

CCC Insights Briefing 8 Past Climate Change Committee reports

The Climate Change Committee (CCC) has a large back catalogue of publications over its 12 years of existence.

The Climate Change Committee (CCC) is the independent body established under the UK Climate Change Act in 2008 to provide advice to the UK Government on reducing emissions and preparing for climate change.

The CCC has published 75 full analytical reports since it was set up in 2008, alongside many letters to the Government. These reports and letters include those that are produced to satisfy the CCC's statutory role under the UK Climate Change Act as well as those commissioned independently by the CCC. This briefing summarises the three key strands of the CCC's archive of past reports and highlights specific outputs that may be of interest to a wider audience.

This briefing is structured in five sections:

- Past publications of the Climate Change Committee
- Past statutory advice
- Reports on sectoral and technology specific topics
- Reports on policy
- Reports on the impacts and associated issues of climate policy

This briefing is one of a series on the workings of the UK Climate Change Act and the Climate Change Committee (CCC).

Box 1: CCC 'Insights' Briefings

This briefing is part of a series of eight that document the work of the UK Climate Change Committee (CCC) under the Climate Change Act. The CCC is the UK's independent advisory body on climate change mitigation and adaptation tasked with providing regular advice to Government on emissions targets and adapting to a changing climate. The CCC publishes annual assessments of progress towards meeting these targets, biennial assessments of progress in adapting to climate change, and supporting analyses on key emerging issues. These briefings are intended as a practical guide to give insights on the CCC's work and learning over the twelve years since its foundation in 2008.

The briefings in this series are:

- UK Climate Change Act
- The Climate Change Committee
- The UK's Net Zero target
- Advising on the level of the UK's carbon budgets
- Monitoring progress in reducing the UK's greenhouse gas emissions
- Conducting a climate change risk assessment
- Monitoring progress on adapting to climate change in the UK
- Past Climate Change Committee reports

1. Past publications of the Climate Change Committee

The CCC uses a mixture of reports and letters to publish its advice, all freely available on the CCC's 'Publications' page on its website:
www.theccc.org.uk

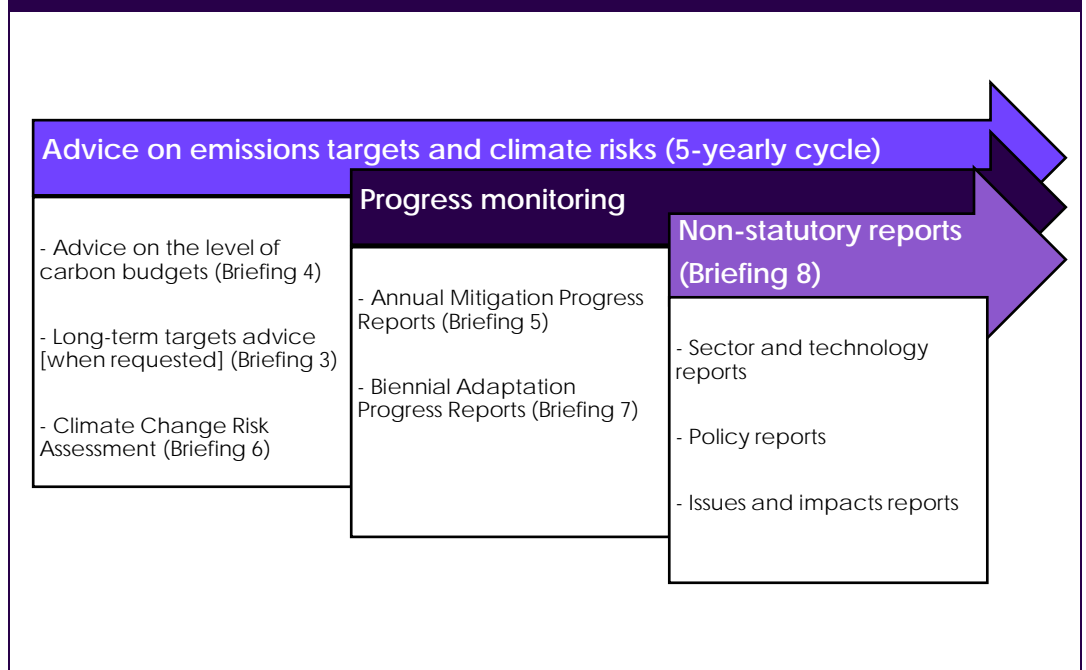
The CCC produces its independent advice largely in the form of publicly available reports and letters to the Government and to Parliament. Reports are used to document the detailed evidence base underlying the CCC's advice, whereas letters are often used to provide the CCC's view on more specific and/or topical issues that are narrower in scope and may require more time-sensitive input. All the CCC's past output is archived on the 'Publications' page of its website, along with any supporting materials such as evidence received and new research.

