

The UK Climate Change Committee, 2009 to 2020: A mixed methods analysis of its statutory advisory functions, recommendations, and policy influence

A thesis submitted to the School of Environmental Sciences of the University of East Anglia in partial fulfilment of the requirements for the degree of Doctor of Philosophy

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For my father, Robert Dudley

Abstract

Climate advisory bodies have proliferated in recent decades and are now established in over 40 countries. Their primary role is to produce recommendations for national policymakers. Some scholars contend such bodies are critical for effective climate governance and assert policymakers increasingly rely on their recommendations. Despite these claims, very little is known about their functions, recommendations, and influence on mitigation and – especially – adaptation policy.

This thesis focuses on the UK Climate Change Committee (CCC), the oldest advisory body of its kind in the world, in the period 2009 to 2020. Through a mixed methods analysis of over 300 documents and 700 of the CCC's recommendations, it examines *how and why* the CCC's advisory functions were formulated in the 2008 Climate Change Act and explores the *characteristics* of its recommendations, including their repetition. It combines insights from a regression analysis of the government's written responses to its recommendations and 36 elite interviews to reveal the *conditions under which* the CCC's recommendations were used by UK Government officials, or not. In short, the CCC's influence was instrumental under some conditions, such as during or following extreme weather events, and it slowly shifted the thinking of actors under other conditions, particularly through the slow and steady diffusion of its recommendations into the policy system.

This thesis makes three original contributions to the existing literature. First, it provides a novel synthesis of the literatures on knowledge utilisation and climate policy. It offers a conceptual framework to analyse the conditions under which recommendations are more likely to be used by policymakers. It identifies four causal conditions, empirically tests these claims, and inductively reveals a further four conditions. Second, it provides novel insights into why the CCC's statutory advisory functions were circumscribed, including concerns about its balance of power with the government. Third, it reveals that, whilst the characteristics of recommendations do influence how they are used, if at all, exogenous conditions were predominant, particularly stakeholder support, the prevailing policy context, and the political priorities of the incumbent government. Interviews with government officials provide detailed insights into the internal politics that ultimately determined whether, how, and why the CCC's recommendations were used.

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Abbreviations

AC – Adaptation Sub-Committee

BEIS – Department for Business, Energy and Industrial Strategy

CCA – 2008 Climate Change Act

CCC – Climate Change Committee

CCRA – Climate Change Risk Assessment

COP – Conference of the Parties

DCLG – Department for Communities and Local Government

DECC – Department of Energy and Climate Change

Defra – Department for Environment, Food and Rural Affairs

DLUC – Department for Levelling Up, Housing and Communities

EMR – Electricity Market Reform

IPCC – Intergovernmental Panel on Climate Change

NAP – National Adaptation Programme

NGO – Non-Governmental Organisation

NHS – National Health Service

(Non-)use – the five modes of knowledge utilisation (instrumental use, conceptual use, symbolic-political use, imposed use, and non-use)

OED – Oxford English Dictionary

RQ – research question

SUDS – Sustainable Urban Drainage Systems

UK – United Kingdom

UKRI – UK Research and Innovation

“...the theoretical challenge is not to [...] select an ultimate answer about the weight of power – the traditional ‘core’ of political science – and knowledge, but, rather, to develop an analytical treatment of such questions as *when and how* knowledge matters in the policy process.” (Radaelli, 1995, p. 160)

Chapter 1

Climate advisory bodies: Examining their functions and influence

1.1 Introduction

The science has long been clear: climate change is one of humanity's most profound challenges. Deep decarbonisation and adaptation are urgently required across all sectors (IPCC, 2022b, 2022a). In response, there has been a proliferation of climate change laws and policies around the world to enable both emissions reductions (mitigation) and adjustments to the impacts of climate change (adaptation) (Iacobuta et al., 2018; Nash, Torney, and Matti, 2021). Despite these efforts, current policies fall well short of the ambitions in the 2015 Paris Agreement (Knutti, 2019; Anderson, Broderick and Stoddard, 2020; Eskander and Fankhauser, 2020; UNEP, 2020, 2021, 2022; Crowley, 2021). The economic, technological, and behavioural solutions required to address climate change are increasingly known, but the “political will and institutional frameworks” to support the delivery of these solutions are often “missing” from climate governance regimes (Averchenkova, Fankhauser and Finnegan, 2021, p. 1218).

Climate change advisory bodies have “emerged as a potential institutional solution to strengthen climate governance and policy credibility” (Averchenkova, Fankhauser and Finnegan, 2021a, p. 1218; see also Crowley and Head, 2017). They are expected to “play a key role” in “effective climate change governance” (Abraham-Dukuma et al., 2020, p. 1; see also Nash, Torney, and Matti, 2021). Some scholars go so far as to assert that they are “essential” and “necessary” for “enhancing the legitimacy and accountability” of climate policy (Averchenkova and Lázaro, 2020, p. 3).

