

# CCC Insights Briefing 5

## Monitoring progress in reducing the UK's greenhouse emissions

Regular and independent assessments of progress are a key element of the UK Climate Change Act.

The UK Climate Change Act requires the Climate Change Committee (CCC) to produce an annual assessment of progress towards the UK's emissions reduction targets. This independent assessment documents the changes in UK greenhouse gas emissions, the factors driving those changes, developments in technology and policy, and projections for future UK emissions. Where the CCC identifies risks that future carbon budgets may not be met, the reports make recommendations to Government for how they can get progress back on track.

The annual cycle of CCC progress assessment ensures Government is regularly and transparently held accountable for delivering on its legislated targets and has created an opportunity for adaptive policymaking that responds to emerging challenges in a timely and evidence-based way.

This briefing discusses how the CCC approaches its annual assessments of progress in reducing UK emissions. It focuses on how the CCC has aimed to identify problems early enough for them to be addressed before an emissions target is missed. Assessment of progress in adapting to climate change is covered in a separate briefing as part of this series.

This briefing is structured in four sections:

- Progress monitoring under the UK Climate Change Act
- Indicators of progress towards a low-carbon economy
- Assessing the effect of climate policies
- Assessing economy-wide progress

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 learnings 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. Progress-monitoring under the UK Climate Change Act

The Climate Change Act places several obligations on the UK Government in reducing greenhouse gas (GHG) emissions:

- **A long-term target** for 2050 – this is now set as a 100% reduction in emissions relative to 1990 levels, a Net Zero target.
- **A set of five-yearly carbon budgets** which create legally-binding obligations to reduce emissions extending out over the next 12-16 years. These are set on the path to reaching the long-term target for 2050.
- **A requirement to bring forward policies** to enable the carbon budgets and the long-term target to be achieved.

The CCC produces an independent assessment of progress in reducing emissions which is submitted to Parliament each year. Government has a duty to respond to this.

The CCC advises on the level of the long-term target and the carbon budgets and is required to annually report to Parliament on progress towards these targets. These Progress Reports contain the CCC's assessment of progress towards the legislated carbon budgets and long-term target, the additional effort that is needed to achieve the legislated carbon budgets and long-term target, and the overall assessment of whether these targets are currently likely to be met. Following the completion of a carbon budget period, the CCC is also required to undertake a retrospective assessment of action within that budget period and the reasons as to why the budget was met or not.\*

The Government is obliged to respond to the annual Progress Reports from the CCC, formally setting out in Parliament an official response to the conclusions and recommendations raised in the CCC's most recent progress assessment.

The CCC also has obligations to report on progress in reducing emissions under separate climate legislation in Scotland and Wales.

## 2. Indicators of progress towards a low-carbon economy

Since its first Progress Report in 2009, the CCC has considered that meeting its obligations under the UK Climate Change Act requires it to look beyond published emissions accounts and focus on underlying progress and leading indicators of future emissions. This approach allows the CCC to identify potential problem areas in advance and highlight where additional action is required.

Effective progress-monitoring requires a range of indicators that go beyond headline emissions numbers.

A hierarchy of indicators is used to capture the multiple aspects of progress needed to transition successfully to a low-carbon economy (Fig. 1 provides an example for the power sector). Together this hierarchy provides a thorough picture of the current progress and upcoming challenges in each part of the economy.

- **Headline indicators:** The current level of emissions from each sector and sub-sector of the economy. This is often broken down further to separate out the level of demand (e.g. amount of electricity used) from the emissions intensity of a sector (e.g. carbon intensity of electricity).

