Net Zero Strategy*; Climate Change Committee (CCC) (2020) *The Sixth Carbon Budget*; CCC analysis.
Notes: (1) This assessment uses government plans listed in Annex B, Tables 5 and 6 of the Carbon Budget Delivery Plan (CBDP). See Annex 2 for the assessment criteria. (2) The baseline is an adjustment to the Government's CBDP baseline, with the impact of some policies removed so that they can be assessed. Refer to our 2023 UK Progress Report for additional notes on our methodology. (3) We have adjusted the Government's published CBDP pathway and baseline for land use to account for methodological changes between the 1990–2019 and 1990–2020 inventories. (4) For comparability, the CBDP's emissions pathway for international aviation and shipping has been added to the target values for the Fourth Carbon Budget (CB4), the Fifth Carbon Budget (CB5) and the UK's Nationally Determined Contribution (NDC). (5) The CBDP projections include only the quantified plans. Unquantified plans may lead to further emissions reductions.
Description: Credible plans cover only around a third of the emissions reductions needed to meet the UK's 2030 NDC and a quarter of those needed to meet the Sixth Carbon Budget (CB6). Approximately half of the emissions reductions needed to meet both the NDC and the Sixth Carbon Budget have either significant risks or insufficient plans.

Next steps

The new UK Government needs to set out a clear commitment to the Net Zero transition, backed with rapid policy action and a sharp-eyed focus on removing barriers to deployment. This will build confidence for investors, businesses and consumers and create the right conditions for markets to deliver. Policy must also address the urgent need for effective and integrated adaptation action and be designed to ensure the transition is delivered in a fair way.

Polling shows that the UK public has no appetite for climate division. The Climate Change Act 2008 grew out of a consensus across UK politics in relation to climate change. The framework it established has proven its effectiveness, with the UK having met all its carbon budgets to date. That consensus also helped previous UK Governments to play a leading role in international climate diplomacy and accelerate actions worldwide, but it has begun to fray. There is an opportunity to rebuild that consensus across Parliament, and for the governments of the UK, Scotland, Wales and Northern Ireland to work to achieve common climate goals.

Together, government, investors, businesses and consumers can drive a rapid shift away from fossil fuels and towards an increasingly cheaper, more secure and lower-carbon future.

Chapter 1: Progress in reducing UK emissions

In this chapter, we review the UK's progress in reducing emissions and discuss the increase in pace of emissions reduction that will be needed to meet the UK's climate targets.

Our key messages are:

- **UK greenhouse gas emissions:** emissions were 423.3 $MtCO_2e$ in 2023, including the UK's share of international aviation and shipping, based on preliminary data. This is 49.5% lower than in 1990. This reduction has been primarily driven by reductions in the electricity supply sector, with smaller falls in emissions from industry, waste and fuel supply.

- **Change from 2022 to 2023:** emissions fell by 17.6 $MtCO_2e$ (4.0%) in 2023. This is the largest annual percentage reduction outside the COVID-19 pandemic since 2016.

  - This was driven by substantial reductions in electricity supply, industry and buildings emissions. This came primarily from a 10.5% fall in total gas demand due to increased electricity imports, reduced electricity exports and reductions in gas consumption in buildings and possibly industry, which may in part reflect continuing high gas prices.

  - Surface transport emissions fell slightly, despite overall vehicle-kilometres increasing. This represents the first time that the uptake of electric vehicles (EVs) has had a meaningful impact on the direction of emissions trends.

- **Required pace of change:** excluding international aviation and shipping, the reduction in emissions in 2023 was roughly in line with the annual pace of change needed to meet the UK's 2030 Nationally Determined Contribution (NDC) (18.8 $MtCO_2e$ or 5.7% per year from 2023 to 2030). However, the average annual rate over the previous seven years was insufficient at 13.8 $MtCO_2e$/year. Outside the electricity supply sector, the average annual rate of reduction over the previous seven years was only 6.3 $MtCO_2e$/year (1.6%). This will need to more than double to 14.3 $MtCO_2e$/year (4.6%) over the next seven years if the UK is to meet its 2030 target. This will require substantial increases in the rates of reduction in most sectors outside of electricity supply.

  - The fall in emissions seen in 2023 in electricity supply, industry and buildings is in line with what is required out to 2030. However, only in electricity supply has a suitable pace been maintained over multiple years, driven by sustained decarbonisation measures. In industry and buildings, trends over the previous seven years were not sufficient and the recent reductions were mostly not the result of sustained decarbonisation action. These trends will need to speed up, enabled by programmes to roll out low-carbon technologies.

  - The coming seven years will require substantial reductions in surface transport emissions. The recent rate of emissions reductions will need to increase significantly, which will require the rate of electric vehicle uptake to accelerate rapidly.

  - Progress reducing emissions in the agriculture, land use and waste sectors has been slow over the past seven years but requires substantial acceleration over the coming seven years.

This chapter is laid out in four sections, covering:

- UK total territorial emissions.
- Required pace of future emissions reduction.
- Emissions in Scotland, Wales and Northern Ireland.
- UK consumption emissions.

1.1 UK total territorial emissions

1.1.1 Overall UK emissions

Emissions in the UK have been steadily falling in the last three decades, and the UK is now roughly halfway on its journey to Net Zero by 2050.[*] Final data for 2022 show that the UK achieved its Third Carbon Budget, covering the period 2018 to 2022. This means that the UK has met its first three carbon budgets (Figure 1.1). The UK's achievement of the Third Carbon Budget is discussed in Chapter 2. Future legislated carbon budgets cover 2023 to 2038 and the UK has an international commitment to reach a 68% reduction in emissions by 2030 compared to 1990 levels. In this section we discuss recent progress in reducing emissions towards achieving these goals.

(i) Emissions in 2022

Emissions were 440.9 $MtCO_2e$ in 2022, including the UK's share of international aviation and shipping, 397.7 $MtCO_2e$ (47.4%) below 1990 levels. This was a very slight reduction of 0.4 $MtCO_2e$ (0.1%) from 2021 and was 51.0 $MtCO_2e$ (10.4%) below pre-pandemic (2019) levels.[1]

- The nearly flat trend in 2022 was driven by reductions in buildings and industry being offset by increases in aviation demand and, to a lesser extent, surface transport, as these sectors recovered from the pandemic (Figure 1.2).
  - Buildings emissions fell at least in part due to mild winter months and record high fuel prices reducing demand.
  - Reductions in industry emissions were largely a result of closures in the chemicals sector. High gas prices may have contributed to these closures.
  - If considering only domestic emissions (i.e. excluding the UK's share of international aviation and shipping), then final 2022 data show a reduction of just over 50% from 1990 levels. This means that the UK has halved its domestic emissions.[†]

[*] All emissions values in this report use Global Warming Potentials from the IPCC's Fifth Assessment Report, without climate-carbon feedback effects (AR5-low).

[†] The UK's domestic emissions previously reached this milestone in 2020. However, this was primarily due to reductions in transport demand during the pandemic, which were reversed over the following years.

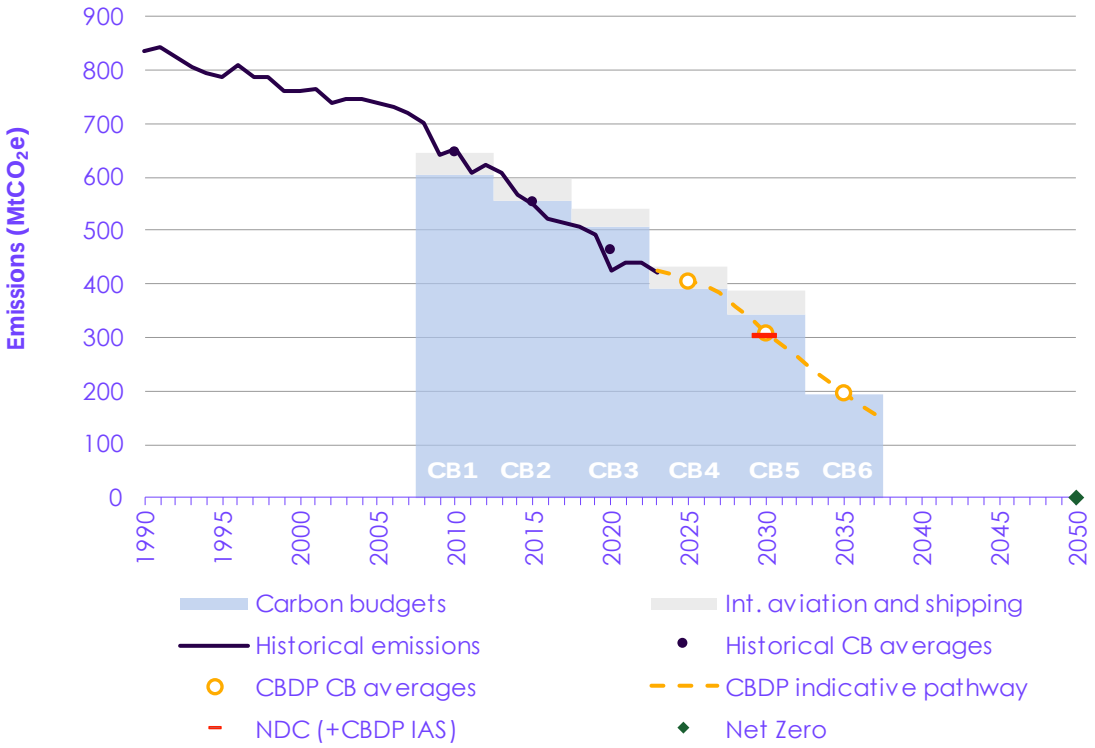
(ii) Emissions in 2023

A provisional estimate of 2023 emissions is 423.3 $MtCO_2e$, including the UK's share of international aviation and shipping. This is a significant reduction, of 17.6 $MtCO_2e$ (4.0%), from 2022 levels, bringing UK emissions below the 2020 low-point from the COVID-19 pandemic and representing an overall reduction of 415.3 $MtCO_2e$ (49.5%) compared to 1990 levels (Figure 1.1).[2]

- If confirmed by final 2023 data, this change will be the fifth largest annual percentage reduction in emissions outside of the pandemic since 1990, and the largest since 2016.
- The main drivers of this reduction were the electricity supply, industry and residential buildings sectors, where emissions fell by 22.2%, 8.1% and 7.2% respectively (Figure 1.2). This reflected a 10.5% reduction in total gas demand.
  - In electricity supply, emission reductions were largely due to increased electricity imports and reduced electricity exports. In 2023, the UK returned to its normal status as a net importer of electricity, after one year as a net exporter of electricity in 2022. This was partly driven by market factors, notably high gas prices and increased nuclear generation in France.
  - The main cause of the reduction in emissions in industry was a fall in emissions from the iron and steel sector, as well as possible effects from high gas prices.
  - In buildings, outside temperatures were similar to 2022. Demand for gas did fall in 2023, although it is unclear* whether this was due to an increase in energy efficiency measures or behavioural changes, and whether any behavioural changes will be sustained in future years.
- Despite slight increases in vehicle-kilometres, surface transport emissions fell by 0.9%. This is partly due to the impact of electric vehicles (EVs) within the fleet.
  - Rapid growth in electric car sales is now beginning to have a measurable impact on emissions, with one million now on the road, meaning that 2.8% of the overall car fleet are now driving without producing direct emissions.
- Emissions in aviation rose by 15.5% as demand continued to rebound from the pandemic.
- Emissions are now lower than before the pandemic (in 2019) in all sectors.

* Installations of energy efficiency measures outside of government-funded programmes are a key data gap in our monitoring framework. This makes it difficult to determine the role of energy efficiency improvements in reductions in energy demand in buildings.

Figure 1.1 UK historical emissions, the Government's pathway and the UK's targets

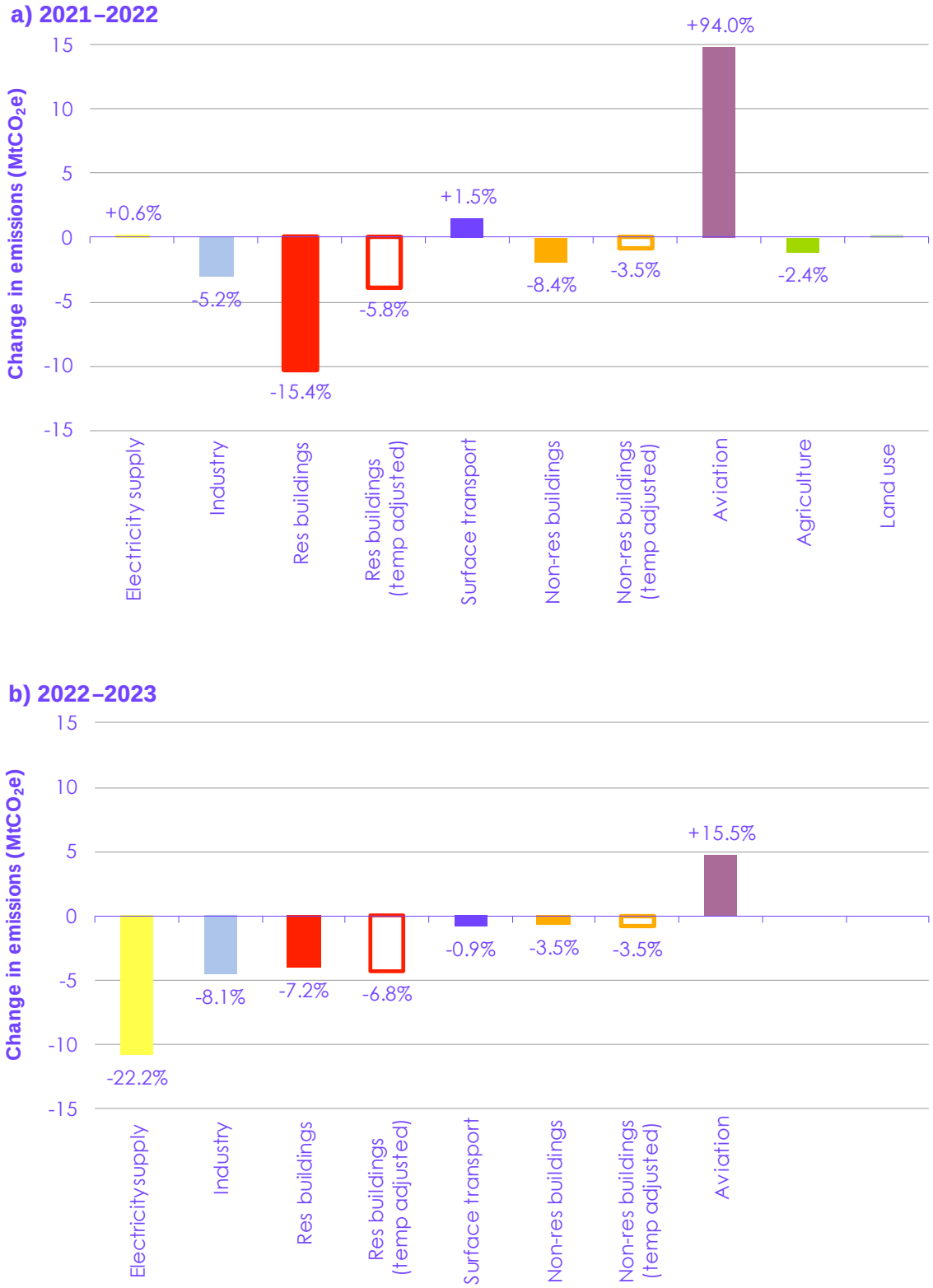


Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023*; DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; DESNZ (2023) *Carbon Budget Delivery Plan*; Department for Business, Energy and Industrial Strategy (BEIS) (2021) *Net Zero Strategy*; Climate Change Committee (CCC) (2020) *The Sixth Carbon Budget*.

Notes: (1) Emissions from international aviation and shipping (IAS) are included in historical emissions and the Carbon Budget Delivery Plan (CBDP) pathway and added to the Nationally Determined Contribution (NDC) to allow for a direct comparison. (2) The CBDP projections include only the quantified plans. Unquantified plans may lead to further emissions reductions. (3) The annual pathway is an indication of emissions reduction. The UK does not have annual targets but the five-year carbon budgets and 2030 NDC must be achieved. (4) We have adjusted the Government's published CBDP pathway for land use to account for methodological changes between the 1990–2019 and 1990–2020 inventories. (5) 'CB' refers to the UK's carbon budget. 'CB1' refers to the First Carbon Budget; subsequent numbers refer to subsequent carbon budgets.

Description: UK emissions have almost halved since 1990 and the UK met its first three carbon budgets.

Figure 1.2 Change in UK emissions for key sectors (2021–2022 and 2022–2023)

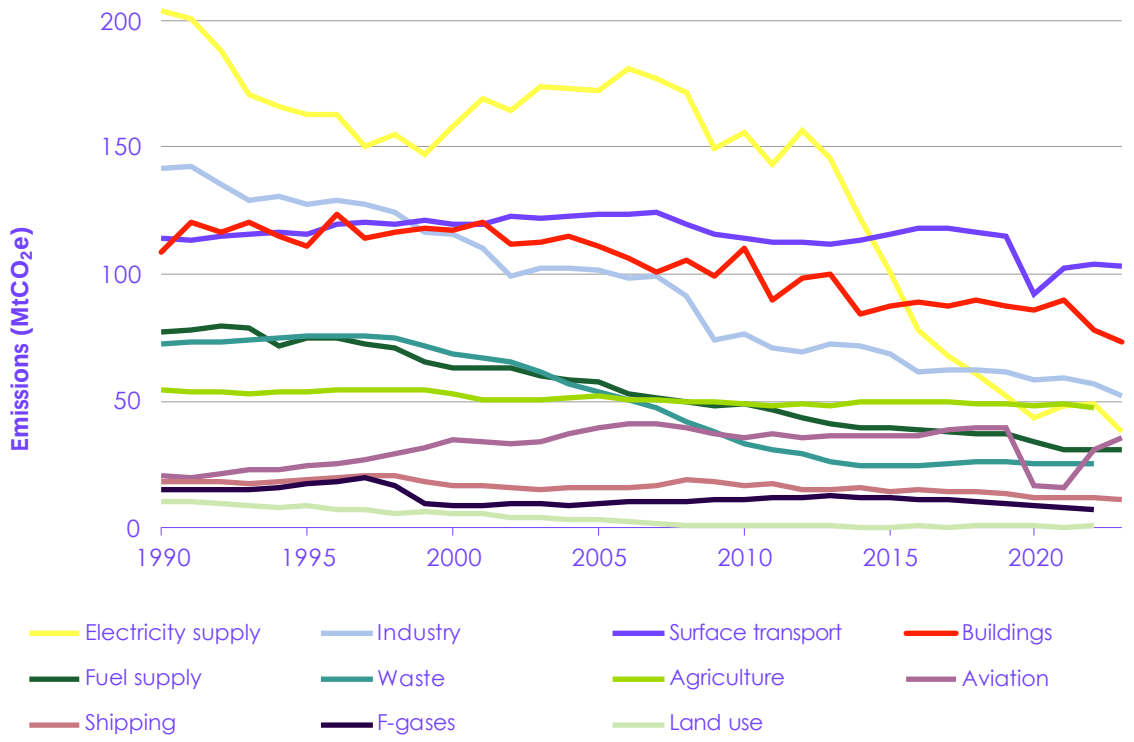


Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023;* DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022;* Climate Change Committee (CCC) analysis.
Notes: Buildings emissions are shown in both actual emissions (solid bars) and temperature-adjusted terms (hollow bars). Provisional 2023 estimates are not made for non-CO_2 greenhouse gases, so the changes in 2023 emissions for the agriculture and land use sectors are not shown. A percentage change is not provided for 2022 land use emissions as this sector contains both sources and sinks.
Description: The main reductions in emissions in 2023 were in electricity supply (by 22%), industry (8%) and residential buildings (7%), with an increase of 16% from aviation.

1.1.2 Longer-term trends in sectoral emissions

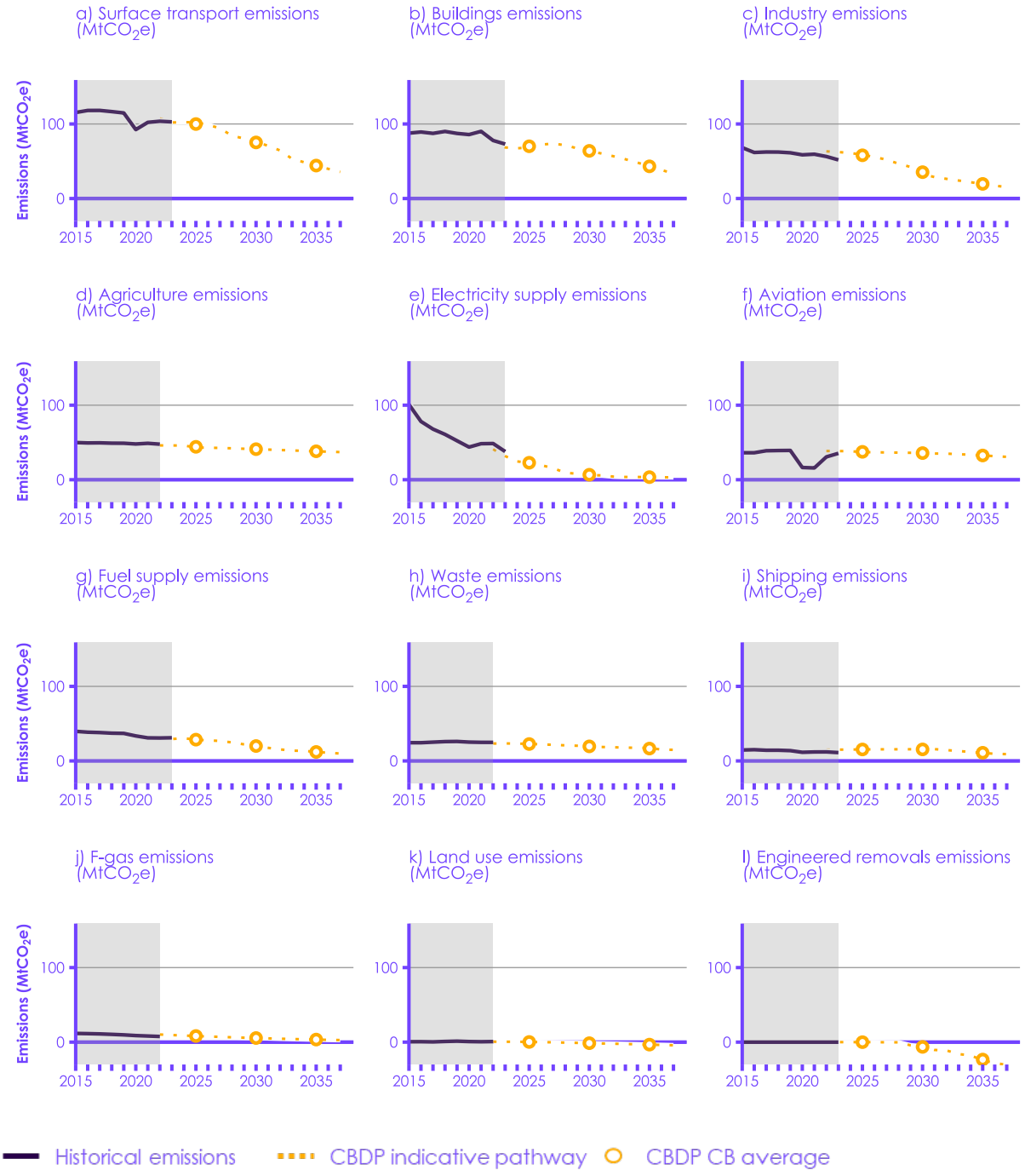
Reductions in emissions since 1990 have been predominantly driven by the electricity supply and industry sectors (Figure 1.3). The pace of emissions reduction in more recent years needs to speed up across most sectors to follow the Government's Carbon Budget Delivery Plan (CBDP) (Figure 1.4). Detailed discussion of the drivers of emissions changes by sector since the implementation of the Climate Change Act in 2008 can be found in Chapter 2, while discussion of the acceleration in emissions reduction required by sector can be found in Section 1.3.

Figure 1.3 UK emissions by sector since 1990



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023*; DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*.
Notes: The land use sector is a combination of positive sources of emissions and negative sinks of emissions. Agriculture, waste, F-gas and land use emissions go to 2022 only because the provisional 2023 estimates are not made for non-CO_2 greenhouse gases.
Description: Reductions in emissions since 1990 have been predominantly driven by the electricity supply and industry sectors.

Figure 1.4 UK historical emissions by sector since 2015 compared to the Government's Carbon Budget Delivery Plan pathway



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023*; DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; DESNZ (2023) *Carbon Budget Delivery Plan*; Climate Change Committee (CCC) analysis.
Notes: (1) The Carbon Budget Delivery Plan (CBDP) projections include only the quantified plans from the CBDP. Unquantified plans may lead to further emissions reductions. (2) Sectoral emissions pathways are indicative only; they are not viewed by the CCC as sectoral targets. (3) We have adjusted the Government's CBDP pathway and baseline for land use to account for methodological changes between the 1990–2019 and 1990–2020 inventories. (4) Agriculture, waste, F-gas and land use emissions go to 2022 only because the provisional 2023 estimates are not made for non-CO_2 greenhouse gases.
Description: The pace of emissions reduction in more recent years needs to speed up across most sectors to follow the Government's Carbon Budget Delivery Plan.

1.2 Required pace of future emissions reduction

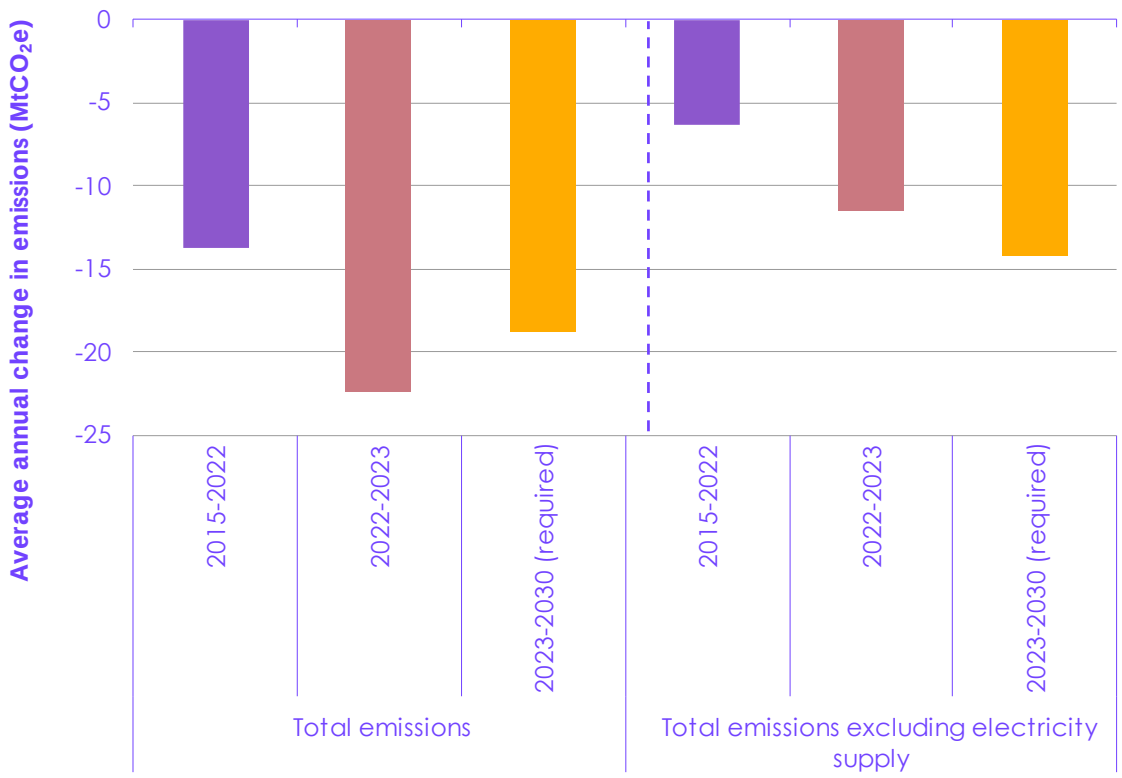
1.2.1 Overall UK emissions

The rate of emissions reduction seen in 2023 represents a significant increase from recent sustained rates and is roughly in line with the pace of change needed out to 2030 (Figure 1.5). This pace will need to be maintained. In addition, the action to achieve it needs to spread across a broader range of sectors.

- Excluding emissions from international aviation and shipping, which are not included in the UK's 2030 NDC, overall UK emissions fell by 22.3 $MtCO_2e$ (5.4%) in 2023. This was a considerable increase on the 13.8 $MtCO_2e$/year (2.9%) average annual reduction seen in the seven years prior to this,* and a similar pace of reduction will need to be maintained throughout the rest of the decade to meet the NDC.
  - The average annual pace of emissions reduction required between 2023 and 2030 to meet the NDC is 18.8 $MtCO_2e$/year (5.7%).
- If emissions from electricity supply, which have driven the bulk of the reductions over recent years, are also excluded, emissions fell by 11.6 $MtCO_2e$ (3.2%) in 2023. The average annual reduction in the seven years prior to this was only 6.3 $MtCO_2e$/year (1.6%), far short of the 14.3 $MtCO_2e$/year (4.6%) annual average required going forwards.
  - Although not covered by the NDC, emissions from international aviation and shipping must also be managed to meet future carbon budgets.
  - The UK is also a signatory of the Global Methane Pledge, which is an international agreement to target a reduction of at least 30% in global methane emissions by 2030 compared to 2020 levels. If the UK is to achieve a 30% reduction in its own methane emissions, the pace of recent reductions will need to approximately double (Figure 1.6). This will require substantial increases in the pace of methane emissions reductions in the agriculture and waste sectors.
  - In our Balanced Pathway, methane emissions fall by around 30% compared to actual emissions in 2020 by 2030. The Government's CBDP does not provide a breakdown of emissions by greenhouse gas, so tracking progress for plans in reducing methane emissions is difficult.

