UK climate policy has grown progressively more ambitious since the landmark Climate Change Act (2008). Most recently, the Government’s Net Zero Strategy report, published October 2021, details how the UK government will meet its statutory commitment to achieve net zero emissions by 2050. However, at present UK climate policy insufficiently considers its possible impacts and implications beyond 2050. To ensure the UK’s long-term social, economic, and environmental well-being, the time horizon of policy planning should be extended.

A post-2050, net zero emissions UK will become the norm rather than the exception for young people and future generations, and saddling these generations with the potential long-term consequences of cursory climate policy, as well as those of climate change itself, must be avoided. Thus, it is vital to consider the possible impacts of UK climate policy post-2050 and how this perspective can inform the policies being implemented today.

Of course, the potential long-term consequences of policy are dwarfed by those of climate change itself; therefore, this briefing resolutely aims to guide the route that decarbonisation takes to ensure that it is effective, fair and sustainable, and to in no way delay or hinder it. Adaptation is key to minimising the impacts of climate change and adaptation policy will also bring substantial long-term consequences that must be considered. However, this briefing focuses on long-term ramifications of mitigation policy.

Authors:
This briefing has been written by a group of students from across the COP26 Universities Network:
Owen Tutt, SOAS, University of London, George Hayes, University of Cambridge, Valentine Kim, University of Edinburgh, Annisa Sekaringtias, University College London, Rory Brown, University College London, Catrin Harris, Imperial College London, Frederick Otu-Larbi, Lancaster University, Luke Hatton, University of Oxford, Ari Ball-Burack, University of Cambridge, Madeleine Ary Hahne, University of Cambridge, Johanna Caitlin Dieffenbacher, SOAS, University of London.
This briefing first identifies three net zero policy case studies – energy systems, carbon removal and international leadership – that currently inadequately address their long-term consequences. These were selected for their significance and their relevance to UK leadership in the transition to net zero emissions but are merely indicative of the wider challenge faced.

The energy systems and carbon removal sections are representative of areas where current policy has not fully considered the full lifecycle of these technologies. The section on international leadership explores how the UK can continue to contribute to global decarbonisation, even after its own net zero target has been met. Finally, short-termism is addressed as the core challenge to achieving net zero emissions in a way that respects the interests of future generations. Recommendations are made for institutionalising a long-term perspective into UK net zero policy making.

Long-term analysis inevitably requires assumptions and is limited by uncertainty; however, the inherent path dependency of energy and climate policy necessitates that a long-term perspective is taken now to inform future policy design immediately.

CASE I: THE FUTURE OF THE ENERGY SYSTEM

Decarbonising the energy system — one of the largest contributors to UK emissions — will be central to achieving net zero emissions by 2050. This overarching system transformation will require widespread and rapid roll-out of low-carbon energy technologies and infrastructure, which have specific material requirements and limited lifespans.

In this light, this briefing identifies two key long-term areas of consideration:

- Security of supply of critical natural resources
- Management of renewable installations at their end of life (decommissioning)

Critical Natural Resources

Low-carbon energy infrastructure demands higher levels of many scarce minerals than its conventional fossil fuel counterparts. For example, lithium-ion batteries — essential to the decarbonisation of the transport and electric power sectors via electric vehicles and grid. resiliency, respectively – require high amounts of lithium, nickel, cobalt, and other minerals. As domestic battery production accelerates, incentivised by the UK-EU Trade and Cooperation Agreement, demand for these minerals will further increase. Similarly, wind turbines, which will generate a large share of UK renewable power, require high levels of zinc and rare-earth metals such as dysprosium and neodymium. On a more global scale, the rapid proliferation of solar photovoltaic power (PV) will also entail significant mineral extraction. As such, decarbonisation of the energy system will substantially increase demand for scarce mineral resources.

Some minerals are particularly critical. The projected cumulative primary demand for both lithium and cobalt up to 2050 is double that of their estimated average reserves. Even where reserves are sufficient to meet demand, mining infrastructure can be slow to upscale. This means mineral resource scarcity may pose a challenge for growing low-carbon energy systems before and beyond 2050.

Critical mineral resources are more geographically concentrated than fossil fuels. Whereas roughly 20% of global oil and gas extraction occurs in the US (more than in any other country), Australia, China, and the DRC are each responsible for over half of global extraction of lithium, graphite and rare earth metals, and cobalt, respectively. Significant reserves of many critical minerals exist in fragile or developing nations. In these areas and others, mining processes can be environmentally and socially detrimental.

