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By Nuala Burnett,
Suzanna Hinson,
Iona Stewart

The UK's plans and progress to reach net zero by 2050

Contributing Authors
Tamsin Edwards;
Roger Tyers;
Georgina Hutton;
Xameerah Malik

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Summary

The UK is committed to reaching net zero by 2050. This means that the total greenhouse gas emissions would be equal to the emissions removed from the atmosphere, with the aim of limiting global warming and resultant climate change.

The UK Government has adopted a suite of policies in order to reach net zero, set out in two strategy publications: the Net Zero Strategy (2021) and Powering Up Britain: The Net Zero Growth Plan (2023).

This briefing provides an overview of the context for the net zero target, important UK net zero policies since 2020 and progress towards this goal. It covers how some key sectors are implementing net zero policies and includes stakeholder commentary on progress.

Net zero targets

All of the UK must meet net zero by 2050, in line with the target set out in legislation. In addition to the UK-wide target, Scotland has set its own and is aiming to become a net zero economy by 2045.

The UK has also committed to a 68% reduction in emissions by 2030, as part of its Nationally Determined Contribution towards the Paris Agreement (see Section 1.3 for more detail).

Alongside these headline targets, the UK has set interim 'carbon budgets' which cap the emissions within different carbon budgetary periods (see Section 1.2 for more detail). The current fourth carbon budget requires a 52% reduction in emissions by 2027, while the sixth carbon budget requires a 78% reduction by 2037 (see Section 1.2 for more detail).

Between November 2024 and February 2025, the government needs to set a new Nationally Determined Contribution for 2035. Additionally, in 2025 the government is due to agree the seventh carbon budget, which will cover the period from 2038-2042.

Policy developments in 2024

In 2024, the Labour government announced several new bills that are relevant to net zero. These included:

- Great British Energy Bill (to set up a publicly owned clean power company to accelerate investment in renewable energy)
- Crown Estate Bill (to remove restrictions and allow for easier investment in public infrastructure
- Sustainable Aviation Fuel (Revenue Support Mechanism) Bill (to support the production of this fuel).

The government also announced it would pursue other policies that affect climate change mitigation and adaptation, including policies on home insulation, nature and biodiversity, land management, and the water sector.

Policy developments in 2023

The 2021 Net Zero Strategy set out a series of policies and commitments designed to enable the UK to reach net zero by 2050. It includes measures to deliver emissions reductions to meet targets up to the sixth carbon budget (which covers the period between 2033 and 2037).

The 2023 Net Zero Growth Plan set out an update to the existing strategies, focusing on the scale-up and deployment of technologies for decarbonising homes, power, industry and transport. This update also fulfilled the 2022 High Court judgment for the government to set out more detail on how it aims to reach net zero.

In September 2023, Rishi Sunak (then Prime Minister) gave a speech on net zero, which updated policy positions and set out a revised approach to reaching net zero with the intention "to ease the burdens on working people".

Assessment of progress

These strategies and policies have been subject to scrutiny from parliamentary committees, independent third-party reviews and the media. The Climate Change Committee, the government's statutory adviser for climate change, undertakes an annual assessment of policies that contribute to the net zero by 2050 target, which it submits to Parliament.

The committee's 2024 Progress Report said that the new government "will have to act fast to hit the country's commitments". It notes that low-carbon technologies are becoming cheaper, although uptake remains low, and there is an increasing need to focus on how the UK adapts to climate changes that have already happened.

It set out 10 priority actions for the next year, with a focus on:

- making electricity cheaper

- reversing the policy rollbacks of the previous government
- accelerating decarbonisation
- strengthening adaptation

The CCC recognises the contribution that decarbonising the energy sector has made to emissions reductions to date, and set an expectation that 75% of future emissions reductions will have to come from other sectors, such as transport, buildings and land use.

1 Targets and governance

1.1 Net zero by 2050 target

The Climate Change Act 2008 sets the legislative basis for the UK's action on climate change.[1]

In 2019, following a recommendation from the Climate Change Committee (CCC), the government committed to a 100% reduction in greenhouse gas emissions by 2050 as compared to a baseline of 1990. This was done via the Climate Change Act 2008 (2050 Target Amendment) Order 2019. This is referred to as the net zero target and is legally binding.

The legal definition of net zero as set out in the Climate Change Act is to ensure that the "net UK carbon account" is 100% lower than the 1990 baseline. This can be achieved through reducing emissions as well as offsetting greenhouse gases, such as planting trees or using carbon capture and storage technologies.[2] This would mean that total greenhouse gas emissions produced would be equal to greenhouse gas equivalents removed from the environment.[3]

Net zero targets in the four parts of the UK

All of the UK must meet net zero by 2050, in line with the target set out in legislation. However, the four parts of the UK have different emissions profiles and different approaches to achieving net zero.[4]

England, Wales and Northern Ireland will reach net zero by 2050, while Scotland has set its own target, and is aiming to become a net zero economy by 2045.[5] In 2020, the interministerial group for Net Zero, Energy and Climate Change was established to support collaboration across the UK.[6]

1 Climate Change Act 2008
2 GOV.UK, UK becomes first major economy to pass net zero emissions law, 27 June 2019
3 Office for National Statistics, Net Zero and the different official measures of the UK's greenhouse gas emissions, 24 July 2019
4 National Audit Office, Approaches to achieving net zero across the UK, 15 September 2023
5 Climate Change (Emissions Reduction Targets) (Scotland) Act 2019.
6 GOV.UK, Interministerial Group for Net Zero, Energy and Climate Change Communique: 30 June 2021, 6 November 2023

Upcoming milestones

Setting a 2035 target

The UK is a signatory to the Paris Agreement, an international treaty adopted at the United Nations climate change conference (COP21) in Paris in 2015. The headline ambition of the Paris Agreement is to limit any increase in global surface temperature to 1.5˚C. However, it also requires countries to submit nationally determined contributions (NDCs, national plans to cut emissions) which ratchet up every five years.

The UK's NDC target for 2030 was set in December 2020 and updated in September 2022. In its NDC, the UK commits to reducing economy wide greenhouse gas emissions by at least 68% by 2030, compared to a 1990 baseline (see Section 1.3 for more detail).

The government needs to set the UK's NDC for 2035 between November 2024 and February 2025. Ed Miliband, the Secretary of State for the Department for Energy Security and Net Zero (DESNZ) wrote to the CCC in August 2024 asking for its advice.

Setting the seventh carbon budget

The UK will set the seventh carbon budget in 2025. This will cover the period between 2038 and 2042 (see section 1.2).

The CCC will issue advice on setting the budget to government in January 2025.

1.2 Carbon budgets

Under Section 4 of the Climate Change Act 2008, as amended, the government must set five-yearly carbon budgets 12 years in advance, from 2008 to 2050, and must meet these targets.[7] Carbon budgets are a statutory cap on the total greenhouse gas emissions the UK can emit in a five-year period.[8] The carbon budgets that have been set are as follows:

- The first carbon budget ran from 2008 to 2012, with an emissions cap of 3,018 million tonnes of carbon dioxide equivalent (MtCO2e). A 26% reduction on 1990 levels.
- The second carbon budget covered the period from 2013 to 2017, with an emissions cap of 2,782 MtCO2e. A 32% reduction on 1990 levels.

7 Climate Change Act 2008

8 LSE Grantham Research Institute, "What are Britain's carbon budgets?", 30 April 2020, Accessed 31 July 2024

- The third budget covered the period from 2018 to 2022, with an emissions cap of 2,544 MtCO2e. A 38% reduction on 1990 levels.
- The fourth budget covers the period from 2023 to 2027, with an emissions cap of 1,950 MtCO2e. A 52% reduction on 1990 levels.
- The fifth budget covers the period from 2028 to 2032, with a cap of 1,725 MtCO2e. A 58% reduction on 1990 levels.
- The sixth budget covers the period from 2033 to 2037, with a cap of 965 MtCO2e. A 78% reduction on 1990 levels .[9]
- A seventh carbon budget is due to be set in 2025 to cover the period from 2038 to 2042. [10]

These carbon budgets apply to the UK as a whole; however, Wales has set different carbon budgetary periods to England and Northern Ireland. Legislation in Scotland does not require carbon budgets to be set, but there is a requirement to meet annual carbon reduction targets.[11] The emissions of all four parts of the UK contribute to the carbon budgets, even if their individual approaches are different.