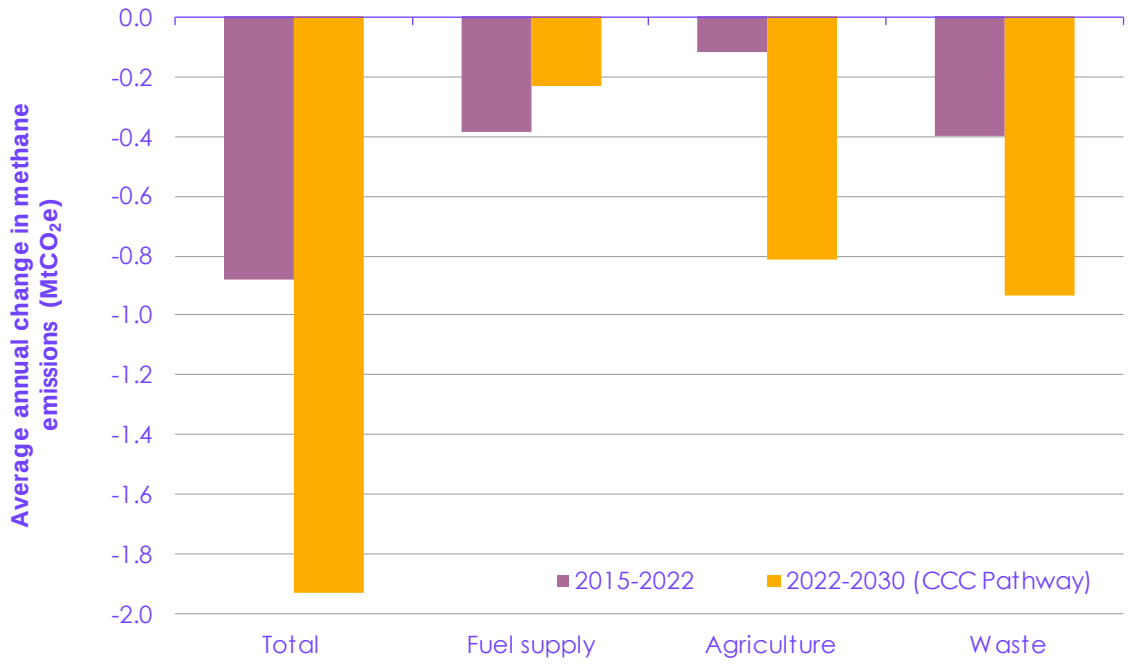
* The percentage changes shown in brackets here are average annual percentage reductions, calculated as a compound annual reduction. For the historical comparison, we have chosen to show changes since 2015 as this represents the midpoint of the Second Carbon Budget and ensures that the comparison is across a period of comparable duration to the time remaining before 2030.

Figure 1.5 Pace of emissions reduction (2015–2022, 2022–2023 and required reduction in 2023–2030), excluding international aviation and shipping



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023*; DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; DESNZ (2023) *Carbon Budget Delivery Plan*; Climate Change Committee (CCC) analysis.
Notes: The orange bars show the annual pace of emissions reductions that will be required starting from the published provisional 2023 emissions data to meet the 2030 Nationally Determined Contribution (NDC).
Description: The rate of emissions reduction seen in 2023 represents a significant increase from recent sustained rates and is roughly in line with the pace of change needed out to 2030. This pace will need to be maintained. In addition, the action to achieve it needs to spread across a broader range of sectors, with much of the reduction so far coming from electricity supply.

Figure 1.6 Pace of methane emissions reduction (2015–2022 and CCC pathway 2022–2030)



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023;* DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022;* Climate Change Committee (CCC) (2020) *Sixth Carbon Budget*; CCC analysis.
Notes: The orange bars show the annual pace of emissions reductions that will be required starting from the published 2022 emissions data to deliver a reduction in line with the Global Methane Pledge. This is based on the CCC's Balanced Pathway, in which methane emissions fall by approximately 30% by 2030, relative to levels in 2020.
Description: If the UK is to achieve a 30% reduction in its own methane emissions compared to 2020 levels, the pace of recent reductions will need to more than double.

1.2.2 Acceleration required by sector

The provisional 2023 emissions data show substantial falls in emissions in the electricity supply, industry and buildings sectors. The pace of these reductions will need to be maintained and will need to be driven by sustained decarbonisation action by government, businesses and households. Across other sectors, in particular surface transport, fuel supply, agriculture and land use, emissions reductions will need to accelerate fast to meet the 2030 NDC (Figure 1.7; Table 1.1 shows the 2023 emissions for each sector to give context).

- As discussed in Section 1.1, the electricity supply, industry and buildings sectors all saw substantial increases in annual emissions reductions in 2023. In each of these sectors, the magnitude of these reductions is ahead of the annual reduction required out to 2030 in the Government's CBDP.

- However, among these sectors, only electricity supply has seen sufficient annual reductions replicated across multiple recent years, driven by sustained decarbonisation action. In industry and buildings, the average reductions over the period from 2015 to 2022 were below the pace that will be needed for the rest of this decade, and they were not driven by sustained programmes to replace high-carbon technologies with low-carbon alternatives that are required for deeper decarbonisation of the economy (see Chapter 2).

- In all other sectors, the current pace of emissions reduction needs to accelerate sharply.

- The annual reduction in surface transport emissions across the rest of the decade must be more than four times what we have seen in 2023. However, this is the only sector outside electricity supply in which we are beginning to see the effect of the roll-out of a low-carbon technology and there is potential for this roll-out to ramp up quickly.

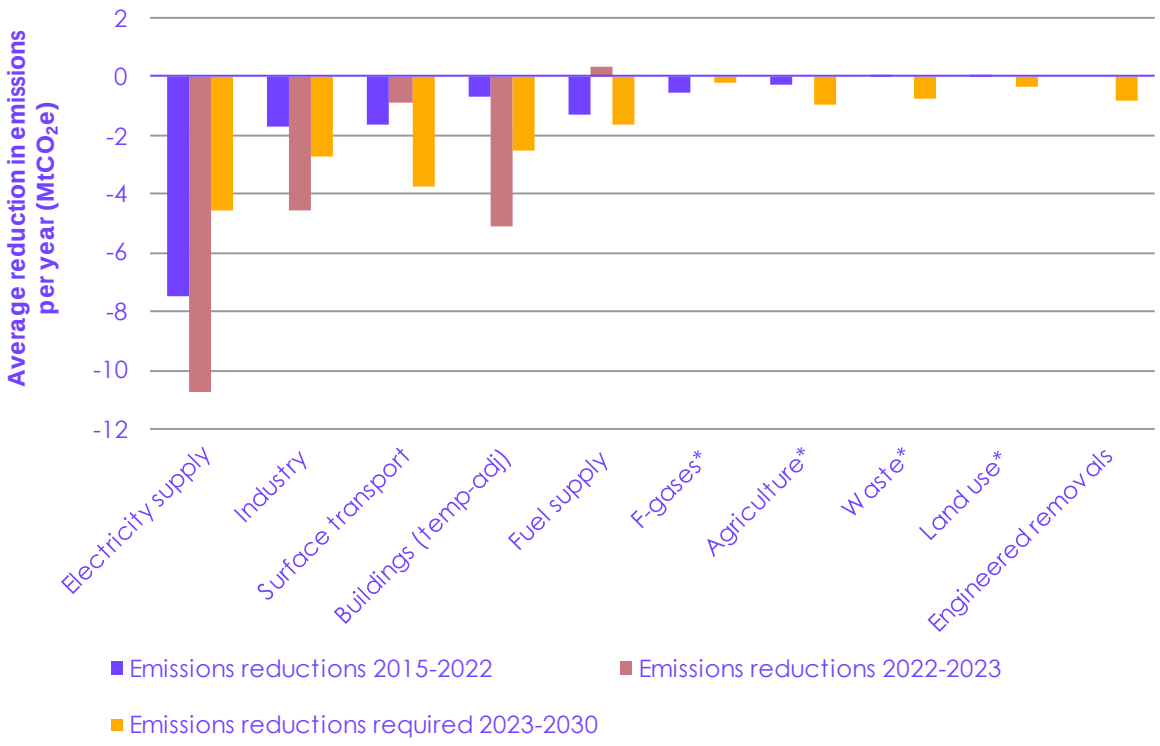
- Fuel supply emissions increased in 2023 and must return to a reducing trend, at a slightly faster pace than seen over recent years.

- Emissions in the agriculture, land use and waste sectors have shown very little progress over recent years. These sectors need to be delivering meaningful falls in emissions each year by 2030.

- Achieving the 2030 NDC will also require deployment of at least 5 $MtCO_2$ of engineered removals by the end of the decade (according to the CBDP).

- The Government's pathway allows for some growth in aviation and shipping emissions out to 2030, so these sectors are not included in Figure 1.7, but it is important to make rapid progress in limiting the growth in emissions in these sectors and prepare for reducing emissions beyond 2030.

Figure 1.7 Change in UK emissions per year for key sectors (2015–2022, 2022–2023 and 2023–2030)



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023*; DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; DESNZ (2023) *Carbon Budget Delivery Plan*.
Notes: (1) *Provisional 2023 estimates are not made for non-CO_2 greenhouse gases, so the changes in 2023 agriculture, land use, waste and F-gas emissions are not shown. (2) The orange bars show the annual pace of emissions reductions that will be required starting from the published provisional 2023 emissions data to reduce emissions to the level assumed in the Government's Carbon Budget Delivery Plan (CBDP) in 2030 in each sector. (3) The CBDP projections include only the quantified plans. Unquantified plans may lead to further emissions reductions. (4) Sectoral emissions pathways are indicative only, they are not viewed by the CCC as sectoral targets. (5) We have adjusted the Government's published CBDP pathway for land use to account for methodological changes between the 1990–2019 and 1990–2020 inventories. (6) The changes from 2015 to 2022 for waste and land use are too small to be visible. (7) The buildings emissions have been adjusted to account for changes in temperature.
Description: The provisional 2023 emissions data show substantial falls in emissions in the electricity supply, industry and buildings sectors. The pace of these reductions will need to be maintained and will need to be driven by sustained decarbonisation action. Across other sectors, in particular surface transport, fuel supply, agriculture and land use, emissions reductions will need to accelerate fast to meet the 2030 Nationally Determined Contribution (NDC).

Table 1.1
Emissions in each sector in 2023

Sector	Emissions ($MtCO_2e$)	Sector	Emissions ($MtCO_2e$)
Surface transport	103	**Fuel supply**	31
Buildings (temperature-adjusted)	81	**Waste***	25
Industry	52	**Shipping**	11
Agriculture*	48	**F-gases***	8
Electricity supply	38	**Land use***	1
Aviation	35		

Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023*; DESNZ (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*.
Notes: * Data is for 2022 rather than 2023.

1.3 Emissions in Scotland, Wales and Northern Ireland

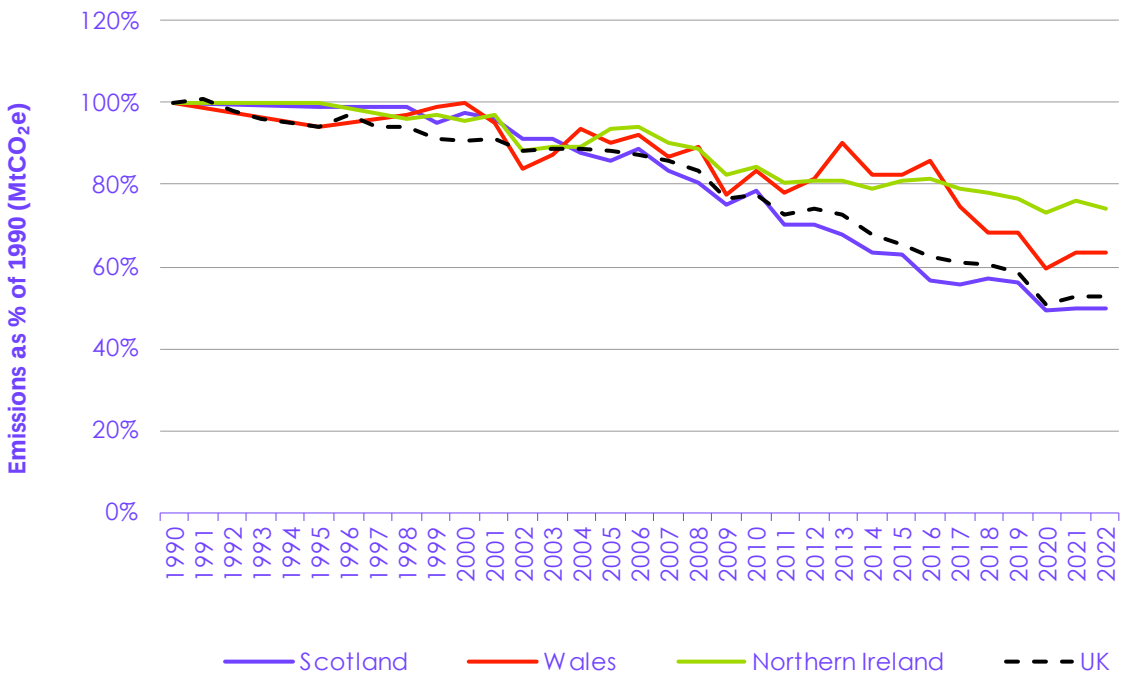
As for the UK overall, total emissions in 2022 remained at a relatively similar level to 2021 emissions in Scotland and Wales. There was a small reduction in total emissions in Northern Ireland in 2022. Emissions in Scotland have fallen by 50% since 1990, which is faster than those in Wales or Northern Ireland (Figure 1.8). Since 2015, the average annual rate of emissions reduction has been higher in Wales than in Scotland, Northern Ireland, or the UK as a whole.[*]

- **Scotland**: emissions in 2022 were 40.6 $MtCO_2e$, approximately the same as in 2021 and 50% below 1990 levels.
  - The largest reduction in emissions was in the residential buildings sector, although part of this may have been due to warmer-than-average temperatures. There were also small reductions in agriculture, non-residential buildings and industry emissions.
  - However, these reductions were offset by increases in other sectors, notably aviation, where emissions increased as the sector recovered from the pandemic.
- **Wales**: emissions in 2022 were 35.7 $MtCO_2e$, which was roughly at the same level as 2021 and 36% lower than in 1990.
  - There were large reductions in industry and residential buildings emissions, with high gas prices and warmer-than-average temperatures possibly playing a role.
  - The largest increases compared to 2021 were in fuel and electricity supply emissions, which increased back close to their 2019 levels.

[*] This comparison is based on the average annual rate of reduction in percentage terms, to account for the different magnitude of total emissions in each nation.

- **Northern Ireland:** emissions in 2022 were 21.6 $MtCO_2e$, which is almost 3% lower than in 2021 and 26% below 1990 levels.
  - The largest reduction was in residential buildings emissions, which may have been partly due to warmer-than-average temperatures. There were also small emissions reductions in the agriculture, electricity supply and shipping sectors.
  - While there were small increases in aviation and surface transport emissions as these sectors continued to recover from the pandemic, these were smaller than the reductions from other sectors.

Figure 1.8 Emissions reductions in Scotland, Wales and Northern Ireland compared to the UK



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Provisional UK greenhouse gas emissions national statistics 2023;* National Atmospheric Emissions Inventory (NAEI) (2024) *Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland: 1990:2022.*
Description: As for the UK overall, total emissions in 2022 remained at a relatively similar level to 2021 emissions in Scotland and Wales. There was a small reduction in total emissions in Northern Ireland in 2022. Emissions in Scotland have fallen by 50% since 1990, which is faster than those in Wales or Northern Ireland.

1.4 UK consumption emissions

While we report emissions primarily on a territorial basis, as this is how the UK's targets are measured, it is also important to consider overseas emissions associated with UK consumption. Consumption-based estimates cover emissions that occur as a result of UK consumption of goods and services, wherever those emissions happen globally. The UK's consumption emissions are higher than its territorial emissions (Figure 1.9) because emissions associated with imports exceed those from exports.

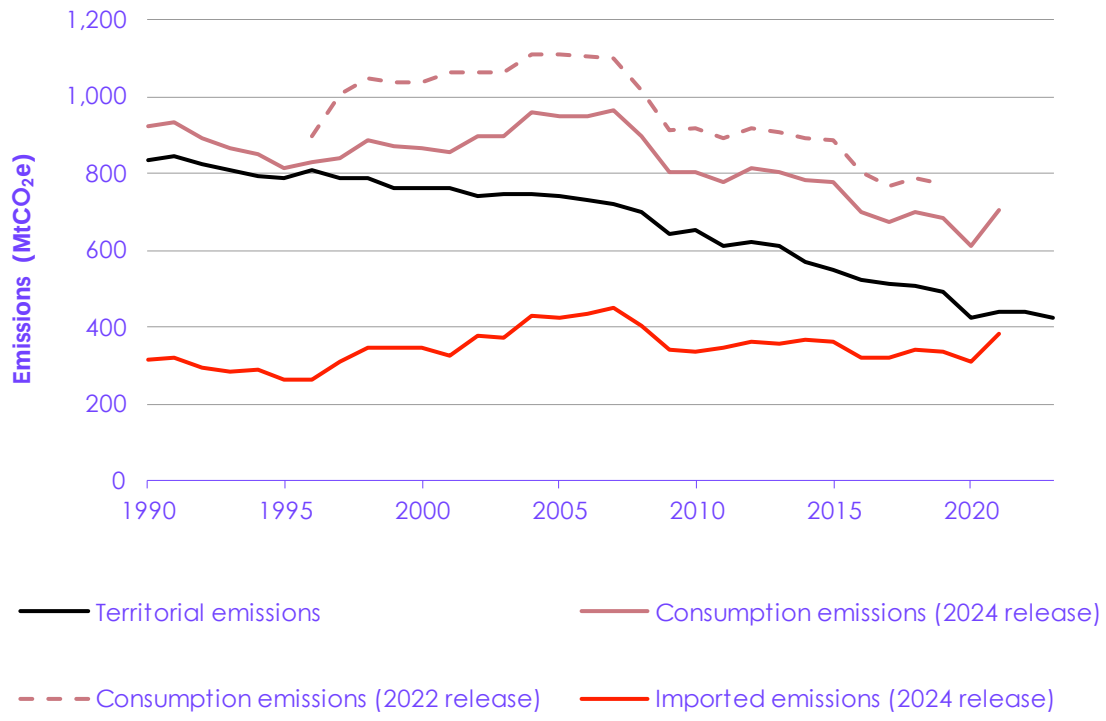
Since our 2023 Progress Report, consumption-based emissions data has been published for the years 2020 and 2021. In 2020, UK consumption emissions fell by 11% due to reduced consumption during the pandemic. This was followed by a 15% increase in 2021. This means that UK consumption emissions in 2021 were 3% higher than in 2019.

- The increase in 2021 was largely driven by increased imports following the COVID-19 pandemic. In addition, 2021 also saw a large increase in the proportion of imports from non-EU countries, as the Brexit transition period ended.[3] The imported emissions estimates are volatile and are often revised in subsequent releases, so it is too early to say how big an effect this has had.

- Consumption emissions are 24% lower than they were in 1990. However, this is mostly driven by reductions in territorial emissions, while emissions from imports have stayed fairly consistent over the period.

- The consumption emissions data have also seen a large downwards revision to the overall time series since the 2022 release. The latest release shows consumption emissions to be 14% lower on average compared to the 2022 release,* although the relative change since the mid-1990s is similar. The magnitude of this revision reflects the large uncertainty in the estimated emissions from imports and emphasises the importance of improving the quality (and timeliness) of consumption emissions statistics.

Figure 1.9 UK territorial and consumption emissions



Source: Department for Environment Food and Rural Affairs (Defra) (2024) *Carbon footprint for the UK and England to 2021*, Defra (2022) *Carbon footprint for the UK and England to 2019*, Department for Energy Security and Net Zero (DESNZ) (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*.
Notes: The territorial emissions line includes the UK's share of international aviation and shipping. The consumption emissions line is the sum of these and the UK's gross imported emissions (red line), minus emissions from the production of exports. The UK's consumption emissions estimates do not include emissions from land use change.
Description: The UK's consumption emissions, which include imported emissions, are higher than its territorial emissions.

* At the time of our 2023 Progress Report, the latest consumption emissions data available was the 2022 release. This Progress Report covers two new years of data.

Endnotes

[1] Department for Energy Security and Net Zero (DESNZ) (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*, https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2022.

[2] DESNZ (2024) *Provisional UK greenhouse gas emissions national statistics 2023*, https://www.gov.uk/government/statistics/provisional-uk-greenhouse-gas-emissions-national-statistics-2023.

[3] Office for Budget Responsibility (OBR) (2022) *The latest evidence on the impact of Brexit on UK trade*, https://obr.uk/box/the-latest-evidence-on-the-impact-of-brexit-on-uk-trade/

Chapter 2: Lookback over the UK's first three carbon budgets

This chapter contains a lookback at progress in reducing emissions over the first three carbon budgets, including an assessment of the UK's performance against the Third Carbon Budget.

Our key messages are:

- **The Third Carbon Budget was met.** We are pleased to confirm that the UK's Third Carbon Budget, covering the period 2018 to 2022, was successfully met with total emissions over the period being 391 $MtCO_2e$ (15%) below the level of the budget (2,544 $MtCO_2e$).
  - There has been good progress over the period covering the first three carbon budgets in the decarbonisation of electricity supply, caused by a faster than expected phase-out of coal. Achieving the next three carbon budgets will require emissions reductions to accelerate in most other sectors.
  - During this period, there have also been considerable reductions in the cost of a range of key technologies, including solar panels and batteries. The cost reductions enabled growth in renewable generation and should lay the groundwork for rapid uptake of low-carbon technologies over the coming years.
- **Future carbon budgets will require an increase in the pace and breadth of decarbonisation.** It is imperative that an ambitious path of emissions reduction is maintained towards Net Zero. We therefore welcome the Government's decision, in line with our advice, not to carry forward surplus emissions savings from the Third Carbon Budget.[1]
  - The Government's decision will ensure that emissions will need to continue to fall during the Fourth Carbon Budget period, which strengthens the credibility of the carbon budgets in providing useful long-term signals for investment decisions.
  - The UK needs to build on its success to date by accelerating emissions reductions in all sectors outside electricity supply. To do this, the legislated Fourth Carbon Budget will need to be overachieved for the UK to be on a sensible pathway to Net Zero.

The chapter is laid out in three sections, covering:

- The net carbon account for the Third Carbon Budget.
- Lookback over the first three carbon budgets.
- Emissions reductions required to meet future carbon budgets.

2.1 The net carbon account for the Third Carbon Budget

2.1.1 Assessment of the Third Carbon Budget

The UK overachieved its Third Carbon Budget, covering the period 2018 to 2022 (Table 2.1).

- Consistent with our 2008 advice on the first three carbon budgets, the Third Carbon Budget was set to 2,544 $MtCO_2e$.[*,2] In 2019 the Government carried over 88 $MtCO_2e$ from the Second to the Third Carbon Budget, against our advice, but then confirmed to us that they would not be using this carry-forward for the Third Carbon Budget.[3,4]

- The net carbon account for the Third Carbon Budget period is 2,153 $MtCO_2e$ (excluding international aviation and shipping).

  – For 2018 to 2020, the net carbon account is the sum of the UK's emissions in the non-traded sectors (i.e. sectors not covered by the EU Emissions Trading System (ETS)) and the UK's allocations under the EU ETS. For 2021 and 2022, the net carbon account is just the sum of the UK's emissions across all sectors.

  – Electricity supply, industry and fuel supply are mostly covered by the EU/UK ETS, and aviation is partially covered.

- The UK overachieved its Third Carbon Budget by 391 $MtCO_2e$ (15% of the budget), based on final 2022 emissions (Table 2.1).

Table 2.1
The net carbon account for the Third Carbon Budget

All figures are in $MtCO_2e$	2018	2019	2020	2021	2022	Total (2018–2022)
Total UK emissions (excluding international aviation and shipping)	462	448	404	421	406	2,141
Net UK purchases/sales of emissions allowances	-25	14	0	0	0	-11
UK net carbon account	487	434	404	421	406	2,153
Legislated Third Carbon Budget						2,544
Third Carbon Budget surplus						391

Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022.*
Notes: Net purchases are zero from 2021 onwards due to the UK's departure from the EU ETS. Total emissions in the traded sectors between 2018 and 2020 were 358 $MtCO_2e$.

[*] This was slightly tighter than the 2,570 $MtCO_2e$ in our 2008 advice because of an update to the UK's expected share of the EU ETS cap.

2.2 Lookback over the first three carbon budgets

The UK's decarbonisation strategy consists of four core components:

- Electricity generation is transitioned away from fossil fuels towards low-carbon sources.
- The wider economy is electrified to make use of this clean energy, with some smaller contributions from other low-carbon energy sources.
- Reducing emissions and increasing carbon sequestration in agriculture and land use, and the roll-out of engineered removals.
- Enabling consumers and businesses to choose low-carbon goods, services and activities in place of higher-carbon alternatives.

Since 2008, significant progress has been made in the decarbonisation of the power sector with the phase-out of coal and large increases in wind and solar capacity. However, progress in other areas is off track despite falling prices of key low-carbon technologies.

2.2.1 Emissions reductions since 2008

The electricity supply sector has been the primary driver of emissions reduction over the first three carbon budget periods (Figure 2.1), which has contributed to overall emissions falling faster than we had projected in our 2008 advice on the levels of the first three carbon budgets. While there have been emissions reductions in some other sectors, these are often the result of economic impacts and market dynamics. In some important sectors, including domestic transport (outside the effects of the COVID-19 pandemic) and agriculture, emissions trends have been largely flat over this period. The carbon sequestered in land use sinks has decreased rather than increased. Delivery in several areas needs to accelerate to get back on track (Figure 2.2 and Table 2.2).

- **Electricity supply:** since 2008, emissions from this sector have fallen 72% from 171.8 $MtCO_2e$ to 48.6 $MtCO_2e$ in 2022, which marks the end of the Third Carbon Budget. This has contributed almost half of the total economy-wide emissions reductions seen since 2008, which is considerably ahead of our projections for this sector. Key drivers of this success include:
  - Reforms to the Renewables Obligation in 2009, which increased the annual renewable generation targets and introduced banding to give greater credit to certain types of renewables, including offshore wind. This helped start the material build-out of renewable energy capacity.
  - The introduction of the Carbon Price Support in 2013, which was an additional carbon price charged to power generators on top of the prices paid under the EU ETS. This launched at £5/tCO_2 but rose to £18/tCO_2 within two years, helping to increase the short-run marginal cost of coal generation above that of gas, encouraging a switch away from coal.
  - Air quality legislation set out through the EU's Large Combustion Plant Directive from 2008 and Industrial Emissions Directive from 2016 required large power plants to retrofit infrastructure upgrades to reduce their contribution to air pollution. This was uneconomic for many plants nearing their end-of-life, thus hastening their closure.
  - In more recent years, falling costs and supportive policy (such as Contracts for Difference) have enabled significant growth in renewable generation and reduced

deployment costs. This has further supported a switch away from coal and gas, particularly to offshore wind.

- **Industry and fuel supply**: direct industrial and fuel supply emissions fell from 140.8 $MtCO_2e$ in 2008 to 87.1 $MtCO_2e$ in 2022, which is a considerably faster reduction than projected in our 2008 advice. This was mostly due to a fall in the output of emissions-intensive industrial sectors, in particular steel and chemicals, with a big drop from 2008 to 2009 caused by lower overall demand for steel coupled with a lack of competitiveness of UK manufacturers. Our 2008 advice did not assume significant falls in UK industrial output. The EU ETS also contributed significantly to the direct industrial and fuel supply emissions abatement by encouraging emissions reduction.[5]

  – Imported emissions over this period have remained roughly flat, so the reductions in UK industrial emissions have not been offset by higher imported emissions (see Chapter 1 for more discussion of UK consumption and imported emissions).

- **Domestic transport**: the reduction in domestic transport emissions from 132.9 $MtCO_2e$ in 2008 to 112.7 $MtCO_2e$* was less than two-thirds of the reduction projected in our 2008 advice. Our projected reduction was expected to be caused by improvements to average vehicle efficiencies, but improvements in this area have been largely offset by the increasing size of new vehicles. Average new car CO_2 emissions were higher than projected and annual EV registrations were lower (by roughly a third) than our projections, albeit EV uptake has accelerated strongly in recent years (see Chapter 3).

  – Vehicle emissions standards, imposed at an EU level, have been effective at reducing the carbon intensity of new vehicles. However, these efficiency gains have been offset by trends towards bigger cars and more driving (before the COVID-19 pandemic). These trends meant that the initially declining trend in emissions from surface transport reversed in the mid-2010s, with the resulting overall emissions time series showing no significant reduction prior to the COVID-19 pandemic.

  – There has been some sustained reduction in overall car-kilometres travelled following the COVID-19 pandemic, which means this indicator is now slightly ahead of what we had projected.

  – Prior to the COVID-19 pandemic, there had been very little fall in aviation emissions since 2008.

- **Buildings**: emissions from buildings fell from 105.5 $MtCO_2e$ in 2008 to 77.8 $MtCO_2e$ in 2022. This is a smaller reduction than we had projected. Low-carbon heat, as a percentage of heat demand, was in line with projections from 2010, but it is significantly below what is needed for later carbon budgets (see Chapter 3).

  – Most of the progress in reducing emissions in the buildings sector took place in the early years, with emissions falling from 105.5 $MtCO_2e$ in 2008 to 84.0 $MtCO_2e$ in 2014. This was enabled in part by a range of policy measures designed to support investments in energy efficiency, including energy supplier obligations. However, the funding available through such schemes and their scope has since been cut, resulting in emissions from the sector flatlining after this early progress.

  – There has been some emissions reduction in recent years, with emissions falling from 87.3 $MtCO_2e$ in 2019 to 77.8 $MtCO_2e$ in 2022, through a combination of warmer-than-

* This refers to 2022 emissions for the surface transport sector but considers 2019 emissions rather than 2022 emissions for the aviation and shipping sectors to remove the effect of the COVID-19 pandemic.