The extraction and processing of fossil fuel resources has caused significant environmental and social damage, and we reiterate that a low-carbon energy transition is necessary and that decarbonisation should build on learnings from past experiences. That said, the UK faces increasing geopolitical and technical challenges in securing the supply of critical mineral resources while minimising adverse impacts elsewhere in the supply chain. The following steps can help address these challenges:

Policy recommendations

Incorporate mineral concerns into policymaking and planning:

- Continuing to identify mineral resource supply challenges in the policymaking process will help direct research, technological innovation, and strong resource governance. We support the creation of the Energy Supply Chain Taskforce, UK Critical Minerals Strategy, Expert Committee on Critical Minerals and the Critical Minerals Intelligence Centre, as outlined in the UK Government’s 2021 Net Zero Strategy.
- Stronger regulation could prevent resource demand from fuelling environmental degradation, conflict, or impediments to development abroad. The UK is expected to implement regulation similar to the EU Conflict Mineral Regulation. The UK should explicitly acknowledge green conflict minerals and establish additional measures to improve the strength and transparency of supply chains.
Implement measures to ease resource demand pressures:

- Linking sectors via circular value chains, and promoting circular economy principles more generally, could secure resource supplies while also reducing environmental and social damages abroad and providing cost reductions. This could be aided by domestic mineral resource recovery methods such as urban mining, and by ‘design for recycling’, whereby products are designed for easier disassembly and resource reuse.

- Policy that incentivises innovation in – and substitution towards – alternative technologies, such as non-lithium-ion batteries and green hydrogen for electric grid resiliency, shipping, and aviation, could reduce and diversify resource demand.

- Innovative demand-side shifts, realised via behavioural and cultural change, will likely be needed to further ease mineral demand pressures.

Decommissioning of renewable energy installations

Low carbon infrastructure has a typical lifetime of 25-30 years, meaning projects being deployed now will reach their end of life around 2050. The UK Government aims to quadruple the offshore wind capacity by 2030, enabling the UK to become the ‘Saudi Arabia of Wind’. This means that significant attention needs to be paid now to how offshore wind installations, and in particular their waste, will be managed at their end of life.

Up to 85-90% of the material making up a wind turbine is technically recyclable, but the composites used for turbine blades are not widely recyclable and are currently disposed of in landfills. By 2050, this will account for an estimated 43 million tonnes of waste. Vestas currently has a specific decommissioning programme for offshore installations.

To avoid a repeat of the more than £300Bn cost for the decommissioning of nuclear and North Sea oil infrastructure, low-carbon infrastructure must be designed for durability, decommissioning, and the recovery of valuable resources. Steps must be taken to ensure that these costs are not borne by the UK public, through the Government acting as the ‘decommissioner of last resort’.

Circular economy principles will also be key to any effective policies addressing decommissioning of renewable installations. If realised, a spin-off circular economy from offshore wind could create an additional 20,000 jobs in the UK and capture a global market of composites in use for renewable energy infrastructure.

Policy Recommendations

A set of regulatory and financial policies which promote a responsible energy transition by prioritising circular economy principles and learning from past experiences can help address the above challenges. This includes:

- Stricter requirements for approval of decommissioning plans pre-construction, with more detail on waste management, including extending the scope of plans, so that offshore installations are required to submit a Decommissioning and Waste Management Plan, with stringent enforcement by the UK Government.

- A flagship project to exemplify effective decommissioning with a specific focus on incorporating re-use and recycling processes. This will allow cohesive development, bringing together a wide range of stakeholders in the industry to provide an example of ‘best practice’ and enabling the fostering and sharing of knowledge between industry competitors.

- Additional exploration of recycling technologies must be pursued through increased investment into R&D. While various technologies exist for recycling composite materials, solutions are not yet widely available at a cost-competitive level. We recommend funding a research centre focusing on the recovery and effective management of waste from renewable energy installations, aspects which should also be prioritised within the tendering process for offshore installations.
CASE 2: CARBON REMOVAL

Net zero implies a global balance between CO₂ emissions and CO₂ removal, also known as ‘carbon neutrality’. For the UK to reach its net zero target by 2050, carbon removal technologies will likely be needed to balance outgoing emissions. Negative emissions technologies and other methods of greenhouse gas removal have as such become ubiquitous in the strategies for meeting the Paris Agreement goals. However, they cannot be seen as a panacea to address climate change – often referred to as ‘mitigation deterrence’ – and do not eliminate the need for rapid, structural changes to decarbonise our society and economy.