1.3 Interim targets up to 2050

Following the 21st United Nations Climate Change Conference (COP21) in 2015, the Paris Agreement was adopted. It is a legally binding international agreement on climate change with an overarching goal of keeping the increase in global average temperature to "well below" 2°C above pre-industrial levels, and to "pursue efforts" to limit the temperature increase to 1.5°C. It entered into force on 4 November 2016.[12]

As part of the agreement, countries (including the UK) have to submit a "nationally determined contribution" (NDC) to set out the actions they will take to meet the goals of the agreement.[13]

In December 2020, the UK Government submitted its NDC to the United Nations Framework Convention on Climate Change (UNFCCC) in line with Article 4 of the Paris Agreement. In its NDC, the UK committed to reducing economy-wide greenhouse gas emissions by at least 68% by 2030, compared with 1990 levels.

9 CCC, Advice on reducing the UK's emissions, Accessed 16 October 2023
10 CCC, Advice on reducing the UK's emissions, Accessed 16 October 2023
11 National Audit Office, Approaches to achieving net zero across the UK, 15 September 2023
12 UNFCCC, The Paris Agreement: What is the Paris Agreement?, accessed 26 October 2023, and United Nations, Paris Agreement (PDF), 2015
13 UNFCCC, Nationally Determined Contributions: The Paris Agreement and NDCs, accessed 10 November 2023

There are no separate interim targets for England, with progress assessed against UK-wide targets. Northern Ireland has set an interim target of a 48% reduction by 2030 through the Climate Change Act (Northern Ireland) 2022, and Scotland has set an interim target of 75% by 2030 through the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019. Wales has set an interim target of 63% by 2030 through the Climate Change (Interim Emissions Targets) (Wales) Regulations 2021.[14]

1.4 Assessing progress

The Department for Energy Security and Net Zero (DESNZ)[15] is the government department primarily responsible for policies relating to net zero in England, although this is a cross-cutting issue that requires coordination with other departments (for example, the Department for Environment, Food and Rural Affairs (Defra) and the Department for Transport).

Government progress towards nets zero is assessed by parliamentary committees and the independent Climate Change Committee, as well as the independent parliamentary body the National Audit Office (NAO).

Scrutiny of UK Government policy

The Climate Change Committee

The government's policy progress towards net zero is scrutinised by the independent Climate Change Committee (CCC), which produces annual progress reports. The CCC is an independent statutory body established under the Climate Change Act 2008, and its 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.[16]

The CCC also scrutinises climate change policy progress and plans across the other parts of the UK, including issuing progress reports to the Scottish Parliament and Senedd Cymru/Welsh Parliament, as well as providing advice to the Northern Ireland Assembly.[17]

14 National Audit Office, Approaches to achieving net zero across the UK, 15 September 2023

15 Previously referred to as the Department for Business, Energy and Industrial Strategy, before the Machinery of Government Change, see: GOV.UK explainer

16 CCC, About the CCC, accessed 26 October 2023

17 For scrutiny of other parts of the UK, see: CCC, publications on Scotland; Wales reports; Northern Ireland reports

In March 2024, the CCC said that Scotland's 2030 climate goals were no longer credible.[18] In July 2024, it said that the UK was off-track as a whole for its 2050 net zero ambitions.[19]

Energy Security and Net Zero Committee

The Energy Security and Net Zero Committee is a House of Commons select committee that scrutinises the policy, spending and administration of the Department for Energy Security and Net Zero and its public bodies (including Ofgem, the regulator for the energy sector, and the CCC).

The committee conducts topical inquiries, alongside overarching scrutiny of the work of the department.

Environmental Audit Committee

The Environmental Audit Committee is another House of Commons select committee. It considers and audits policies and programmes that contribute to environmental protection and sustainable development.

The committee conducts topical inquiries and pre-appointment hearings for senior roles in the public sector, as well as other non-inquiry work. Reports from the previous Parliament include net zero aviation and UK shipping (May 2024) and heat resilience and sustainable cooling (January 2024).[20]

Environment and Climate Change Committee

The Environment and Climate Change Select Committee is a House of Lords select committee that considers the environment and climate change. Its work consists of specific topical inquiries.[21] In 2024, it published a report titled EV strategy: rapid recharge needed (February 2024).[22]

Scrutiny of policy in Wales and Scotland

The Scottish Parliament's Net Zero, Energy and Transport Committee scrutinises the Scottish Government's policies and progress towards meeting climate change targets. Its work includes budget scrutiny and assessment of specific policies.[23]

The Senedd Cymru's Climate Change, Environment and Infrastructure Committee holds the Welsh Government to account on climate change policy, the environment and energy. It has produced a report on progress towards

18 CCC, Scotland's 2030 climate goals are no longer credible, 20 March 2024
19 CCC, UK off track for net zero, say country's climate advisors, 18 July 2024
20 EAC, Net zero aviation and UK shipping, 29 May 2024
EAC, Heat resilience and sustainable cooling, 31 January 2024
21 House of Lords, Environment and Climate Change Select Committee, accessed 14 November 2023
22 Environment and Climate Change Committee, EV strategy: rapid recharge needed, 6 February 2024
23 Scottish Net Zero, Energy and Transport Committee, Budget Scrutiny 2024-25, Accessed 31 July 2024

delivery of climate change commitments (February 2023) focused on the Welsh Government's net zero delivery.[24]

Other assessments

National Audit Office

The NAO audits government spending, which includes its spending on net zero. In December 2020, the NAO published a report on 'Achieving Net Zero'. In September 2023, it published a joint report with the other UK public audit offices (Audit Scotland, Audit Wales and Northern Ireland Audit Office) on 'Approaches to achieving Net Zero across the UK'.[25] Further assessments of the costs of net zero have been published by the CCC and the Office for Budget Responsibility.[26]

The Skidmore Independent Review

The independent review 'Mission Zero' was commissioned by the Secretary of State for the Department for Business, Energy and Industrial Strategy in 2022.[27] The review was undertaken by former Energy Minister, Chris Skidmore MP, and published on 13 January 2023 as Mission Zero: Independent Review of Net Zero. The review made 129 recommendations to government and proposed 25 key actions and 10 'priority missions' to take economic advantage of the transition to net zero.

On 30 March 2023, the government published its response to the review in its Net Zero Growth Plan, stating "decisive action" was needed to capitalise on economic opportunities:

> We agree with the review's conclusion that net zero is the growth opportunity of the 21st century and could offer major economic opportunities to the UK – but that decisive action is needed to seize these. Other countries such as the USA with the Inflation Reduction Act are moving quickly, and we must do the same. We are focused on unlocking the ambition of places and communities to deliver net zero by 2050.[28]

The House of Lords Library article, Mission zero: Independent review of net zero, published in January 2023, provides further information on the scope of the review, its findings and reactions from government and stakeholders.

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24 Welsh Climate Change, Environment and Infrastructure Committee, Progress towards delivery of climate change commitments, 16 February 2023

25 National Audit Office, Achieving Net Zero, 4 December 2020
National Audit Office, Approaches to achieving net zero across the UK, 15 September 2023

26 CCC, Progress in reducing emissions 2024 Report to Parliament, 18 July 2024
The Office for Budget Responsibility, The fiscal cost of net zero in the UK in an international context, July 2023

27 Following a Machinery of Government Change, the Department for Business, Energy and Industrial Strategy (BEIS) ceased to exist and departmental responsibility for climate change policies transferred to the Department for Energy Security and Net Zero (DESNZ). See government guidance, 2023

28 DESNZ, Responding to the independent review of net zero's recommendations, 30 March 2023

2 UK policy

The transition towards net zero in the UK is covered by overarching strategy publications (such as the Net Zero Strategy and the Carbon Budget Delivery Plan) and sector specific plans. The UK is legally obligated to set out a plan to achieve its commitments under the Climate Change Act.

The UK's policy plans were subject to legal challenge in 2022 and again in 2023, with the High Court ordering the government to publish a revised version of its Carbon Budget Delivery Plan in October 2024. More information on the legal challenges is set out in the following section.

2.1 The Net Zero Strategy (October 2021)

The UK Government's main climate change policy document is the Net Zero Strategy (Build Back Greener), which was published on 19 October 2021 and last updated in April 2022.[29]

It sets out policies and proposals for decarbonising all sectors of the UK economy to meet the government's net zero target by 2050. The Net Zero Strategy builds on wider government policy, such as the ten-point plan for a green industrial revolution which was published on 18 November 2020.[30]

Several sector-specific and technology-specific strategies have also been published by relevant government departments.

