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Cabinet Secretary for Net Zero and Energy
Scottish Government
Sent by email

Climate Change Committee
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Dear Cabinet Secretary,

I am writing in response to your letter dated 22 April 2024, requesting advice and perspectives on how to design and implement carbon budgets in Scotland.

It is deeply disappointing that the Scottish Government has decided to withdraw its 2030 and 2040 interim targets. When set, these represented an ambitious commitment to the pace of decarbonisation in Scotland; however, the Scottish Government's development and implementation of plans were too slow, and action has not kept pace with this ambition.

We are reassured that the 2045 Net Zero target will remain in place, as this remains the correct target for Scotland. It is crucial that the Scottish Government now acts quickly to put back in place a legal framework to drive action and restore certainty and confidence in Scotland's pathway to Net Zero.

Carbon budgets

Scotland's current legal framework sets annual targets for the level of emissions reduction each year. Such annual targets offer the advantage of ensuring regular scrutiny of decarbonisation progress. However, these are highly vulnerable to year-to-year fluctuations in emissions (e.g. due to variations in winter temperatures affecting heating demand), which can make it difficult to discern whether an individual target being achieved is reflective of effective policy or merely circumstance.

These fluctuations are smoothed within multi-year budgets, which therefore provide a more reliable indicator of underlying progress. From experience in the UK and Wales, five-year carbon budgets are most appropriate. This provides a reasonable balance between being sufficiently long to provide a more reliable signal of sustained progress, while also being sufficiently short to retain the necessary sense of urgency and allow plans to be adjusted as more information becomes available. There is value in the duration of budgets being consistent with the other nations of the UK. The Scottish Government should also consider aligning the start and end years for budgets with the UK carbon budgets, as policies developed in Scotland will need to contribute to delivering the emissions reductions required under both frameworks.

Carbon budgets provide a series of stepping stones to reach the Net Zero objective. They set out the pace of emissions reductions required during each

period, making the changes needed to achieve the end goal more tangible. Budgets should be set into law sufficiently far in advance to allow business investment cycles to react and ensure that required enabling policies can be developed, implemented, and take effect. Legislating each budget should be accompanied by a detailed plan identifying what actions will be needed to achieve it and laying out what these enabling policies will be.

Moving to carbon budgets need not result in a loss of regular scrutiny. The Scottish Government should develop a monitoring and evaluation plan to highlight where there are risks of delivery falling behind the pace of change that is required. Along with the latest emissions data, underlying indicators of progress – including metrics tracking uptake of the various low-carbon technologies and consumer/business choices that will be required – will also be a crucial tool in this progress monitoring. The Scottish Government should aim to track a range of key indicators and use these to identify whether deployment is scaling up at the pace required to meet future carbon budgets. The Committee's monitoring framework can provide an indication of the sort of indicators which should be included. To enable effective scrutiny and support collaborative efforts between government, businesses, and the public, the Scottish Government should be transparent in this monitoring and evaluation. This can allow for early identification of potential issues before they translate into impacts on emissions trajectories, allowing action to be taken to mitigate the risks and get things back on track. The Scottish Government's delivery plans should include a range of credible contingency plans that can be activated to achieve this if necessary.

The Scottish Government should also continue to ask the Committee to assess its progress in reducing emissions regularly. The Committee's progress monitoring includes assessment of both short-term changes and longer-term trends in emissions against the pace of emissions reduction required. The Committee also considers the effectiveness of relevant policy instruments and the wider context around the changes that have been seen. For Wales and Northern Ireland – who both have five-yearly carbon budgets – the legislative frameworks require the Committee to produce progress reports after the conclusion of each budget period as well as in a predefined series of years during the timeline to Net Zero. This typically results in either one or two reports per budget period. An annual progress report is produced for the UK, which also assesses progress in reducing emissions within each nation of the UK and reviews developments in both devolved and reserved policy areas. Our recommendation is that a regular cadence of at least two dedicated reports on Scottish progress per budget period, coupled with this more frequent assessment through the annual UK-wide reports, would provide an appropriate level of scrutiny.

Technical considerations in designing carbon budgets

It is important that carbon budgets provide a clear signal to policymakers, investors, and the wider public about the extent of the emissions reductions that are required. This is most effectively achieved through setting budget levels in simple, transparent terms based on the published emissions inventory data without making complex adjustments or exceptions. It also requires that the Scottish Government is transparent in releasing timely data on emissions progress and is proactive in identifying potential shortfalls and enacting contingency measures to address them.