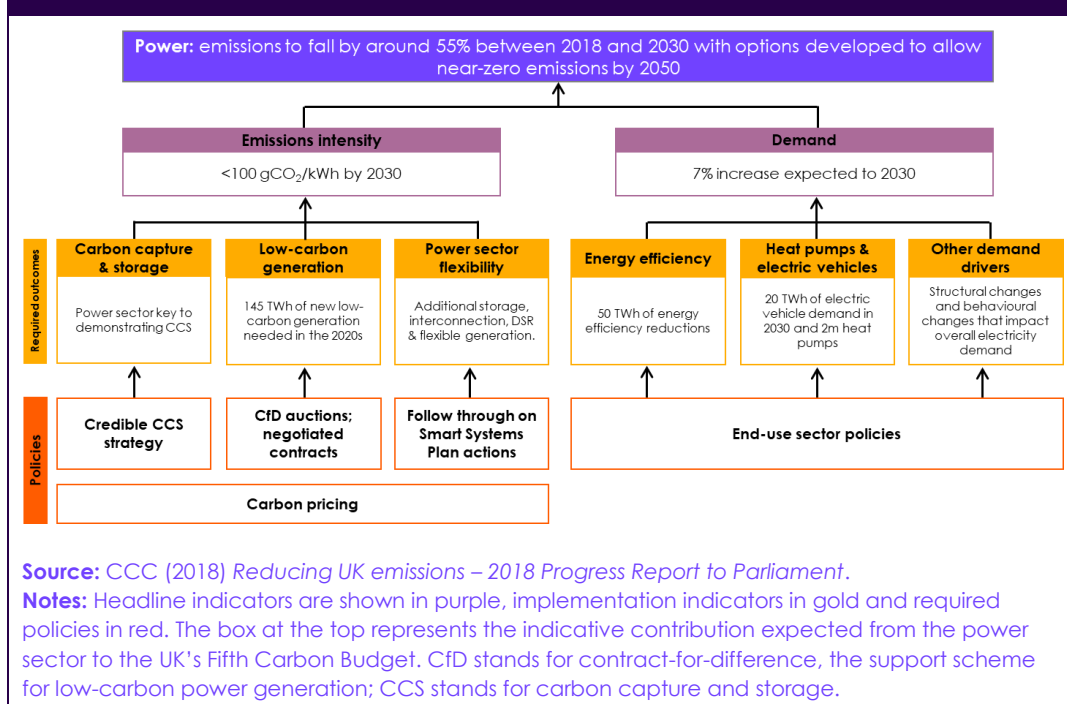
\* The CCC's retrospective assessment for the most recent (second) carbon budget period (2012-17) was published in its 2019 annual Progress Report.

The CCC's indicators combine implementation measures (technology and behavioural), policy and contextual drivers such as public attitudes.

- **Implementation indicators:** These measure the fundamental changes going on across the economy. They can be both technological (e.g. the deployment of low-carbon generation in the electricity sector or installation of improved insulation in residential buildings) and behavioural (e.g. changes in car use). Some implementation indicators can be 'forward-looking' such that they should deliver emissions savings in the future (e.g. the capacity of low-carbon electricity projects being constructed).
- **Policy milestones:** Enabling measures need to be in place to support the implementation of low-carbon solutions in the economy, for example ensuring that a fair and sustainable funding mechanism is in place to support deployment. Tracking of policy milestones from central and devolved governments enables the CCC to assess the extent to which these are in place.
- **Other drivers:** The CCC also monitors important contextual factors where progress is expected such as technology costs, supply chains and public attitudes, as well as progress in international climate negotiations and agreements. Other factors such as GDP, fuel prices and recent seasonal temperatures provide valuable context.

**Fig. 1:**

CCC indicator hierarchy for the power sector



Availability of high-quality datasets are critical to undertaking the CCC's progress-monitoring role.

Access to appropriate sources of data are critical to developing useful and accurate indicators of progress. The CCC has generally been able to access the necessary sources of data to make its assessment. Where sources of data do not exist, the CCC tries to work with others to develop these datasets and make them available for use in its analysis or may recommend to Government that it develops relevant datasets.

Indicators of change in the UK economy are compared to the scenarios used in the CCC's advice on the level of the UK's carbon budgets to assess whether progress is enough.

For the headline and implementation indicators the CCC judges progress compared to CCC scenarios for the transition required to meet the legislated carbon budgets.\* These scenarios are typically first developed for the CCC's advice on the appropriate level of carbon budgets and are intended to demonstrate a cost-effective and deliverable pathway that would meet the carbon budgets and prepare for the 2050 target (more details in *Briefing 4*).

It is unlikely that the real economy's pathway will (or should) exactly reflect the pathway of CCC indicators, for example due to the impact of a recession or unanticipated changes in the cost of technologies. Therefore, the indicator trajectories used for assessing progress within any one sub-sector are not intended to be prescriptive, but rather are indicative of the changes that are likely to be needed to meet the carbon budgets. Across the economy most indicators will need to be on track (or exceeding the target indicator level) to provide confidence that the carbon budgets will be achieved overall, but underperformance in one area could in theory be compensated by overperformance elsewhere.