Wider policy documents include:

- Environmental Improvement Plan, updated February 2023 (applies to the whole of the UK)
- British Energy Security Strategy, April 2022 (strategy to decarbonise the power sector, applies to England, Wales and Scotland)
- Heat and buildings strategy, October 2021 (strategy to decarbonise homes, commercial, industrial and public sector buildings. Some

29 Department for Energy Security and Climate Change, Net Zero Strategy: Build Back Greener, 19 October 2021 (Updated 5 April 2022)

30 GOV.UK, The ten point plan for a green industrial revolution, 18 November 2020

policies are specific to England, with other parts of the UK responsible for producing their own policy frameworks)

- Hydrogen strategy, August 2021 (strategy to develop the low-carbon hydrogen sector, applies to the UK as a whole)
- Transport decarbonisation plan, July 2021 (strategy to decarbonise the entire transport system in the UK; most policies apply to the UK as a whole and some specified policies apply only to England)
- Industrial decarbonisation strategy, updated April 2021 (strategy to reduce industrial emissions for the UK as a whole)

The Net Zero Strategy applies to the UK as a whole, although policies are also set by the devolved administrations. For example:

- The Scottish Government published an update to the Climate Change Plan 2018-2032 (PDF) in April 2023
- The Welsh Government published an update to the All Wales Plan 2021-25 Working Together to Reach Net Zero (PDF) in April 2022
- The Northern Ireland Executive published its Path to Net Zero Energy (PDF) in December 2021

High Court judgment on the Net Zero Strategy

On 18 July 2022, following a claim brought against the UK Government by Friends of the Earth, ClientEarth and the Good Law Project, the English High Court determined the 2021 Net Zero Strategy to be "unlawful" and "inadequate" in meeting the 2050 net zero target and that it breached the requirements set out by the Climate Change Act 2008.[31]

The High Court ordered the government to refine and reissue the strategy by the end of March 2023.[32] In response, the government published a set of plans entitled Powering Up Britain. These included the Net Zero Growth Plan and the Carbon Budget Delivery Plan (essentially a revised net zero strategy).

31 White&Case, Landmark High Court decision that the UK's Net Zero Strategy is unlawful, 31 August 2022

32 FoE v BEIS [2022] EWHC 1841

2.2 Powering Up Britain (March 2023)

An updated series of government commitments were published on 30 March 2023. This followed the independent review of net zero (Section 1.4) and the High Court judgment that called for the government to outline how its policies would meet the 2050 net zero target (see above box).

The overarching strategy document, Powering Up Britain, included the government's policy response to the CCC progress report, the Skidmore independent review, the net zero growth plan, energy security plan and carbon budget delivery plan. This suite of documents acted as an update to the broader net zero strategy.

Wider publications included:

- The Green finance strategy,
- The 2030 strategic framework for international climate and nature action,
- UK international climate finance strategy, and
- the Net Zero Research and Innovation Framework Delivery Plan for 2022-25.

Carbon Budget Delivery Plan (March 2023)

The Carbon Budget Delivery Plan was produced by the government as part of its statutory duties under the Climate Change Act 2008.[33] It sets out proposals and policies, and associated timescales and delivery risks, which are designed to ensure that carbon budgets four, five and six can be met.

The plan estimates that its quantified proposals and policies will deliver 100% of the savings required to meet the fourth and fifth carbon budgets, and 97% of the savings required to meet the sixth carbon budget. The plan sets out that the remaining 3% of sixth carbon budget is expected to be met through areas where further savings are estimated, but not yet quantified. These include agriculture and land use, energy efficiency, and local emissions reductions.[34]

Funding to deliver carbon budgets has been announced in the following publications:

33 Department for Energy Security and Net Zero, Carbon Budget Delivery Plan, 30 March 2023
34 Department for Energy Security and Net Zero, Carbon Budget Delivery Plan, 30 March 2023

- The Autumn Budget and Spending Review 2021 confirmed that since March 2021 the government committed a total of £30 billion of public investment towards the green industrial revolution in the UK.
- The Autumn Statement 2022 made available £6 billion of additional funding to drive improvements in energy efficiency.
- The Spring Budget 2023 made up to £20 billion available for Carbon Capture, Utilisation and Storage (CCUS).
- The Net Zero Innovation Portfolio is £1 billion of funding to accelerate the commercialisation of low-carbon technologies, systems and business models in power, buildings and industry.

High Court Judgement on the Carbon Budget Delivery Plan

Following the publication of the Powering Up Britain documents (and the Carbon Budget Delivery Plan), Client Earth, Friends of the Earth and the Good Law Project indicated that they would take forward further legal challenges against the government.[35]

In October 2023, these organisations requested a judicial review of the revised plans set out in the Carbon Budget Delivery Plan, due to its reliance on "unproven and high-risk technological fixes".[36] In February 2024, the High Court ruled that four of the five grounds on which the organisations brought the challenges were arguable, and that the government is required to publish a revised and legally compliant plan within 12 months (by October 2024).[37]

2.3 'New approach to net zero' (September 2023)

On 20 September 2023, then Prime Minister Rishi Sunak made a speech outlining the government's "new approach to Net Zero", which was framed as

35 Client Earth, UK government faces fresh legal challenge over 'unlawful' climate plans, 7 July 2023
36 Client Earth, We're taking the UK government back to court over its climate plan, 25 October 2023, accessed 3 November 2023
37 FoE vs. Secretary of State for Energy Security and Net Zero [2024] EWHC 995
Friends of the Earth, High court judgment on government's climate plan, 3 May 2024

"a more pragmatic, proportionate, and realistic approach to meeting Net Zero that eases the burdens on working people".[38]

Key policy points in this speech included:

- moving back the proposed ban on the sale of new petrol and diesel cars and vans by five years, so all sales from 2035 will be zero emission
- delaying the proposed ban on installing oil and liquid petroleum gas boilers and new coal heating for off-gas-grid homes from 2026 to 2035
- setting an exemption to the proposed 2035 phase out of all fossil fuel boilers for households that would struggle to switch (for example, homes that would require major retrofit)[39]
- raising the Boiler Upgrade Scheme grant by 50% to £7,500
- scrapping policies to force landlords to upgrade the energy efficiency of their properties[40]

Rishi Sunak also announced several additional measures aimed at improving energy security by supporting energy infrastructure and grid connections. More information is set out in the supporting government press release published on 20 September 2023, with measures including a spatial plan for energy infrastructure (a coordinated plan for all aspects of infrastructure, across the country), a "fast track" for major energy transmission projects through the nationally significant infrastructure project planning regime, and a new approach to grid connections.

2.4 Energy Act (October 2023)

The government's Energy Act 2023 received Royal Assent on 26 October 2023. It was originally called the Energy Security Bill in the Queen's Speech on 10 May 2022.[41]

The government's Energy Security Bill overarching factsheet said the aim of the Energy Act is to "deliver a cleaner, more affordable and more secure energy system for the long term"[42], building on the commitments in the April

38 GOV.UK, PM Speech on Net Zero: 20 September 2023, 20 September 2023

39 In the Heat and Buildings Strategy (2021), the government committed to "phas[ing] out installation of new natural gas boilers from 2035, once the cost of low-carbon alternatives has come down"

40 Under the Minimum Energy Efficiency regulations, privately rented properties already must have an EPC rating of at least E to be let or continue to be let, unless the landlord has a valid exemption. The Heat and Buildings Strategy (2021) set out a policy to raise this requirement to EPC C by 2025 for new tenancies and by 2028 for all tenancies.

41 GOV.UK. Queen's Speech 2022, 10 May 2022

42 DESNZ Energy Security Bill overarching factsheet updated 1 September 2023

2022 British Energy Security Strategy to "invest in homegrown energy and maintain the diversity and resilience of the UK's energy supply".[43]

The Energy Security Bill factsheet also highlighted the need for a "transformation of our energy system" and "more home-grown energy from more diverse sources which reduce our dependency on imported fossil fuels and our exposure to volatile and high prices in international markets". [44]

The Library Briefing Energy Bill [HL] 2022-23: Overview, which was prepared for second reading in the Commons, provides an overview of the bill (now an act) and includes details of the clauses added to the bill after defeats in the House of Lords. It also provides links to five additional Library briefings which cover specific provisions in more detail.

The Library briefing Energy Bill [HL] 2022-23 Committee stage report covers changes made to the bill at committee stage in the Commons, and an FAQ document provides an overview of what the Energy Act means for households.

2.5 The Labour government and net zero (July 2024)

Labour's manifesto for the 2024 general election included a commitment to introduce an "Energy Independence Act", which would establish a framework enabling the UK to become "a clean energy superpower". Labour also committed to establishing Great British Energy, a publicly owned clean power company intended to increase energy security and help decarbonise the grid.