Several natural and technological strategies exist that remove carbon dioxide from the atmosphere for long-term storage. A combination of both strategies will be needed to reach net-zero, with different advantages such as permanence of storage, costs and co-benefits. This section explores these technologies from two perspectives; carbon capture and storage (technological) and afforestation (natural).

Carbon Capture with Geological Carbon Storage

Carbon Capture and Storage (CCS) is expected to make a significant contribution (75 MtCO₂/yr) to the estimated 130 MtCO₂/yr of carbon removal needed to meet 2050 targets in the UK, with BECCS (bioenergy with CCS) accounting for the greatest proportion (50MtCO₂/yr). CCS technologies capture CO₂ directly from the air (DACCS) or from point emission sources and store it in underground geological formations.

Lifecycle emissions from the full supply chain should be considered if CCS is to perform as a carbon negative technology, influenced by the mechanism of carbon capture (BECCS, DACCS). In the long term, a key consideration is the permanence of geological carbon storage. By 2050 the UK would need to store 2 to 5 billion tonnes of CO₂ safely and permanently, requiring significant scale up of the UK’s CCS industry which has not yet been deployed at a commercial scale.

CCS could reduce the cost of decarbonising hard-to-reach emissions (final 25%), such as the steel and cement industry, significantly reducing mitigation costs. Some researchers have suggested that investing early in CCS through a carbon takeback obligation, as opposed to carbon pricing, could avoid high mid-century carbon prices. A market, such as tradable carbon storage certificates, would be needed to find least-cost sequestration opportunities. Additionally, a lower growth in annual storage rates increases the resource requirements needed post-2050 to meet net zero targets.

Policy recommendations:

The UK government should support lowering barriers for early deployment of CCS. Additionally, clear universal regulation is needed to ensure the durability of geological storage, necessary for robust carbon accounting.

- Stable government policy is needed to attract investment in CCS and frameworks should include incentives for early deployment. A coherent approach to North Sea geological carbon storage should be agreed if further Scottish devolution occurs. Geological carbon storage is ready for deployment, the UK’s North Sea storage sites are large and well-characterised, with the risks of geological storage comparable to current activity.

- A commercial CCS industry needs to be developed. The cancelled 2015 UK CCS commercialisation programme highlighted that key barriers were commercial, not technical, with a need to overcome perceived cost barriers. Projects should not be considered in isolation, as investing in transport and storage infrastructure will reduce costs of future projects by 60-80%. Additionally, the wider economic benefits should be considered, specifically in Scotland and Northern England.

- Regulatory approaches for long-term stewardship are necessary. As net emissions reductions depend on the fraction of CO₂ retained, the long-term perspective is essential to a legal framework for CCS, as storage times extend over many generations. The most common option is for government agencies to take on the long-term responsibility for CCS sites. Regulatory requirements of storage are country dependent, with the main requirements being containment assurance, conformance assurance and contingency monitoring.

- Monitoring should play a key role in observing the behaviour of injected CO₂, validating predictive models, and providing early warning of leakages. Monitoring and verification are necessary to ensure storage is safe, and to provide a basis for CO₂ emissions trading. We support the role of the GGR MRV Task and Finish Group. Several techniques are available for the monitoring of CO₂ emissions from geological storage, but they vary in applicability, detection limits and uncertainties.

- Investing in the early deployment of CCS and developing universal regulation for monitoring strategies could support a just transition globally, as in some circumstances emerging economies may need to access fossil fuel resources to industrialise. Developing countries will need support for technology access, lowering the cost of CCS and training regulators for monitoring. Investor guidelines are particularly important for developing countries where there is less emphasis on monitoring and legislation.
Natural Carbon Storage (Afforestation)

Land use, land use change and forestry (LULUCF) is a major contributor to carbon emission, but could also play a leading role in the UK’s effort toward reaching net zero. Greenhouse gas emissions from LULUCF are estimated to constitute about 12% of all UK carbon emissions. However, plants use carbon dioxide (CO₂) during photosynthesis and can thus be used to remove billions of tonnes of CO₂ from the atmosphere and store it on land, or in the soil through litter fall and tree decomposition.