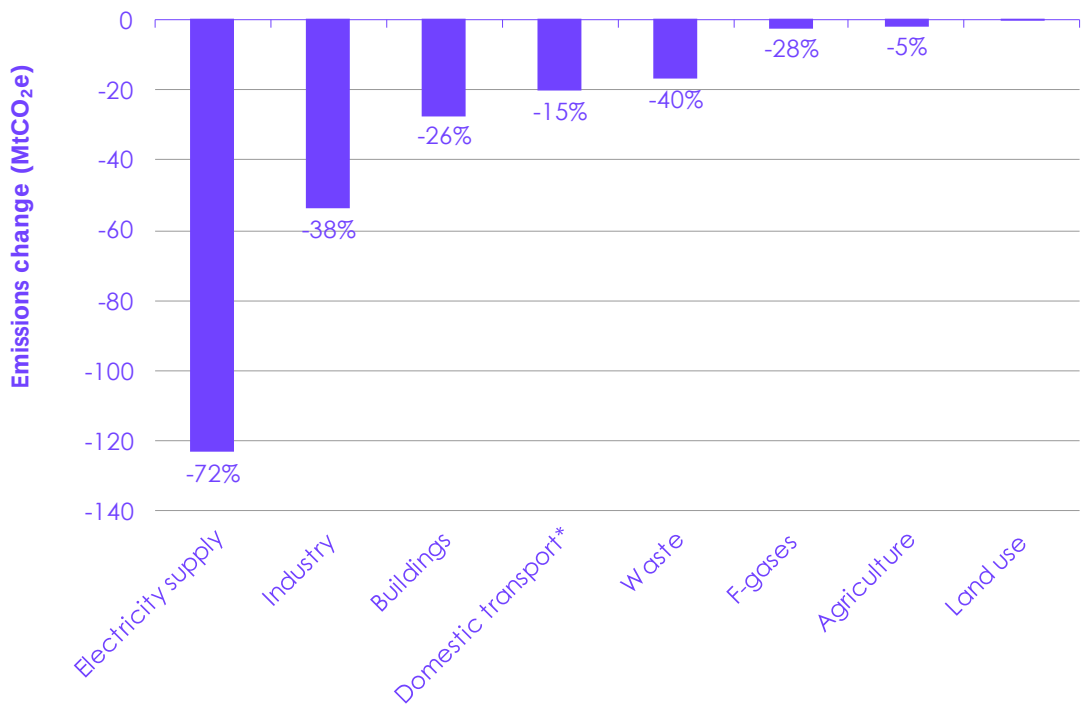
average temperatures and reduced gas consumption as a result of high gas prices and likely behavioural changes.

- **Agriculture and land use**: total emissions from agriculture have not significantly decreased since 2008. There has been a lack of progress in, and extreme uncertainty around, policy over the Third Carbon Budget period. Progress in land use — in terms of both reducing emissions from sources and increasing the carbon stored in sinks — has been slower than projected. For example, tree planting rates in 2022 were about two-thirds of those projected in our Third Carbon Budget advice and under half the rates required by 2025 (see Chapter 3).

- **Waste**: the waste sector saw good initial progress, with emissions falling from 41.9 $MtCO_2e$ in 2008 to 25.9 $MtCO_2e$ in 2013. This was towards the upper end of our projected reductions and came almost exclusively via a reduction in methane emissions from landfill, caused by the 1996 Landfill Tax. However, when comparing to targets set by the Government in 2012, landfill methane capture rates have been lower than expected, there has been insufficient progress on recycling and composting, and energy from waste emissions have substantially increased, meaning progress in reducing waste emissions has stalled more recently.

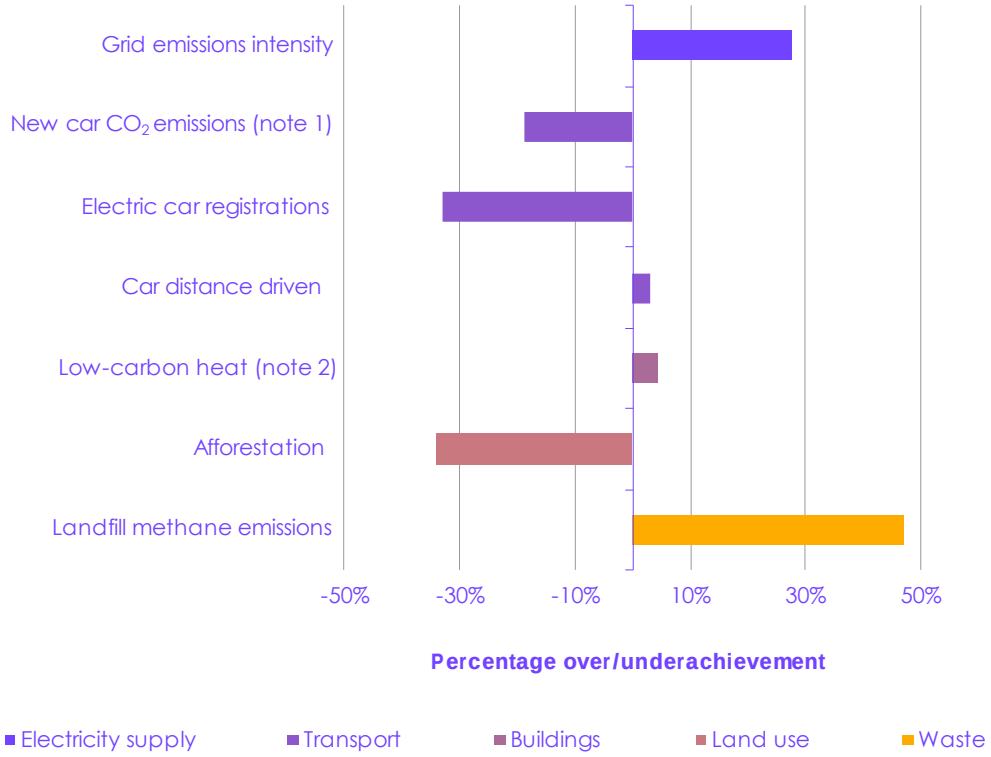
- **F-gases**: there was an increase in F-gas emissions coming from the increase in usage of F-gases in air conditioning and refrigeration appliances up until the mid-2010s. A subsequent reduction in F-gas emissions from the peak in the mid-2010s has brought emissions below 2008 levels, caused by the F-gas regulation which came into force in 2015. This allocates steadily reducing quotas to importers and producers of hydrofluorocarbons and bans the use of F-gases in certain applications. However, this reduction is only around a third of the projected abatement in our 2008 advice.

Figure 2.1 Sectoral emissions reductions (2008–2022)



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; Climate Change Committee (CCC) analysis.
Notes: The percentage reduction is not shown for land use as that sector includes both sources and sinks of emissions. The fuel supply sector is included in industry in this chart as that is how it was defined in our 2008 advice on the first three carbon budgets. Likewise, domestic transport includes surface transport, domestic aviation and domestic shipping. International aviation and shipping emissions are not in scope for the first five carbon budgets. * The domestic transport reduction uses 2019 data rather than 2022 for the aviation and shipping sectors to exclude the impact of the COVID-19 pandemic on these emissions. 2022 emissions are used for surface transport.
Description: The electricity supply sector has been the primary driver of emissions reduction over the first three carbon budget periods, with the industry sector providing the second highest emissions reduction.

Figure 2.2 Assessment of key indicators against projected trajectories from the CCC's Third Carbon Budget advice



Source: Climate Change Committee (CCC) (2022) *CCC Mitigation Monitoring Framework*; Department for Energy Security and Net Zero (DESNZ) (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; DESNZ (2023) *Energy Trends: UK electricity*; CCC analysis.
Notes: This chart tracks progress up to 2022 against the indicators underpinning our 2008 carbon budgets advice, with positive percentages indicating overachievement and negative percentages underachievement. These were based on the changes projected to be needed to meet the Third Carbon Budget, which was set in line with the target of reducing emissions by 80% by 2050, rather than Net Zero. The chart shows in-year values at the end of the Third Carbon Budget period (i.e. 2022), except: (1) new car CO_2 emissions which is for 2020; and (2) low-carbon heat which is for 2020. Our trajectories for residential building cavity wall and loft insulation installations both ended in 2015, as we projected that all homes suitable for these measures would have these installed by then.
Description: Delivery in several areas needs to accelerate to get back on track, including afforestation, electric vehicle sales and car emissions intensities.

Table 2.2
Assessment of key indicators against projected trajectories from the CCC's Third Carbon Budget advice

Sector	Measure	Projection (2022)	Actual (2022)	Unit	Met?
Electricity supply	Grid emissions intensity	236	171	gCO_2/kWh	Yes
Transport	New car CO_2 emissions (note 1)	95	113	gCO_2/km	No
	Electric car registrations	550,000	368,617	Vehicles per year	No
	Car distance driven	420	408	Billion kms	Yes
Buildings	Low-carbon heat (note 2)	11.0	11.5	% of heat demand	Yes
Land use	Afforestation	21,000	13,850	Hectares per year	No
Waste	Landfill methane emissions	-36% to 56%	-68%	% below 2007 levels	Yes

Source: Climate Change Committee (CCC) (2022) *CCC Mitigation Monitoring Framework*; Department for Energy Security and Net Zero (DESNZ) (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022*; DESNZ (2023) *Energy Trends: UK electricity*; CCC analysis.
Notes: This table tracks progress up to 2022 against the indicators underpinning our 2008 carbon budgets advice. The table shows in-year values at the end of the Third Carbon Budget period (i.e. 2022), except for: (1) new car CO_2 emissions which is for 2020; and (2) low-carbon heat which is for 2020. Our trajectories for residential building cavity wall and loft insulation installations both ended in 2015, as we projected that all homes suitable for these measures would have these installed by then.

2.2.2 Factors that have influenced emissions reductions since 2008

While the majority of the emissions reductions that led to the achievement of the UK's first three carbon budgets were due to effective policy action to decarbonise the UK's energy system, analysis of this and earlier budgets suggests that various other factors have also played a role and that the overachievement was largely due to these other factors.

All three carbon budgets have been easier to achieve due to a tighter-than-expected EU ETS cap and lower-than-expected GDP, while the Third Carbon Budget was also easier to achieve because of the impact of the COVID-19 pandemic.

- The EU ETS cap was tighter than expected, which directly caused a reduction in emissions as quantified by the carbon account.
  - While a member of the EU, the UK Government played a role in establishing the EU ETS and strongly supported reforms to tighten its emissions cap.
  - The tighter EU ETS cap was also partially caused by the lower-than-expected GDP described below, as a portion of the cap was reserved for new entrant firms who did not ultimately materialise.

  - This tighter cap is estimated to account for more than half of the Third Carbon Budget surplus. It also meant that less was required of government policy in areas not covered by the EU ETS.[*]

- Since 2008, GDP growth has been lower than forecasted leading to lower overall emissions (Figure 2.3).

  - UK GDP was lower in 2022 than what was expected in 2008 because of the combined effects of the global financial crisis, the UK's exit from the EU and the COVID-19 pandemic.[6,7]

  - A 2019 analysis on the achievement of the First and Second Carbon Budgets found that a 1% change in GDP would change emissions by approximately 0.3%. Applying this to the difference between projected and actual GDP over the Third Carbon Budget period (GDP was about 12% lower than projected) indicates that the effect of lower-than-forecasted GDP could account for slightly less than half of the budget surplus.[8,†,‡]

- The COVID-19 pandemic reduced travel demand from 2020 to 2022, making it easier to achieve the Third Carbon Budget.

  - Comparing actual emissions from 2020 to 2022 to what they would have been if emissions had stayed constant at 2019 levels show that this effect likely accounts for around one tenth of the budget surplus.

- Updates to greenhouse gas accounting methodologies, including to global warming potentials, made the budget slightly harder to achieve by increasing reported emissions. However, this effect was much smaller than the combination of the effects described above.

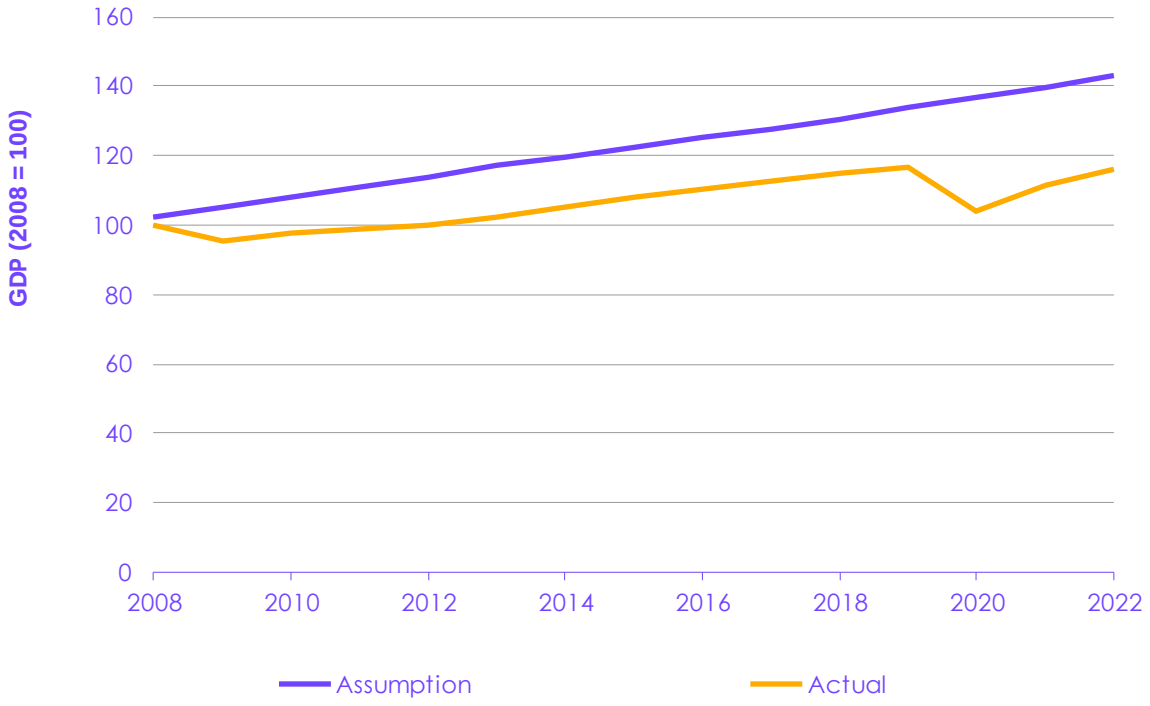
- The UK population level was very close to projected values, being only 0.4% larger than expected from 2018 to 2022. This difference would have had a very small effect on emissions.

[*] The tighter EU ETS cap was met by reducing traded emissions in the UK rather than purchasing allowances from elsewhere in the EU.

[†] As the UK decarbonises, emissions and GDP become increasingly decoupled, so this relationship is not static. This may lead to an overestimate of the GDP impact on emissions reduction. However, since so much of the emissions reductions to date has been concentrated in the electricity supply sector, the increasing decoupling of emissions and GDP is unlikely to negate the impact for the Third Carbon Budget.

[‡] There might be some overlap between the reduction in emissions due to GDP being lower than expected and the COVID-19 pandemic reducing transport emissions, because the COVID-19 pandemic was one of the factors driving GDP down. However, the COVID-19 pandemic had a much larger impact on transport emissions than emissions in other sectors, so we expect this overlap to be small.

Figure 2.3 Assumed and actual GDP



Source: Office for National Statistics (2023) *Gross domestic product;* Climate Change Committee (CCC) analysis.
Description: Since 2008, GDP growth has been lower than forecasted leading to lower overall emissions.

(i) Costs of key technologies

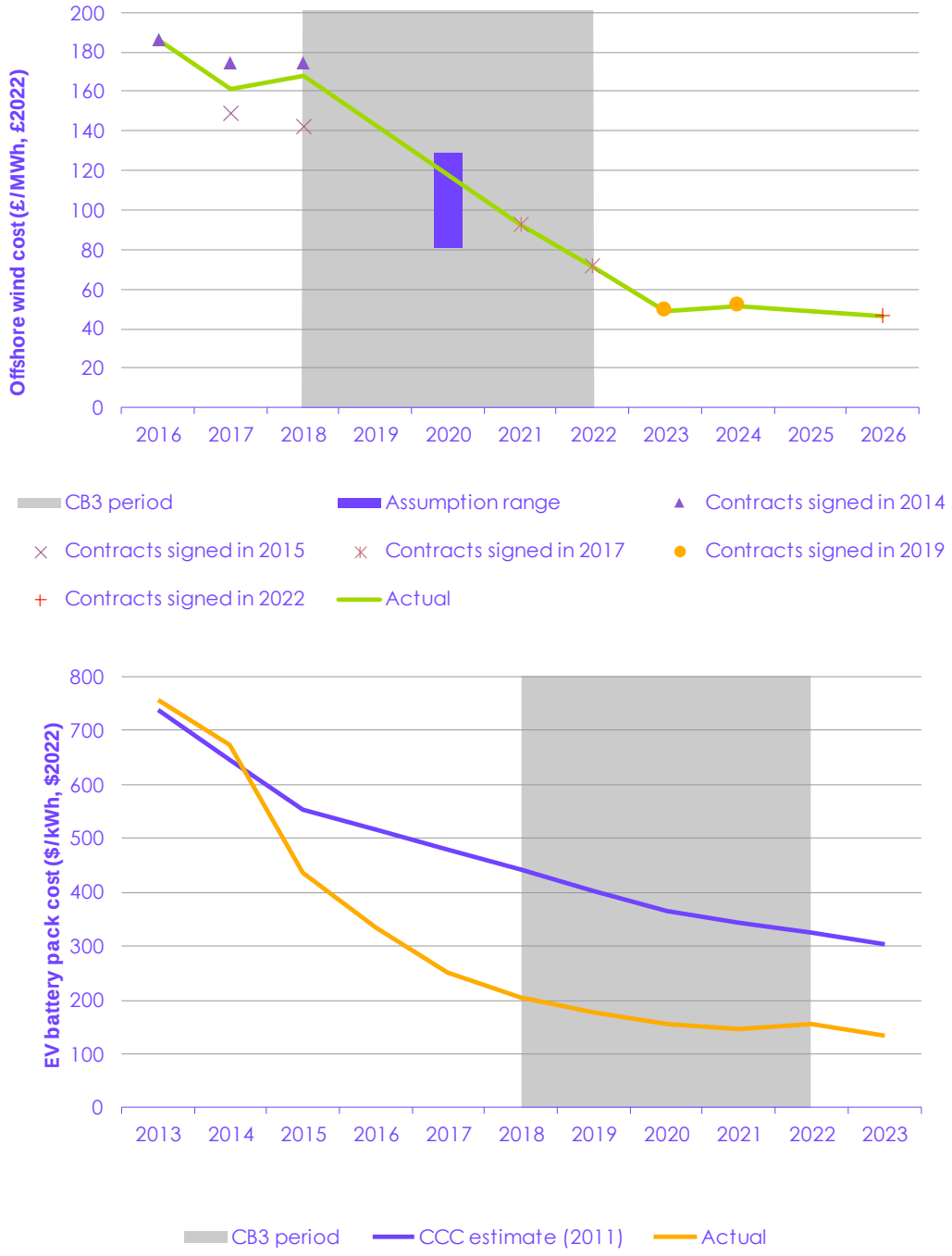
There have been considerable reductions in the cost of several key technologies (Figure 2.4). The fact that these have fallen faster than expected has enabled growth in renewable generation and should lay the groundwork for rapid uptake of key technologies over the coming years. This should put us in a position to make more rapid progress in reducing emissions across several sectors from now on, but effective government action will be crucial to capitalise on this opportunity.

- Offshore wind costs fell more slowly than we projected during early deployments in the late-2000s and early-2010s, but then decreased rapidly in recent years (particularly during the Third Carbon Budget period), resulting in overall cost reductions consistent with what we projected in our advice on the first three carbon budgets.*

- EV battery pack prices have decreased dramatically over the past decade, with the pace of reduction significantly outpacing our 2011 projection. Over the Third Carbon Budget period prices were less than half our assumptions. Despite small price increases in 2022 due to supply chain disruptions, prices continued to fall in 2023 and these remain considerably ahead of expectations.

* We revised these projections upwards in the early-2010s as a result of the limited cost reductions seen in early deployment projects. However, the steep reductions in recent years have significantly outperformed these revised projections, bringing costs back into the range of our original projections.

Figure 2.4 Assumed and actual offshore wind and electric vehicle battery pack costs

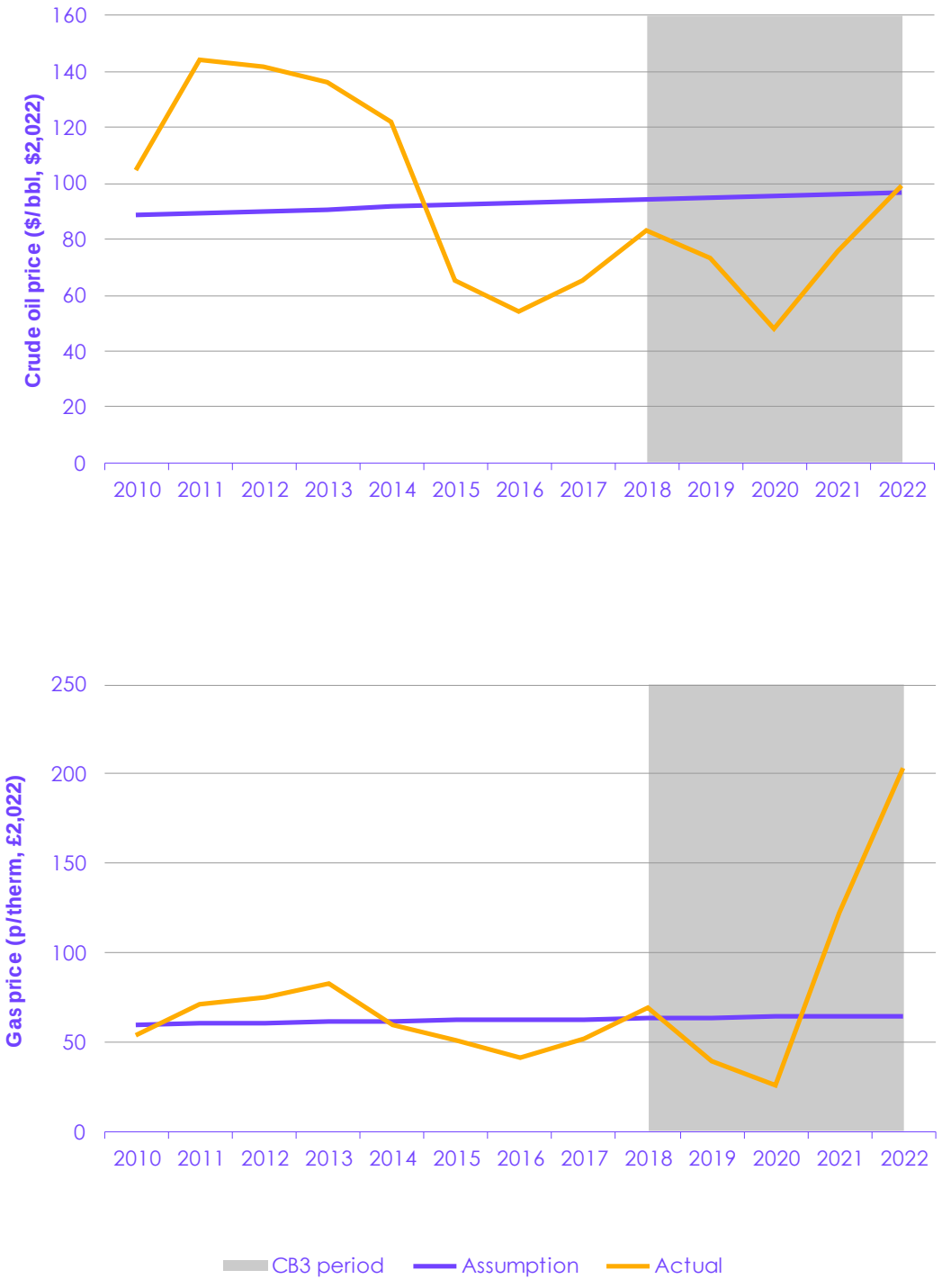


Source: Climate Change Committee (CCC) (2019) *Net Zero – The UK's contribution to stopping global warming*; Department of Trade and Industry (2007) *Impact of banding the Renewables Obligation – Costs of electricity production*; Department of Energy and Climate Change (2013) *Record investments of £40 billion in renewable electricity to bring green jobs and growth to the UK*; Department for Energy Security and Net Zero (DEZNZ) and Department for Business, Energy and Industrial Strategy (BEIS) (2015) *Contracts for Difference (CFD) Allocation Round One Outcome*; DESNZ and BEIS (2017) *Contracts for Difference (CFD) Second Allocation Round Results*; DESNZ and BEIS (2019) *Contracts for Difference (CfD) Allocation Round 3: results*; DESNZ and BEIS (2022) *Contracts for Difference (CfD): Allocation Round 4*; DESNZ (2023) *Contracts for Difference (CfD) Allocation Round 5: results*; CCC (2008) *Building a low-carbon economy – the UK's contribution to tackling climate change*; CCC (2009) *Meeting Carbon Budgets – the need for a step change*; BloombergNEF (2023) *Lithium-Ion Battery Pack Prices Hit Record Low of $139/kWh*; CCC analysis.
Notes: Our offshore wind cost assumption range was for 2020 only. The 'actual' line for offshore wind in 2017 and 2018 is an average between the costs from the 2017 and 2018 contracts, weighted by the capacities installed by each contract in each year.
Description: Offshore wind costs were similar to our assumptions, but electric vehicle (EV) battery pack costs have fallen much faster than expected.

(ii) Fuel prices

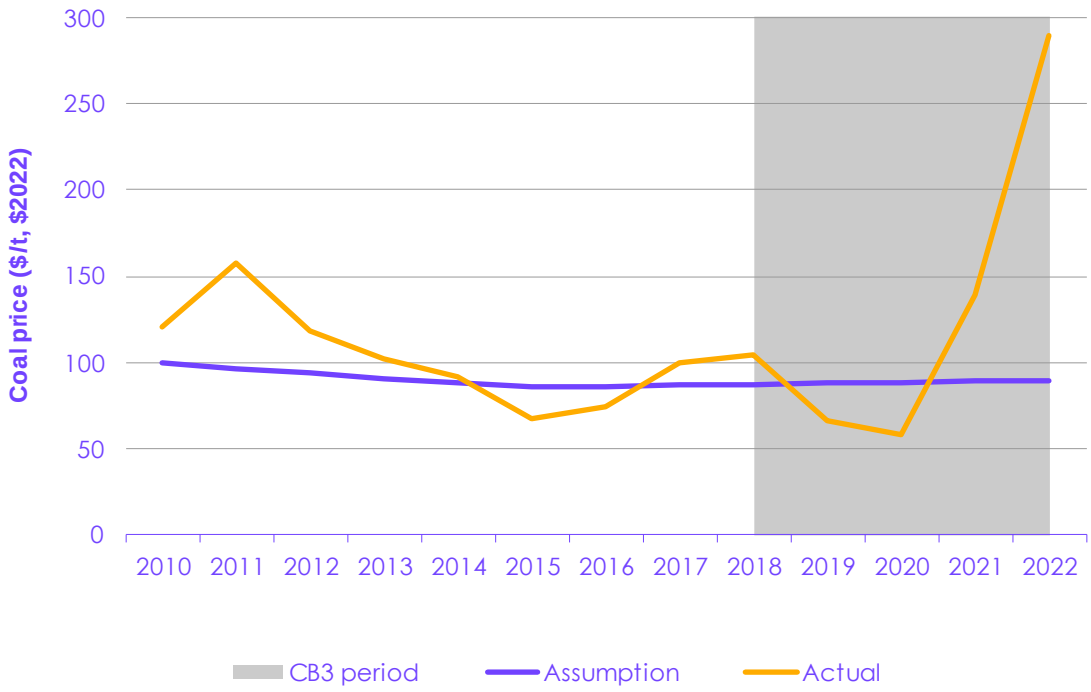
Fuel prices have seen significant volatility over the period (Figure 2.5 and Figure 2.6). Oil prices were lower than expected. However, both gas and coal prices were higher, coming from a huge increase in prices in the last two years of the budget (although coal was mostly phased out by this time). It is unclear how the combination of these changes affected emissions over the period.

Figure 2.5 Assumed and actual crude oil and gas prices



Source: Climate Change Committee (CCC) analysis; Department for Energy Security and Net Zero (DESNZ) (2023) *Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal.*
Description: Crude oil and gas prices have shown significant volatility in the last decade. On average, crude oil prices were lower than expected and gas prices were higher than assumed.

Figure 2.6 Assumed and actual coal prices



Source: Climate Change Committee (CCC) analysis; Department for Energy Security and Net Zero (DESNZ) (2023) *Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal*; Office for National Statistics (2008) *National Population Projections*; Office for National Statistics (2022) *United Kingdom population mid-year estimate*.
Description: Coal prices were higher than assumed. Prices were particularly high in 2021 and 2022, although coal was almost phased out by this time.

2.3 Emissions reductions required for future carbon budgets

2.3.1 Performance required against future carbon budget periods

As highlighted in Chapter 1 of this report, emissions reductions across most sectors will need to significantly speed up to be on track to meet the UK's climate targets in the 2030s, and therefore the long-term target of Net Zero by 2050. Emissions reductions will need to outperform the legislated Fourth Carbon Budget for the UK to be on a sensible path to achieve its 2030 Nationally Determined Contribution (NDC), the Sixth Carbon Budget and Net Zero.

- The legislated Fourth and Fifth Carbon Budgets were set on a trajectory to an 80% reduction in emissions by 2050, rather than Net Zero. They need to be overachieved to ensure that the UK is on a sensible path to achieve the NDC and Net Zero emissions by 2050.