The King's Speech

The Kings Speech, delivered on 17 July 2024, included several bills with relevance to the energy sector, details of which can be found in the King's Speech 2024: background briefing notes. These bills were:

- Great British Energy Bill: "a Bill will be introduced to set up Great British Energy, a publicly owned clean power company headquartered in Scotland, which will help accelerate investment in renewable energy such as offshore wind"
- National Wealth Fund Bill: a bill to establish the National Wealth Fund, which will be capitalised with an "additional" £7.3 billion and make "transformative investments across every part of the country"
- Planning and Infrastructure Bill: a bill to reform the planning system, intended to speed up housebuilding and the delivery of major

[43] GOV.UK, British Energy Security Strategy, 7 April 2022
[44] DESNZ, Energy Security Bill overarching factsheet, updated 1 September 2023

infrastructure projects, including renewable energy infrastructure projects

- Crown Estate Bill: a bill to modernise the Crown Estate by removing "outdated restrictions" on its activities, giving it the powers to borrow in order to invest at a faster pace. This will include "vital marine investment" needed to accelerate and quadruple offshore wind capacity by 2030

- Sustainable Aviation Fuel Bill: a bill to create a revenue certainty mechanism for building sustainable aviation fuel (SAF) manufacturing plants in the UK

3 Progress towards net zero

Progress towards net zero is assessed by the independent Climate Change Committee (CCC), which is responsible for publishing an annual progress report to Parliament. This section sets out the CCC's overall assessment as of July 2024.

It also summarises the CCC's commentary on specific sectors seen as key to achieving net zero: energy, transport, heat and buildings, industry, and agriculture and land use. These sectors cover the UK as a whole, although relative sectoral emissions do vary across the different parts of the UK, and different parts of the UK have adopted specific strategies and approaches in addition to wider government policy.

How does the CCC assess progress?

The CCC is an independent statutory body that assesses the UK Government and devolved administrations' plans, progress and policies across sub-sectors to determine what needs to be addressed to meet the net zero target.

It has four scoring criteria for assessing policies and plans:

- **Credible plans**: plans with funding, enablers and timelines in place.
- **Some risks:** some adjustment to plans may be needed to mitigate uncertainties and there may be delivery or funding risks.
- **Significant risks:** plans under development and/or further work needed to enact policies and overcome uncertainties and delivery or funding risks.
- **Insufficient plans:** plans are either missing, clearly inadequate, or lack funding, and new proposals are needed.[45]

[45] CCC, Annex 1: Policy assessment criteria of the CCC 2023 Progress in reducing emissions, 28 June 2023

3.1 Overall assessment

The CCC have found that the UK is off track for net zero and needs to take action to remain on track for its 2030 targets.

On 18 July 2024, the CCC published its 2024 Progress Report to Parliament, its latest annual statutory assessment of the UK's progress towards meeting emissions targets.[46]

The report confirmed that the UK has met its third carbon budget, covering the period 2018 to 2022, and that territorial emissions (emissions produced within the UK, excluding international aviation and shipping) are now less than half 1990 levels. However, the CCC also stated that despite a successful track record of meeting previous targets, only a third of the actions that are required to meet 2030 targets are covered by 'credible' plans, and over 14% of plans covered by 'insufficient' plans.[47] The headline finding is that the UK is "off track for net zero".

The CCC report also noted that government policy decisions made in 2023 indicated a "slowing of pace" (see Section 2.4), with inconsistent messaging and cancellations, delays and exemptions to policies. Piers Foster, interim Chair of the CCC, said "the country's 2030 emissions reduction target is at risk. The new government has an opportunity to course-correct, but it will need to be done as a matter of urgency to make up for lost time."[48]

The report said that much of the progress on emissions reductions to date has come from replacing coal with renewable energy, and that the UK should now be rapidly rolling out low-carbon technologies (such as electric vehicles, heat pumps and solar panels). However, the CCC found that almost all indicators suggested that the UK was behind schedule in its roll-out of low-carbon technologies and that "rapid progress is needed to make up for lost ground".[49]

The CCC set out ten priority actions for the government for 2024. It plans to publish its advice for the seventh carbon budget and an updated path to net zero in early 2025.

The CCC's priority actions for 2024

The CCC has set out 10 priority actions for the remainder of 2024, designed to 'course-correct' the UK's climate policy progress towards 2030 targets and 2050 net zero.

1. **Make electricity cheaper.** Removing policy costs from electricity prices will support industrial electrification and support lower running costs of heat pumps etc.[50]
2. **Reverse recent policy rollbacks**. Remove the exemption 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, reinstate the 2030 phase-out of new fossil-fuel car and van sales. The CCC note that the potential damage caused by these policy rollbacks can be limited by quickly reinstating these policies.

3. **Remove planning barriers for heat pumps, electrical vehicle charge points and onshore wind**.
4. **Introduce a comprehensive programme for decarbonisation of public sector buildings**.
5. **Effectively design and implement the upcoming renewable Contracts for Difference (CfD) auctions** so that they can deliver at least 50GW of offshore wind by 2030 (see Section 3.2 on energy).
6. **Accelerate electrification of industrial heat.** Strengthen the UK Emissions Trading Scheme (ETS) 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 the industry.
7. **Increase tree planting and peatland restoration**. The CCC notes that tree planting must be scaled up in the 2020s for abatement (emissions reductions) to be sufficient for later carbon budgets and reaching net zero.
8. **Finalise business models for large-scale deployment of engineered removals of carbon dioxide**.
9. **Publish a strategy to train people and give them the skills needed in green industries.**
10. **Strengthen the third National Adaptation Plan (NAP3).** The CCC advocates for clearer objectives and targets. It said that climate adaptation must become a fundamental part of policymaking in all government departments, and should be integrated into other national policy objectives.[51]

46 CCC, 2024 Progress Report to Parliament, 18 July 2024

47 By 2030, the UK has committed to reducing emissions by 68% compared to a baseline of emissions in 1990, see Section 1.1

48 CCC, UK off-track for net zero, say country's climate advisors, 18 July 2024

49 CCC, 2024 Progress Report to Parliament, 18 July 2024

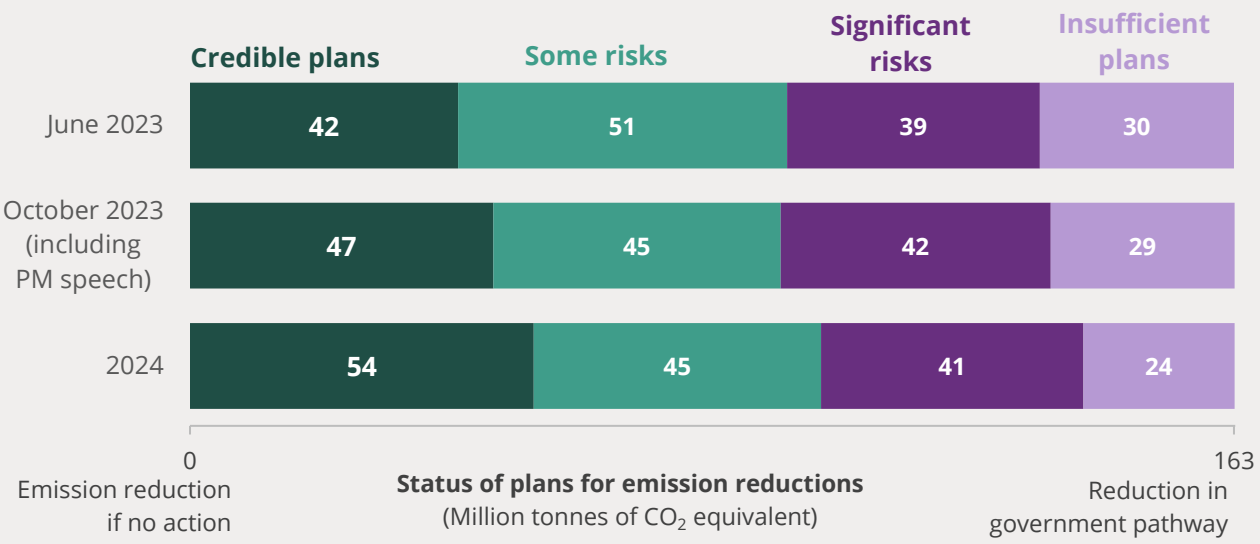
50 A portion of energy bills come from costs associated with energy policies, and these policy costs currently fall more on electricity than gas

51 CCC, 2024 Progress Report to Parliament, 18 July 2024

The chart below shows the change in assessed risks for the current "government pathway", with a comparison between plans and policies in June 2023, October 2023 and July 2024. The government pathway refers to the quantified plans described in the Carbon Budget Delivery Plan (see section 2.2). The government estimates that these plans will reduce emissions by 163 million tonnes of CO_2-equivalent ($MtCO_2$-eq) over this period

There was a small decrease in overall risk from June 2023 to October 2023, and again to June 2024. Generally, the proportion of emissions reductions covered by credible plans has increased, while the proportion covered by insufficient plans has decreased. [52]

CCC assessment of changes in the risks to meeting emissions targets



Notes: Total emissions under the 'no action' scenario are 473 $MTCO_2$-eq (annual average for 2028-32)
The 'Govermnent pathway' has emissions of 310.7 MTCO2-eq. This reduction falls 4% short of that required to meet the 2030 Nationally Determined Contribution. The Government has said this gap will be closed by unquantified plans.