UK afforestation and reforestation are not increasing at the pace recommended to reach net zero by 2050. The UK is currently planting 10,000 hectares of new forests per year, which is less than half of what the Climate Change Committee (CCC) recommends. 30,000 hectares of new forests per year will be needed by 2050 to sequester up to 22 MtCO₂e of CO₂ from the atmosphere. This target will increase the UK’s forest cover from 13% to 17% and, together with improved woodland management, drive emissions towards net-zero.

This ambitious afforestation plan comes with challenges, such as a potential increase in food prices which could affect low-income households disproportionately. About 21% of land that is currently used for agriculture will have to be converted to forests. This transformation could lead to a decline in food production, drive up food prices, and reduce food security in a post-2050, net-zero UK, especially if the UK exports the environmental impact of food productionworld after 2050. Land use competition could become an even greater long-term issue if biomass feedstock demand is met by dedicated energy crops, which may also have adverse impacts on biosphere integrity and other planetary boundaries.

Policy recommendations:

We recommend education programmes that cut across public and specialist knowledge divides; the use of financial incentives to change land use patterns towards carbon sequestration; and the expansion of monitoring programmes.

- There is growing evidence that mature forests cease to become net sinks of CO₂, unless forest biomass is regularly harvested and the carbon securely stored using BECCS or as material in buildings. (Figure 1). As such, forests should not be considered a silver bullet in climate change mitigation efforts. They should, instead, be considered as one solution among many, along with rapid decrease in CO₂ emissions and the adoption of zero emission technologies.

![Figure 1: Predicted impacts of different management interventions on the UK woodland carbon sink. Panel (a) shows the woodland sink (i.e. carbon stored in trees, soil and litter) while (b) shows total abatement – the woodland sink plus the carbon stored in harvested wood or consumed in place of fossil fuel. Enhanced afforestation (red lines) is based on 23,200 ha of new woodlands each year from 2010 to 2050.]

- Tree planting could provide thousands of sustainable jobs, in diverse sectors including research and seedling production. Young people can contribute meaningfully towards addressing these challenges if they are adequately trained and resourced. As an initial pursuit, we recommend expanding education programmes that teach young people about the need to avoid food waste and reduce their meat consumption to mitigate food security risks associated with anticipated reduction in agricultural land and hence agricultural output. Young farmers should have access to training, and technical and financial support, to enable a transition into low-carbon farming. Meanwhile, funding must be made available to support young people to undertake commercial forestry projects.
Despite progress in understanding natural sources of carbon sequestration, more research is needed, particularly at local scales. More robust monitoring and analysis systems should be put in place for current projects; as well as the expansion of trials, such as the £30m UK Research and Innovation project, to develop the monitoring, reporting and verification frameworks that ensure removals are a genuine solution to climate change. Such research will provide better understanding of forestry’s role in UK climate mitigation efforts, taking the UK’s diverse landscape and regional contexts into account.

CASE 3: LONG-TERM UK DIPLOMATICAL CLIMATE LEADERSHIP

Moving from the domestic to the international realm, this section explores the role the UK can – and should – play in addressing climate change at a global scale.

If resulting in concrete, meaningful progress, COP26 can be a powerful platform for sustained UK international climate leadership through the 2020s. The UK has already been considered a climate leader, at least since 2008’s groundbreaking Climate Change Act (CCA), and as the country which has decarbonised most rapidly of the advanced OECD economies. This section explores how the UK can continue leading the way toward ambitious global decarbonisation, long past 2050.

Near-term action: building on COP26 in the 2020s

Diplomatic influencing in support of the UNFCCC process

For COP26 itself, the UK has prioritised both finalising the Paris Rulebook that will govern how states implement and tighten their NDCs, and increasing business and civil society participation in the UNFCCC process.

Should COP26 broadly be a success and the UK remain a credible climate leader by demonstrating effective domestic progress toward net zero emissions, the UK will be well-positioned to help strengthen the NDCs of states falling short in ambition and/or implementation, ideally in collaboration with other leading decarbonisers in the informal High Ambition Coalition. Where these states whose NDCs remain deeply insufficient are close allies – Australia, for example – the UK can be particularly effective.