- The five-year total of UK greenhouse gas emissions (excluding international aviation and shipping) reduced by 409 $MtCO_2e$ between the Second and Third Carbon Budget periods.

  – The Government's Carbon Budget Delivery Plan (CBDP) projects a slightly smaller emissions reduction of 322 $MtCO_2e$ between the Third and Fourth Carbon Budget periods. Significant increases are needed in the pace of emissions reduction in sectors

outside electricity supply, which is the sector where most of the emissions reduction has so far occurred.

– Between the Fourth and Fifth Carbon Budget periods, the absolute emissions reduction needs to increase to 514 $MtCO_2e$ to achieve the NDC.

2.3.2 Sectoral contributions to future carbon budgets

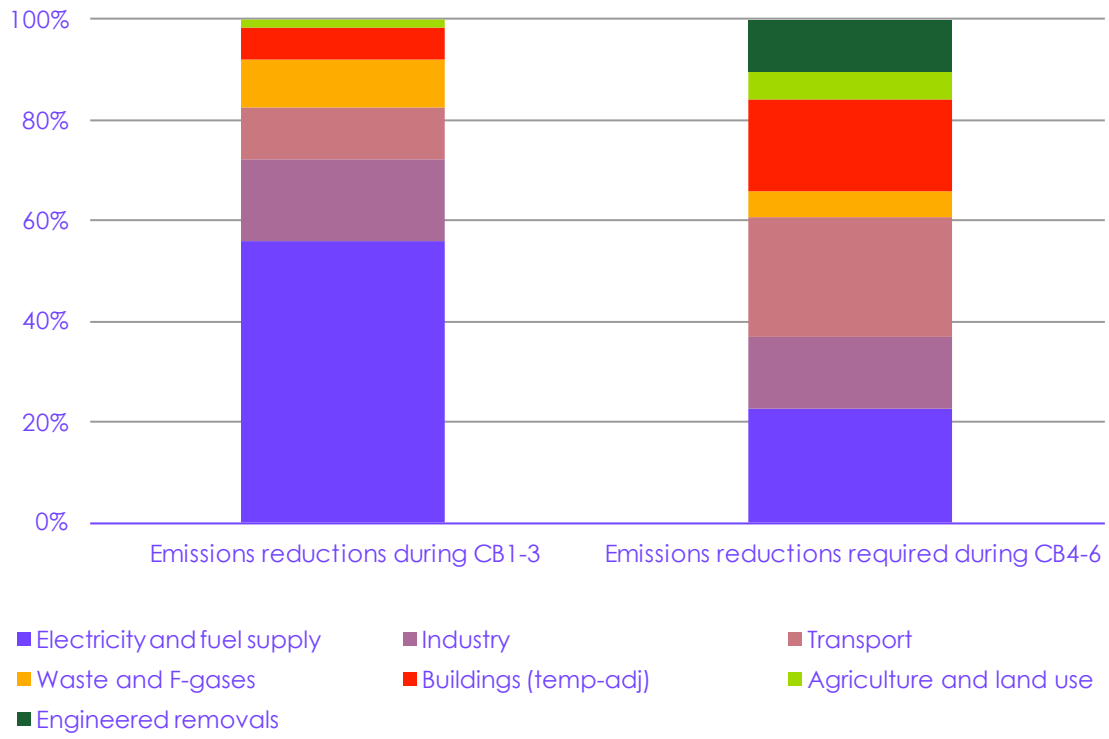
During the first three carbon budgets, emissions reductions were concentrated in the electricity and fuel supply sectors, which accounted for more than half of all emissions reductions. During the Fourth to Sixth Carbon Budget periods, over three quarters of emissions reductions are expected to come from other sectors (Figure 2.7).

- Emissions reductions will need to be more spread across sectors than those seen during the first three carbon budgets. More than half of the emissions reductions seen over this period was from energy supply sectors. Looking forwards, more than three quarters of the required emissions reductions for the next three carbon budgets is expected to come from other sectors.

- To achieve this, action in buildings, transport, agriculture and land use will need to accelerate rapidly during the next three carbon budgets. Clear policy action will be required to achieve this.

- An additional significant contribution will be required to come from the removals sector, which is expected to account for up to 11% of total emissions reductions between now and the end of the Sixth Carbon Budget period.

Figure 2.7 Comparison of required emissions reductions for the Fourth to Sixth Carbon Budgets to those for the First to Third Carbon Budgets



Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Final UK greenhouse gas emissions national statistics: 1990 to 2022;* DESNZ (2023) *Carbon Budget Delivery Plan;* Climate Change Committee (CCC) analysis.
Notes: This chart shows a proportional comparison of the sectoral composition of the emissions reductions achieved during the first three carbon budgets with the proportional sectoral composition of the required emissions reductions from the Carbon Budget Delivery Plan (CBDP) during the period covering the Fourth to the Sixth Carbon Budgets. The buildings emissions have been adjusted to account for changes in temperature. International aviation and shipping are not included. Domestic aviation and shipping reductions are calculated to/from 2023 rather than 2022 because aviation was still substantially affected by the COVID-19 pandemic in 2022. Buildings emissions reductions are calculated from 2008 rather than 2007 because published temperature-adjusted emissions only go back to 2008.
Description: During the first three carbon budgets, emissions reductions were concentrated in the electricity and fuel supply sectors, which accounted for more than half of all emissions reductions. During the Fourth to Sixth Carbon Budget periods, over three quarters of emissions reductions are expected to come from other sectors.

Endnotes

[1] Climate Change Committee (CCC) (2024) *Letter: Advice on the Third Carbon Budget carry-over*, https://www.theccc.org.uk/publication/letter-advice-on-the-third-carbon-budget-carry-over/.

[2] CCC (2008) *Building a low-carbon economy – the UK's contribution to tackling climate change*, https://www.theccc.org.uk/publication/building-a-low-carbon-economy-the-uks-contribution-to-tackling-climate-change-2/.

[3] CCC (2019) *Carry-forward of surplus emissions: Letter from Lord Deben to Claire Perry*, https://www.theccc.org.uk/publication/carry-forward-of-surplus-emissions-letter-from-lord-deben-to-claire-perry/.

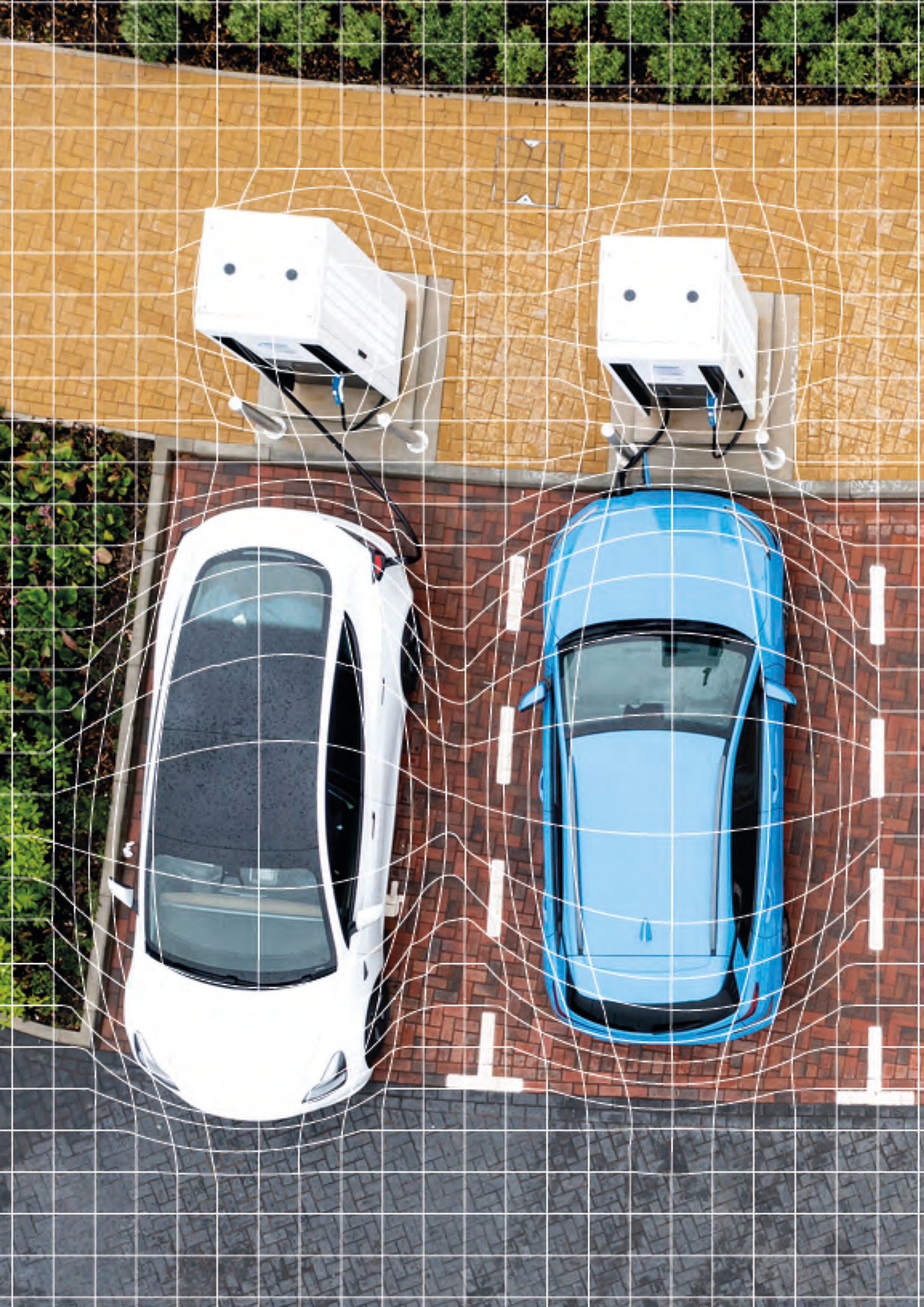
[4] Department for Education and Department for Business, Energy and Industrial Strategy (2019) *Letter from Chris Skidmore MP to Lord Deben*, https://data.parliament.uk/DepositedPapers/Files/DEP2019-0626/Chris_Skidmore_to_Lord_Deben.pdf.

[5] A. Dechezleprêtre, D. Nachtigall and F. Venmans (2023) *The joint impact of the European Union emissions trading system on carbon emissions and economic performance*, https://doi.org/10.1016/j.jeem.2022.102758.

[6] Office for Budget Responsibility (2012) *Rewriting history: the 2008-09 recession and recovery*, https://obr.uk/box/rewriting-history-the-2008-09-recession-and-recovery/.

[7] Office for Budget Responsibility (2024) *Brexit analysis*, https://obr.uk/forecasts-in-depth/the-economy-forecast/brexit-analysis/.

[8] Cambridge Econometrics and CCC (2019) *How the UK met its carbon budgets*, https://www.theccc.org.uk/publication/how-the-uk-met-its-carbon-budgets/.



Chapter 3: Indicators of current delivery progress

In this chapter, we assess progress in the last year against a range of delivery indicators, which monitor the actions and changes that will be required to reduce UK emissions.

Our key messages are:

- **Overall delivery progress**: we assess progress on 28 key indicators of demand, technology uptake and underlying enablers. Of the 22 that have a benchmark or target to compare against, only five are assessed as being on track.
  - There have been some improvements in demand related indicators from last year, in part due to reductions in gas use caused in part by high gas prices. Car traffic levels are also on track due to sustained reductions following the pandemic.
  - However, important indicators of technology uptake and nature-based solutions, including electric vehicles, heat pumps, renewables, tree planting and peatland restoration, are off track.
  - This slow progress in uptake is occurring despite the fact that prices of key technologies, such as electric vehicles, batteries and solar panels, have fallen quickly.
- **Required pace**: substantial progress is needed on a range of key indicators over the rest of this decade, to get the UK on track to meet its 2030 emissions targets. Low-carbon technologies need to quickly become the default options in many areas, including electricity generation, transportation, home heating and industry.
  - Renewable energy capacity has been growing steadily. However, roll-out rates will need to increase, compared to those since the start of this decade, to deliver the capacity needed by the end of the decade. Annual installations of offshore wind will need to more than treble, onshore wind more than double and solar increase by a factor of five.
  - Rapid growth in low-carbon consumer technologies will also be needed. Electric vehicles sales will need to go from 16.5% of total new car sales to close to 100%, enabled by continuing growth in annual charge point installations to up to three times current rates. Around 10% of existing homes will need to be heated by heat pumps, up from around 1% today.
  - There also needs to be an increase in industrial electrification and both tree planting and peatland restoration rates need to more than double.
  - Rapid initial deployment and scale-up of novel technologies including carbon capture and storage will also need to occur this decade.
- **International comparisons**: lessons can be learned from successes in deploying low-carbon technologies in other countries. While the UK is performing strongly on renewable energy and has seen similar uptake to many major European economies for electric vehicles, its heat pump rollout is considerably behind many comparable countries.

- Success stories across the UK and internationally show how clear, joined-up policy and long-term plans together with financial incentives and clear, trusted information for consumers and businesses can be effective in driving rapid uptake of low-carbon technologies.

This chapter is laid out in two sections, covering:

- The CCC monitoring framework.
- Assessment of progress on key indicators.

3.1 The CCC monitoring framework

In our 2022 UK Progress Report, we introduced our new monitoring framework and increased our focus on tracking real-world indicators of progress.[1] Our monitoring framework sets out how these indicators contribute to reducing emissions. Tracking them will allow us to identify at an early stage whether these indicators are on or off track for the pace of change required, providing an early signal for areas where progress is at risk.

In this report, we concentrate on progress in 28 key indicators. This is a subset of our full monitoring framework that we have chosen to allow us to assess progress in the most important actions and changes – on both demand for high-carbon activities and uptake of low-carbon technologies – that need to be taken in the short term to meet the UK's emissions reduction targets.

3.2 Assessment of progress on key indicators

We assess progress on 28 key indicators of demand, technology uptake and underlying enablers. Of the 22 that have a benchmark or target to compare against, only five are assessed as being on track (Table 3.1). Many of the indicators relating to reducing demand for high-carbon activities are either ahead of or close to their required trajectories, although this is largely due to contextual factors (such as high gas prices and the impact of the COVID-19 pandemic on travel demand) that may not continue. Almost all indicators relating to roll-out of low-carbon technologies and nature-based solutions are off track. Performance in these areas needs to improve rapidly. Improvements in important enablers, including costs, will help achieve this. Government policies need to support progress on these and capitalise on falling costs to drive the uptake that is required.

Table 3.1
Summary of progress against key indicators

Indicators of demand for high-carbon activities		Indicators of roll-out of low-carbon technologies and nature-based solutions		Indicators of enablers of the transition	
Car-km (G)	Residential energy demand (G)	Public EV charge points (G)	Electric car sales (O)	Battery cell prices (G)	Trained heat pump installers (R)
Non-residential energy demand (G)	Van-km (O)	Electricity used in industry (O)	Offshore wind capacity (O)	Heat pump installation costs (LGr)	Offshore wind costs (LGr)
Electricity consumption per GVA in industry (O)	Households receiving energy efficiency measures (R)	Onshore wind capacity (O)	Unabated gas share of electricity generation (O)	Solar costs (LGr)	Green jobs (LGr)
Livestock numbers (W)	Airport terminal passengers (W)	Electric van sales (R)	Heat pump installations (R)	Knowledge of EVs (LGr)	Knowledge of heat pumps (LGr)
		Solar capacity (R)	Woodland creation (R)		
		Peatland restoration (R)	Sustainable aviation fuel share (W)		

On track (G)
Slightly off track (O)
Significantly off track (R)
Too early to say (W)
Data not reported (Gr)
No benchmark or target (LGr)

Source: Climate Change Committee (CCC) analysis.
Notes: An indicator is on track if it is going in the right direction at an appropriate rate. This is determined by comparing the historical data to government ambition or the CCC's recommended path and considering the wider contextual factors that may have a temporary impact (e.g., recovery from COVID-19). Government ambition is an umbrella term encompassing stated targets, projections and modelling assumptions – and does not necessarily represent a formal commitment from the Government.

3.2.1 Demand for high-carbon activities

Figure 3.1 shows progress against our key indicators on reducing demand for high-carbon activities. While many of these indicators are on track, this is generally a result of contextual factors rather than of effective policy.

- **Surface transport**: total car-kilometres travelled have rebounded from the substantial drop during the pandemic but remain 6% below pre-pandemic levels (Figure 3.1a). Only a very modest increase of 2% was seen in 2023 compared to 2022 levels. This suggests that changes in travel patterns (e.g. increased home-working) have resulted in a sustained reduction in car travel demand. This indicator is therefore on track, but there is a risk that previous demand growth trends could resume without policy to build on these changes. By contrast, van demand remains off track, as total van-kilometres have increased substantially recently, to 11% above pre-pandemic levels (Figure 3.1b). Levels continued to grow in 2023, increasing by 3% compared to 2022 levels.

- **Buildings**: total energy demand in both residential and non-residential buildings fell substantially over recent years, due to a combination of warmer-than-average temperatures, likely behavioural changes as a result of high gas prices and possible energy efficiency measures (Figures 3.1c and 3.1d). Data is available only up to 2022, but we would expect further decreases in line with the reductions in buildings emissions seen in 2023. As a result, both indicators are on track.

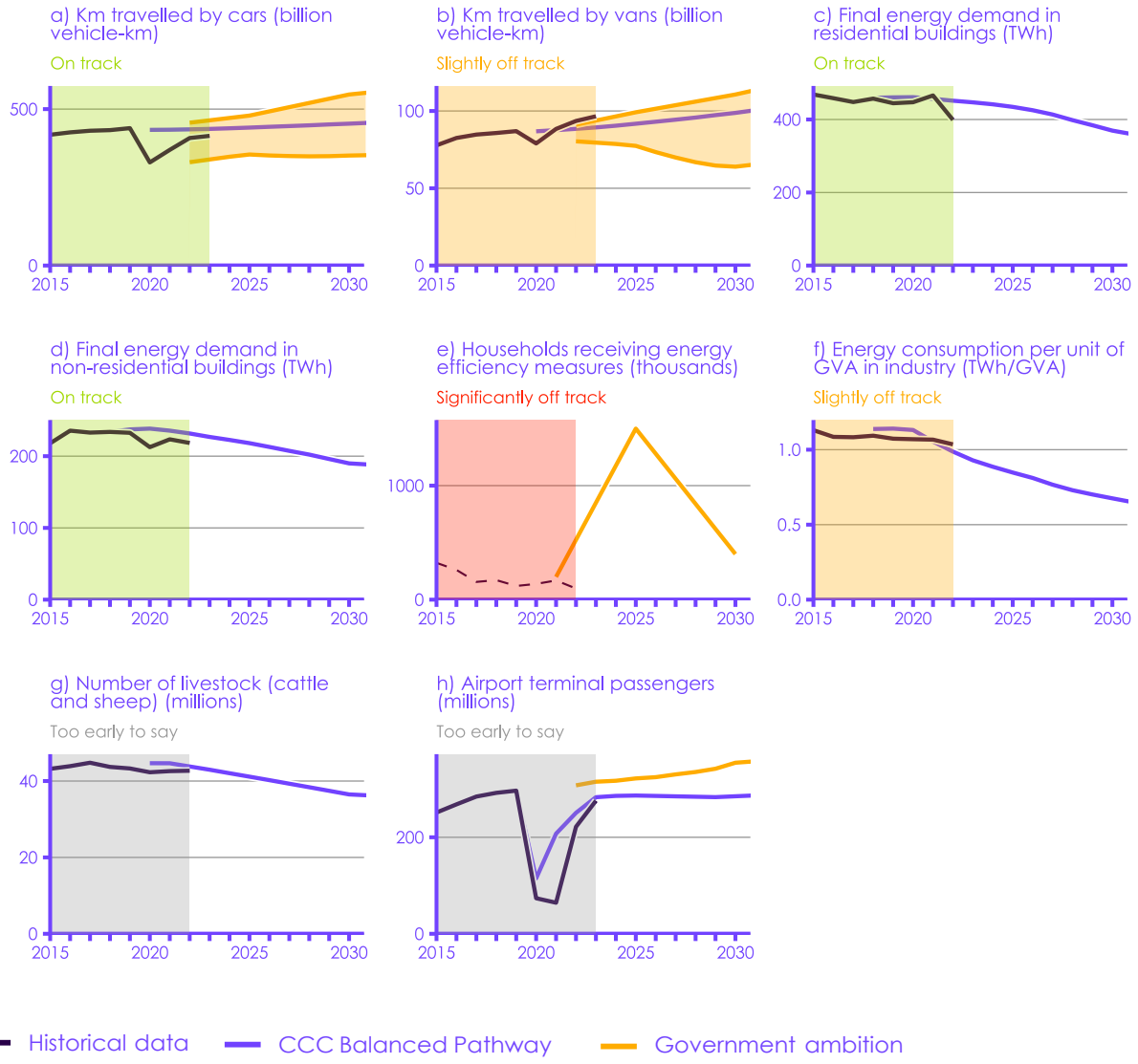
  – Government-funded energy efficiency measure installations have not been increasing (Figure 3.1e), but installations outside of these programmes are a key data gap. This makes it difficult to determine the role of energy efficiency improvements in reductions in energy demand in buildings. Energy efficiency is particularly important for the UK as its housing stock is one of the oldest and worst insulated in all of Europe, with only 15% of homes being built after 1990.[2]

- **Industry**: industrial energy consumption per unit output has remained relatively steady over recent years (Figure 3.1f). While there have been reductions in absolute energy consumption, these have been due to reduced output rather than improvements to energy efficiency. Therefore, this indicator is slightly off track.

- **Agriculture and land use**: livestock numbers fell between 2017 and 2020, but since then the trend has been flat (Figure 3.1g). While levels are currently below the CCC Balanced Pathway despite there being no policy in this area, numbers will need to start to reduce again soon if this is to remain the case. It is therefore too early to say whether this indicator is on track.

- **Aviation**: travel demand in aviation remains lower than before the COVID-19 pandemic (Figure 3.1h). However, demand continues to grow quickly, presenting a risk that it may increase beyond pre-pandemic levels in the next year of data. It is therefore too early to say whether this indicator is on track.

Figure 3.1 Indicators of demand for high-carbon activities



Source: Refer to the Monitoring Framework, available on the Climate Change Committee (CCC) website, for full documentation on the CCC's indicators, including historical data sources and data gaps.
Notes: An indicator is on track if it is going in the right direction at an appropriate rate. This is determined by comparing the historical data to government ambition or the CCC's recommended path, and considering the wider contextual factors that may have a temporary impact (e.g. recovery from COVID-19). Government ambition is an umbrella term encompassing stated targets, projections and modelling assumptions – and does not necessarily represent a formal commitment from the Government. Historical data in chart (e) include government funded programs only; the lack of data for owner-occupied homes is a priority data gap listed in our monitoring framework.
Description: Three of our key indicators on reducing demand for high-carbon activities are on track (km travelled by cars and energy demand in residential and non-residential buildings), three are off track (km travelled by vans, households receiving energy efficiency measures and energy consumption per unit of GVA in industry) and two are too early to say (number of cattle and sheep livestock and airport terminal passengers).

3.2.2 Roll-out of low-carbon technologies and nature-based solutions

Figure 3.2 shows progress against our key indicators on roll-out of low-carbon technologies and nature-based solutions. Most of these are off track, and roll-out will need to accelerate rapidly over the coming years to deliver the emissions reductions required to meet the UK's emissions targets. Successes in the UK and elsewhere demonstrate that this can be achieved by building investor and consumer confidence through clear timetables, supportive and joined-up policy frameworks and

effective policies on enablers such as skills, supply chains, public engagement and financial incentives (see Section 3.2.3 for analysis of recent trends in some of these enablers).

- **Surface transport**: total sales of new electric cars have continued to grow, with one million cumulative sales reached in January 2024 (out of a total fleet of 33.6 million cars). However, despite this growth in overall sales, electric cars' market share failed to grow in 2023 and has fallen off track for the first time (Figure 3.2a). Until 2022, this indicator had been growing quickly and was ahead of our pathway. Growth in electric van sales has been slower, and this indicator remains significantly off track (Figure 3.2b). By contrast, 2023 has seen good progress in installation of charging infrastructure, with the public network expanding by more than a third, which is on track for what is required (Figure 3.2c).

  - The share of electric vehicles (EVs) out of all new vehicles sold needs to increase from 16.5% for cars and 5.9% for vans in 2023 to between 80% and 100% for cars and between 70% and 100% for vans by 2030.[*] Achieving this will require a resumption of the rapid growth seen previously, but this is expected to be possible as supply continues to grow and costs fall.

  - Many other western European countries have seen similar growth in EV sales over recent years, although some have been more successful in maintaining this recently (Box 3.1). The slowdown in growth in the UK coincided with the Government's decision to delay the 2030 phase-out date and 'ease the transition to electric vehicles', although other factors may also have affected this.

  - Roll-out of charging infrastructure will be crucial to enable EV sales to grow rapidly. 2023 saw strong growth, with around 17,000 new public charge points being added to the network. This growth will need to continue, with annual installation rates needing to reach treble this number by the end of the decade to reach the Government's goal of 300,000 by 2030.

- **Buildings**: the number of heat pumps installed in 2023 only increased by 4% compared to installations in 2022, from 58,000 to 60,000 (Figure 3.2d). This indicator is significantly off track. However, there have been some promising signs in the early months of 2024, with applications for the Boiler Upgrade Scheme up 62% in the first four months of 2024 compared to the same period in 2023. This follows an increase in the level of the grants from £5,000 to £7,500 from October 2023. Around 24,000 heat pump installations have been supported by the Boiler Upgrade Scheme since its launch two years ago. This is around one-fifth of total installations over this period.

  - Installation rates of heat pumps in residential buildings will need to increase by a factor of 10 from 2023 levels by 2028, to meet the Government's aim of 600,000 per year by 2028. While 40% of this increase is likely to come from installations in new-build properties, this will still require a considerable scale-up of heat pump retrofits in existing buildings.

  - By the end of the decade, around 10% of existing homes will need to be heated by heat pumps, up from around 1% today.[†]

[*] Plug-in hybrid electric vehicles (PHEVs) are not included in the definition of an EV used throughout this report.

[†] The share of homes currently heated by heat pumps has been estimated by comparing the cumulative heat pump installations over the past 15 years, as reported by EurObserv'ER and BSRIA, with the total number of households in the UK. As we have no data for 2009 and 2010, installation numbers for these years are estimated based on the numbers installed in 2011 and 2012.

  - Strong progress on heat pump installations in recent years in other European countries, notably France, demonstrates that rapid scale-up is achievable (Box 3.2).

  - Energy efficiency measure installations are moving in the wrong direction compared to the scale-up that is required. They fell in 2023 and were already significantly off track in 2022.

- **Industry**: the share of electricity as a proportion of all energy used in industry has been relatively constant at 26% since 2020 (Figure 3.2e). As various industries electrify their processes, largely moving away from gas, we would expect this share to increase. Therefore, this indicator is off track.

- **Electricity supply**: current installation rates of both offshore and onshore wind are slightly off track (Figure 3.2f and 3.2g). Low levels of offshore deployment in 2023, coupled with the failed AR5 auction for offshore wind, pose a risk to the Government's renewables targets. Onshore projects have stagnated in recent years due to planning barriers and government messaging. Despite an increase of 9% in 2023, solar PV capacity remains significantly off track (Figure 3.2h).

  - Over the period since 2015, the UK has performed strongly in installing renewables (particularly offshore wind) as it transitioned away from coal. Installation rates will need to continue growing to achieve the UK's electricity decarbonisation goals (Box 3.3).

  - Total operational capacity for offshore wind was 15 GW in 2023. Achieving at least 50 GW by 2030 will require more than 5 GW to be added each year on average. This is more than three times the average amount added over the past three years and almost double the highest installation rate seen to date (in 2022). We have some confidence that offshore wind capacity will continue to increase because of Contracts for Difference that have already been signed for future capacity increases. But these are not enough and significant additional capacity beyond this will be required.

  - Total operational onshore wind capacity was 15 GW in 2023. However, only 0.5 GW of new onshore wind was installed in 2023. This is considerably below the peak of 1.8 GW in 2017. Onshore wind installation rates will need to more than double compared to the average pace of deployment over the past three years.

  - Total operational capacity for solar was 16 GW in 2023.* Achieving the Government's ambition of 70 GW by 2035 will require more than 4 GW to be installed each year on average. This is more than five times the average amount added over the past three years but is not much higher (around 10% higher) than the highest annual installations seen to date, which occurred in 2015.

  - Increased electricity imports and renewable production meant that the share of unabated gas used in electricity generation fell by five percentage points to 34% in 2023 (Figure 3.2i). As increases in imports are unlikely to be repeated, this indicator is slightly off track. This year's rate of reduction will need to be repeated over the coming years to meet our pathway's 2025 range of 17-23%, requiring greater contributions from growth in renewables.

- **Agriculture and land use**: the rate of new woodland creation has been relatively static over recent years, at around 13,000 ha per year (Figure 3.2j). This is considerably below the levels (around 15,000-20,000 ha per year) that were sustained during the 1990s. Peatland

* This figure does not include all commercial-scale rooftop solar, so may be an underestimate. We will continue to monitor this in future progress reports.

restoration rates increased to 12,700 ha in 2023 but remain considerably behind the Government's pathway (Figure 3.2k). Both indicators are significantly off track.

  - Tree planting will rapidly need to more than double in rate to get as close as possible to the Government's target of 30,000 ha per year by 2025. This higher rate will then need to be maintained through the rest of the decade and beyond. Due to the lag in sequestration, tree planting must be upscaled in the 2020s for its abatement impact to be felt from 2040 and beyond.

  - A similar increase will also be needed in peatland restoration rates, to reach the Government's target of 32,000 ha per year by 2026, which is in turn significantly less ambitious than the CCC's recommendation.