The CCC's reports can be categorised within three streams which map on to the CCC's statutory duties as set out under the Climate Change Act (Fig. 1). This briefing highlights the most up to date CCC output in each of these streams. Reports are chosen for potential wider interest outside of the CCC, but are not an exhaustive list. A brief synopsis of each report is provided with links to the full report.

This briefing covers past reports on all aspects of the CCC's work, including its non-statutory reports.

This briefing covers the CCC's statutory reports briefly in section 2, with more detail available in briefings 3-7 in this series (as indicated in Figure 1). Sections 3-5 provide a deeper dive on the CCC's non-statutory reports, categorised across: Sectoral and technology reports; Policy reports; Issues and impacts reports.

Fig. 1:
Guide to the Climate Change Committee's past reports



2. Statutory advice reports

This section provides a short summary of the CCC's statutory advice reports. The methodologies underpinning them are covered in detail in other briefings in this series.

The CCC's advice on why Net Zero by 2050 is an appropriate long-term target for the UK was published in 2019.

Advice on the UK's long-term emissions target

- **Net Zero: The UK's contribution to stopping global warming (2019)** This report represents the CCC's most recent advice on the UK's long-term emissions target under the Climate Change Act. It was formally requested by the UK and devolved Governments in October 2018. The report and its supporting technical paper cover the latest climate science, the UK's international contribution to reducing emissions globally, the opportunities for reducing emissions in the UK, the delivery challenges and the costs and benefits of action. It recommended that the UK should strengthen the 2050 long-term emissions target from an 80% reduction relative to 1990 levels to a 100% reduction (Net Zero) target. This was subsequently legislated by the Government. This advice updated the CCC's 2008 advice on the long-term target, which can be found in the *Building a low-carbon economy* report.

Advice on carbon budgets are large reports with detailed costed pathways for reducing UK emissions across all sectors alongside assessments of the latest climate science and international circumstances.

Advice on the level of UK carbon budgets

- **Sixth carbon budget advice (2020)** The CCC is soon to publish its advice on the level of allowable emissions for the UK's Sixth Carbon Budget, covering the period 2033-37. This will represent the most up-to-date advice from the CCC on the transition to achieve Net Zero GHG emissions in the UK by 2050.
- **Fifth carbon budget advice (2015)** This represents the CCC's advice for the level of UK emissions over 2028-32, published prior to the Paris Agreement on climate change. The CCC recommended that the UK aim to reduce its emissions by 57% by 2030 relative to 1990. The report documents in detail how the CCC factors the considerations mandated by the Climate Change Act into its advice and was published alongside a technical report on the detailed techno-economic scenarios for the transition pathways in the UK.
- **Fourth carbon budget review (2013)** As part of accepting the Fourth Carbon Budget advice from the CCC in 2011, the Government committed to a subsequent review on whether the UK's Fourth Carbon Budget remained the right target. The CCC completed its review and found no changes in the evidence base that supported a change to the level of the Fourth Carbon Budget. The Government accepted this advice and the budget level remained unchanged.

The CCC produces an assessment of progress in decarbonising the UK every year.

Mitigation Progress Reports

- **Progress Report (2020)** This report provides the CCC's most recent assessment of progress in reducing emissions across the UK economy, providing for the first time detailed policy recommendations specific to each UK Government department. It also contains advice from the CCC on priorities for a climate-aligned recovery from the economic impacts associated with COVID-19 (also set out in a letter to the Prime Minister).

- **Progress Report (2019)** This report contains the CCC's backward-looking assessment of how the UK met its Second Carbon Budget (2013-17) as required under the UK Climate Change Act. It concluded that overperformance in the carbon budget period was largely because of the recession caused by the global financial crisis as opposed to policy overperformance.
- **Progress Report (2018)** This report contains the most recent documentation of the full sectoral indicator framework for tracking progress across the economy, and the CCC's quantification of the policy gap between expected progress and that required by the carbon budgets. These are being updated with the CCC's Sixth Carbon Budget advice to reflect the pathway towards Net Zero emissions and will return in the CCC's 2021 Progress Report.