Furthermore, the UK’s cross-party commitment to meaningful climate action can be a model for states with significant anti-climate action constituencies, including by showcasing the UK’s experience of sustained economic growth concurrent with significant emissions reductions. Finally, the UK could usefully provide critical technical assistance for other COP host countries in the coming decade, especially for those from the global south.

Sustaining and expanding climate development assistance

While recent Official Development Assistance (ODA) cuts may have already damaged the UK’s global standing, the UK has been – and can continue to be – a ‘development superpower.’ The UK already spends a large and increasing amount on climate finance for the developing world, and has identified reaching the Paris objective of $100bn in annual climate finance as one of its COP26 priorities. But government budgets are, by nature, limited and strained, especially compared to the vast pools of private finance available. The UK is already increasing support for greater private investment to aid in decarbonising the developing world. Yet, to meet the vast financing need of the global energy transition, climate finance flows must dramatically increase. This is an area where the UK, with its considerable developmental expertise and as a global financial centre, has a clear comparative advantage.

Policy recommendations:

- Focus direct technical and financial assistance on: designing and implementing the instruments that drive decarbonisation (such as net zero laws, independent regulators, carbon-pricing, renewable energy standards, and sector-specific decarbonisation plans); adaptation planning, including disaster management for extreme weather events; and ensuring all climate efforts are conducted with the consent and participation of citizens and key stakeholders in partner countries.

- Expand efforts to catalyse climate oriented private investment in the developing world, in particular from long-term institutional investors such as pension funds and insurance companies.

Reorganising government for effective climate leadership

Effective policy implementation requires both the right expertise, and clear ownership at senior levels of government. The COP26 Unit in the Cabinet Office is a good example of both, especially in drawing in crucial expertise from outside the civil service. For the UK to maintain its long-term leadership role, similar senior ownership and effective resourcing of internationally-focused climate efforts will be essential.
The Stabilisation Unit (SU), a cross-governmental unit addressing international security challenges, is a useful analogy for a potential Climate Action Unit. It uniquely blends civil service and outside expertise, although the SU has been weakened by its lack of a dedicated minister. If a new Climate Action Unit, ideally housed in the newly-integrated FCDO, had both the innovative structure of the SU and the institutional clout of the COP26 team, it would be a powerful capability to further UK climate leadership.

**Policy recommendations:**

- Create a “Climate Action Unit” within the FCDO, drawing together both civil servants and outside experts.
- Assign the unit ownership over both the diplomatic and developmental priorities of UK climate leadership, including diplomatic influencing, catalysing climate finance, technical assistance for developing world mitigation and adaptation, and direct emergency response to extreme weather events (as the UK did for the Bahamas hurricanes in 2017).
- Dedicate a senior FCDO minister to oversee the unit.

**Over-the-horizon actions**

The following proposed ‘over-the-horizon’ actions, designed to support a long-term strategy for the UK to sustain a position as an international climate leader, should be planned at this stage in time and undertaken within the next 30 years, when the prerequisite conditions are met.

**Committing to net-negativity**

Committing to, and eventually becoming, “net negative” – and therefore net climate positive – would provide a powerful example for other nations to follow, continuing the pattern of UK climate policy innovation since 2008’s CCA. There are both justice grounds – given the UK’s high ability to pay and cumulative historical per capita emissions – and practical grounds – providing some headroom for slower movers – for making this commitment. But most fundamentally, it would represent a breakthrough in formalising for the first time a commitment to leave the climate better off.

Becoming net negative would likely require reaching net zero consumption emissions – given the 44% of UK consumption emissions currently come from imported goods and services, only half of which are covered by foreign net zero goals. It would also likely need to go further, including a commitment to major scale-up of technological and ecological carbon removal overseas, given the UK’s limited landmass, but which critically isn’t at the expense of domestic CDR deployment.

However, the UK – even if joined by other High Ambition Coalition states – reaching net negative emissions is unlikely to generate enough global carbon budget headroom to compensate for slower movers. As such, UK leadership would also require eventually getting major emitters onboard in setting and achieving similar targets.