- **Aviation**: the market for sustainable aviation fuel (SAF) will need to grow rapidly from 1.2% to commercialisation and full scale-up in order to meet the Government's ambitious target for 10% of all UK aviation fuel to be sustainable aviation fuel by 2030 (Figure 3.2l).

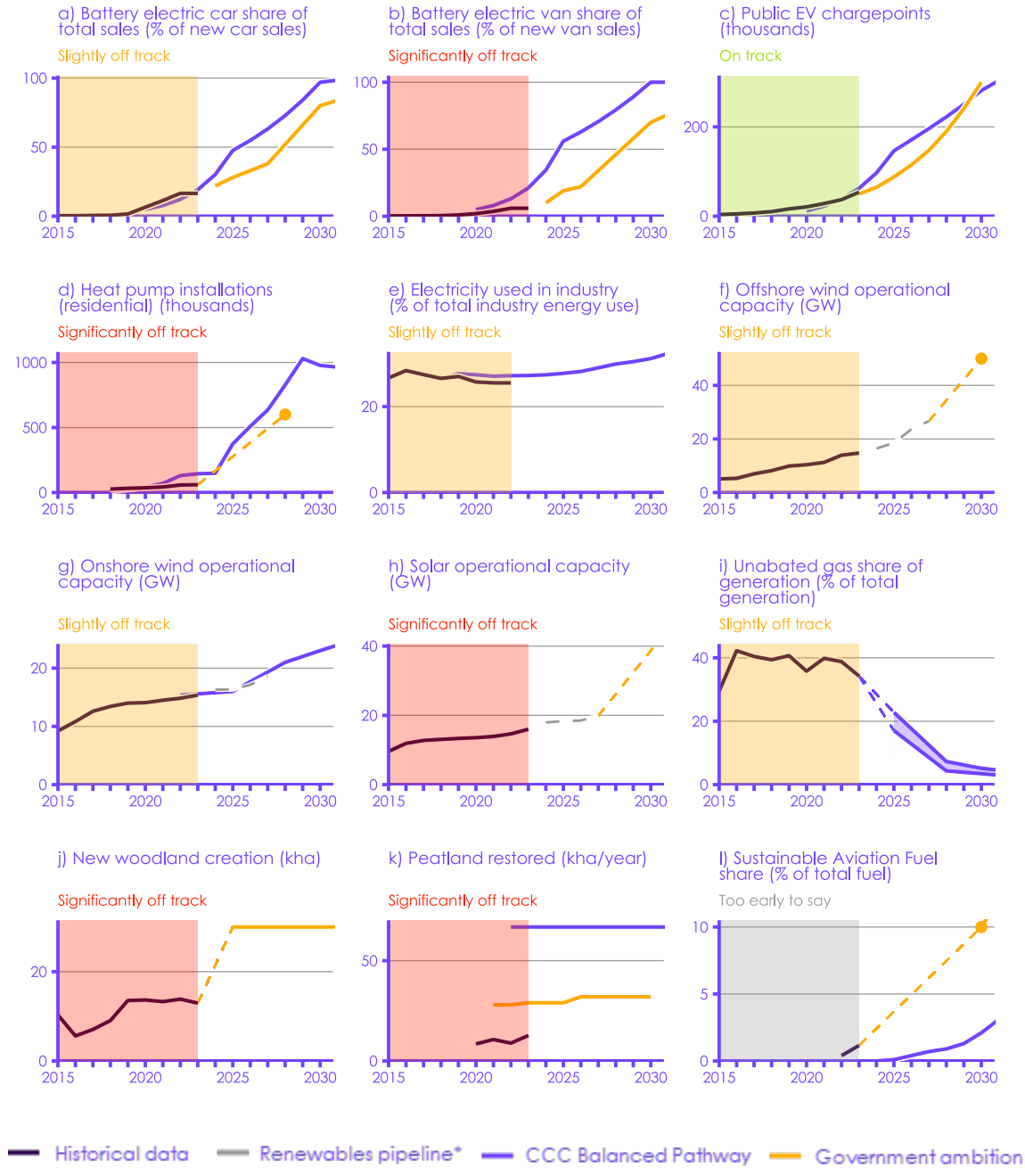
  - All SAF is currently produced from biofuel through the hydrogenated esters and fatty acids (HEFA) process. The amount of SAF allowed to come from this process will be capped at 71% in 2030, with this cap falling thereafter. Therefore, other means of production, including synthetic power-to-liquid (PtL) fuels produced from low-carbon energy, will need to develop and scale up.

- **Other technologies**: scale-up will also be required in several new technologies. This includes carbon capture and storage and engineered removals.

  - Investments are being made to develop and advance carbon capture and storage technologies, but these will require a rapid initial deployment and ramp up to meet the Government's target of capturing 20-30 $MtCO_2$ per year by 2030.

  - The Government's Carbon Budget Delivery Plan (CBDP) includes at least 5 $MtCO_2$ of engineered removals by 2030.

Figure 3.2 Indicators of uptake of low-carbon technologies and nature-based solutions



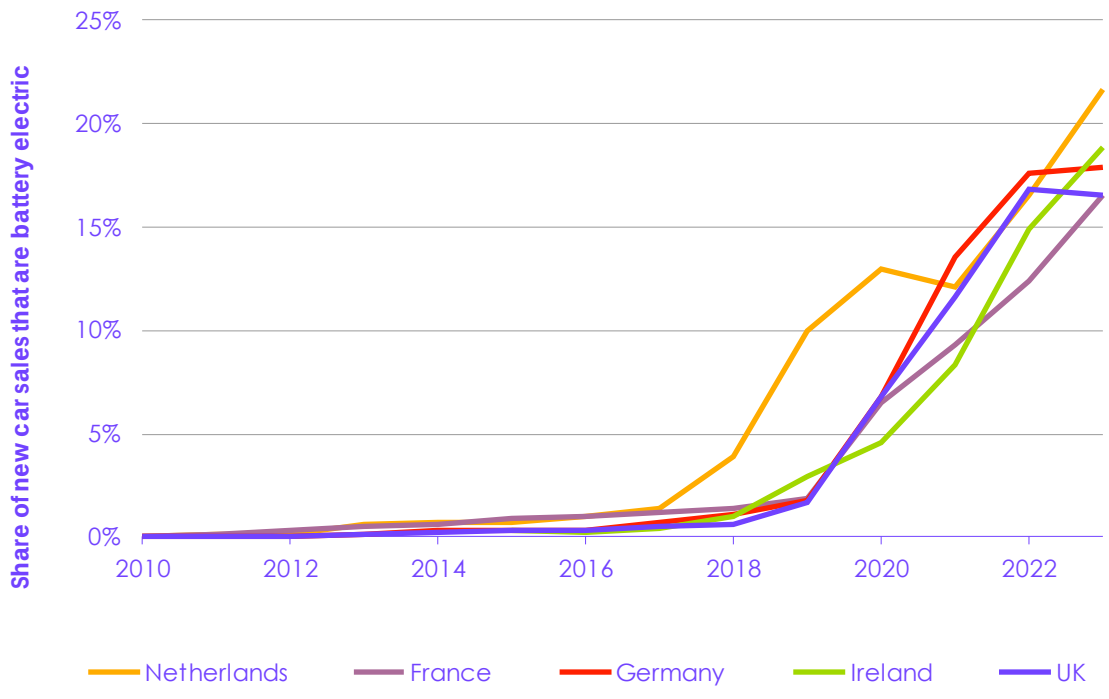
Source: Refer to the Monitoring Framework, available on the Climate Change Committee (CCC) website, for full documentation on the CCC's indicators, including historical data sources and data gaps.
Notes: *For renewable energy generation, the pipeline represents the capacity of future projects which have signed Contracts for Difference. There is risk of delivery falling short of these pipeline numbers. (1) An indicator is on track if it is going in the right direction at an appropriate rate. This is determined by comparing the historical data to government ambition or the CCC's recommended path, and considering the wider contextual factors that may have a temporary impact (e.g. recovery from COVID-19). Government ambition is an umbrella term encompassing stated targets, projections and modelling assumptions – and does not necessarily represent a formal commitment from the Government. (2) Dashed orange and purple lines indicate the linear rate of change that would be required to meet the target, whereas solid lines show modelled pathways. (3) The Government ambition lines in charts (a) and (b) show the minimum requirements in the ZEV mandate – the Carbon Budget Delivery Plan (CBDP) assumes uptake exceeds these minimum levels. These charts show the share of new vehicles that are fully electric. (4) Since last year's UK Progress Report, we have changed our data source for heat pump installations in chart (d) to: Heat Pump Association, Statistics – Heat Pumps. (5) This solar historical data in chart (h) does not include all commercial-scale rooftop solar, so may be an underestimate. We will continue to monitor this in future progress reports.
Description: One of our key indicators on roll-out of low-carbon technologies and nature-based solutions is on track (public electric vehicle chargepoints), ten are off track (battery electric car and van shares of total sales, residential heat pump installations, electricity used in industry, offshore wind, onshore wind and solar operational capacities, unabated gas share of electricity generation, new woodland creation and peatland restored) and one is too early to say (sustainable aviation fuel share).

Box 3.1
Roll-out of electric vehicles in the UK and other European markets

- Across Europe, there has been a substantial increase in the market share of EVs since 2019 (Figure 3.3).
- Norway (not shown in the chart) is the clear market leader in EV deployment, with EVs making up over 80% of new car sales in 2023. This is predominantly due to implementation of measures to make it cheaper and easier to buy and run an EV.
- The UK, France and Germany have seen similar growth in EV market share, with the UK managing to maintain an intermediate position within this comparison, despite withdrawing its early-market subsidies sooner.
- A pause in the Netherlands' upward trajectory was observed in 2021, coinciding with the COVID-19 pandemic and the introduction of more stringent tax policies affecting privately used battery-electric company cars. Sales have since recovered, supported by effective policy and widespread availability of supporting infrastructure like EV charging points (the Netherlands has the highest density of charging locations in Europe).
- In 2023, EV sales slowed down in the UK and in other countries across Europe, including in some of the most established EV markets like Norway and Germany; sales in other countries (e.g. The Netherlands, France and Ireland) continued to grow in 2023.

Source: International Energy Agency (IEA) (2023) *Global EV Outlook 2023*; Climate Change Committee (CCC) analysis.

Figure 3.3 Annual share of new car sales that are battery-electric vehicles



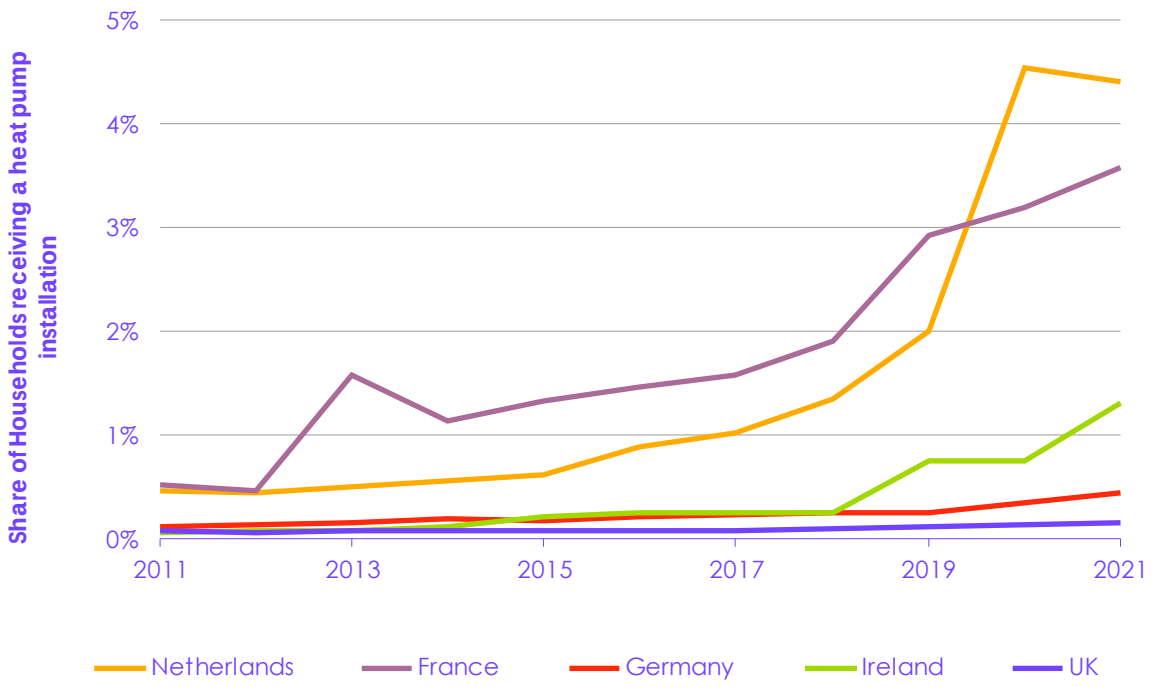
Source: International Energy Agency (IEA) (2023) *Global EV Outlook 2023*.
Notes: Plug-in hybrid electric vehicles (PHEVs) are not included in the definition of an electric vehicle (EV) used in this analysis and throughout this report.
Description: Across Europe, there has been a substantial increase in the market share of EVs since 2019 but this decreased in the UK in 2023.

Box 3.2
Roll-out of heat pumps in the UK and other European markets

- The UK has seen minimal uptake of heat pump technology compared with the rest of Europe, with annual heat pump installations per household reaching just 0.2% in 2021, approximately twenty times less than in the Netherlands (Figure 3.4).
- By contrast, heat pump sales in the rest of Europe have increased considerably, especially in Scandinavia. France has seen steady growth in the number of heat pump installations annually, enabled through consistent, long-term incentives and more joined-up policy packages such as MaPrimeRénov.
- Even in countries where initial uptake had been slow, the market share of heat pumps has grown in recent years. This is especially true for the Netherlands, which, despite high penetration of gas historically, has increased the number of heat pump installations per household by nearly 10 times over the past decade through the introduction of financial incentives.
- The electricity to gas price ratio is lower in countries that have higher uptake of heat pumps. For example, electricity is between 1.5 and 2.5 times more expensive than gas in the Netherlands, France and Ireland. However, in Germany, electricity costs between 2.5 and 3.5 times more than gas, while in the UK, it is more than 3.5 times as expensive.[3] This makes heat pumps significantly more expensive to run in these countries, resulting in lagging heat pump sales.

Source: Nesta analysis of the 2021 EurObsev'ER heat pumps barometer data; Climate Change Committee (CCC) analysis.

Figure 3.4 Annual share of households receiving a heat pump installation



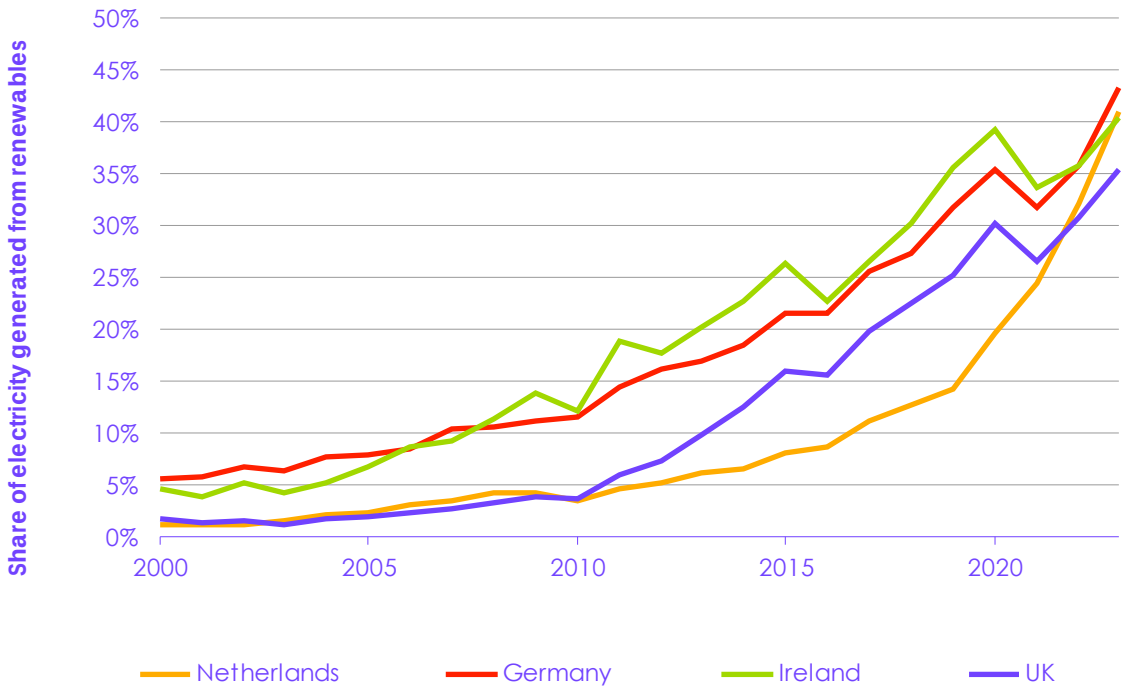
Source: Nesta analysis of the 2021 EurObsev'ER heat pumps barometer data.
Description: The UK has seen minimal uptake of heat pump technology compared with the rest of Europe, with annual heat pump installations per household reaching just 0.2% in 2021, approximately twenty times less than in the Netherlands.

Box 3.3
Roll-out of renewable energy in the UK and other European markets

- Renewables capacity has increased across Europe because of the 2009 Renewable Energy Directive (RED), which promoted the installation of additional renewable energy capacity in the EU through binding targets.
- The UK has also seen a continued increase in the annual share of electricity generated from renewable sources since 2010 (Figure 3.5). The UK's performance to date has been driven by phasing out coal and putting in place effective policy support for large-scale renewable energy infrastructure projects such as offshore wind.
- Germany and Ireland have followed a similar trajectory to the UK, although starting from a higher point. The Netherlands have seen a more gradual increase in the contribution of renewables to annual electricity generation since 2000, though this has accelerated since 2019 which can be linked to the ambitious renewable energy targets set out in their 2019 National Climate Agreement.[4]
- To meet its goals for decarbonising electricity generation, the UK must continue to invest in additional renewable energy capacity, particularly in areas like onshore wind where neighbouring countries are expanding capacity at a faster rate.

Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Energy Trends*; Eurostat via Ember; Climate Change Committee (CCC) analysis.

Figure 3.5 Annual share of electricity generated from renewable sources



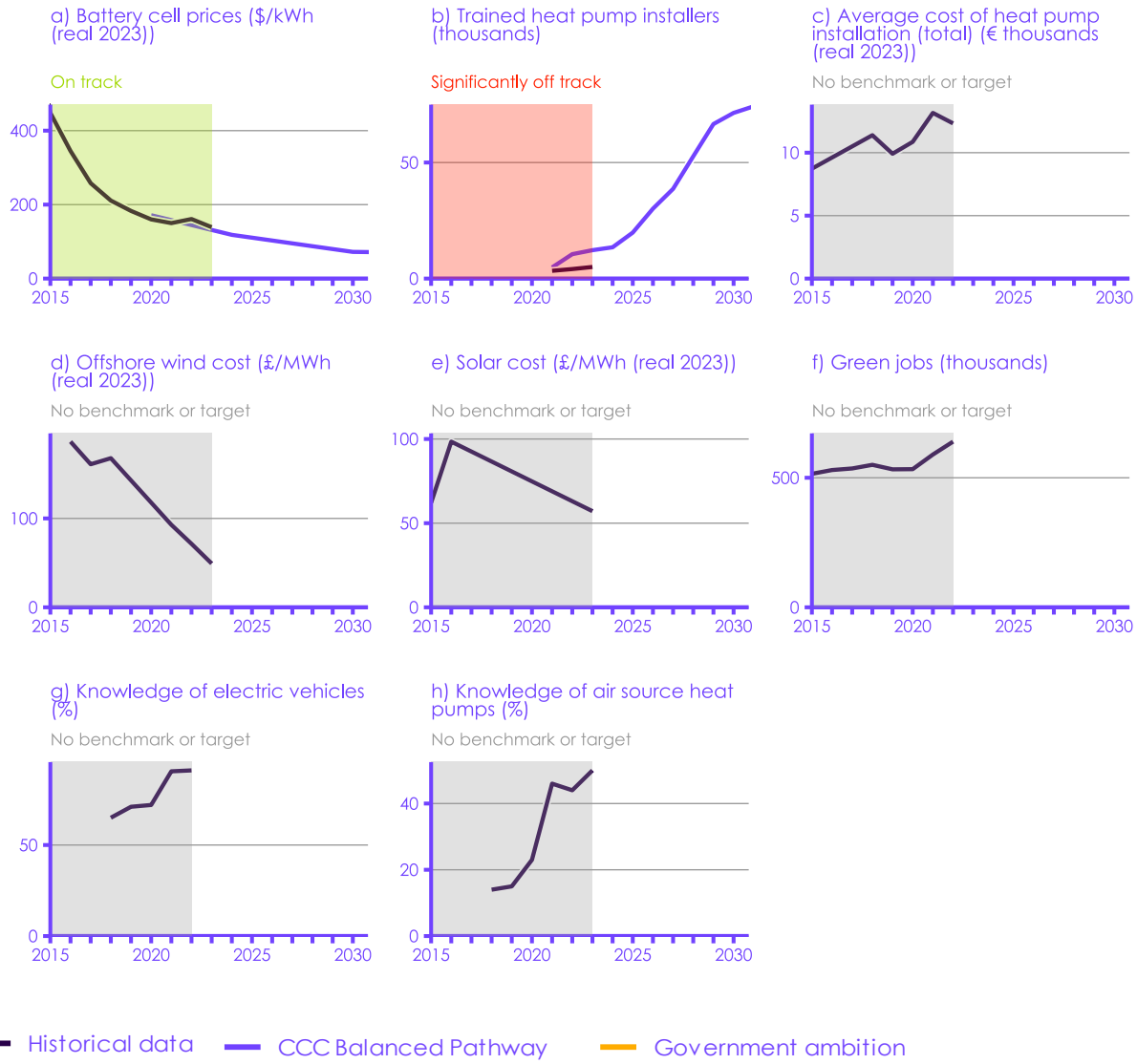
Source: Department for Energy Security and Net Zero (DESNZ) (2024) *Energy Trends*; Eurostat via Ember.
Notes: Renewables are defined as technology including onshore and offshore wind, solar power, hydroelectricity and other technologies including geothermal, tidal and wave generation. In line with previous Climate Change Committee (CCC) assumptions, bioenergy is not considered as a renewable resource. Renewables penetration has been slower in France, largely due to the higher share of electricity generated from nuclear power, hence is not included in this comparison.
Description: The UK, the Netherlands, Germany and Ireland have all seen a continued increase in the annual share of electricity generated from renewable sources since 2010.

3.2.3 Enablers of the transition

Figure 3.6 shows progress against our indicators on a range of key supporting factors that can enable delivery of the outcomes shown in Figures 3.1 and 3.2. These factors include reducing costs of low-carbon technologies, increasing provision of training on the skills that will be needed for the transition and growing public engagement with the steps needed to get to Net Zero.

- **Surface transport**: EV battery cell prices have fallen rapidly and have historically tracked ahead of our assumptions (Figure 3.6a). Despite supply chain disruptions causing prices to rise in 2022, they have fallen steeply again in 2023 and are therefore assessed as being on track.
  - Reductions are expected to continue, which will play a key role in making electric vehicles (and grid-level storage) more cost-effective.
- **Buildings**: the number of trained heat pump installers has not yet increased at the pace required and is significantly off track (Figure 3.6b). While the average cost of installing a heat pump fell slightly in 2022, there are past increasing trends (Figure 3.6c). Some of this may have been driven by increasing labour costs more generally.
  - To deliver the increase in heat pump installations discussed above, there will need to be rapid growth in the number of trained installers.
  - As UK companies gain more widespread institutional experience of heat pump installation, economies-of-scale and specific expertise (e.g. the ability to more accurately size the heat pump required for each property) may enable installation costs to fall.
- **Electricity supply**: the prices paid through Contracts for Difference for renewable energy generation have fallen quickly in recent years (Figures 3.6d and 3.6e). This is particularly true for offshore wind, with contracts for installation in 2023 being 70% cheaper than five years earlier. However, in the most recent auctions, supply chain inflation has increased prices for offshore wind.
- **Cross-cutting**: the number of people employed in 'green jobs' has increased by around 10% in each of the last two years (Figure 3.6f). Knowledge of Net Zero is high and knowledge of the key actions that can help the UK get there is increasing. Over 90% of people report knowledge of EVs (Figure 3.6g). This is considerably higher than the 50% with knowledge of heat pumps, although this figure has risen from 15% in the past four years (Figure 3.6h).

Figure 3.6 Indicators of key enablers of the transition



Source: Refer to the Monitoring Framework, available on the Climate Change Committee (CCC) website, for full documentation on the CCC's indicators, including historical data sources and data gaps.
Notes: An indicator is on track if it is going in the right direction at an appropriate rate. This is determined by comparing the historical data to government ambition or the CCC's recommended path, and considering the wider contextual factors that may have a temporary impact (e.g. recovery from COVID-19). Government ambition is an umbrella term encompassing stated targets, projections and modelling assumptions – and does not necessarily represent a formal commitment from the Government. For graph (h), the response options provided to survey participants changed from 2020 to 2021, so data before and after this change may not be directly comparable. While the excluded answer options are almost the same, having additional answer options that count as part of the 'knowledge' category could skew the results.
Description: One of our indicators on a range of key supporting factors that can enable delivery of the outcomes shown in Figures 3.1 and 3.2 is on track (battery cell prices), one is off track (trained heat pump installers) and six have no benchmark or target (average cost of heat pump installation, offshore wind cost, solar cost, green jobs, knowledge of electric vehicles and knowledge of air source heat pumps).

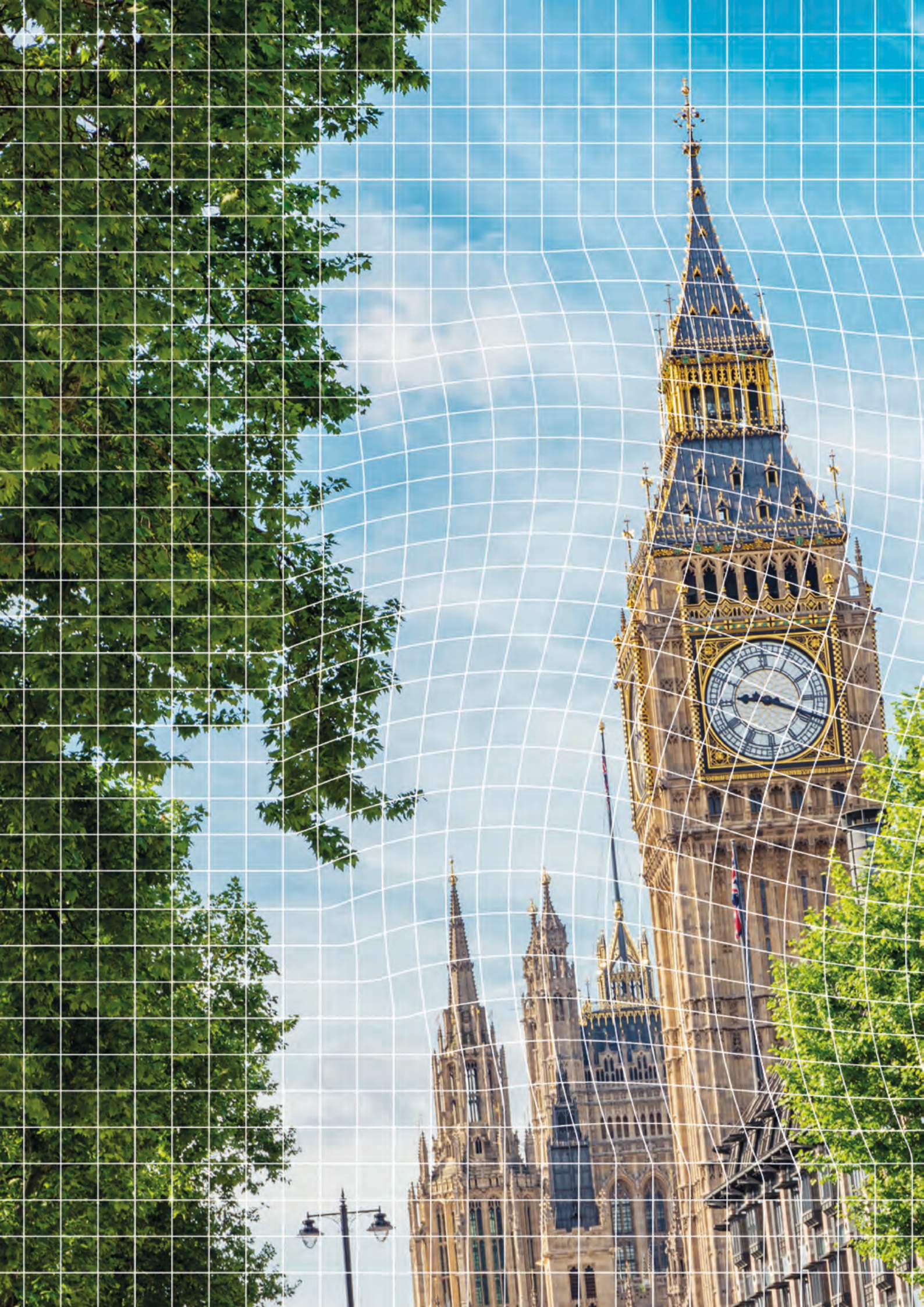
Endnotes

[1] Climate Change Committee (CCC) (2022) *CCC Mitigation Monitoring Framework*, https://www.theccc.org.uk/publication/ccc-monitoring-framework/.

[2] House of Commons Business, Energy and Industrial Strategy Committee (2022) *Decarbonising heat in homes*, https://publications.parliament.uk/pa/cm5802/cmselect/cmbeis/1038/summary.html.

[3] European Heat Pump Association (EHPA) (2024) *In which countries does the electricity price work for heat pumps?*, https://www.ehpa.org/news-and-resources/news/in-which-countries-does-the-electricity-price-work-for-heat-pumps/.