Climate Change Risk Assessments are produced every five years and contain a detailed assessment of risks across a range of economic sectors.

UK Climate Change Risk Assessments

- **Second Climate Change Risk Assessment - Synthesis Report (2017)** This report represents the CCC's statutory advice on climate risks facing the UK, as required under the Climate Change Act, and informed by the detailed evidence report accompanying it.
- **Second Climate Change Risk Assessment (CCRA) - Evidence Report (2017)** The most recent detailed assessment of the present and future climate risks facing the UK. These are presented in eight technical chapters covering: Natural Environment and Assets, Infrastructure, People & the built environment, Business and industry, International dimensions, Cross-cutting issues. It contains the detailed methodology used to identify and assess risks in the CCRA.

The CCC assesses progress in adapting to climate change every other year.

Adaptation Progress Reports

- **Progress Report (2019)** This report is the CCC's latest assessment of UK progress to adapting to a changing climate across areas of risk including: Natural environment, People and the built environment, Infrastructure, and Business. It contains the methodology used for tracking indicators for adaptation progress and evaluating the strength of adaptation planning.

The CCC also has a role to provide advice and assess progress in some of the UK's devolved administrations under their own climate change legislation.

Devolved reports

- **Building a low-carbon economy in Wales – Setting Welsh carbon targets (2017)** This report advises on the level at which Welsh interim carbon targets and Welsh carbon budgets should be set. It was produced in response to a request from the Welsh Government to the CCC for independent advice on these targets. The CCC's advice considers specific factors relating to the Welsh economy and its sources of emissions.
- **Reducing emissions in Scotland – 2020 Progress Report to Parliament (2020)** This report is the ninth annual Progress Report to the Scottish Parliament, required by Scottish Ministers under the Climate Change (Scotland) Act 2009. It assesses Scotland's progress in achieving its legislated targets to reduce greenhouse gas emissions.
- **Final assessment of Scotland's first Climate Change Adaptation Programme (2019)** This report is the second independent assessment of the Scottish Climate Change Adaptation Programme, required under the Climate Change (Scotland) Act 2009. The assessment focuses on what has changed since the CCC's first assessment in 2016, in implementing policies

and actions set out in the SCCAP and in managing Scotland's vulnerability to climate risks.

3. Sectoral and technology reports

Sectoral and technology-focused reports take a deep dive into specific areas, primarily focused on strengthening the evidence base.

Reports on cross-sectoral or finite resources, such as biomass and hydrogen, have aimed to identify how and where they can be used to most effectively contribute to the UK's emissions reduction goals.

Sectoral or technology-specific reports are provided by the CCC in response to Government requests or where additional targeted analysis is needed to strengthen the evidence base used in the CCC's statutory advice.

- **Hydrogen in a low-carbon economy (2018)** This report assesses the potential role of hydrogen in the UK's low-carbon economy. It concludes that hydrogen is a credible option to help decarbonise the UK energy system alongside other options but depends on early Government commitment and improved support. Hydrogen could replace natural gas in parts of the energy system, where electrification is not feasible or is prohibitively expensive, for example in providing heat on colder winter days, in industrial heat processes and as back-up power generation. However, hydrogen is not a 'silver bullet' solution. The report explores some common misconceptions around hydrogen.
- **Biomass in a low-carbon economy (2018)** This report aims to understand how low-carbon and sustainable biomass can be identified, how much low-carbon and sustainable biomass could be available for use in the UK, and how it can be most efficiently used in a low-carbon economy to maximise the overall climate benefits. It concluded that countries such as the UK should not be aiming to decarbonise through very large imports of biomass, instead aiming for a 'fair-share' of a global resource with any imports helping to drive up global biomass sustainability standards. The report identified a best-use hierarchy for long-term biomass use, with a preference for use in construction where appropriate (timber) or with carbon capture and storage in energy applications to maximise the total amount of avoided and sequestered emissions. This report updated the CCC's previous assessment on the role of biomass in decarbonisation from the 2011 *Bioenergy Review*.
- **Land Use: Reducing emissions and preparing for climate change (2018)** This report assesses the role of land in meeting climate change mitigation and adaptation objectives. It was produced jointly between the mitigation and adaptation teams of the CCC. It finds that using land effectively will be a critical part of a low-carbon future. This will require substantial land use change to improve tree-cover, support low-carbon farming practices, increase biomass supply and restore peatlands. The report finds these alternative uses can be economic for farmers and land managers, but Government must provide help for them to transition.
- **UK housing: Fit for the future? (2019)** This report assesses whether the UK's housing stock is adequately prepared for the challenges of climate change; both in terms of reducing emissions from UK homes and ensuring homes are adequately prepared for the impacts of climate change. It found that the UK's climate change targets will not be met without the near-complete elimination of greenhouse gas emissions from UK buildings. The report flagged that progress in both reducing emissions from homes and adapting them to the effects of climate change have stalled, and highlighted five areas of required progress to get them back on track:

The CCC was commissioned by the incoming Coalition Government in 2010 to provide advice on what role renewable energy could play in UK decarbonisation.

improving performance and compliance, addressing skills gaps, retrofitting existing homes, low-carbon new homes, addressing finance, and funding.

- **Renewable Energy Review (2011)** This report was produced in response to a request from the UK Government to advise on the scope to increase ambition for energy from renewable sources. It concluded that renewables are a part of a range of promising options for decarbonisation including nuclear energy and carbon capture and storage. The Review concluded that renewables should play a major role, and that a portfolio approach to renewable technologies in the power sector (including extending the commitment to offshore wind) is a prudent approach. The report highlighted that new policies are required to support technology innovation and to address barriers to uptake in order suitably to develop renewables as an option for future decarbonisation.
- **International Aviation and Shipping (2012)** This report recommended that emissions from international aviation and shipping should be formally included in the scope of carbon budgets and the UK's 2050 emissions target. That would improve clarity and transparency and increase flexibility in meeting the legislated targets. The report recommended that non-CO₂ warming effects from aviation (e.g. contrails) should be further researched, monitored and reduced where possible, but not included in carbon budgets. The report drew on earlier reports assessing options for reducing emissions from shipping (2011) and aviation (2009).
- **Onshore petroleum: The compatibility of UK onshore petroleum with meeting the UK's carbon budgets (2016)** This report was produced to satisfy a duty under the UK Infrastructure Act 2015 for the CCC to advise the Government about the implications of exploitation of onshore petroleum, including shale gas, for meeting UK carbon budgets. It found that exploitation of shale gas on a significant scale is not compatible with UK carbon budgets, or the 2050 commitment to reduce emissions by at least 80%, unless three tests are satisfied: tight limits on fugitive emissions, gas consumption remaining in line with carbon budget requirements, and ensuring that reductions in emissions are made elsewhere in the economy to compensate for additional shale gas production emissions and so keep to the legislated carbon budgets.

4. Policy-focused reports

Policy-focused reports aim to provide independent advice on specific aspects of climate policy.

The CCC produces policy-focused reports and letters to provide timely input to UK climate policy questions.

- **An independent assessment of the UK's Clean Growth Strategy: From ambition to action (2018)** This report assesses the Clean Growth Strategy, which set out the Government's economy-wide policies and plans to meet the legislated Fifth Carbon Budget, as required under the UK Climate Change Act. The CCC's assessment concluded that the strategy was a strong commitment to meeting the legislated carbon budgets, but that some important policy gaps still remained. This would require additional policies from the Government and a firming up of existing and planned policies under the strategy to reduce the risks of under delivery.
- **Land use: Policies for a Net Zero UK (2020)** This report presents the CCC's first ever in-depth advice on UK agricultural and land use policies. The report sets out a detailed range of policy options to drive emissions

reductions from land including: a regulatory baseline to ensure low-regret changes occur (e.g. banning peat extraction), funding for more costly measures like afforestation (e.g. with payments through auctioned contracts or a carbon trading scheme) and enabling measures to address non-financial barriers like lack of skills or awareness. Wider policy levers would also be needed to encourage reductions in food waste and a shift in diets away from the most carbon-intensive products (beef, lamb and dairy).