Source: Climate Change Committee, CCC assessment of recent announcements and developments on Net Zero, 12 October 2023.

Progress across the four parts of the UK

The CCC's assessment of progress covers the entirety of the UK. However, as set out in section 1.1 of this briefing, the four parts of the UK have different emissions profiles and approaches. England, Wales and Northern Ireland

[52] CCC, 2024 Progress Report to Parliament, 18 July 2024.

have committed to reaching net zero by 2050, while Scotland has committed to reaching net zero by 2045.[53]

Scotland's net zero target initially included an interim target of reducing emissions by 75% by 2030. However, in March 2024, the CCC said that it no longer believed the 2030 target was credible, citing the Scottish Government's delays to updating its climate change plan and "slippage" in implementing climate policies.[54]

In April 2024, Scotland dropped its statutory goal of cutting greenhouse gas emissions by 75% by 2030, although the Scottish Government noted that it still intended to meet its net zero target by 2045.[55]

3.2 Electricity supply

Energy is a broad term encompassing a variety of fuels. Energy use in other sectors is normally the main driver of their emissions, such as fuels for road transport, aviation, heating buildings, and powering industry.

Electricity only met around 12% of total energy demand in the UK in 2023 (the rest of energy demand includes fuels such as gas for heating and oil based fuels for transport).[56] However, the role of electricity is expected to increase with the electrification of large proportions of the heat and transport sectors through technologies such as heat pumps and electric vehicles, and many industrial processes. This is seen by government as the most effective way to decarbonise these sectors and meet climate change targets.

Electricity supply accounted for 14% of the UK's total greenhouse gas emissions in 2022.

Greenhouse gas emissions in the electricity sector have fallen by 72% since 2008. This has accounted for almost 50% of economy-wide emission reductions in the first three carbon budgets. This was mostly the result of phasing out coal (the most emissions-intensive fossil fuel) from the electricity mix.

The CCC's 2024 report notes that reduced use of other fossil fuels for electricity supply is also having an impact. A 10.5% fall in total demand for gas in 2023 contributed to a 22.2% fall in greenhouse gas emissions from

53 Climate Change (Emissions Reduction Targets) (Scotland) Act 2019.

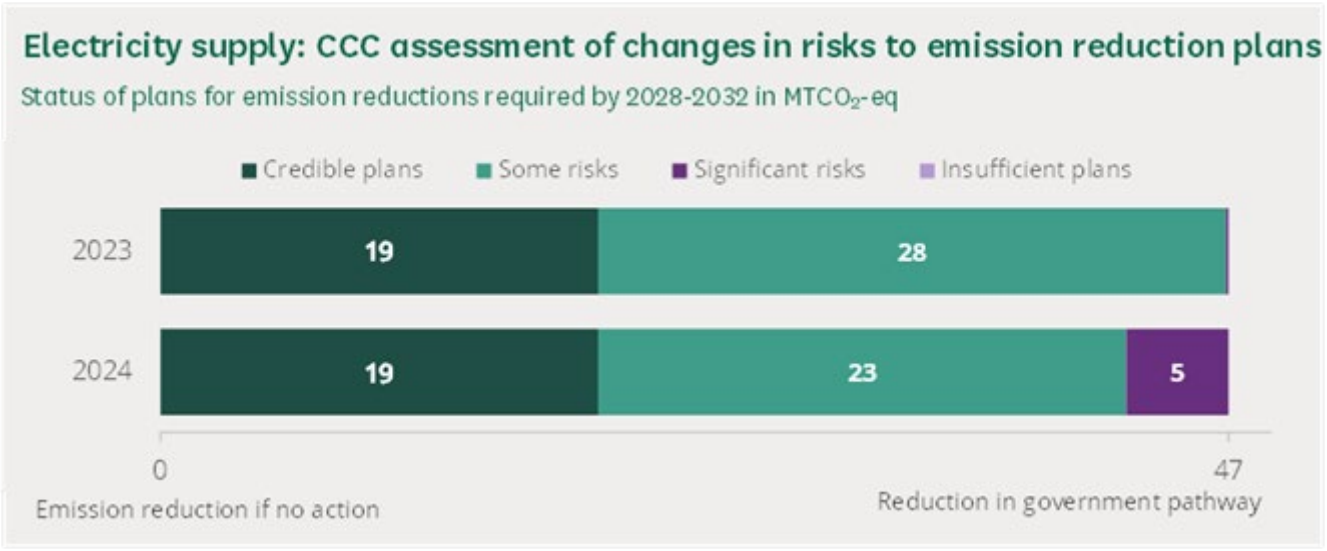
54 CCC, Scotland's 2030 climate goals are no longer credible, 20 March 2024

55 FT, Scotland ditches climate 2030 climate target as being 'out of reach', 18 April 2024
Scottish Government, Climate Change Committee Scotland report - next steps: Net Zero Secretary statement, 18 April 2024

56 DESNZ, Digest of UK Energy Statistics (Dukes): energy, 1.1.2, 27 July 2024

electricity supply in 2023. The fall in demand for gas may have been partly due to the rise gas prices.[57]

The CCC's 2024 report said that the electricity sector was the only sector that was decarbonising sustainably and at a "suitable" pace.[58] In 2023 and 2024, the CCC said that the sector had "credible" plans in place for 41% of the government pathway for the fifth carbon budget, as shown in the chart below. While this was a higher rate than for several other sectors, the CCC assessed that the risks to the electricity sector's decarbonisation plans increased in 2024. It assessed the level of significant risks at 10% in 2024.



Source: CCC, 2024 Progress Report to Parliament, 18 July 2024.

The CCC said that the increase in signficant risks to the electricity sector's decarbonisation plans was due to uncertainty about the government's support for renewables under the Contracts for Difference (CfD) scheme.[59] The CCC said that, by 2030, the rollout of offshore and onshore wind will need to double and installations of solar will need to increase by five times if the UK is to remain on track to meet its targets.[60] However, no wind developers made bids for contracts in the fifth CfD allocation round in 2023. Wind developers said that the government had set the price too low, and had not taken account of rising supply chain costs.[61]

The government increased the maximum price it was willing to pay for all technologies in the sixth CfD allocation round. The CCC had said the increases might not have been enough to bring bidders back. However, following the

57 CCC, 2024 Progress Report to Parliament, 18 July 2024
Commons Library research briefing, 9714, Gas and electricity prices during the 'energy crisis' and beyond

58 CCC, 2024 Progress Report to Parliament, 18 July 2024

59 CfD is the support scheme which offers a set strike price per unit of power, agreed at a competitive auction, for new renewable projects. For more information, see the Library briefing on CfDs

60 CCC, 2024 Progress Report to Parliament, 18 July 2024

61 As reported by the BBC, UK offshore wind auction set to flop, 7 September 2023

results of the sixth allocation round in September 2024, industry body Energy UK said that the CfD allocation is "back on track after the failure of AR5 [the fifth allocation round]".[62]

More broadly, while praising some "positive steps", the CCC said there is still a lack of a credible overall strategy to decarbonise the electricity sector by 2035.[63] Decarbonisation by 2035 was the previous government's target; the Labour government has set a target to decarbonise the sector by 2030.[64] Specifically, the CCC said the government needed to make decisions in its Review of Electricity Market Arrangements, (a long-term review of the electricity market that aims to cut costs and increase investment) and speed up the delivery of infrastructure to connect low-carbon electricity to the grid.[65]

Additionally, the CCC recommended making electricity cheaper, to support widespread electrification of home heating and industry, by moving policy costs to gas bills.