[4] Dutch Government (2019) *National Climate Agreement of the Netherlands*, https://www.klimaatakkoord.nl/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands.



Chapter 4: Assessment of policy progress

In this chapter, we assess the credibility of the Government's policies and plans to deliver the emissions reductions required to meet the UK's emissions targets and discuss progress in developing and implementing policies over the past year. This assessment is based on the policies and plans of the previous Government, which represent the starting point for action by the new Government.

Our key messages are:

- **Assessment of policies and plans**: credible plans cover only around a third of the emissions reductions needed to meet the UK's 2030 Nationally Determined Contribution (NDC) and a quarter of those needed to meet the Sixth Carbon Budget. While there has been a slight improvement in these assessments in the past year, there remain significant risks to achieving these goals.
  - Improvements in our assessment have predominantly come from the confirmation of the zero-emission vehicle (ZEV) mandate and a deal for industrial electrification, although a strategy for workers in communities experiencing job losses in sectors affected by the Net Zero transition is urgently needed to support the latter.
  - The increase to total funding and to individual grants available for installing heat pumps in homes through the Boiler Upgrade Scheme also demonstrates good progress.
  - Unfortunately, these positive steps forward have been undermined by confusing and inconsistent messaging and actions, sending mixed messages to investors, businesses and consumers on the UK's plans. This includes exemptions and delays to phase-out dates of fossil-fuelled boilers and vehicles, the delayed introduction of the clean heat market mechanism and a decision not to regulate for improved energy efficiency in rented homes. As a result, our assessment of the policies for low-carbon heat in buildings has worsened this year.
  - In addition, there are significant gaps in plans for emissions reduction in agriculture, peatland restoration, industrial resource efficiency and transport demand.
- **Priority recommendations**: the Committee has highlighted a short list of actions that need to be taken urgently. Without them, we are concerned that time will run out to make up lost ground by 2030. These actions are:
  - Making electricity cheaper, to support widespread electrification of home heating and industry, by removing policy costs.
  - Reversing recent policy rollbacks, to limit the damage from these decisions and provide certainty to consumers and investors.
  - Removing planning barriers for heat pumps, electric vehicle charge points and onshore wind, so that these technologies can be rolled out at pace.
  - Introducing a comprehensive programme for decarbonisation of public sector buildings, backed by long-term funding.
  - Effective design and implementation of upcoming renewables auctions, to get roll-out on track for at least 50 GW of offshore wind by 2030.

- Accelerating electrification of industrial heat, by strengthening the UK Emissions Trading Scheme and ensuring support is available for a rapid transition to electric heat.

- Ramping up tree planting and peatland restoration, which are crucial for sequestering the carbon needed to meet Net Zero.

- Finalising business models for deployment of engineered removals and opening these to the market to enable projects to get underway.

- Publishing a strategy to support Net Zero skills, including an action plan to deliver the skills needed and putting in place plans to support workers in communities expected to be affected by the transition.

- Strengthening NAP3 with a vision that sets clear objectives and targets and adaptation governance, to make adaptation a fundamental aspect of policymaking across departments.

4.1 Progress against priority recommendations

4.1.1 Progress against priority recommendations to the UK Government

While there have been some notable steps forward in the past year, overall policy progress remains clearly insufficient and leaves the UK Government's emissions reduction goals at high risk. In the majority of areas, policy development over the last year has proceeded too slowly and most of the priority actions that we recommended last year have seen little or no progress (Figure 4.1). The new Government needs to take urgent action to get back on track for the UK's 2030 NDC, which is now only six years away.

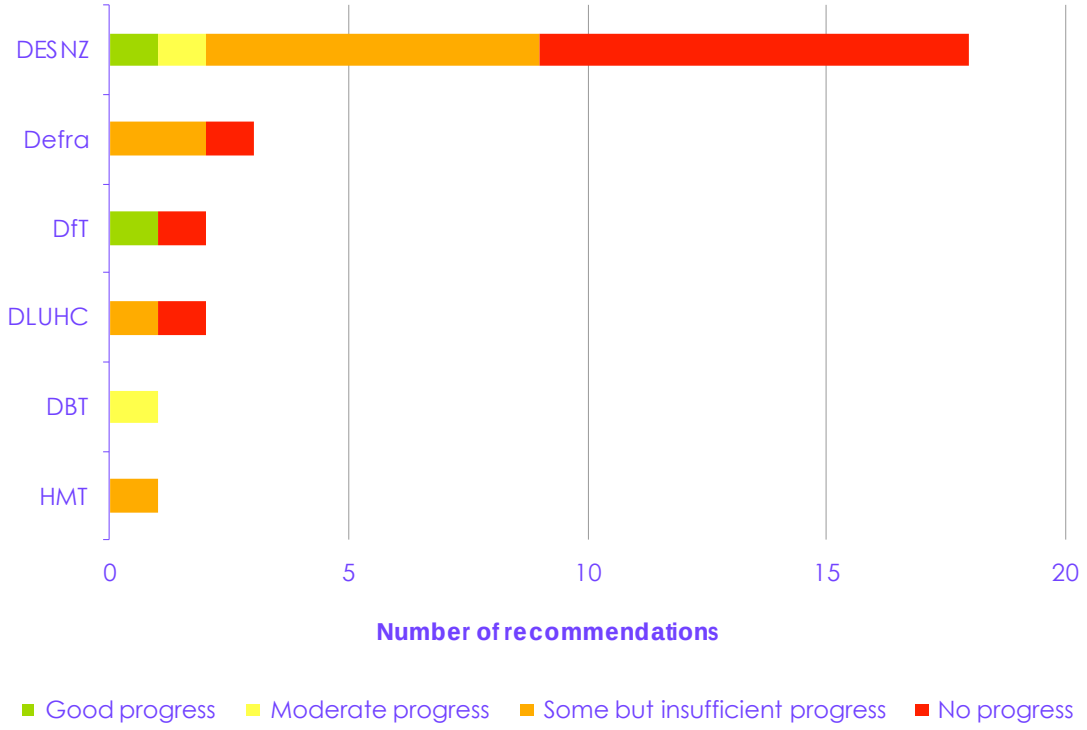
- Of the 27 priority recommendations that we made to the UK Government, only two have seen 'good progress' over the past year. Our recommendation to confirm the introduction of the ZEV mandate was achieved by the Department for Transport in collaboration with the three devolved administrations, with the mandate now in place in Great Britain from January 2024, while Northern Ireland has recently signalled its intention to join. The Government has also made good progress by clarifying the institutional roles and responsibilities relating to governance of the electricity system.

- There has been 'moderate progress' on a further two priority recommendations. This includes a deal to support industrial decarbonisation at the Port Talbot steelworks. However, while this represents progress in terms of reducing emissions, there are serious concerns around the development and implementation of these plans from a jobs and just transition perspective, as well as around the need for a long-term economic development plan for the area (see Section 4.3.1). The other relates to governance frameworks for energy planning. In both these areas, the Government must seize the opportunity to build on this initial progress.

- Eleven priority recommendations have seen 'some but insufficient progress'. These include the crucial action of reducing electricity prices, where we have seen initiatives for some large industrial users. However, progress will need to be much more widespread to help incentivise the switch to low-carbon electric options which will be vital to decarbonisation across many sectors. There has also been insufficient progress in developing policies to support industrial electrification and implementing funding and delivery mechanisms to accelerate tree planting and peatland restoration.

- It is particularly concerning that we assess that 'no progress' has been made on 12 of last year's priority recommendations. Nine of these recommendations are within the remit of the Department for Energy Security and Net Zero, including the development of credible contingency plans to address the range of risks to meeting the UK's emissions targets. There have also been a number of backward steps, especially the decisions in the buildings sector to exempt 20% of households from the 2035 phase-out of new gas boilers, to delay the phase-out of new oil boilers and to not proceed with planned energy efficiency requirements for landlords, all of which will make it harder to reduce emissions in this sector.

Figure 4.1 Progress on last year's priority recommendations to the UK Government



Source: Climate Change Committee (CCC) analysis.
Notes: See the supplementary material for our assessment of each individual recommendation. The department name acronyms refer to: the Department for Energy Security and Net Zero (DESNZ), the Department for Environment, Food and Rural Affairs (Defra), the Department for Transport (DfT), the Department for Levelling Up, Housing and Communities (DLUHC), the Department for Business and Trade (DBT) and His Majesty's Treasury (HMT).
Description: Only two of our priority recommendations from last year received a score of 'good progress'.

4.1.2 Progress against priority recommendations for Scotland, Wales and Northern Ireland

Progress in developing and implementing policies in key areas has also been too slow in Scotland, Wales and Northern Ireland (see Figure 4.2). This will need to speed up to meet each devolved nation's climate targets and to deliver their contributions to the UK NDC and carbon budgets.

- **Scottish Government**: three of the 14 priority recommendations to the Scottish Government scored 'good progress'.* Two of these related to proposals for buildings decarbonisation in the Heat in Buildings Bill and the other related to the use of CCS to decarbonise energy from waste plants. Two recommendations scored 'moderate progress' and seven scored

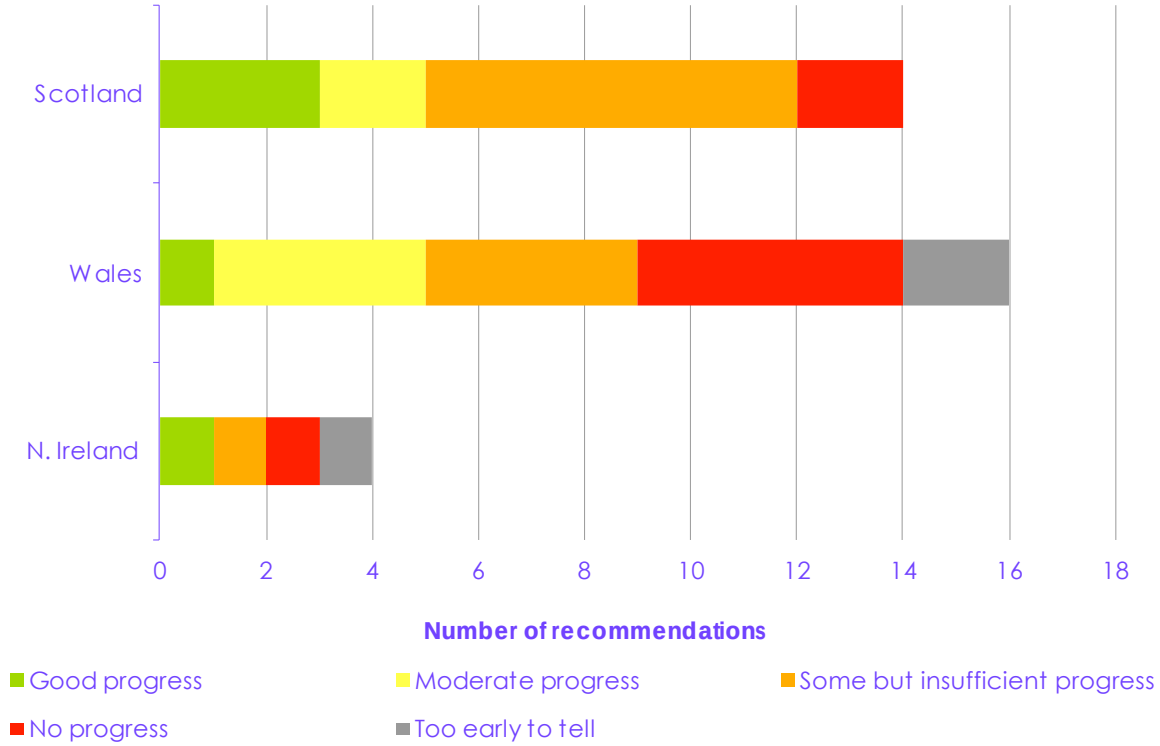
* For the Scottish Government, this scoring reflects our assessment of progress in our recent annual Scotland Progress Report, which was published in March 2024. Further details of our assessment can be found in that report.

'some but insufficient progress'. Two made 'no progress' at all, on the implementation of the Air Departure Tax and mapping interdependencies between reserved and devolved powers.

- **Welsh Government**: of the 16 priority recommendations to the Welsh Government in last year's Progress Report, there has been 'good progress' on one, relating to monitoring and reducing methane emissions from landfill sites. There was 'moderate progress' on a further four and 'some but insufficient progress' on four. Five scored 'no progress', on post-CAP agricultural subsidies and schemes, publishing a delivery plan for reducing car-kilometres, monitoring and accelerating EV uptake, setting out policies for reducing emissions in the waste sector and quantifying the emissions reductions expected from each policy for reaching the Second Carbon Budget. It is too early to tell whether sufficient progress has been made on the other two recommendations.

- **Northern Ireland Executive**: we made four priority recommendations to the Northern Ireland Executive in last year's Progress Report. One of these scored 'good progress', relating to the fact that roll-out of EV charge points in Northern Ireland has accelerated considerably over the past year. One scored 'some but insufficient progress'. One scored 'no progress', on the yet-to-be-published Decarbonising Heat consultation. It is too early to tell whether sufficient progress has been made on the other recommendation. The restoration of the Northern Ireland Executive in January 2024 is a welcome step and presents an opportunity to speed up progress on development and implementation of policies.

Figure 4.2 Progress on last year's priority recommendations to the devolved administrations



Source: Climate Change Committee (CCC) analysis.
Notes: See the supplementary material for our assessment of each individual recommendation. For the Scottish Government, this scoring reflects our assessment of progress in our recent annual Scotland Progress Report, which was published in March 2024. Further details of our assessment can be found in that report.
Description: Progress in developing and implementing policies in key areas has also been too slow in Scotland, Wales and Northern Ireland.

4.2 Assessment of policies and plans

4.2.1 Cross-economy assessment

In this section, we analyse the risks to the UK achieving its emissions reduction targets. We do this by assessing the credibility of the previous Government's policies and plans to deliver the emissions reductions set out in its Carbon Budget Delivery Plan (CBDP). The CBDP, published in March 2023, lists all the policies and plans that the UK Government expects to contribute to meeting the UK's carbon budgets, quantifying the total amount of emissions reduction that each is projected to deliver. These quantified policies and plans fall slightly short of meeting the UK's 2030 NDC and the Sixth Carbon Budget (by 4% and 1% respectively); the remainder is assumed to be covered by a range of unquantified policies and plans which are listed in the CBDP.

In this assessment, we have considered each of the quantified policies and plans listed in the CBDP, determining if they are credible and whether they are on track according to the criteria outlined in Annex 2. The policies and plans that the Government left unquantified and are expected to act as general enablers of the transition are included in our assessment. But those unquantified policies and plans that are expected to contribute specific additional emissions savings in the CBDP are not included in our assessment because of a lack of clarity in what they are expected to achieve.

We focus our assessment on the short- and medium-term targets that are covered by the CBDP up to the end of the Sixth Carbon Budget period (2037), including the 2030 NDC. Our assessment of the Government's policies and plans to meet these has slightly improved since our assessment last year (Figures 4.3 and 4.4), but this is far short of the pace of policy development that will be needed to meet the UK's emissions reduction goals. Meeting these targets is essential to be on track to meet the UK's Net Zero target.

(i) The Fourth Carbon Budget (2023–2027)

Credible plans cover almost all of the emissions reductions required to meet the Fourth Carbon Budget. However, this budget was set before the UK's Net Zero target was legislated. The UK will need to reduce emissions by double the amount implied by the target to be on a sensible path to Net Zero, as demonstrated by the CBDP pathway. Taking this into account, there are risks to half of all the policies required to meet the CBDP pathway over the Fourth Carbon Budget period.

(ii) The 2030 NDC and Sixth Carbon Budget (2033–2037)

Credible plans cover only around a third of the emissions reductions needed to meet the UK's 2030 NDC and a quarter of those needed to meet the Sixth Carbon Budget. The 2030 NDC is now only six years away. While our assessment of the policies and plans to deliver it has improved slightly, there remain significant risks to achieving these goals. The decision to roll back plans in several areas — notably in the buildings sector — has offset some of this improvement and increased risk in some areas. For the 2030 NDC:

- **Credible plans exist for 32% of the required emissions reductions**, with funding, enablers and timelines in place. These primarily relate to policies around rolling out electric vehicles and renewable energy, although further policy work is still needed to build on these successes and increase confidence in the share of emissions reductions that these will deliver. The share of emissions reductions with credible plans has increased slightly from the 25% since last year (see Section 4.3 for more details on what has changed since our assessment in last year's Progress Report).

- **There are some risks attached to 26% of the required emissions reductions,** where changes are needed to mitigate delivery risk. This is similar to last year, with the largest portion

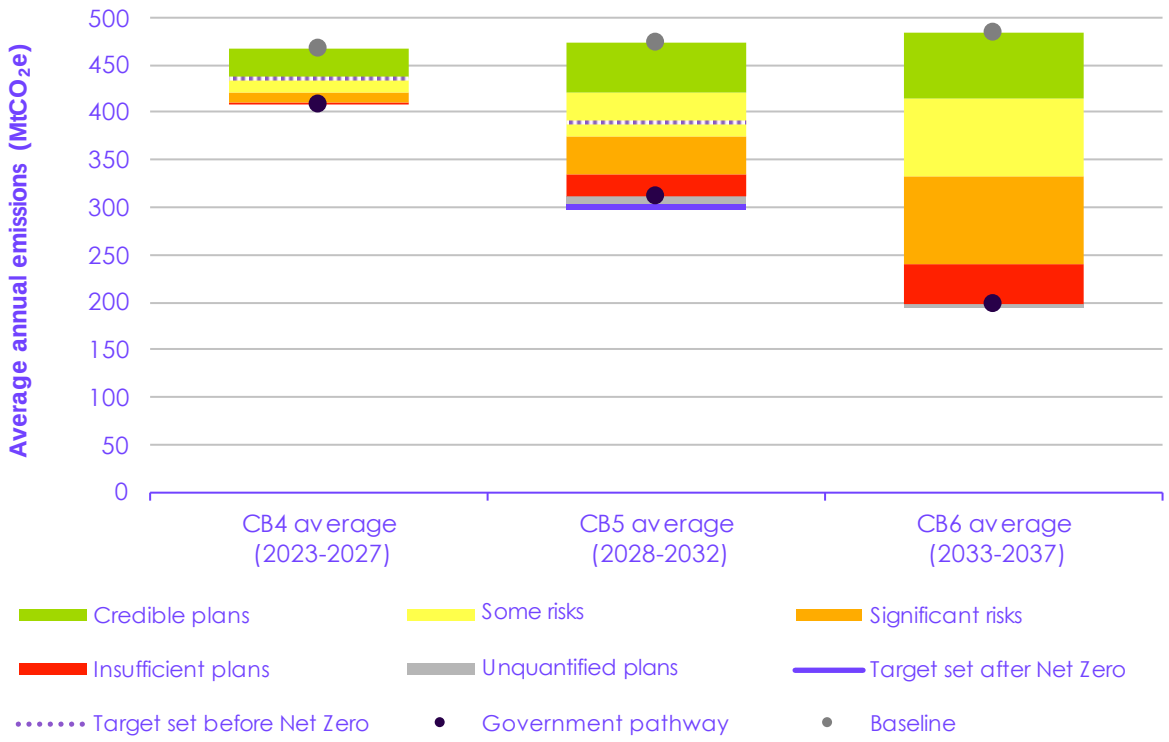
associated with delivering the required scale-up in renewable energy generation due to the continued lack of an overall delivery strategy and delivery risks around planning, consenting, grid connections and the successful implementation of contracts for difference auctions. There are also some risks around the effective delivery of various government funding schemes to improve energy efficiency and decarbonise heating in buildings, and around the development of business models for industrial carbon capture and storage. Confirmation of policies in the aviation and agriculture sectors has improved our assessment of aspects of these sectors. However, delivery concerns mean that these areas continue to attract some risks.

- **There are significant risks attached to 24% of the required emissions reductions,** where plans are either under development without a clear timeline for next steps or need further work to mitigate a significant delivery risk. This is a similar share to last year, with the largest share relating to delivery mechanisms for low-carbon heating and regulations to improve the efficiency of new conventional and hybrid vehicles. Barriers to delivery of tree planting and sustainable land management across all four nations of the UK also carry significant risks. There are significant risks around policies to drive electrification in many areas of industry, with the UK ETS not sufficient to achieve this on its own and its current price being too low. There are concerns around the ability to recover the lost ground as a result of the failure to secure additional capacity in last year's offshore wind allocation round. The early development of business models for engineered removals carries significant risk.

- **Plans are either completely missing or currently inadequate for 14% of the required emissions reduction.** Plans for emissions reduction in agriculture and peatland restoration are largely missing. There is a lack of policy to drive improved resource efficiency in industry. Recent government decisions to exempt 20% of households from the phase-out of new gas boilers and push back the planned phase-out of new oil boilers leave gaps in plans to decarbonise heating in some types of premises. There are no plans in place to accelerate turnover in the vehicle fleet. Policies on energy efficiency in buildings and transport demand are also either missing or incomplete. The share of emissions reductions with insufficient plans has reduced slightly from 18% in last year's assessment (see Section 4.3).

- **The remaining 4% of required emissions reduction is not covered by the quantified plans.** The CBDP lays out unquantified policies and plans that are supposed to make up this shortfall. Because these are unquantified, we cannot say how much of this total reduction would be in each score category.

Figure 4.3 Assessment of policies and plans



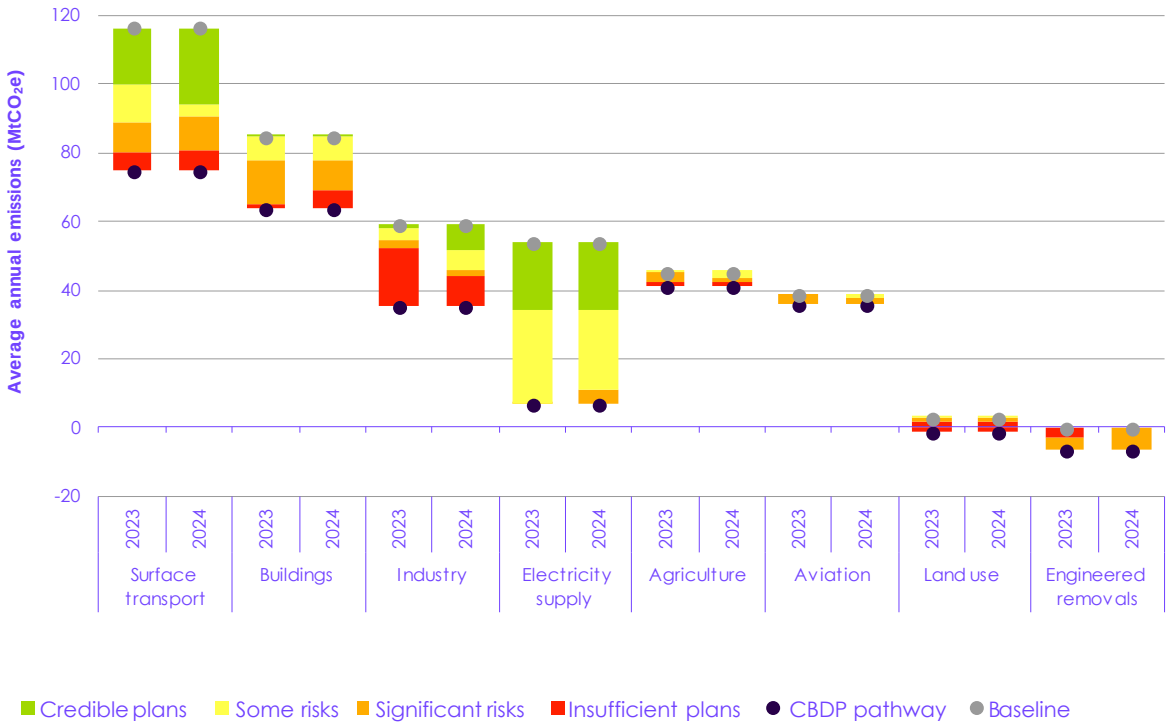
Source: Department for Energy Security and Net Zero (DESNZ) (2023) *Carbon Budget Delivery Plan*; DESNZ (2023) *Energy and emissions projections: 2021 to 2040*; Department for Business, Energy & Industrial Strategy (BEIS) (2021) *Net Zero Strategy*; Climate Change Committee (CCC) (2020) *The Sixth Carbon Budget*; CCC analysis.
Notes: (1) This assessment uses government plans listed in Annex B, Tables 5 and 6 of the Carbon Budget Delivery Plan (CBDP). See Annex 2 for the assessment criteria. (2) The baseline is an adjustment to the Government's CBDP baseline, with the impact of some policies removed so that they can be assessed. Refer to our 2023 UK Progress Report for additional notes on our methodology. (3) We have adjusted the Government's published CBDP pathway and baseline for land use to account for methodological changes between the 1990–2019 and 1990–2020 inventories. (4) For comparability, the CBDP's emissions pathway for international aviation and shipping has been added to the target values for the Fourth Carbon Budget (CB4), the Fifth Carbon Budget (CB5) and the UK's Nationally Determined Contribution (NDC). (5) The CBDP projections include only the quantified plans. Unquantified plans may lead to further emissions reductions.
Description: Credible plans cover only around a third of the emissions reductions needed to meet the UK's 2030 NDC and a quarter of those needed to meet the Sixth Carbon Budget (CB6). Approximately half of the emissions reductions needed to meet both the NDC and the Sixth Carbon Budget have either significant risks or insufficient plans.

4.3 Key policy developments

4.3.1 Sectoral changes in our 2030 policy assessment

In the past year, policy developments across eight sectors have resulted in changes in our assessment of policies and plans for the 2030 NDC (Figure 4.4 and Table 4.1). This contains a mix of changes that have improved our assessment – for instance in surface transport and industry – and changes that have worsened it, in particular in buildings.

Figure 4.4 Changes in our assessments of policies and plans for the 2030 NDC by sector between our 2023 Progress Report and this assessment



Source: Department for Energy Security and Net Zero (DESNZ) (2023) *Carbon Budget Delivery Plan*; DESNZ (2023) *Energy and emissions projections: 2021 to 2040*; Department for Business, Energy and Industrial Strategy (BEIS) (2021) *Net Zero Strategy*; Climate Change Committee (CCC) (2020) *The Sixth Carbon Budget*; CCC analysis.
Notes: This chart only shows sectors in which our assessment of policies and plans for the 2030 Nationally Determined Contribution (NDC) has changed between our 2023 and 2024 UK Progress Reports. (1) This assessment uses government plans listed in Annex B, Tables 5 and 6 of the Carbon Budget Delivery Plan (CBDP). See Annex 2 for the assessment criteria. (2) The baseline is an adjustment to the Government's CBDP baseline, with the impact of some policies removed so that they can be assessed. Refer to our 2023 UK Progress Report for additional notes on our methodology. (3) We have adjusted the Government's published CBDP pathway and baseline for land use to account for methodological changes between the 1990–2019 and 1990–2020 inventories. (4) For comparability, the CBDP's emissions pathway for international aviation and shipping has been added to the target values for the Fourth Carbon Budget, the Fifth Carbon Budget and the NDC. (5) The CBDP projections include only the quantified plans. Unquantified plans may lead to further emissions reductions.
Description: In the past year, policy developments across eight sectors have resulted in changes in our assessment of policies and plans for the 2030 NDC. Improvements have come predominantly in surface transport and industry, while our assessment of buildings has worsened.

Table 4.1
Policies and developments which have led to changes in our policy assessment for the 2030 NDC

Sector	Policy/development	Change ID	Improves/worsens our assessment?	How did this change our scoring?
Surface transport	Introduction of the zero-emission vehicle mandate.	ST01	Improves	From some risks to credible plans.
	Delay to end-of-sales date for new petrol/diesel cars - impacts on EV uptake.	ST02	Worsens	From credible plans to some risks and significant risks.
	Delay to end-of-sales date for new petrol/diesel cars - impacts on hybrid sales.	ST03	Worsens	From significant risks to insufficient plans.
Buildings	20% boiler ban exemption.	BU01	Worsens	From credible plans, some risks and significant risks to insufficient plans.
	Delaying oil boiler ban to 2035.	BU02	Worsens	From significant risks to insufficient plans.
	Boiler Upgrade Scheme changes.	BU03	Improves	From some risks to credible plans.
	Scrapping 2028 EPC target for properties in the private-rented sector.	BU04	Worsens	From significant risks to insufficient plans.
Industry	Deal with Tata Steel to replace its current integrated steelworks with electric arc furnaces.	IN01	Improves*	From insufficient plans to credible plans.
	British Steel plans to replace its blast furnace with two electric arc furnaces.	IN02	Improves*	From insufficient plans to significant risks.
	Roll-out of British Industry Supercharger scheme.	IN03	Improves	From insufficient plans to significant risks.
Electricity supply	Failure of CfD Allocation Round 5 to secure any	ES01	Worsens	From some risks to significant risks.

	additional offshore wind capacity.			
Agriculture and land use	Announcement of mandate for methane-suppressing feed products.	AL01	Improves	From significant risks to some risks.
	Agroforestry now covered under sustainable farming incentives.	AL02	Improves	From significant risks to some risks.
Aviation	Confirmation of the sustainable aviation fuel mandate.	AV01	Improves	From significant risks to some risks.
Engineered removals	Publication of business update for power BECCS and GGR.	ER01	Improves	From insufficient plans to significant risks.

Source: Climate Change Committee (CCC) analysis.
Notes: The credibility of policies and plans in each area was assessed on a four-point scale:

■ Credible plans ■ Some risks ■ Significant risks ■ Insufficient plans

* While these plans represent progress in terms of reducing emissions, there are serious concerns around the development and implementation of these plans from a jobs and just transition perspective, as well as around the need for a long-term economic development plan for the areas (see Section 4.3.1).

Further detail on each of these policy developments is provided below. Where a development led to a change in our policy assessment scoring, the reference ID is provided to link the description to the relevant impact in Table 4.1. This section also includes other major policy developments which either would have been significant enough to change our assessment but were offset by contrasting developments or contributed meaningfully to progress or shortfalls against one of our priority recommendations. It also discusses progress on key enablers which will be vital to future policy.