This can be achieved either through carbon budgets set in terms of absolute levels of emissions or using percentage reductions relative to a base year (e.g. 1990). In either case, the level of ambition embodied within these budget levels when they are set is equivalent. However, the two types will diverge from one

another as changes are made to the inventory of emissions. Such changes are made to reflect improvements in the methodology for estimating emissions, based on evolving scientific understanding. Emissions in the agriculture and land use sectors have tended to be most susceptible to such inventory changes. It is neither possible nor desirable to stick with the emissions inventory methods in use when a carbon budget was first set. Therefore, the inventory under which performance against a budget is assessed will likely differ from that under which it was set. This can make it harder or easier to achieve a given level of emissions reduction in absolute terms.

There are advantages and disadvantages to either approach to setting budget levels. Setting these in terms of absolute levels of emissions, as in UK carbon budgets, offers the greatest simplicity and therefore clarity on the level of emissions that will be permitted. Budgets set in absolute terms also remain more closely aligned to the underlying science linking the absolute quantity of greenhouse gas emissions produced to the extent of climate change. However, the level of effort required to achieve absolute levels of emissions reduction can be more susceptible to certain types of change in the emissions inventory. The use of budgets based on percentage reductions can reduce this effect, as changes in the inventory will affect estimates in both the budget period and the baseline year. As these changes will typically be in the same direction, the impact on the required percentage change will generally be smaller than that on the absolute level of emissions in the budget years. The disadvantage is that carbon budgets based on percentage reductions are then forever tied to the estimate of emissions in the baseline year – if there are changes to this estimate, then these will impact the level of the percentage reductions required. As emissions diverge further from levels in the baseline year, the balance of sectors will become very different. This could make budgets based on percentage reductions vulnerable to impacts from inventory changes, even if these do not substantially affect the absolute level of emissions during the budget period. The Scottish Government should carefully consider these advantages and disadvantages when deciding on its proposed approach.

Scotland's Net Zero target includes emissions from its share of international aviation and shipping. These emissions should therefore also be included within carbon budgets, to ensure that these budgets set a pathway towards this overall target across all sectors in which action will be required. Including international aviation and shipping emissions would also be consistent with the approach taken in UK Carbon Budgets from the Sixth Carbon Budget onwards.

[Timelines for CCC advice for the devolved governments](#)

The Committee is currently developing analysis for advice on the UK's Seventh Carbon Budget, which is due to be published in early 2025. This analytical work involves producing updated pathways for the cost-effective feasible pace of decarbonisation required in each sector of the UK economy, taking into account technology readiness, consumer and business choices, costs, and the latest evidence on real-world action to date. As part of this analysis, the Committee will produce updated pathways for each of the devolved administrations, reflecting nation-specific data and assumptions where possible.

This will represent a significant update to the Committee's evidence-base, which we will use to advise on decarbonisation trajectories and monitor progress across the UK over the coming five years. This updated evidence-base will form the best basis on which to provide advice on appropriate levels for carbon budgets in Scotland. The Committee will be pleased to provide that advice in 2025 if the Scottish Government chooses to request it.

In the meantime, it is vital that policy development and implementation move forward with urgency alongside the development of a new legal framework, to avoid stalling progress in reducing emissions. The Scottish Government should aim to reduce emissions in the fastest and fairest possible way. The pathway set out for Scotland in the Committee's 2022 advice on Scottish targets provides a guide for the pace of change that is needed and the step-up in delivery that will be required to achieve Scotland's 2045 Net Zero target. By the end of this decade, Scotland will need to: treble the pace of roll-out of public electric vehicle charge points, reduce car traffic by 20%, increase heat pump installation rates by a factor of at least thirteen, and double onshore wind capacity. Woodland creation will need to more than double by the mid-2020s and peatland restoration rates need to increase significantly.

Recent events have highlighted the importance of legal commitments set in line with independent expert evidence. The Committee strongly urges the Scottish Government to act quickly to implement a new legal framework, bringing its approach in line with the other nations of the UK. This is crucial to restore confidence and avoid a vacuum of ambition around Net Zero.

I am very much looking forward to my visit next week and discussing further.

Yours sincerely,



Professor Piers Forster
Interim Chair of the Climate Change Committee