- **Next steps for UK heat policy (2016)** This report considers the challenges for decarbonising the heating of buildings in the UK. It highlighted the substantial energy and GHG footprint of heating today, and the range of options that could play a role in decarbonising heat (including heat pumps, hydrogen, biomethane and district heat networks). The report highlighted low-regrets actions that should be taken today (such as improved energy efficiency, high new build standards) as well as the need for strategic decisions in the 2020s regarding the future of the gas grid and the role of hydrogen in providing buildings heat.
- **Next steps on Electricity Market Reform – securing the benefits of low-carbon investment (2013)** This report focuses on the actions that the Government could be taking to support the essential power sector decarbonisation needed to deliver the UK’s economy-wide objectives. It highlighted the need for a clear long-term signal about the future market to support the development of projects and recommended a set of measures to improve conditions for investment including: a clear target for electricity carbon-intensity by 2030, strategies to support less-mature technologies and committing to near-term levels of offshore wind deployment through long-term contracts from Government.
- **How local authorities can reduce emissions and manage climate risks (2012)** There is currently no requirement for local authorities to take action on climate change, but there is a crucial role for councils in helping the UK meet its carbon targets and preparing for the impacts of climate change. This report outlines specific opportunities for reducing emissions and highlights good practice examples from several local authorities. Updated advice on what local authorities can do will be provided by the CCC alongside its advice on the Sixth Carbon Budget.
- **Building a low-carbon economy – the UK’s innovation challenge (2010)** This report was produced in response to a Government request for the CCC to carry out a review of low-carbon innovation in the UK. This report highlighted the role of public support and policy in developing technologies and suggested areas of the decarbonisation challenge where the UK has a comparative advantage in technology development including: offshore wind, marine, carbon capture and storage (CCS) for power generation, aviation technologies, smart grids, and electric vehicle technologies.
- **Adaptation Reporting Power: second round review (2017)** This report reviewed the second round of the required reporting by key organisations on the steps they are taking to prepare for climate change. It concluded that this reporting was useful to help prepare for climate change, that the next round of reporting should be mandatory, and the scope of included organisations should be widened with improved guidance to elicit more uniform, meaningful and quantified information.
- **Managing the coast in a changing climate (2018)** This report investigated the long-term challenges of managing England’s coastline against the

The CCC has previously provided advice on how local Government can contribute to the UK’s climate goals.

Policy-focused reports from the CCC span both its mitigation and adaptation roles.

backdrop of a changing climate. It concluded that the current approach to coastal management in England is unsustainable in the face of climate change. It also highlighted that sustainable coastal adaptation is possible and could deliver multiple benefits but would require a long-term commitment and proactive steps to inform and change social attitudes.

5. Issues and impacts reports

The CCC produces reports focused on issues associated with climate policy and its wider impacts. These reports can help tackle climate related issues that fall outside of the UK Climate Change Act framework (e.g. overseas carbon footprint) and help strengthen the evidence base for the assessment of the societal impacts (e.g. fuel poverty) that the CCC is required to consider when providing advice on the level of UK carbon budgets.

The CCC has regularly looked at the impacts of climate policy on UK energy prices and bills, including in recent Progress Reports.

- **Energy prices and bills report (2017)** The CCC has undertaken regular assessments of the impact of the UK's climate policies on energy bills for households and businesses. This report's analysis highlighted that while there has been some impact on household energy bills due to low-carbon policies and associated network costs these were more than offset by reductions in energy use, in part due to efficiency policies. This is likely to continue to be the case in future under measures to meet existing carbon budgets and current policy choices. Low-carbon policies increase energy prices for businesses, but have only a limited impact on the total costs of production for the majority of businesses. The report found that low-carbon policy had not had a major impact on competitiveness to date and recommended that the opportunities from the low-carbon economy should be integral to the UK's industrial strategy.
- **Reducing the UK's carbon footprint and managing competitiveness risks (2013)** This report examines both the size of the UK's carbon footprint and the impact of low-carbon policies on UK competitiveness. This was produced in response to a Government request for the CCC's advice on the UK's carbon footprint. The report highlighted that the UK's carbon footprint had grown over the 2000s and 2010s, but that offshoring of industry in response to low-carbon policies has had at most a minor impact in reducing production emissions, and the carbon footprint would have increased more had production emissions not been reduced. More recent analysis of the UK's carbon footprint is available in the 2019 Net Zero report and 2020 Progress Report.
- **Quantifying Greenhouse Gas Emissions (2017)** This report assesses how the UK's greenhouse gas emissions are quantified, where uncertainties lie, and the implications for setting carbon budgets and measuring progress against climate change targets. It concluded that the GHG inventory is based on robust methodologies with a small number of sectors (e.g. land-use) contributing the most to the economy-wide uncertainty.
- **Implications of Brexit for UK climate policy (2016)** This briefing note, issued after the UK vote to leave the European Union, considered implications for UK climate policy. It concluded that the UK's climate goals were not changed and that stronger policies and a clearer direction were needed to deliver those goals. However, UK policy would now need to replace EU policy, which covers over half of the emissions reductions required by the UK's legislated carbon budgets. This provides an opportunity to improve on some policy approaches, particularly for agriculture.



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