(i) Surface transport

- The Government confirmed the ZEV mandate in October 2023 (ST01). This sets minimum EV sales targets for each manufacturer, rising from 22% in 2024 to 80% in 2030 for cars (10% to 70% for vans). The mandate was codeveloped by the Department for Transport, the Scottish Government, the Welsh Government and the Northern Irish Department for Infrastructure. It came into force in Great Britain at the start of 2024, while Northern Ireland has recently signalled its intention to join.
  - The mandate imposes strong financial incentives for delivery, which should help build on market progress to date to give confidence to delivery of a large share of the abatement required from the surface transport sector.
  - The number of EVs being sold continues to grow, but their share of the overall new car and van market has not sped up as expected and many manufacturers will require substantial growth in their monthly EV sales totals to reach their mandated targets this year. The mandate does include some provision for manufacturers to borrow against future overperformance or against overperformance on the accompanying non-ZEV emissions standards. There is therefore a risk that the mandate's targets may not be met in the early years.

- In September 2023, the UK Government announced that the 2030 end-of-sales date for new internal combustion engine vehicles was being pushed back to 2035 (ST02 and ST03). While the direct impact of this on emissions is relatively small, given that the original plan would still have allowed emitting hybrid vehicles to be sold during this period, the mixed signals it sends to consumers and investors could be more impactful. The risk is that the public and automotive companies perceive a weakening of government commitment to the EV transition, which could undermine consumer confidence and/or jeopardise some inward investment relating to EV manufacturing or charging infrastructure.

  - Electric vehicles are expected to be significantly cheaper to own and operate over their lifetimes than petrol or diesel vehicles within the next few years (in some segments of the market, this is already true), so any undermining of their roll-out will ultimately increase costs to motorists.

- Various developments this year, including the continued delays to local transport plan guidance, the inconsistency of the revised roads policy statement with emissions objectives and the redistribution of some HS2 funding to road-building schemes have further weakened the policy landscape around transport demand.[1,2] Most actions in this area feature in the CBDP's list of unquantified policies and plans, but current policies and plans are insufficient for us to have confidence in them delivering substantial additional abatement.

- In August 2023, the Welsh Government published its National Transport Delivery Plan. This builds on its Roads Review, emphasising that scheme development should focus on minimising emissions, rather than on increasing road capacity or vehicle speeds. The national 20 mph speed limit also came into effect in Wales in September 2023.

(ii) Buildings

- The Government has made several backward steps on policy for delivering a transition to clean heating. No credible reasons were given for these decisions, and they have left gaps in plans for decarbonising heating in some types of premises:

  - In September 2023, the Government weakened the planned 2035 phase-out date for new fossil-fuel boilers to cover only 80% of properties (BU01), with a lack of associated detail on which 20% of premises will be exempt.

- As a typical boiler lasts around 15 years, this could have an impact on emissions all the way out to 2050, making Net Zero considerably harder to achieve. It also creates widespread uncertainty for consumers, investors and businesses at a time when rapid build-up in supply chains is needed.

- It is particularly unclear how the 20% exemption to the fossil-fuel boiler ban will help reduce costs when the cost of maintaining the gas distribution networks would need to sit with such a small proportion of households.

  - The Government had been planning to end new installations of oil boilers sooner than gas boilers, which was a sensible approach given that replacing oil boilers offers greater potential to abate emissions. However, it has chosen to delay the 2026 phase-out date to 2035 (BU02).

  - The Government was scheduled to introduce the Clean Heat Market Mechanism in April 2024, but delayed this by a year just weeks before it was due to start. This will impose a requirement for heat pumps to make up a certain minimum percentage of each boiler manufacturer's sales each year, similar to how the ZEV mandate works for EVs. These mandates provide a mechanism to nudge manufacturers towards the

products of the future, protecting jobs and encouraging investment. Developing the supply chains for low-carbon heating in buildings is imperative.

  - These decisions have left substantial gaps in the policy and commercial delivery landscape. The Government failed to set out what it would do to fill these gaps and help get these households to Net Zero.

- There have also been some positive developments, particularly around cost and planning enablers for incentivising heat pump uptake:

  - In September 2023, the Government announced an increase in the grant available under the Boiler Upgrade Scheme from £5,000 to £7,500. This was followed in December 2023 with confirmation that the total funding available through this scheme would be increased by almost a factor of four (BU03). Requirements to undertake fabric improvements alongside installing low-carbon heat have been reduced, making more households eligible to apply. Early data appear promising, with the number of applications for grants having increased substantially: total applications for the first four months of 2024 (8,881) are 62% higher than those received in the same months of the previous year.

- The Government has decided not to move forward with the plan to require landlords to upgrade properties to meet EPC C energy efficiency by 2028, which leaves this part of the sector without plans to reduce emissions (BU04). It is also likely to miss an opportunity to enable energy bill reductions for renters at a time when gas prices are particularly high and volatile.

  - Regulations requiring a minimum of EPC C in the private-rented sector would have significantly reduced tenants' energy bills, although lower bills may have been partially offset by rent increases. Government estimates of the energy savings from this policy indicate that it would have saved tenants of upgraded properties £255 per year under 'normal' energy prices. As prices are currently elevated, this effect could be bigger in the near term.

- In November 2023, the Scottish Government published a consultation on its Heat in Buildings Bill. This contains a range of bold proposals, including for requiring heating systems to be upgraded when a property is sold and setting minimum energy efficiency standards for privately owned homes that use fossil fuels for heating. These proposals have the potential to significantly accelerate buildings decarbonisation and, if implemented, could become a template for other parts of the UK.

(iii) Industry

- The Government has made a deal with Tata Steel to transition production at its Port Talbot site to the use of electric arc furnaces (IN01), although this has not yet been finalised. As part of this deal, the site will decommission both of its blast furnaces in 2024, switching to a new electric arc furnace from 2027. This will eliminate more than 90% of the site's direct emissions. This deal included £500 million of government funding as part of a £1.25 billion total investment in the site.[3]

  - The electric arc furnace, once in operation, will be able to produce as much steel as Port Talbot's typical output in recent years. This would be recycled steel rather than primary steel made from iron ore. In the meantime, operations at Port Talbot will be shut down and orders will be fulfilled using imported steel. Risk also remains around whether the electric arc furnace will be built – if not, this would significantly reduce the UK's potential to manufacture low-carbon steel.

  - The electric arc furnace will require far fewer workers and the closure of the blast furnace will lead to up to 2,800 job losses. It has long been clear that the site would need to adapt to remain competitive, for economic reasons largely unrelated to decarbonisation, yet successive governments have failed to develop a long-term economic strategy to develop alternative high-quality employment in the area.

  - The Government should be more proactive in identifying and engaging with communities that will be impacted by the transition to Net Zero and should be ambitious in supporting workers and communities to transition to new opportunities in the low-carbon economy. Not doing so risks long-term adverse impacts on those communities and undermining support for the Net Zero transition.[4]

- In November 2023, British Steel announced plans to replace its blast furnace with two electric arc furnaces, one in Scunthorpe and the other in Teesside (IN02). The company has applied for planning permission for both developments and permission for the Teesside project was granted in April 2024. However, British Steel's plans depend on government funding, which has not yet been approved.

- The Government has rolled out all elements of the British Industry Supercharger scheme, which reduces electricity prices for some large industrial users (IN03). The Government has also committed to wider rebalancing of electricity and gas charges but has not clarified the timetable for delivery. Further measures are still needed to reduce the price of electricity to a level that incentivises industrial electrification and to remove biases towards the use of natural gas or hydrogen where electrification is the most economical route to decarbonisation.

- Delays to the finalisation of business models for industrial Carbon Capture and Storage (CCS) increase the risks around the ability for this to be deployed and scaled up at the pace required in the CBDP.

- There has been positive progress with the tightening of the UK ETS cap, which will result in it declining over time. However, its level has been set at a looser amount than in the 'central' trajectory of the Government's Net Zero Strategy. This means that more effort will be required in areas of the economy not covered by the UK ETS.

  - In the short term, the new cap is likely to lead to higher production costs. Some industries will be protected from these higher costs if the Government introduces a Carbon Border Adjustment Mechanism (CBAM) in 2027 as planned. However, for other industries, there is a risk that it could lead to offshoring in the absence of further supporting policy to develop alternative low-carbon options.

  - The average UK ETS auction price for January to May 2024 was £35.08 per tonne of CO_2 emitted. This has fallen from £53.38 per tonne in 2023 and is substantially below the Government's central carbon value of £268.97 per tonne of CO_2 emitted. Therefore, the current UK ETS price is likely to be too low to drive decarbonisation action in the traded sectors at the pace required in the CBDP.

(iv) Electricity supply

- The Government did not receive any bids for offshore wind in Allocation Round 5 (AR5) due to a failure to adjust the administrative strike price to reflect substantial increases in supply chain costs beyond the level of general inflation (ES01). We noted these risks in our 2023 June Progress Report prior to the AR5 announcement. This has set deployment of offshore wind back, which increases the risk of not delivering the scale-up required.

- The Government has increased the price ceilings for all technologies in AR6, including a 66% increase to the offshore wind price ceiling. It also announced £1 billion of funding for the

round, with £800 million of this pledged to offshore wind.[5] While these are welcome updates, we remain concerned that they may not be sufficient to bring deployment trajectories back on track to deliver at least 50 GW of offshore wind by 2030.

- The Government published a Strategy and Policy Statement for Energy Policy in Great Britain, which came into force in May 2024. Within this, the roles and responsibilities of Ofgem and the National Energy System Operator (NESO – previously named the Future System Operator) were outlined.

- The Government has made some positive steps on the whole system strategic planning of the future energy system, including committing to publishing the first Strategic Spatial Energy Plan and setting out a duty for Ofgem to consider consumers' interests in compliance with Net Zero and carbon budgets. But there is still a lack of a credible overall strategy for delivering its objective of decarbonising the sector by 2035.

- A second consultation on the Review of Electricity Market Arrangements was published in March 2024. While this is welcome, it still leaves key policy developments undecided. Market structures can both help attract investment and ensure that consumers benefit from the low cost of energy from renewables. Progress in defining market structures will be critical to the timely delivery of the energy transition and ensuring public support.

- The Government published a Connections Action Plan and Transmission Acceleration Action Plan to speed up the delivery of energy infrastructure. Ensuring sufficient network capacity and timely grid connections is critical, so the implementation of these action plans should be a priority.

(v) Agriculture and land use

- In October 2023, the UK Government announced plans to provide guidance and support to help scale up use of methane-suppressing feed products, with the intent to mandate their use as soon as feasible but no later than 2030 (AL01). However, we are concerned that this date is too late. The Department for Environment Food and Rural Affairs (Defra) has established a methane-supressing feed products industry taskforce, which has held its first meeting and is progressing further work in this area.

- The Government has increased payments by an average of 10% for Sustainable Farming Incentive and Countryside Stewardship agreements for 2024 applications. In July 2024, the Sustainable Farming Incentive offer will expand, increasing the number of actions offered through the scheme from 23 to 102 in the initial roll-out.

- Agroforestry has been added to the Environmental Land Management Scheme (ELMS) offer and will now be covered under sustainable farming incentives (AL02).

- The Government has still not implemented the ban on peat for amateur horticultural use. The Government should proceed promptly with legislating for a complete ban on peat and peat-containing products in amateur horticulture. This can then gradually be expanded to industrial use.

- The Government has provided funding for pilot projects to improve lowland peat, in line with recommendations made in the Lowland Agricultural Peat Task Force's 2023 report.

- The Welsh Government is reconsidering its Sustainable Farming Scheme proposal, which was meant to provide the main delivery mechanism for sustainable land management, following substantial resistance. This risks a delay in the implementation of a framework to deliver environmental improvements and emissions cuts, which could have significant impacts.

(vi) Aviation

- In April 2024, the Government published its response to the second sustainable aviation fuel (SAF) mandate consultation, confirming the UK's SAF mandate trajectory to 2040, the buy-out mechanism price, a power-to-liquid sub-target and a cap on waste oil and fat (hydrotreated esters and fatty acids) fuels (AV01). This will allow the Government to legislate on the mandate for it to come into force in 2025.

- As acknowledged in the mandate, the volume of SAF the UK will be able to access is highly uncertain and the near-term uptake targets (for instance, reaching a 10% SAF share by 2030) are ambitious.

(vii) Fuel supply

- In November 2023, the Government introduced an Offshore Petroleum Licensing Bill to require annual oil and gas licensing rounds, subject to two tests being met: UK production having lower carbon intensity than imports and the UK being projected to be a net importer over a 15-year assessment period. However, the Bill had not become law by the time of Parliament's dissolution. New licensing signals a maintained reliance on fossil fuel production, rather than focusing on the decarbonisation transition required by offshore platforms and towards renewable energy production.

- In December 2023, the Government published its Hydrogen Production Delivery Roadmap, Transport and Storage Networks Pathway and business models for Hydrogen Allocation Round 1.

- The North Sea Transition Authority published a plan in April 2024 which set out stronger requirements for electrification of oil and gas platforms.

- In February 2024, the UK formally withdrew from the Energy Charter Treaty, a welcome step. The treaty was not aligned with Net Zero and risked undermining the UK's transition by providing protections to investments in fossil fuel developments.

(viii) Waste

- In July 2023, Defra launched a new waste prevention programme for England, aiming to enable a circular economy approach. In October, they introduced bans and restrictions on a range of single-use plastic items. However, the first step in a range of wider collection and packaging reforms has been delayed to 2025, and firm plans for additional policies beyond this first step have not been confirmed.

- In July 2023, the ETS Authority confirmed that the UK ETS will be expanded to include waste incineration and energy from waste (EfW) facilities. However, this is not enough to guarantee a reduction in waste going to EfW facilities. Although it could encourage the installation of CCS at these facilities, this still needs development of a carbon dioxide transport solution and further details on CCS use at dispersed sites. In May 2024, the ETS Authority issued a consultation on how it plans to adjust the emissions cap to account for this expansion.

- There has been some progress in Scotland, with the Circular Economy (Scotland) Bill providing the legislative framework for setting targets on recycling/reuse and the National Planning Framework 4 setting out restrictions on new EfW facilities. However, stronger action is still needed.

(ix) Shipping

- In July 2023, the UK ETS Authority confirmed that the UK ETS will be expanded to cover domestic shipping involving vessels weighing above 5,000 gross tonnes. The ETS Authority has yet to confirm how it plans to adjust the emissions cap to account for this expansion.

(x) Engineered removals

- In December 2023, the Department for Energy Security and Net Zero (DESNZ) published an update on the Bioenergy with Carbon Capture and Storage for power (power BECCS) business models (ER01). This represents progress towards defining the approach with which the Government plans to deploy and scale up power BECCS and sets out a reasoned assessment of what more is needed to follow.[6]

- Nonetheless, progress on developing engineered removals is behind schedule and achieving the Government's ambition to remove at least 5 $MtCO_2$ per year by 2030 is increasingly challenging.

4.3.2 Key developments on enablers of effective delivery

(i) Business and finance

- The Government increased support for low-carbon industries in the UK through a series of targeted funding commitments, for example £4.5 billion announced in the 2023 Autumn Statement.

- By making full expensing for companies investing in plant and machinery permanent in the 2023 Autumn Statement, the Government made it more affordable for businesses to make capital investments, which could lead to more investment in low-carbon equipment.[7] Bloomberg NEF's latest estimates for green investment place the UK fourth globally in 2023 (second based on investment as a proportion of GDP), up from fifth in 2022.[8,9]

  - Low-carbon investment in the UK has been concentrated in areas in which the UK has performed well to date, notably renewables and electric vehicles. Over the coming years, total low-carbon investment will need to increase significantly and will need to broaden to more sectors, in particular supply chains for buildings and industrial decarbonisation, in order to support the emissions reductions required to meet the 2030 NDC and future carbon budgets.

- The Government has allocated a £150 million endowment to the Royal Academy of Engineering to launch the Green Future Fellowship programme which aims to support leading scientists and engineers to develop breakthrough green technologies.

(ii) Governance

- The spatial planning system continues to cause issues for delivering Net Zero and commitments to review the National Planning Policy Framework (NPPF) under the Levelling Up and Regeneration Act lack pace and ambition. Revisions to the NPPF and National Policy Statements in late-2023 included some improved clarity on the weight local planning authorities should give to energy efficiency and low-carbon heating in existing buildings and on low-carbon energy infrastructure.

- A December 2023 written ministerial statement introducing new requirements for planning policies that propose local energy efficiency standards for buildings that go beyond national standards is likely to cause further confusion and delays around adopting local Net Zero policies, which is a setback.[10]

(iii) Public engagement, green choices and affordability

- It is important to maintain public support and ensure that the transition to Net Zero is affordable, especially at a time when household budgets are squeezed. This was a core theme of the previous Government's announcements on Net Zero in September 2023.[11] However, as highlighted in the CCC response to these announcements, the policy changes that were made are not likely to achieve this and are likely to increase costs for households.[12]
  - One key reason why costs are currently high is because of our dependence on fossil fuels, which will be reduced by the transition to Net Zero.
  - More broadly, the Government's messaging is likely to have had a negative impact on consumer confidence around the role of consumer and business choices in delivering Net Zero.[13]
- The Government increased its communication of what choices are required from households through newspaper adverts, social media videos and government online platforms on home energy efficiency and low-carbon heating that provide information and enable self-assessment of suitability.[14,15]
- The Agriculture and Horticulture Development Board, an arm's length body of the Government, continues to invest in proactive marketing campaigns to encourage meat and dairy consumption, despite the evidence showing that a reduction in meat and dairy consumption supports a shift towards low-carbon, sustainable and healthy diets.[16,17]

(iv) Trade policy

- In December 2023, the Government announced that it would be implementing a CBAM by 2027. This is an important step forward in ensuring competitiveness for some parts of UK industry as it decarbonises, while reducing the risk of carbon leakage. It will also incentivise trade partners to produce lower-intensity exports or implement an equivalent carbon price domestically. This is timely, as the latest consumption emissions data saw a large uptick in part due to increased non-EU imports (see Figure 1.7 in Chapter 1). Unilateral measures such as the CBAM will be most effective if paired with assistance and financing to help trade partners decarbonise, along with other multilateral partnerships. This would bring climate benefits beyond what is possible with a CBAM alone, since the UK's imports are a small fraction of global trade. The CBAM needs to be supported by a wider package of policies targeting emissions embodied in trade (see the CCC's 2022 UK Progress Report, Chapter 8).

(v) Transparency, monitoring and evaluation

- Since publishing the Net Zero Strategy, the CCC has encouraged the Government to improve its monitoring of the transition by comparing progress against key targets in a more accessible way for the public. The Government has the data and analytical capability to achieve this, but it has made no progress in this area since publishing the Net Zero Strategy.
- The Government has decided to discontinue the cross-government climate change statistics portal, but data will be updated on the ONS website or on GOV.UK. This is disappointing given the portal's potential to provide a centralised and accessible resource for the monitoring of Net Zero.[18]

4.4 Priority recommendations

The UK and devolved governments must introduce policies and strengthen existing plans to address the risks and shortfalls identified in the assessment set out above. Annex 1 sets out in full the key recommendations that must be prioritised over the next year. The non-priority recommendations from last year's UK Progress Report are largely still relevant and we plan to score these next year. These can be found on our website.

4.4.1 Priority actions for the UK Government

The Committee will publish its advice on the Seventh Carbon Budget and an updated path to Net Zero early in 2025. The Committee has decided to highlight in this report a short list of priority actions for the remainder of this year. Without them, we are concerned that time will run out to make up lost ground by 2030.

- **Make electricity cheaper.** Accelerating installations of low-carbon electric technologies for industry and heating buildings is key to meeting the 2030 NDC. To enable this, electricity prices should be reduced by removing market distortions to help encourage consumers and businesses to move towards lower-carbon electric technologies. This should include removing a range of policy and social costs that are currently levied on electricity bills, including legacy policy costs associated with the historical deployment of less mature low-carbon electricity generation. This should help ensure that electricity prices reflect the true low running costs of efficient, low-carbon technologies compared to high-carbon incumbents (R2024-011).
  - The Government's Energy Security Plan acknowledged that removing these policy costs would 'generate the clear short-term price signal necessary to shift both houses and businesses to lower-carbon, more energy efficient technologies' and committed to make significant progress towards implementing this by the end of 2024. This must be achieved.
  - The Government previously committed to running a Fairness and Affordability call-for-evidence to explore options for energy levies and obligations to help with this. This has not yet happened.
- **Reverse recent policy roll-backs**. As discussed in Section 4.3, the previous Government's decision to delay the 2030 phase-out of new fossil-fuel cars and vans, exempt 20% of households from the 2035 fossil-fuel boiler installation phase-out and remove obligations on landlords to improve the energy efficiency of rented homes have set back progress towards Net Zero. This damage can be limited by quickly reinstating these policies (R2024-029 , R2024-016, R2024-017).
  - Restoring these phase-out dates and removing exemptions will send a clear signal to investors and consumers on the direction and pace of the UK's transition to Net Zero. Furthermore, the transition to more efficient electric motoring and energy efficiency in homes will save households and businesses money.
  - Electric heating should be the default in all new buildings and should become the norm for all buildings over time, as existing systems get replaced. The Government should put in place comprehensive policies to accelerate the installation of heat pumps and low-carbon heat networks to achieve this and should not delay low-regret decisions to enable it.

  - It is important that these actions are supported by policies to remove barriers to people choosing low-carbon heating options and zero-emission vehicles. This could include measures to build awareness and understanding, support affordability and ensure suitability for all communities.

- **Remove planning barriers for heat pumps, EV charge points and onshore wind.** There are a range of barriers within the existing planning system which hinder the deployment of these key technologies. The Government should take action to remove these quickly (R2024-015, R2024-032, R2024-019).

  - The Government launched a consultation in February 2024 on changes to permitted development rights. This included proposals to remove the requirement that air source heat pumps must be located at least one metre from the property boundary and to facilitate the installation of supporting infrastructure needed for EV chargers. These proposals should be enacted urgently. Removing the requirement for heat pumps to be at least one metre from the property boundary would immediately expand the potential market for heat pumps.

  - The National Planning Policy Framework currently includes an exception which requires onshore wind developments to undergo more burdensome approval processes than other infrastructure. This is restricting the roll-out of this important renewable technology and should be removed.

- **Introduce a comprehensive programme for decarbonisation of public sector buildings**. The Government should introduce a multi-year strategic programme for decarbonising public buildings, supported by long-term capital settlements in the next spending review (R2024-013).

  - There is potential to deliver substantial emissions reduction relatively quickly, by tackling public buildings such as administrative buildings, schools, hospitals and military barracks. A rolling programme should be designed, identifying the optimal timing for upgrades to fit in with typical usage cycles and beginning with the easiest and highest-impact buildings.

  - As part of this, the Government could identify public buildings which have the potential to act as anchor loads for low-carbon heat networks, where this is cost-effective.

  - This would also show clear government leadership and could help to develop the workforce capacity and skills that will be required to decarbonise commercial and domestic premises.

- **Effectively design and implement upcoming renewable energy CfD auctions.** To support the transition to an electrified economy, the Government should ensure that funding and auction design for the Sixth and Seventh Allocation Rounds (AR6 and AR7) are appropriate to deliver at least 50 GW of offshore wind by 2030, given the four-to-five-year lead time from auction to generation (R2024-007).

  - The failure of AR5 to procure any additional offshore wind capacity has set back progress in an area that had previously been scaling up quickly. It is crucial that the next two allocation rounds get deployment rates back on track.

  - The Government's adjustments to the administrative strike price for AR6 suggest that it has learned from AR5. However, the Committee remains concerned that this, in combination with the announced budget, may not be sufficient to catch up the ground lost. It is imperative that policy is sufficient to deliver contract awards and the commissioning of offshore wind farms as soon as possible, given the essential contribution of offshore wind to Net Zero.

  - Learning by doing and being able to rapidly react to new information and change course where necessary will be crucial throughout the next phase of the transition to Net Zero. The Government should ensure that it has robust monitoring and evaluation processes that can quickly identify when this is necessary, as well as effective governance processes that allow it to take and implement decisions effectively.

- **Accelerate electrification of industrial heat.** A comprehensive set of policies is needed to enable industrial electrification at scale, including making support available for a rapid transition to electric heat across much of industry (R2023-080, R2024-012).

  - Strengthening the UK ETS to ensure that its price is consistently above the per-tonne cost of the decarbonisation actions required in the CBDP is one important step towards this. This could include setting a higher carbon price floor within the scheme or building in linkages with the much larger EU ETS.

  - This will not be sufficient on its own. The CBAM must be implemented effectively to protect against offshoring, and supportive policies are needed to address both general barriers such as investment constraints and specific barriers for different industrial subsectors.

  - While there has been some progress in reducing electricity prices for some industrial users, barriers remain around high technology costs and grid connections. Policies should be developed to address these.

- **Ramp up tree planting and peatland restoration.** Rates of tree planting and peatland restoration need to increase in the near term. There is a time lag between planting a tree and its ability to sequester large volumes of CO_2. As a result of this, large numbers of trees need to be planted in the 2020s in order to make the required contribution to achieving future carbon budgets and Net Zero in 2050 (R2023-192, R2023-171).

  - Effective delivery mechanisms, complete with the required funding, support and plans to unlock private finance, are urgently needed to accelerate tree planting and peatland restoration rates to reach as close as possible to the combined UK and devolved administration government targets to plant 30,000 hectares of trees per year by 2025 and restore 32,000 hectares of peat per year by 2026.

  - There has been some recent progress in integrating these objectives into funding mechanisms such as Nature for Climate and the England Woodland Creation Offer. However, delivery of this funding in the long term is still lacking and non-financial barriers, in particular around resource and capacity, continue to be a major hindrance to achieving this at present. These barriers need to be urgently overcome.

  - The Scottish Government, Welsh Government and Northern Ireland Executive carry responsibility for tree planting and peatland restoration within their nations. More effective policies are needed in all nations to enable delivery to step up quickly.

- **Finalise business models for large-scale deployment of engineered removals.** The Government should build on its publication of the power BECCS and GGR business model update to complete the design of business models for engineered removals. These business models must be finalised quickly to enable projects to get underway towards meeting the Government's ambitious target to remove at least 5 $MtCO_2$ per year by 2030 (R2024-006).

- **Publish a strategy to support skills.** This should include a comprehensive assessment of the skills needs and gaps for Net Zero, as well as plans to deliver these and to support workers and communities (R2022-128, R2023-169).

  - An action plan is required setting out how to address barriers to developing the required skills and support inclusive and accessible labour market entry into occupations needed for the Net Zero transition.

  - The plan should include a strategy for workers and communities affected by industries that are expected to experience job losses as a result of the Net Zero transition. Plans should be developed for providing reskilling packages and tailored support to transition to alternative low-carbon sectors.

- **Strengthen NAP3** with a vision that sets clear objectives and targets and reorganise government adaptation policy. Adapting to the physical risks of climate change is a pre-requisite for delivering the UK's path to Net Zero. Plans to reduce emissions that do not take this into account risk being less effective or more costly than expected.[19] The UK's Third National Adaptation Programme (NAP3) lacks the pace and ambition to address growing climate risks, which we are already experiencing in the UK.[20] NAP3 must be strengthened to avoid exposing the UK to additional climate impacts (R2024-030).

  - This strengthening should include setting clear objectives and measurable targets for adaptation across sectors and enhancing links with the next spending review.

  - To implement a strengthened NAP3 and accelerate delivery on adaptation, government adaptation policy needs to be reorganised so that adaptation becomes a fundamental aspect of policymaking and is embedded in other national priorities including for nature restoration, infrastructure development, economic growth and health.

These urgent actions, as well as a wider set of other priority recommendations for the next year, are summarised in Table 4.2. The full details of each of these priority recommendations are provided in the tables in Annex 1 and on our website. The unique recommendations IDs link to the specific recommendations in those tables.

Table 4.2
Priority policy recommendations for the next year for the UK Government (bold = priority actions for the remainder of this year)

<table>
<tr><th>Cross-cutting</th><th>Surface transport</th><th>Industry</th><th>Energy supply</th></tr>
<tr>
<td rowspan="3">

Make electricity cheaper.
Strengthen the UK ETS.
Publish an action plan for Net Zero skills.
Publish a strategy for workers and communities affected by the transition.
Strengthen NAP3 with a vision that includes clear objectives and targets and reorganise government

</td>
<td>

Reinstate the phase out of new fossil-fuel cars and vans by 2030.
Remove planning barriers for EV chargers.
Accelerate EV van uptake.
Publish local transport plan guidance.

</td>
<td rowspan="2">

Develop policies for electrification.
Implement plans for decarbonising iron and steel.

</td>
<td rowspan="3">

Effectively design and implement the upcoming renewable energy CfD auctions.
Remove planning barriers for onshore wind.
Publish a strategy for full decarbonisation of electricity.
Ensure network capacity to meet growing need.
Publish the Strategic Spatial Energy Plan and

</td>
</tr>
<tr><th>Buildings</th><th>Agriculture and land use</th></tr>
<tr>
<td>

Reinstate the new boiler phase-out to cover all homes.

</td>
<td>

Provide funding and delivery support for tree planting.

</td>
</tr>
</table>

adaptation policy. • Make overall planning policy consistent with Net Zero. • Publish guidance for business use of carbon offsets. • Improve public engagement on low-carbon choices. • Develop risk mitigation and alternative plans.	• **Reinstate requirements on landlords to improve energy efficiency in rented properties.** • **Remove planning barriers for heat pumps.** • Introduce a comprehensive programme for decarbonisation of public sector buildings. • Accelerate heat pump roll-out. • Simplify the strategic decision on the role of hydrogen for heat.	• **Implement a delivery mechanism for peatland restoration.** • Publish the land use framework.	identify low-regret infrastructure investments. • Limit expansion of fossil fuel production.
Waste	**Aviation**	**Engineered removals**	**International**
• Address rising energy from waste emissions.	• Stop airport expansion without a UK-wide capacity-management framework.	• Finalise business models for large-scale deployment of engineered removals.	• Set an ambitious 2035 NDC in line with UK's path to Net Zero. • Transparently report on UK progress and international commitments.