To support its target of decarbonaising the energy sector by 2030, the Labour government has introduced new policies. These include establishing GB Energy and the National Wealth Fund (see Section 2.5 for details). Stakeholders have highlighted the need for actions to address barriers to delivery, green investment, and the green skills gap.[66] More information is available in the Library debate pack Making Britain a clean energy superpower (July 2024).[67]

3.3 Transport

Surface transport (emissions from vehicles on the roads and rail) is the highest emitting sector across the UK, responsible for 28% of UK greenhouse gas emissions in 2022.[68]

The CCC's 2023 Progress Report assessed that an increase in confidence in meeting the UK's fourth carbon budget (2023-2027, see Section 1.2) was

62 Energy UK, Energy UK explains: Allocation round six, 3 September 2024, [accessed 11 September 2024]
63 CCC, 2024 Progress Report to Parliament, 18 July 2024
64 DESNZ, Great British Energy founding statement, 25 July 2024
65 Specifically through actioning the proposals in the Connections Action Plan and Transmission Acceleration Action Plan
66 Energy UK, Mission Possible: The steps to make Britain a clean energy superpower (PDF), July 2024 National Engineering Policy Centre, Rapid decarbonisation of the GB electricity system, July 2024 Business Green, LinkedIn: Green skills gap putting Labour's 'clean energy superpower' vision at risk, 24 July 2024
67 Commons Library, Debate on making Britain a clean energy superpower, 25 July 2024
68 DESNZ, Final UK greenhouse gas emissions national statistics: 1990 to 2022, 27 June 2024

largely driven by this sector because of a persistent reduction in total vehicle kilometres since the pandemic and increasing sales of electric vehicles.[69]

In its October 2023 assessment, the CCC said that delaying the ban on sales of new petrol and diesel cars and vans would have only a small direct impact on greenhouse gas emissions. It said this was due to the Zero Emission Vehicles (ZEV) mandate, which was confirmed in October 2023 and introduced in January 2024 (see Section 2.3).[70]

The ZEV mandate specifies the minimum percentage of car manufacturers' sales that must be zero-emission vehicles each year, rising from 22% in 2024, to 80% by 2030. For vans, the minimum percentages are 10% in 2024 and 70% in 2030.[71] The ZEV mandate is a trading scheme. If manufacturers' EV sales are below/above the minimum percentage level, then they can buy/sell 'allowances' from other manufacturers. If manufacturers fail to reach the minimum percentage, they have to pay compliance penalties.[72]

The CCC's 2024 Progress Report found that the ZEV mandate contributed to a substantial increase in "credible" plans, from 40% to 53% of the government pathway for transport during 2028–2032. This is the source of the overall increase in confidence for this period (see Section 3.1).[73]

The progress report said that transport emissions since 2008 have not reduced as much as the CCC had predicted. It said this was mostly because of a trend towards larger cars, which had offset efficiency gains in the overall car fleet.[74] Going forward, the annual reduction in surface transport emissions across the rest of this decade will need to be more than four times the reduction in 2023. The CCC's report noted that, despite this challenge, surface transport is one of the only sectors in which a rapid rollout of low-carbon technology has the potential to "ramp up [the required emissions reductions] quickly".[75]

69 CCC, 2023 Progress Report to Parliament, 28 June 2023.

70 CCC, CCC assessment of recent announcements and developments on Net Zero, 12 October 2023. The ZEV mandate was introduced via The Vehicle Emissions Trading Schemes Order 2023; For more information on the ZEV mandate see Commons Library research briefing CBP 7480, Electric vehicles and infrastructure, 12 July 2024.

71 The Vehicle Emissions Trading Schemes Order 2023

72 DfT, Zero emission vehicle (ZEV) mandate consultation: summary of responses and joint government response, 25 October 2023, Overview of responses

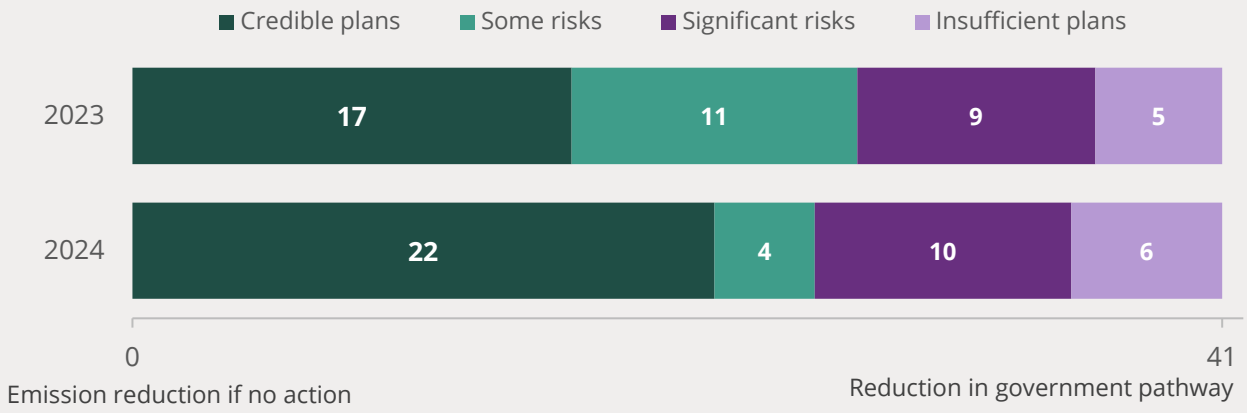
73 CCC, 2024 Progress Report to Parliament, 18 July 2024.

74 CCC, 2024 Progress Report to Parliament, 18 July 2024, p36

75 CCC, 2024 Progress Report to Parliament, 18 July 2024, p27

Surface transport: CCC assessment of changes in risks to emission reduction plans

Status of plans for emission reductions required by 2028-2032 in $MTCO_2$-eq



Source: CCC, 2024 Progress Report to Parliament, 18 July 2024.

ZEV mandate and industry commentary

Car industry bodies are supportive of the ZEV mandate in principle, but say that there is not yet enough consumer demand for EVs to meet the mandated sales targets in the early years.[76] The industry body, the Society of Motor Manufacturers and Traders (SMMT) told the Transport Committee in May 2023 that the market was on track to meet 19.8% battery electric car sales and 8.3% for battery electric van sales in 2024; both below the ZEV mandate targets.[77] While electric car sales are increasing, demand is currently being driven by the fleet and business sector, rather than private consumers.[78]

Stellantis (the owner of Vauxhall) warned that the tight ZEV mandate targets, in the absence of sufficient consumer demand for EVs, had put the company's UK financial return "under stress".[79] Ford told the Financial Times that the company may have to restrict petrol car sales in the UK to avoid ZEV mandate penalties.[80] Car sales website Autotrader said that ZEV prices fell in 2024, since the mandate came into force, as manufacturers try to boost sales.[81]

76 SMMT, SMMT statement on the Zero Emission Vehicle Mandate, 28 September 2023; Transport Committee, Oral evidence: Electric vehicles, HC 742, 15 May 2024, Q47

77 Transport Committee, Oral evidence: Electric vehicles, HC 742, 15 May 2024, Q50

78 Autotrader Group, ZEV Mandate drives down price of new EVs, 23 May 2024; Transport Committee, Oral evidence: Electric vehicles, HC 742, 15 May 2024, Q45

79 Stellantis boss slams 'terrible' UK electric vehicle policy, Financial Times (subscription only), 25 April 2024; Stellantis threatens to halt UK production over EV targets, Financial Times (subscription only), 25 June 2024

80 Stellantis threatens to halt UK production over EV targets, Financial Times (subscription only), 25 June 2024

81 Autotrader Group, ZEV Mandate drives down price of new EVs, 23 May 2024

Some of the reasons for this lack of demand are explored in the Library briefing on Electric Vehicles and Infrastructure.[82]

Aviation

The CCC's 2024 progress report improved its assessment of the government's sustainable aviation fuel (SAF) policy from "significant risks" to "some risks".[83] This improved assessment followed the government's confirmation, in April 2024, of its policy for the UK's SAF mandate to begin in January 2025.[84] The SAF mandate will set annual, rising targets on aviation fuel suppliers to blend a proportion of alternative jet fuel, made from "sustainable sources" (such as municipal waste), into their conventional jet fuel supply.[85] However, the CCC noted that some of the near-term SAF uptake targets (for instance, reaching a 10% SAF share by 2030) were "ambitious".[86]

In the 2024 King's Speech, the new government also announced a Sustainable Aviation Fuel (Revenue Support Mechanism) Bill which will provide "revenue certainty to encourage investment in the construction of SAF plants across the UK."[87] While the revenue support mechanism is intended to incentivise the supply of SAF, the SAF mandate is intended to create a predictable demand for it.[88]