### 3. Assessing the effect of climate policies

The CCC's annual Progress Report contains an assessment of the expected impact of current policies on future emissions.

Since 2014, the CCC Progress Report to Parliament has contained an assessment of the expected future emissions reductions associated with current and planned Government policy. This is used to provide a forward-looking assessment of the emissions reductions expected over the coming years to understand how on track policy is in each sector to deliver the changes needed to meet legislated carbon budgets. Estimates of the potential emissions reductions from Government policy are taken from Government impact assessments where available or mapped from CCC scenarios where they are not.

The CCC assesses policy based on its direction, design, incentives and funding.

The CCC uses several criteria to assess current and planned Government policies:

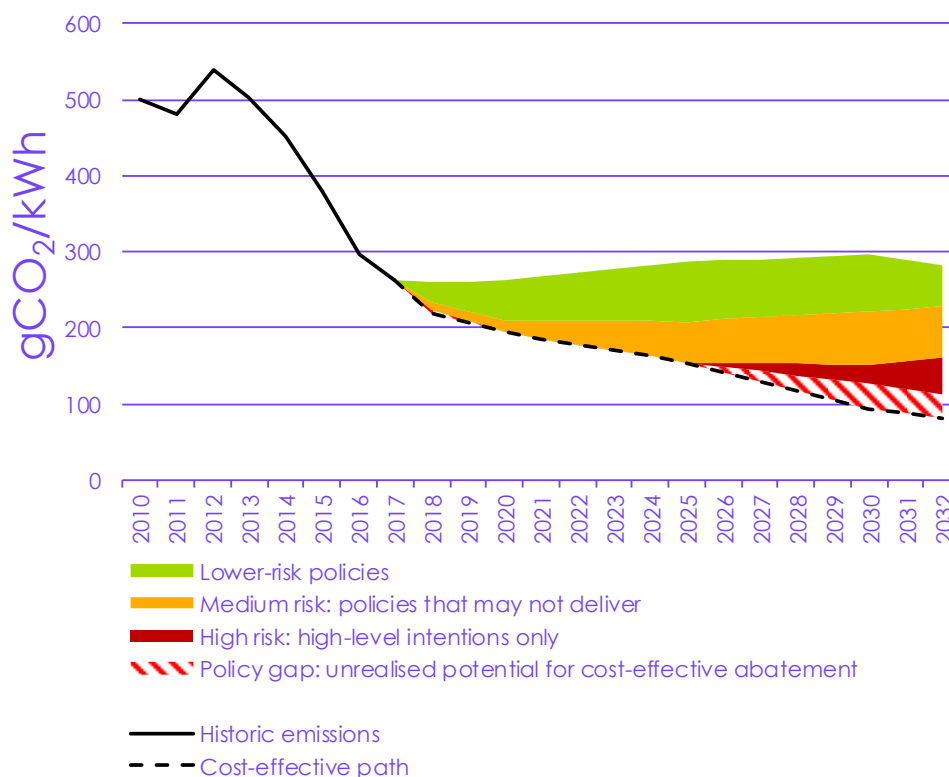
- **Design and implementation:** Is the policy well-designed, does it have a clear direction, and is it likely to be effective and tackle the relevant barriers to success?
- **Incentives:** Are the right incentives in place (e.g. monetary and regulatory incentives) to deliver the necessary reductions in emissions?
- **Funding:** Is there adequate funding in place now and for the future?

Policies (and their associated expected emissions reduction) are grouped into several categories based on this assessment:

- **Lower risk** policies meet all the above criteria. They are expected to succeed and deliver emissions reductions in the coming years with high confidence.
- **Medium risk** policies fall short in at least one of the above categories. There are significant delivery risks and uncertainties in the emissions reductions they will deliver without steps to address these shortcomings.

\* More detail on how these scenarios are developed is set out in the accompanying briefing note 4 on setting carbon budgets. The scenarios are also regularly updated to track real-world developments which may not have proceeded as anticipated in the original scenario and to reflect new understanding of cost-effective ways to achieve current legislated targets.

**Fig. 2** Example projection from 2018 of the effect of current policies and remaining 'policy gap' to the pathway consistent with meeting the UK's Fifth Carbon Budget for the UK's power sector.