4.4.2 Priority actions for the devolved administrations

The Scottish Government, Welsh Government and Northern Ireland Executive each hold either fully or partially devolved powers in several key areas for Net Zero delivery. These include encouraging shifts to walking, cycling and public transport; electric vehicle charging infrastructure; improvements to the efficiency and comfort of the building stock and heating in homes; agriculture and land use; waste; carbon trading; and public provision of education and training. Northern Ireland also has wider devolved powers over energy supply. They should aim to use these powers to enable progress towards decarbonisation in each of these areas. Table 4.3 sets out some specific priority actions that each devolved administration should take.

In these devolved policy areas, the actions required from the devolved administrations mirror those set out for the UK Government above – they must focus on putting policies in place that enable the rapid transition to electrified home heating and transport and ramp up tree planting and peatland restoration at pace. There are also steps needed on climate governance in all three devolved administrations:

- The Scottish Government needs to act quickly to implement a new legal framework for emissions reduction. But it must also get on with delivering all the key recommendations from our recent Scotland Progress Report alongside this, to avoid stalling progress in reducing emissions.

- The Welsh Government needs to publish quantified emissions reductions for each of its policies planned to reduce emissions in Wales' Third Carbon Budget.

- The Northern Ireland Executive needs to set its emissions targets and publish its Climate Action Plan.

In addition, it will be vital that the UK Government and devolved administrations work effectively together to deliver on the UK-wide priorities set out in Table 4.2 above. Even where the main levers are reserved to the UK Government, the Scottish Government, Welsh Government and Northern Ireland Executive can take action through complementary measures at the devolved level (for example, provision of additional incentives, public engagement and supporting policies such as planning and consenting). The four governments should work together to deliver on shared priorities. Working together effectively requires greater transparency in the plans of each government, clear agreement of responsibilities and open and frequent consultation between the governments. The UK and devolved targets are dependent upon one another and under-delivery of outcomes from policies by one government might require implementation of contingency plans by another, which could lead to higher emissions or higher costs for people across the UK as a whole.

Table 4.3
Priority policy recommendations for the next year for the devolved administrations

<table>
<tr><th colspan="4">Recommendations for the Scottish Government</th></tr>
<tr><th>Cross-cutting</th><th>Surface transport</th><th>Industry</th><th>Waste</th></tr>
<tr><td rowspan="2">• Implement a new legal framework for emissions reduction.
• Publish and implement the Climate Change Plan.
• Improve public engagement on low-carbon choices.</td><td>• Develop an EV charging implementation plan.
• Publish a car-km reduction strategy.</td><td>• Develop policies for industrial resource efficiency.</td><td>• Implement the recommendations from the incineration review.</td></tr>
<tr><th>Buildings</th><th>Agriculture and land use</th><th>Aviation</th></tr>
<tr><td></td><td>• Implement the Heat in Buildings Bill.
• Publish plans for non-residential buildings.</td><td>• Provide funding and delivery support for tree planting.
• Implement a delivery mechanism for peatland restoration.</td><td>• Publish a strategy for decarbonising aviation.
• Implement the Air Departure Tax.</td></tr>
</table>

<table>
<tr><td></td><td></td><td>• Expedite the implementation of future agricultural funding.</td><td></td></tr>
<tr><th colspan="4">Recommendations for the Welsh Government</th></tr>
<tr><th>Cross-cutting</th><th>Buildings</th><th>Industry</th><th>Waste</th></tr>
<tr><td>• Increase transparency around pathways.
Develop a framework for collaboration with local government.</td><td rowspan="2">• Develop spatial plans for decarbonising buildings.
• Provide long-term funding for decarbonising social housing.
• Provide long-term funding for decarbonising fuel poor homes.
• Provide long-term funding for public sector decarbonisation.</td><td>• Collaborate with the UK Government on industrial decarbonisation.</td><td rowspan="3">• Publish a delivery plan for waste decarbonisation.
• Publish plans to capture methane emissions from landfill.</td></tr>
<tr><th>Surface transport</th><th>Agriculture and land use</th></tr>
<tr><td>• Take action on enablers of EV uptake.
Publish a car-km reduction delivery plan.</td><td>• Address non-financial barriers to tree planting.
• Ensure continuity of funding for sustainable land management.
• Provide detail on future agricultural funding.</td></tr>
<tr><th colspan="4">Recommendations for the Northern Ireland Executive</th></tr>
<tr><th>Cross-cutting</th><th>Surface transport</th><th>Buildings</th><th>Agriculture and land use</th></tr>
<tr><td rowspan="2">• Publish the Climate Action Plan.
• Set the carbon budgets and interim emissions targets.</td><td rowspan="2">• Provide EV charging support.</td><td rowspan="2">• Consult and act on decarbonising heat.</td><td>• Provide funding and delivery support for tree planting.
• Implement a delivery mechanism for peatland restoration.</td></tr>
<tr><th>Waste</th></tr>
<tr><td></td><td></td><td></td><td>• Make evidence-based decisions on future incineration needs.</td></tr>
</table>

Endnotes

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Annex 1: Priority recommendations

Priority recommendations for the UK Government:

Table A1.1
Priority policy recommendations for the next year for the UK Government

ID	Sector	Priority recommendations
Priority: R2024-011	Cross-cutting	**Make electricity cheaper.** Reduce electricity prices by removing market distortions to help encourage consumers and businesses to move towards lower-carbon electric technologies. This should include removing a range of policy and social costs that are currently levied on electricity bills, including legacy policy costs associated with the historical deployment of less mature low-carbon electricity generation.
Priority: R2024-012	Cross-cutting	**Strengthen the UK ETS.** Make the necessary changes to the Emissions Trading Scheme (ETS) to ensure that the price of allowances in each carbon budget period is larger than the per-tCO_2 cost of all necessary decarbonisation approaches (such as carbon capture and storage) outlined in the Carbon Budget Delivery Plan for all emitters covered by the Scheme. This could include a higher carbon price floor and/or linkages with the EU ETS.
Priority: R2022-128	Cross-cutting	**Publish an action plan for Net Zero skills.** Publish an evidence-based Green Jobs Plan that includes a comprehensive assessment of when, where and in which sectors there will be skills gaps specific to Net Zero. This should include consideration of particular barriers to inclusive and accessible labour market entry into occupations needed for the transition and government plans for action on the skills system to facilitate entry into these occupations.
Priority: R2023-169	Cross-cutting	**Publish strategy for workers and communities affected by the transition.** As part of the Green Jobs Plan, publish a strategy for workers and communities in those areas of the economy affected by industries that are expected to experience job losses as a result of the Net Zero transition, including by providing reskilling packages and tailored support to transition to alternative low-carbon sectors.
Priority: R2024-030	Cross-cutting; Adaptation	**Strengthen NAP3 with a vision that sets clear objectives and targets and reorganise government adaptation policy.** Adapting to a changing climate is essential to address a wide range of risks and is a pre-requisite for delivering the UK's path to Net Zero. The Third National Adaptation Plan (NAP3) should be strengthened to make adaptation a fundamental aspect of policymaking across all departments, including through setting clear objectives and measurable targets.
Priority: R2023-155	Cross-cutting	**Make overall planning policy consistent with Net Zero.** Review and update the National Planning Policy Framework to ensure that Net Zero outcomes are consistently prioritised throughout the planning system, making clear that these should work in conjunction with, rather than being over-ridden by, other outcomes such as development viability.

ID	Sector	Priority recommendations
Priority: R2023-165	Cross-cutting	**Publish guidance for businesses on the use of carbon offsets.** Publish guidance for businesses on what activities it is appropriate to 'offset' and when. This guidance should include confirmation that a business can only accurately use carbon credits to claim to be 'Net Zero' once nearly all emissions are reduced, and the remaining emissions are neutralised by high-quality permanent removals. Formalise this definition of Net Zero through existing levers.
Priority: R2023-162	Cross-cutting	**Improve public engagement on low-carbon choices.** Empower people to make low-carbon choices by communicating the most impactful ways to reduce emissions, such as changing car travel, home energy use and dietary behaviours and reducing air travel, and support people to make these choices including through regulation and incentives. The Government should lead by example by visibly adopting these low-carbon choices.
Priority: R2022-119	Cross-cutting	**Develop risk mitigation and alternative plans.** Develop and begin to implement alternative options to address the range of risks to meeting the 2030 Nationally Determined Contribution (NDC) and carbon budgets. These should broaden the set of emissions reductions pursued. The timeline for implementing the plans should consider the time it takes for policies to take effect.
Priority: R2024-029	Surface transport	**Reinstate the phase-out of new fossil-fuel cars and vans by 2030.** Bring forward the phase-out date for new petrol and diesel cars from 2035 to 2030. This should be supported by policies to remove barriers to people choosing electric vehicles.
Priority: R2024-032	Surface transport	**Remove planning barriers for EV chargers.** Implement the changes proposed in the recent consultation on permitted development rights that would make it easier to install electric vehicle charge points.
Priority: R2024-010	Surface transport	**Accelerate EV van uptake.** Develop further policies and incentives to accelerate zero-emission van uptake, working with major van fleet operators to understand and overcome barriers to uptake (for example charging and access to finance).
Priority: R2023-149	Surface transport	**Publish local transport plan guidance.** Publish guidance to local authorities on what should be covered in local transport plans to enable people to switch to lower-carbon modes of travel. This should include consistent guidance on how to quantify the emissions reductions that these measures can be expected to deliver as well as long-term clarity on what funding streams will be available to implement plans.
Priority: R2024-016	Buildings	**Reinstate the new boiler phase-out to cover all homes.** Remove the exemption of 20% of premises from the 2035 phase-out of new fossil-fuel boilers. This should be supported by policies to remove barriers to people choosing low-carbon heating options.
Priority: R2024-017	Buildings	**Reinstate requirements on landlords to improve energy efficiency in rented properties.** Set out and implement plans to improve energy efficiency in privately rented homes in England, filling the emissions reduction gap left by removing requirements for properties to reach EPC C by 2028.
Priority: R2024-015	Buildings	**Remove planning barriers for heat pumps.** Implement the changes proposed in the recent consultation on permitted development rights that would make it easier to install air source heat pumps.

ID	Sector	Priority recommendations
Priority: R2024-013	Buildings	**Introduce a comprehensive programme for decarbonisation of public sector buildings.** Introduce a multi-year programme to decarbonise public sector buildings. This should set out strategic plans for when best to take the required decarbonisation actions in buildings across the public estate and should be supported by long-term capital settlements.
Priority: R2024-014	Buildings	**Accelerate heat pump roll-out.** Develop and implement plans to substantially accelerate the installation of heat pumps in the next few years. These should include strongly and credibly signalling that appropriate supporting policies (for example, the Boiler Upgrade Scheme, Home Upgrade Grant, Local Authority Delivery Scheme, Social Housing Decarbonisation Fund, Energy Company Obligation and public sector decarbonisation) will continue to be fully funded as required beyond the spending review period.
Priority: R2024-018	Buildings	**Simplify the strategic decision on the role of hydrogen for heat.** Narrow the scope of the strategic decision on hydrogen prior to 2026 by: publicly affirming that electrical heat is the default option in all new buildings and existing properties off the gas grid; prohibiting connections to the gas grid for new buildings from 2025; setting out clear routes for other properties or areas where electrification or low-carbon heat networks represent low-regret options; and clarifying the Government's position on the economy-wide priority of use-cases for hydrogen – in particular its potential to help manage peak demands for both heat and electricity and its role in hybrid heating systems.
Priority: R2023-080	Industry	**Develop policies for electrification.** Develop policies for industrial electrification that address general barriers such as investment constraints, as well as specific barriers for different industrial subsectors including non-road mobile machinery.
Priority: R2023-088	Industry	**Implement plans for decarbonising iron and steel.** Finalise and implement plans for the decarbonisation of the iron and steel industry, whilst ensuring a just transition for local communities.
Priority: R2023-192	Agriculture and land use	**Provide funding and delivery support for tree planting.** Ensure that funding and support are set at the correct level to meet the UK Government afforestation target of 30,000 hectares per year by 2025, and illustrative Net Zero Strategy targets of 40,000 hectares and 50,000 hectares by 2030 and 2035 respectively. Streamline the process to attract private capital and facilitate private investment in schemes that meet or exceed good woodland, habitat and biodiversity management standards. Further clarity is required regarding funding beyond 2025. Support for delivery of new woodland creation should integrate with nature and adaptation objectives and address contractor availability, capacity to process funding applications and advice for farmers to transition to woodland management approaches.
Priority: R2023-171	Agriculture and land use	**Implement a delivery mechanism for peatland restoration.** Implement a comprehensive delivery mechanism to address degraded peatland and extend the current restoration ambition set out by the UK Government and the devolved administrations beyond existing timeframes, including through addressing barriers to increasing capacity and facilitating the process to attract private capital and investment. Peat restoration targets include the need to remove all low-productive trees (i.e. less than YC8) from peatland (equivalent to 16,000 hectares by 2025) and restore all peat extraction sites by 2035 (equivalent to 50,000 hectares by 2025).

ID	Sector	Priority recommendations
Priority: R2023-102	Agriculture and land use	**Publish the land use framework.** Publish the land use framework and set out how this feeds into a wider agriculture and land use strategy that brings together how land can deliver its multiple functions including: reducing emissions and sequestering carbon, adapting to climate change, food security, biodiversity, domestic biomass production and wider environmental goals. The strategy must clearly outline the relationships and interactions with other relevant strategies and action plans across the UK, be spatially and temporally targeted, and be aligned with action in the devolved administrations.
Priority: R2024-007	Electricity supply	**Effectively design and implement the upcoming renewable energy CfD auctions.** Ensure funding and auction design for the Sixth and Seventh Allocation Rounds is appropriate to deliver at least 50 GW of offshore wind by 2030, including by defining minimum targeted procurement volumes for future auctions.
Priority: R2024-019	Electricity supply	**Remove planning barriers for onshore wind.** Remove the exception for onshore wind energy development within the National Planning Policy Framework, so that these are treated in the same way as other infrastructure planning applications.
Priority: R2023-138	Electricity supply	**Publish a strategy for full decarbonisation of electricity.** Publish a comprehensive long-term strategy for the delivery of a decarbonised, resilient power system by 2035 at the latest. This should cover the strategic decisions required, the policy requirements (including electricity market reforms), milestones and timeline for delivery, and contingencies for addressing key risks. It should include a portfolio approach to developing low-carbon flexibility options, as well as clarifying any minimal residual role unabated gas is expected to play by 2035.
Priority: R2024-020	Electricity supply	**Ensure network capacity to meet growing need.** Set out the Government's approach to ensuring electricity networks have the capacity to meet growing need due to changes to sources of electricity and increased demand across sectors. This should include fully implementing the Connections Action Plan and Transmissions Acceleration Action Plan at pace.
Priority: R2024-005	Electricity supply	**Publish the Strategic Spatial Energy Plan and identify low-regret infrastructure investments.** Urgently develop and publish the Strategic Spatial Energy Plan and use it to identify a set of low-regret electricity and hydrogen infrastructure investments that can proceed now.
Priority: R2024-022	Fuel supply	**Limit expansion of fossil fuel production.** UK policy on future oil and gas production should be aligned with Global Stocktake calls to accelerate the transition away from fossil fuels. As a developed country with a binding commitment to transition to Net Zero, the UK should reassess whether further exploration for new sources of fossil fuels is aligned to the UNFCCC principle of Common but Differentiated Responsibility and the Global Stocktake.
Priority: R2023-073	Waste	**Address rising energy from waste emissions.** Implement a whole-systems approach to address energy from waste (EfW) emissions, including setting out the implications of rising EfW use for waste decarbonisation and the need for carbon capture and storage. A moratorium on additional EfW capacity should be introduced subject to a review of capacity needs and how they align with the Government's emissions pathways. Further clarity is also needed on how decisions on allowing further EfW plants will be made.

ID	Sector	Priority recommendations
Priority: R2023-037	Aviation	**Stop airport expansion without a UK-wide capacity management framework.** No airport expansions should proceed until a UK-wide capacity management framework is in place to annually assess and, if required, control the sector's GHG emissions and non-CO_2 effects. A framework should be developed by DfT in cooperation with the Welsh Government, Scottish Government and Northern Ireland Executive. After a framework is developed, there should be no net airport expansion unless the carbon intensity of aviation is outperforming the Government's emissions reduction pathway and can accommodate the additional demand.
Priority: R2024-006	Engineered removals	**Finalise business models for large-scale deployment of engineered removals.** Complete the design of business models for engineered removals, associated standards and methodologies and integration with carbon capture and storage clusters to enable engineered removal project development and delivery in line with the ambition for at least 5 $MtCO_2$ engineered removals per year by 2030.
Priority: R2024-009	International	**Set an ambitious 2035 NDC in line with UK's path to Net Zero.** Submit a 2035 Nationally Determined Contribution that represents the UK's highest possible ambition in line with UK carbon budgets on the pathway to Net Zero by 2050 to the UN Framework Convention on Climate Change no later than February 2025.
Priority: R2024-023	International	**Transparently report on UK progress and international commitments.** Publish the UK's Biennial Transparency Report in December 2024, detailing the UK's delivery of and support towards the Paris Agreement's mitigation, adaptation and finance goals - including transparently demonstrating if the UK is on track to meet its 2030 Nationally Determined Contribution - and international commitments outside of formal UN Framework Convention on Climate Change processes, such as the Methane Pledge.

Priority recommendations for the Scottish Government:

Table A1.2
Priority policy recommendations for the next year for the Scottish Government

ID	Sector	Priority recommendations
Priority: R2024-024	Cross-cutting	**Implement a new legal framework for emissions reduction.** Act quickly to implement a new legal framework of carbon budgets set on a trajectory to Net Zero in 2045. This is crucial to restore confidence and avoid a vacuum of ambition around Net Zero. In the meantime, it is vital that policy development and implementation move forward with urgency alongside the development of a new legal framework, to avoid stalling progress in reducing emissions.
Priority: R2024-002	Cross-cutting	**Publish and implement the Climate Change Plan.** The Scottish Government should produce an updated Climate Change Plan, setting out clear roles and responsibilities for delivering aspects of emissions reduction and climate change adaptation, as well as details of how these will be coordinated and accountability mechanisms. This needs to cover coordination of actions across the Scottish Government, collaboration with the UK Government and partnership with local authorities. It should also include details on the assumptions that underpin the Scottish Government's decarbonisation pathways and how the abatement set out in the Climate Change Plan will be achieved by planned policies, setting out the quantified abatement expected to be achieved by each policy.

ID	Sector	Priority recommendations
Priority: R2024-003	Cross-cutting	**Improve public engagement on low-carbon choices.** Clearly communicate to the public the most impactful ways to reduce emissions, including the impact of decarbonising home heating, reducing mileage in fossil-fuel cars, dietary behaviours and reducing air travel. Support people to make green choices, including through regulation and incentives, where powers are devolved.
Priority: R2022-338	Surface transport	**Develop an EV charging implementation plan.** Develop an implementation plan to deliver the Scottish Government's vision for the public electric vehicle (EV) charging network. This should ensure the EV transition works for all road users in Scotland and accelerates in line with EV uptake, with sufficient numbers of fast chargers in strategic locations. Growth of charging infrastructure should stay ahead of growth in EV uptake to avoid charging anxiety being a barrier to EV uptake.
Priority: R2023-332	Surface transport	**Publish a car-km reduction strategy.** Publish a detailed strategy, building on the Route Map consultation of 2022, setting out how the Scottish Government will achieve a reduction in car-kilometres and deliver 20-minute neighbourhoods. This should include investment in more sustainable modes of travel, improvements in the affordability and reliability of public transport and measures to reduce dependency on driving.
Priority: R2024-001	Buildings	**Implement the Heat in Buildings Bill.** Provide clarity and a timeline and avoid delays on the Heat in Buildings Bill in order to move towards delivery urgently.
Priority: R2022-384	Buildings	**Publish plans for non-residential buildings.** Consult on and finalise plans for delivering energy efficiency improvements and low-carbon heating in non-residential buildings. These should include clear target dates for meeting standards and consider the role of targets that look beyond EPCs to more reliable measures of performance and emissions reductions and clarify whether Scotland will be part of the UK performance-based rating scheme for non-residential buildings.
Priority: R2022-376	Industry	**Develop policies for industrial resource efficiency.** Develop policies to drive more resource-efficient construction and use of existing low-carbon materials. This should include setting out a plan for phasing in mandatory whole-life reporting followed by minimum whole-life standards for all buildings, roads and infrastructure by 2025, with differentiated targets by function, scale, and public/private construction.
Priority: R2022-356	Agriculture and land use	**Provide funding and delivery support for tree planting.** Ensure that funding and incentives are set at the correct level to meet the Scottish Government afforestation target of 18,000 hectares per year by 2025, supporting farmers and land managers to engage at scale. Streamline the process to attract private capital and facilitate private investment in schemes that meet or exceed good woodland, habitat and biodiversity management standards. Communicate how the expected delay to the 2025 target will be mitigated.
Priority: R2022-358	Agriculture and land use	**Implement a delivery mechanism for peatland restoration.** Implement a comprehensive delivery mechanism to address degraded peatland and extend current restoration ambition set out by the Scottish Government beyond the existing timeframe of 2030, including streamlining the process to attract private capital and facilitate private investment. Peat restoration targets include the need to remove all low-productive trees (i.e. less than YC10) from peatland and restore all peat extraction sites by 2035.

ID	Sector	Priority recommendations
Priority: R2024-031	Agriculture and land use	**Expedite the implementation of future agricultural funding.** Ensure that the new financial support structure proposed through the Agriculture and Rural Communities Bill is in place as soon as possible, that the conditions for participation are clear, that the application process for financial support is streamlined and easily accessible to farmers and land managers and that incentives are sufficient to support the delivery of climate measures and wider environmental goals, as well as climate change adaptation and biodiversity.
Priority: R2022-329	Waste	**Implement the recommendations from the incineration review.** Set out further detail on actions and implementation timelines to ensure all recommendations from the incineration review can be delivered. This should include explaining how the projected residual waste capacity gap in 2025 will be managed while ensuring commitments to end the landfilling of biodegradable waste are met.
Priority: R2024-004	Aviation	**Publish a strategy for decarbonising aviation.** Publish a detailed strategy for decarbonising aviation in Scotland as soon as possible. This strategy should set out a roadmap of how the decarbonisation of scheduled flights within Scotland will be achieved by 2040, including which technologies will be prioritised to achieve this and when the capability of these technologies will need to be demonstrated.
Priority: R2022-348	Aviation	**Implement the Air Departure Tax.** The Scottish Government should implement the Air Departure Tax (ADT) as soon as possible. Also consider other policy levers, such as information provision, to encourage a reduction in the number of flights taken, while considering the needs of island communities.

Priority recommendations for the Welsh Government:

Table A1.3
Priority policy recommendations for the next year for the Welsh Government

ID	Sector	Priority recommendations
Priority: R2024-008	Cross-cutting	**Increase transparency around pathways.** Publish a transparent and quantified link between policies and milestones, as well as the emissions reduction they correspond to in the sectoral pathways set out in Wales' Third Carbon Budget.
Priority: R2023-029	Cross-cutting	**Develop a framework for collaboration with local government.** Work with local authorities to develop an agreed framework of what aspects of Net Zero central and local government are responsible for and how these will be coordinated. This should lead to a clearer shared understanding of roles and responsibilities which can be communicated across local government.
Priority: R2023-018	Surface transport	**Take action on enablers of EV uptake.** Monitor electric vehicle uptake in Wales and assess whether there are opportunities for further policies and incentives to drive adoption forward more quickly than through the zero-emission vehicle mandate alone. This should consider opportunities to maximise emissions savings and deliver co-benefits for Welsh residents.
Priority: R2023-020	Surface transport	**Publish a car-km reduction delivery plan.** Develop and publish a full delivery plan for how to realise the ambition of reducing per-person car demand by 10% by 2030. This should include consideration of how measures that limit car usage will interact with those that enable more sustainable modes.

ID	Sector	Priority recommendations
Priority: R2023-039	Buildings	**Develop spatial plans for decarbonising buildings.** Develop a detailed plan for decarbonising buildings and reaching Net Zero targets, incorporating data from Local Area Energy Plans. The plan should include estimates of investment requirements and yearly targets for deployment of low-carbon heating and energy efficiency measures. It should identify policy areas which are under the Welsh Government's control and those which require coordination with the UK Government.
Priority: R2023-040	Buildings	**Provide long-term funding for decarbonising social housing.** Fully assess the level of investment required to decarbonise social housing and make long-term plans for delivering the funding required. Evaluate the cost effectiveness of retrofitting social housing to reach an EPC A rating and review the proposed target.
Priority: R2023-112	Buildings	**Provide long-term funding for decarbonising fuel poor homes**. Fully assess the level of investment required to decarbonise fuel poor homes and make long-term plans for delivering the funding required.
Priority: R2023-041	Buildings	**Provide long-term funding for public sector decarbonisation.** Fully assess the level of investment required to decarbonise public buildings and make long-term plans for delivering the funding required.
Priority: R2023-027	Industry	**Collaborate with the UK Government on industrial decarbonisation.** Continue to work with the UK Government on industrial decarbonisation in Wales, formally requesting some specific support measures, including for the adoption of carbon capture and storage and hydrogen in the South Wales Industrial Cluster.
Priority: R2023-054	Agriculture and land use	**Address non-financial barriers to tree planting.** Implement a strategy to address non-financial barriers to achieve annual tree planting rates of at least 4,500 hectares per year in Wales by 2030, rising to 7,500 per year by 2035.
Priority: R2023-034	Agriculture and land use	**Ensure continuity of funding for sustainable land management.** Urgently address the funding gap for new land management actions in the farmed landscape for the year 2024 between the Glastir Scheme ending in late 2023 and the new Sustainable Farming Scheme beginning in 2025, to ensure delivery does not lose momentum.
Priority: R2022-043	Agriculture and land use	**Provide detail on future agricultural funding.** Provide detail on how post-CAP agricultural subsidies and schemes in Wales will target incentives (including payment rates) and delivery for climate mitigation alongside wider environmental goals such as climate change adaptation and biodiversity.
Priority: R2023-005	Waste	**Publish a delivery plan for waste decarbonisation.** Set out how Wales' pathway for reducing emissions in the waste sector will be achieved - including policies, funding/investment needs and provision, and any dependencies on or implications for other UK nations.
Priority: R2023-004	Waste	**Publish plans to capture methane emissions from landfill.** Set out policies or support to capture methane emissions from landfill sites, in addition to improving the monitoring of emissions.

Priority recommendations for the Northern Ireland Executive:

Table A1.4
Priority policy recommendations for the next year for the Northern Ireland Executive

ID	Sector	Priority recommendations
Priority: R2024-025	Cross-cutting	**Publish the Climate Action Plan.** Publish an ambitious Climate Action Plan, setting out the actions that will be needed to achieve Northern Ireland's 2030, 2040 and 2050 emissions reduction targets. This plan should set out clear roles and responsibilities for delivering aspects of emissions reduction and climate change adaptation, as well as details of how these will be coordinated and accountability mechanisms. This should cover coordination of actions across the Northern Ireland Executive, collaboration with the UK Government and partnership with local authorities.
Priority: R2024-026	Cross-cutting	**Set the carbon budgets and interim emissions targets.** Set the First, Second and Third Carbon Budgets and the interim emissions targets.
Priority: R2022-295	Surface transport	**Provide EV charging support.** Support the deployment of public charge points across Northern Ireland, to address the issue that Northern Ireland currently has the fewest public electric vehicle charge points per capita of any of the UK nations.
Priority: R2022-108	Buildings	**Consult and act on decarbonising heat.** Publish the Decarbonising Heat consultation and follow on with a coherent, long-term strategy for heat and energy efficiency in Northern Ireland's homes and other buildings; encompassing regulatory, policy and funding commitments to facilitate delivery.
Priority: R2024-027	Agriculture and land use	**Provide funding and delivery support for tree planting.** Ensure funding and delivery support are in place to meet the Northern Ireland Executive's target of 9,000 hectares of woodland creation by 2030 and reach the Committee's advised annual afforestation rates of 3,100 hectares by 2035 and 4,100 hectares by 2039. Set out a long-term strategic plan to expand woodland cover, integrating with sustainable food production, adaptation and nature objectives and facilitating the role of private capital and investment in schemes that meet or exceed good woodland, habitat and biodiversity management standards.
Priority: R2024-028	Agriculture and land use	**Implement a delivery mechanism for peatland restoration.** Publish the proposed implementation strategy and set out a comprehensive delivery mechanism to address degraded peatlands to meet the objectives as set out in the 2022–2040 Northern Ireland Peatland Strategy. This should include addressing barriers to building capacity and facilitating the process to attract private capital and investment.
Priority: R2022-315	Waste	**Make evidence-based decisions on future incineration needs.** Publish an assessment of residual waste treatment capacity needs through to 2050 consistent with meeting committed and prospective recycling and waste reduction targets, expected resource efficiency improvements and ending the landfilling of biodegradable waste by 2028 at the latest. The findings of this review should inform future decisions on incineration and energy from waste capacity.

Annex 2: Policy assessment criteria

Our policy assessment charts track government progress on what needs to be addressed in each subsector or policy area to meet the Government's targets. For the different sectors of the economy we have assessed the risks relating to the delivery of the Government's targets and scored them using the criteria in Table A2.1.

Table A2.1
Scoring criteria for assessing policies and plans

Credible plans	Some risks	Significant risks	Insufficient plans
Credible plans with funding, enablers and timelines in place.	Some adjustment to plans may be needed to mitigate uncertainties and delivery or funding risks.	Plans under development and/or further work needed to enact policies and overcome uncertainties and delivery or funding risks.	Plans are either missing, clearly inadequate or lack funding, and new proposals are needed.

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