3.4 Heat and buildings

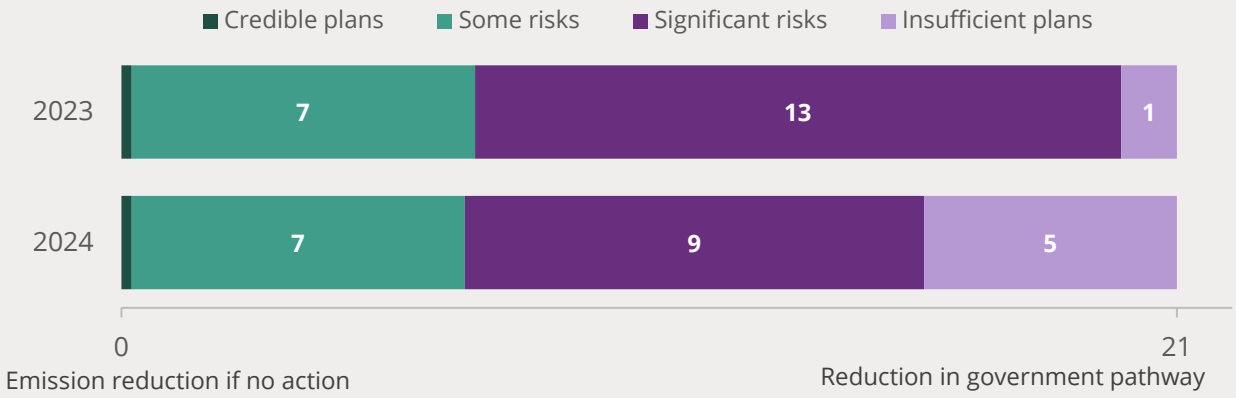
Buildings accounted for 20% of UK emissions in 2022.[89]

As shown in the chart below, the CCC assessed that the proportion of "insufficient" government plans for reducing emissions related to buildings increased from 5% to 24% between June 2023 and July 2024. (assessed "credible" plans are not visible on the chart: these are 0.2 MtCO2-eq, or 1% of the total, in both periods).[90]

82 Commons Library research briefing CBP 7480, Electric vehicles and infrastructure, 12 July 2024
83 CCC, 2024 Progress Report to Parliament, 18 July 2024, p75
84 DfT Consultation outcome, Pathway to net zero aviation: developing the UK sustainable aviation fuel mandate, 25 April 2024
85 These sources include "household waste, industrial gases or used cooking oil". See DfT Press Release, Aviation fuel plan supports growth of British aviation sector, 25 April 2024
86 CCC, 2024 Progress Report to Parliament, 18 July 2024, p80
87 Prime Minister's Office, 10 Downing Street, King's Speech 2024: background briefing notes, 17 July 2024, p50
88 For more background on SAF, see World Economic Forum, What is sustainable aviation fuel and why are only 0.1% of flights powered by it?, 29 November 2023; Commons Library research briefing CBP-8826 Aviation, decarbonisation and climate change, 20 September 2021
89 DESNZ, Final UK greenhouse gas emissions national statistics: 1990 to 2022, 27 June 2024
90 CCC, 2024 Progress Report to Parliament, 18 July 2024.

Buildings: CCC assessment of changes in risks to emission reduction plans

Status of plans for emission reductions required by 2028-2032 in $MTCO_2$-eq



Source: CCC, 2024 Progress Report to Parliament, 18 July 2024.

Three policies that were announced by the then Prime Minister Rishi Sunak in September 2023 contributed to this increase in delivery risk, according to the CCC: exempting 20% of households from the gas boiler ban, delaying the oil boiler ban until 2035 and scrapping the 2028 EPC C rating target for properties in the private-rented sector.[91]

On the other hand, increasing the maximum grantoffered under the Boiler Upgrade Scheme to £7,500 improved the outlook for this sector.

Stakeholders said pushing back the boiler ban until 2035 was expected, as the sector needed wider reforms around pricing and skills, and the CCC had suggested a phase out rather than a ban. [92] Additionally, the increase to the boiler upgrade grant was welcomed.[93] However, the other changes were criticised, for causing more emissions and for undermining business confidence in policy deadlines.[94]

The Labour Party's 2024 election manifesto included a Warm Homes Plan with a budget of £6.6 billion over the Parliament.[95] The plan's aim is to offer grants and low interest loans to support investment in home energy efficiency improvements. Labour said it will partner with local authorities and the private sector to deliver the plan, and said it would aim to provide more private finance to accelerate home upgrades. The plan also said that Labour

91 Gov.uk, PM recommits UK to Net Zero by 2050 and pledges a "fairer" path to achieving target to ease the financial burden on British families, 20 September 2023

92 Carbon Brief, In-depth Q&A: What do Rishi Sunak's U-turns mean for UK climate policy?, 22 September 2023

93 Energy UK, Energy UK responds to the Government's announcement on the Boiler Upgrade Scheme, 30 November 2023.

94 Institute for Government, Rishi Sunak's net zero strategy is not more honest and pragmatic, 22 September 2023

95 Labour, Change: Labour Party Manifesto 2024, [accessed 25 September 2024]

would introduce new minimum energy efficiency standards by 2030 in the private rented sector. Labour claims that no one will be forced to replace existing boilers.

Stakeholders noted that the plan promised less funding than previous Labour Party commitments, though it was still more than spending under the then Conservative government. The think tank E3G said in response:

> The original investment pledge from Labour was £60bn over ten years in green homes, or around £6bn a year. In the plan set out today, they have pledged £13.2bn over 5 years, or around £2.64bn per year. In comparison: this parliament, the Conservatives allocated £4.7bn to home upgrades, or around £0.9bn a year.[96]

Fuel poverty charity National Energy Action said their analysis showed a funding gap of at least £18 billion for energy efficiency measures to meet the legal requirement to ensure fuel poor homes in England are brought up to a reasonable standard of energy efficiency by the end of this decade.[97]

More widely, Carbon Brief reports that cutting emissions from buidlings across the UK "could yield billions of pounds in economic co-benefits", highlighting research that sets out that significant savings in building running costs will be outweighed by the wider socioeconomic benefits of improved air quality and warmer homes.[98]

3.5 Industry

The industry sector contributed 14% of UK greenhouse gas emissions in 2022.[99]

The CCC asessed that the proportion of "insufficient" plans decreased between in 2024, from 70% of the government pathway for industry emissions reductions to 36%. There was a corresponding increase in the proportion of emissions covered by "credible plans", from 5% to 31%.[100] The chart below shows the change in the CCC's assessment of the government's plans relating to industry, in terms of the volume of emissions accounted for by those plans.

96 E3G, E3G response to Labour's £28bn U-Turn and Green Prosperity Plan Update, 8 February 2024

97 National Energy Action, National Energy Action responds to Labour's new warm homes plan, 8 February 2024

98 Sudmant et al., Climate policy as social policy? A comprehensive assessment of the economic impact of climate action in the UK, Journal of Environmental Studies and Sciences, 5 July 2024. As reported in Carbon Brief, Net-zero transition will deliver at least '£164bn in benefits' to UK, 30 July 2024

99 DESNZ, Final UK greenhouse gas emissions national statistics: 1990 to 2022, 27 June 2024

100 CCC, 2024 Progress Report to Parliament, 18 July 2024

There were three policies that contributed to the CCC's improved assessment of the government's plans.[101] These policies were:

- the government's agreement with Tata Steel to transition its steelworks at Port Talbot to electric arc furnaces (upgraded from insufficient to credible plans)
- British Steel's plans to replace its blast furnace with two electric arc furnaces, although these plans rely on government funding that has not yet been approved (upgraded from insufficient plans to "significant risks")
- the rollout of the British Industry Supercharger scheme, which reduces electricity prices for some large industrial users (upgraded from insufficient plans to "significant risks")[102]

The steel industry alone was responsible for nearly 2% of total UK greenhouse gas emissions in 2022.[103] The CCC said that although the government's agreement with Tata Steel represented progress in terms of emissions reductions, there were "serious concerns" about the implementation of these plans from a "jobs and just transition perspective".[104]

Industry: CCC assessment of changes in risks to emission reduction plans

Status of plans for emission reductions required by 2028-2032 in $MTCO_2$-eq

Source: CCC, 2024 Progress Report to Parliament, 18 July 2024.