**Source:** CCC (2018) *Reducing UK emissions – 2018 Progress Report to Parliament*

**Notes:** Emissions from the sector in the absence of current policies are shown by the top of the green wedge. The green, yellow and red wedges represent the additional emissions savings from current and planned policies with different levels of risk. The red and white hatched area represents the remaining gap between the expected emissions from the sector if all policies fully deliver and the cost-effective pathway (dashed black line) consistent with meeting the legislated carbon budgets. Since this report in 2018 power sector emissions have reduced further and UK Government has announced policies to help close the policy gap including increasing the target for offshore wind power capacity by 2030 from 30 gigawatts to 40 gigawatts.

- **High risk** policies fall short across all three areas, or only consist of high-level proposals or intentions without full details. Abatement associated with these policies cannot be relied on to materialise.
- **Policy gap.** In parts of the economy where there are currently no policies in place to help reduce emissions, but where cost-effective opportunities to reduce emissions exist (according to the CCC's assessment of the path to meet the carbon budgets and the long-term target), there is deemed to be a *policy gap* that should be closed.

This categorisation of current policies and their expected emissions reductions helps identify where additional action is needed to be on track to meet the legislated carbon budgets (Fig. 2). The CCC Progress Reports also provide an assessment of where and when actions could be taken to close the identified policy gaps. This is summarised into a set of forward-looking policy recommendations and milestones that should reduce the policy gap over time and move medium and high-risk policies into the lower-risk category.

The policy recommendations are a key part of the CCC's annual advice which the Government must respond to formally within four months.

These policy recommendations form a key element of the CCC's advice to Government in the annual Progress Reports. The actions that are needed over the next year to close the policy gap are of particular importance.

In the 2020 Progress Report, policy recommendations were summarised by the relevant Government department in order to aid with the identification and accountability of the responsible departments – an approach that has been welcomed so far by Government, Parliament and external stakeholders.

The Government is legally required to issue a formal response to this set of policy recommendations by October 15<sup>th</sup> of the same year (less than four months later).

## 4. Assessing economy-wide progress

The CCC's annual Progress Reports collate the sectoral assessment at the economy-wide level to assess overall progress, highlight cross-economy considerations for effective climate policy, and identify lessons from past progress that can inform future efforts.

Economy-wide perspectives are used to complement the sectoral analysis and identify cross-cutting lessons and recommendations.

- **Assessment of overall progress towards carbon budgets:** The level of the carbon budgets in the UK Climate Change Act are binding at the economy-wide level. Aggregation across all the sector-level assessments and policy analyses forms the CCC's findings on progress towards the carbon budgets. While historically compliance against the UK's carbon budgets for sectors covered by the EU Emissions Trading System has been based on *net* emissions after trading of emissions permits, the CCC has always assessed both net emissions and actual emissions arising in the UK. The CCC has also included implementation indicators for these 'traded' sectors, given their importance in wider economy decarbonisation and meeting the 2050 target.
- **Assessing cross-cutting elements needed for decarbonisation:** Coordination across the economy is essential to delivering the transitions needed to achieve Net Zero emissions by 2050. Cross-economy assessment can help identify the extent to which wider enabling conditions are in place (e.g. public engagement, just transition strategies, skills and training provision).
- **Identifying lessons from past progress:** Progress to date can offer lessons for how to successfully achieve further progress in future. The CCC's 2020 Progress Report identified several lessons from the progress made in the UK since 2008. These included: clear directions for policy, the importance of enabling measures, and fairness as a key part of policy design.

Other measures of the UK's climate impact are tracked and assessed by the CCC as well.

The CCC has also used its economy-wide assessment to report on progress in measures of climate impact that are related to, but not directly included within the emissions formally tracked under the UK Climate Change Act. A key example is the UK's consumption emissions, which measures the total of both domestic and overseas emissions relating to the production of all the goods and services that are consumed within the UK. The CCC tracks the changes in the UK's consumption emissions in order to monitor whether the reductions in the UK territorial emissions in pursuit of the legislated carbon budgets are also leading to overall reductions in the UK's total emissions footprint.

The CCC expects to refresh its approach to progress monitoring again in its 2021 Progress Report, following on from its advice on the Sixth Carbon Budget, which for the first time will set the UK on a legislated path to the target of reaching Net Zero greenhouse gas emissions by 2050.



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