**Policy recommendations:**

- Scope the feasibility of founding a “net negative alliance” for later in the century including, crucially, how to avoid disincentivising decarbonisation by other states.
- Define the “accounting framework” and strengthen the data sources needed to support implementing and evaluating net-negativity.
- Identify key near-term actions to support long-term net-negativity, including developing strong domestic expertise in technological and nature-based carbon removal, a Carbon Border Adjustment Mechanism, and deforestation-free supply chains.

**Tackling state-owned fossil fuel companies**

Strategic climate litigation, investor pressure and public activism are all driving changes in the climate position of privately owned fossil fuel companies. However, state-owned fossil fuel companies currently produce half of the world’s oil and gas, and are typically a major source of their governments’ revenues. For this reason, countries with state-owned fossil fuel companies have strong short-term incentives to sustain a fossil fuel-based global economy, and many of them – in the Middle East, Africa and South America – have fragile and unstable governance systems and major development challenges that are likely to further hinder planning for and implementing the energy transitions these countries must undertake.

The immediate priority for COP26, and the years following it, is securing stronger NDCs, and particularly near-term action, from countries heavily dependent on fossil fuel revenues. However, these states are likely to be some of the strongest decarbonisation holdouts into the 2030s – even considering recent positive signals from OPEC members. It is important to plan for the challenge of persuading these states to leave large proportions of their fossil fuels reserves in the ground in order to stay within Paris-compliant emissions pathways.
Policy recommendations:

- Initiate early thinking with key allies about a medium-term diplomatic strategy for how to overcome likely decarbonisation resistance from this key category of states.

INSTITUTIONALISING A LONG-TERM PERSPECTIVE IN POLICYMAKING

The above case studies around energy systems, carbon removal and international leadership highlight where the current net zero policy landscape is inadequate, or detrimental to the UK’s wider, post-2050 (‘long-term’) strategic and environmental goals. Yet, these cases have only scratched the surface of the wider need to identify and mitigate the long-term challenges arising from the totality of net zero policies. To achieve this greater long-termism must be institutionalised into UK climate governance.

The obstacles to taking a long-term perspective are not new. Short-termism is instilled in the policymaking process by the pressure of regular democratic elections. There are short-term priorities and incentives for voters and politicians, political influence of special interest groups, and the inability of future generations themselves to participate in the democratic process. These challenges are only made harder for net zero policies that often require ‘short-term pain for long-term gain’, the UK Treasury’s aversion to this reality has been noted recently. Fast turnover in policy has also undermined the implementation of long-term strategies for achieving net zero, such as the scrapping of the CCS programme in 2015, despite currently projected reliance on CCS to reach net-zero emissions. This rapid turnover complements a separate failure to fully assess the long-term risks from climate change itself, with an absence of responsibility at ministerial-level.

The short-term impacts of short-termism are known and severe, such as uncertainty for the private sector. The long-term impacts of short-termism are often unknown and potentially more severe. A dedicated consideration of long-term policy consequences (beyond the 2050 horizon) is currently missing from UK policymaking machinery.

Yet, short-termism is not simply a correctable mistake – many existing societal challenges demand priority attention. Furthermore, the uncertainty inherent to a long-term perspective renders the classical economic analysis of policy that strives for an optimal outcome unsuitable. A bespoke, effective mechanism to integrate long-termism into policymaking machinery is needed.

Integrating long-termism is a similar goal to representing future generations in policymaking and achieving sustainable development. The UK is not inexperienced in tackling these challenges. The Sustainable Development Commission (SDC) performed precisely the role required to assess long-term consequences of net zero policy, although with a broader scope. Its combination of advisory, capacity-building, advocacy and scrutiny capabilities gave it the necessary power to act, but its lack of statutory backing allowed its funding withdrawal in 2011. However, the Commissioner for Future Generations created under the Well-being of Future Generations (Wales) Act 2015 has continued this mission, and Scotland’s Futures Forum offers a think-tank capability for the Scottish Parliament to help tackle the complexities of long-term policy analysis.

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<th>BOX 1: REPRESENTING FUTURE GENERATIONS</th>
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<td>Lessons for integrating long-termism into net-zero policy development can be drawn from international attempts to represent future generations in broader policymaking. They have included Parliamentary Committees, independent public bodies, and within-government units. Studies of their successes and failures have revealed the key variables that allow a mechanism of governance (committee, body, or other) to effectively represent long-term interests in policymaking:</td>
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**Statutory independence**

- **Independence is essential for the mechanism’s staff** (restraints on political, economic, or social conflicts of interest) and funding (separating funding decisions from those affected by its work).