Despite the improved score, the CCC highlighted industry as one of the key sectors where there are still insufficient plans for emissions reductions.[105] It highlighted that delays to carbon capture usage and storage (CCUS) business

[101] CCC, 2024 Progress Report to Parliament, 18 July 2024, page 77
[102] CCC, 2024 Progress Report to Parliament, 18 July 2024, page 74
[103] ONS, Atmospheric emissions: greenhouse gases by industry and gas, 5 June 2023; SIC 24.1-3: manufacture of basic iron and steel
[104] CCC, 2024 Progress Report to Parliament, 18 July 2024, page 67
[105] CCC, 2024 Progress Report to Parliament, 18 July 2024, page 13 and 71

model plans increased the risk that this technology would not be able to be deployed and scaled up at the required pace.[106]

Developing policies for accelerating industrial electrification was cited as a priority action for the remainder of 2024 (see the above box). The CCC said that although there had been some progress in the rollout of the British Industry supercharger scheme, further action was required to reduce the price of electricity to a level that incentivises industrial electrification and removes biases towards using natural gas or hydrogen.[107] The CCC said this requires a "comprehensive set of policies" including strengthening the UK Emissions Trading Scheme (ETS) to ensure the price is sufficient to incentivise decarbonisation, introducing a Carbon Border Adjustment Mechanism (CBAM) and addressing barriers such as high technology costs and insufficient grid connections .[108]

Electrify Industry is a group of industry stakeholders convened by Make UK (the manufacturers' trade association) representing businesses that want to decarbonise industrial processes through electrification. It published a report containing six policy recommendations (June 2024) that it says are critical for supporting electrification.[109] These included action on electricity prices, the business models for hydrogen production and CCUS, improved grid connections, and skills, among other suggestions.[110]

Alongside actions to reduce emissions, the CCC also said that the government "urgently" needed a long-term strategy for workers experiencing job losses in industries affected by the transition to net zero, particularly at the Tata and British Steel sites.[111] Publishing a strategy to support net zero skills was another of the CCC's priority recommendations for the coming year.[112]

Industry policy overview

The Industrial Decarbonisation Strategy (March 2021) set out the government's plans for industrial decarbonisation.[113] Its approach is focused on reducing emissions in industrial clusters (geographically co-located industrial sites). The strategy set a target to establish four low-carbon industrial clusters by 2030 and at least one net zero cluster by 2040.[114] There are several funding pots and interrelated policy programmes that contribute

106 CCC, 2024 Progress Report to Parliament, 18 July 2024, page 78
107 CCC, 2024 Progress Report to Parliament, 18 July 2024, page 78
108 CCC, 2024 Progress Report to Parliament, 18 July 2024, page 85. The following Library briefings provide background information: Carbon border adjustment mechanism (5 March 2024), UK Emissions Trading Scheme (4 May 2021); Debate on making Britain a clean energy superpower (Section 2.4 on grid connections) (25 July 2024)
109 MakeUK, Electrify industry report, 24 June 2024
110 The CCUS and hydrogen production business models are revenue support mechanisms that cover the cost gap between for example, low carbon hydrogen and high carbon fuels to incentivise investment in CCUS and hydrogen
111 CCC, 2024 Progress Report to Parliament, 18 July 2024, page 78
112 CCC, 2024 Progress Report to Parliament, 18 July 2024, page 9
113 BEIS/DESNZ, Industrial decarbonisation strategy, 17 March 2021
114 BEIS/DESNZ, Industrial decarbonisation strategy, 17 March 2021, page 6

to this goal, including the Industrial Decarbonisation Challenge, Industrial Energy Transformation Fund, CCUS, and hydrogen production business models, among others.[115]

UK Research and Innovation (which oversees the Industrial Decarbonisation Challenge) published an overview of the policy landscape and funding for industrial decarbonisation in its October 2023 report: Enabling net zero: a plan for UK industrial cluster decarbonisation.[116] The report brings together the decarbonisation plans for the UK's six largest industrial clusters and makes recommendations for the actions needed for these plans to progress.[117]

3.6 Agriculture and land use

Agriculture contributed 12% of UK greenhouse gas emissions in 2022.[118]

The CCC assessed that none of the government emission reduction plans in place are "credible". The proportion of plans with "some risks" increased from 6% in 2023 to 38% in 2024. In its progress report, the CCC notes that progress in reducing emissions from agriculture has been particularly slow: total emissions have not significantly decreased since 2008, with "a lack of progress in and extreme uncertainty around policy over the third carbon budget" (2018-2022).[119]

115 UKRI, Industrial Decarbonisation Challenge, 25 July 2024
DESNZ, Industrial Energy Transformation Fund, 22 January 2024
DESNZ, CCUS: Business models, 9 April 2024
DESNZ, Hydrogen production business model, 9 August 2023

116 UKRI, Enabling net zero: a plan for UK industrial cluster decarbonisation, 16 October 2023

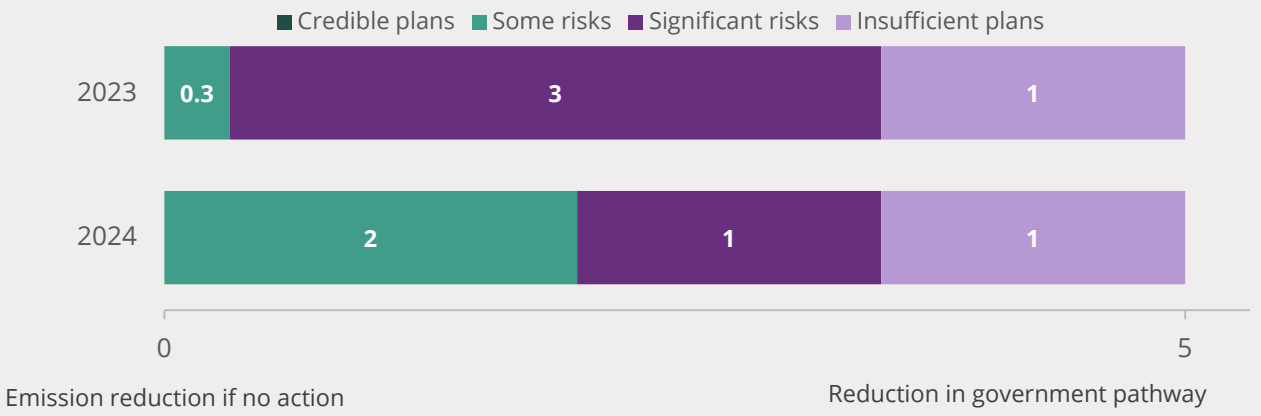
117 The six clusters are industrial sites in: the Humber, the North West, Scotland, South Wales, Tees Valley and the Black Country in the West Midlands

118 DESNZ, Final UK greenhouse gas emissions national statistics: 1990 to 2022, 27 June 2024

119 CCC, 2024 Progress Report to Parliament, 18 July 2024

Agriculture: CCC assessment of risks to emission reduction plans

Status of plans for emission reductions required by 2028-2032 in $MTCO_2$-eq



Source: CCC, 2024 Progress Report to Parliament, 18 July 2024.

In 2019, the National Farmers' Union (NFU) announced its ambition to achieve net zero greenhouse gas (GHG) emissions by 2040 as agriculture's contribution to the UK's overall target of net zero by 2050. The NFU (England) and NFU Cymru (Wales) noted that there was no "silver bullet" and outlined three key areas for action (PDF):

- Improving farming's productive efficiency to reduce our greenhouse gas emissions – enabling farming to produce the same quantity of food, or more, with less inputs in smarter ways
- Farmland carbon storage in soils and vegetation – improving land management and changing land use to capture more carbon, through bigger hedgerows, more woodland, and especially more carbon-rich soil
- Boosting renewable energy and the bioeconomy to displace greenhouse gas emissions from fossil fuels and to create GHG removal through photosynthesis and carbon capture[120]

[120] National Farmers' Union, Achieving net zero: Farming's 2040 goal, September 2019

In September 2024, the BBC reported that the NFU had said that its 2040 target may not be achieved. According to the article, "the NFU said a lack of investment in climate-friendly farming measures by the previous government had made doing that by 2040 'tricky' but insisted that the deadline would not be dropped".[121]

The Scottish Government had set a target to achieve net zero by 2045, with interim targets of a 75% reduction in emissions by 2030 and 90% by 2040 (see Section 1). In April 2024, the Scottish Government accepted what it termed "the CCC's recent rearticulation that this Parliament's interim 2030 target is out of reach".[122] NFU Scotland welcomed this change, stating that "we now need to focus exclusively on net zero but not necessarily be legally bound by deadlines. The emphasis must shift to 'how' rather than being a hostage to 'when'."[123]

121 BBC, Climate change: UK farming 'net zero' target in doubt, warns NFU, 11 September 2024; see also NFU, Parliament puts the spotlight on Back British Farming Day, 11 September 2024

122 Scottish Parliament, Meeting on Climate Change Committee Scotland Report, 18 April 2024

123 NFU Scotland, NFU Scotland comment on Climate Change Target changes, 19 April 2024

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