- **Independence and permanence are only ensured if enshrined in legislation.** The SDC suffered without it, and the Climate Change Committee’s (CCC) reliance on BEIS for funding leaves the potential for its independence to be curtailed by future Governments.

- **Involving parliamentarians limits independence but, valuably, adds political weight to outputs.** Scrutiny through Select Committees is valuable but not sufficient.

- **Informal independence can be built through public engagement to increase legitimacy and insulate the mechanism from Government dissatisfaction.**
**Policy recommendations**

Update remit of the CCC to include the analysis of long-term consequences to net zero policy

- The CCC has the statutory backing and independence that is necessary for sustaining impact. Its advisory and monitoring functions, plus specific focus on net zero, give it the expertise and power needed to research, problem-solve, and communicate policy recommendations. As an operating body with a pre-built reputation, an updated remit would be economical and swift to implement.

- Adding long-term analysis of proposed net-zero policy to the CCC’s responsibilities could form part of an already recommended, wider refocusing of the CCC, which must also provide the necessary resources and solidify its independence of funding. Statutory backing for this should be sought with an update to the 2008 Climate Change Act. However, the CCC’s success partly stems from its carefully balanced remit, so cross-party support and engagement is important to legitimise the updated remit.

Launch an Environmental Audit Committee (EAC) inquiry into the long-term consequences of net zero policy, with support from the BEIS Select Committee

- Parliamentary scrutiny of net-zero needs strengthening, and engaging parliamentarians on long-termism will facilitate its diffusion into UK governance. The EAC’s remit to consider how the policies of all Government departments and NDPBs contribute to sustainable development makes it well placed to consider a long-term, whole-of-government approach to net zero.

- Prior work by the EAC has touched on long-term issues (e.g. supply of critical minerals), and future work should return with a specifically long-term perspective. BEIS’s current responsibility for reaching net zero emissions, and prior collaboration between the EAC and the BEIS Committee on inquiries, makes a joint endeavour advisable.

- Any future ‘Net Zero Select Committee’ should take on responsibility for this analysis. Reporting must make clear that the long-term consequences of inaction will always be costlier.

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**BOX I: REPRESENTING FUTURE GENERATIONS (CONTINUED)**

**Power to impact but not intervene**

- Policies that are effective in the long-term are rarely low-cost or straightforward in the short-term. To be effective, a mechanism must have sufficient power to create direct or indirect (through public awareness) impact on policymaking.

- Acting as a ‘think tank’ function for government is a valuable core power; freedom for this ‘think tank’ to choose its topics for analysis is vital.

- Scrutiny and advice on legislation is an effective way for a mechanism to have impact. However, scrutiny must be done with tact; cooperation with, and challenge to, the government is needed.

- Intervention in policymaking is excessive and likely to cause abolition.

**Building and maintaining legitimacy**

- A legitimate addition to democratic policymaking needs transparency and scrutiny from Parliament and the public, regular reporting on activities facilitates this.

- Inclusion of, or access to, expert opinion is essential due to the technical nature of net zero and long-term forecasting.

- Legitimacy and guidance for policy design can come from public engagement; citizen’s assemblies are an effective instrument for this.

- The UK Climate Assembly, built to represent the population, provides a blueprint for future consultation.
The Climate Assembly UK should be regularly convened with a dedicated voice for younger generations

- Climate Assembly UK insights should be leveraged by turning it into a standing assembly, held regularly with an expanding scope – as recommended by the assembly members. It could be convened by the CCC.

- The assembly’s attention should look beyond 2050 and over the net-zero horizon to consider the full long-term consequences of climate policy. The assembly’s design should be reassessed, with consideration for an overweighting to younger generations (e.g. 5% overweighting to ages 16-25), to represent the future population that will ultimately face the long-term impacts of climate change and net-zero policies.

Net zero policy should be subject to mandatory long-term impact assessments

- Long-term impact assessments would facilitate closer scrutiny and awareness of the long-term consequences to policy as it passes through Parliament.

Implementing a mechanism for representing future generations in all UK policymaking should be given due consideration

- The mechanism should have sufficient independence, power, and legitimacy to be effective (identified in Box 1).

- The long-term consequences of net-zero policy should be a priority for this mechanism to investigate.

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