Such bodies now exist in over 40 countries (Averchenkova, Fankhauser and Finnegan, 2021, p. 1219). Although their precise constitution and remit vary (Weaver, Lötjönen and Ollikainen, 2019), a fundamental task is the production of “policy-relevant knowledge” in the form of recommendations, provided to national policymakers, on the design, implementation, and evaluation of climate policies (Christensen and Serrano Velarde, 2019, p. 51; see also Weaver, Lötjönen and Ollikainen, 2019 and Sager et al., 2020). It has been suggested that policymakers need their

recommendations because climate change is an especially “‘wicked’ problem” (Christensen and Serrano Velarde, 2019, p. 61) because it involves a range of stakeholders, requires multilevel governance, and can be characterised by scientific uncertainty (Head and Alford, 2013).

Despite this, and their proliferation in recent decades, whether and how climate advisory bodies influence government policy has not been subject to detailed empirical analysis (though see Averchenkova, Fankhauser and Finnegan, 2021a for a rare example). Existing research notes that none have been delegated statutory policymaking functions (*ibid*). Moreover, these bodies often lack the statutory powers to enforce the use of their recommendations by the government (Weaver, Lötjönen and Ollikainen, 2019, p. 7). A challenge for climate advisory bodies is therefore to provide recommendations that are “translatable to actionable policies” (Abraham-Dukuma *et al.*, 2020, p. 18) within the “limits of the existing political atmosphere” and the “receptiveness of stakeholders” (Weaver, Lötjönen and Ollikainen, 2019, p. 7).

This thesis sets out to address these gaps through a case study of the UK Climate Change Committee (CCC), one of the oldest advisory bodies of its kind, and one that has been emulated in half a dozen countries (Nash and Steurer, 2019). The CCC is a suitable focus, not least because it is typical of climate advisory bodies: it does not have any statutory powers to force the government to use its recommendations (Averchenkova, Fankhauser and Finnegan, 2021, p. 1231).

The author of this thesis therefore derives a proxy for the influence of expert knowledge on government policy from the concept of ‘knowledge utilisation’, following the approach of Christensen (2021). The literature on knowledge utilisation aims to elicit an understanding of whether, how, and why knowledge is (not) used by policymakers (Weiss, 1979, 1980; Rich, 1997; Dunlop, 2014). The concept has been applied to ‘knowledge’ in many different forms (Jordan and Russel, 2014) including policy advice (Owens, 2011, 2015), academic research (Eschen *et al.*, 2021), and policy evaluations (Hertin *et al.*, 2009). It has also been applied to various policy areas including environmental pollution (Owens, 2011, 2015), ecosystems (Dunlop, 2014; Jordan and Russel, 2014; Eschen *et al.*, 2021), immigration (Boswell, 2009), and social work (Heinsch, Gray and Sharland, 2016; James *et al.*, 2018).

The knowledge utilisation literature assumes that ‘use’ can be more or less readily observable, as detailed in Chapter 2. For example, the mode of instrumental use assumes that knowledge is directly used to make a specific policy decision, whereas conceptual use is understood to be more indirect, diffuse, and gradual, and is expected to unfold over a longer period (see Dunlop, 2014). Nonetheless, the existing literature identifies that “large quantities of knowledge produced for the benefit of policy are *never used*” (In’t Veld and de Wit, 2000, p. 154, quoted in Owens, 2005, p. 287). Indeed, seminal work on the concept of knowledge utilisation was motivated by concerns that social science research was not of instrumental use to policymakers e.g., see Knorr (1977), Caplan (1979) and Weiss (1986). The existing literature therefore observes that knowledge can be used in various ways, including *not* being used, which gives rise to Radaelli’s (1995, p. 160) “theoretical challenge” stated at the beginning of this thesis: to determine “*when and how* knowledge matters in the policy process.”

Whilst there has been some existing research on the conditions under which knowledge utilisation does (not) occur, it can be characterised in three ways: it “often takes a theoretical approach” (Christensen, 2021, p. 461); if empirical, it is predominantly qualitative and mostly focused on instrumental use (Johnson *et al.*, 2009); and, it is concentrated on knowledge in the form of academic research (Oliver, Lorenc and Innvar, 2014). Moreover, “only rarely” do existing studies on knowledge utilisation provide “enough detail [...] about the policy process [...]: who are the main actors, where are decisions made, and how [does knowledge] fit into the process?” (Oliver, Lorenc and Innvar, 2014, p. 2). These gaps in the existing literature indicate the need for “further analysis and in-depth empirical research” on the conditions for knowledge utilisation in other areas (Capano and Malandrino, 2022, p. 422; see also Caygill, 2019), particularly climate policy recommendations which have “received little attention” in existing studies on knowledge utilisation (Christensen and Serrano Velarde, 2019, pp. 49–50). The proliferation of climate framework legislation and associated climate advisory bodies post-Paris requires a detailed investigation into how Climate Change Acts work in practice, especially the functions and influence of the advisory bodies that they create (Nash, Torney, and Matti, 2021).

The rest of this chapter unfolds as follows. Section 1.2 defines a climate advisory body and discusses its functions in climate policy. Section 1.3 reviews the existing literature on knowledge utilisation. It explains why climate policy recommendations are a form

of knowledge and why the author therefore applies the concept of knowledge utilisation to study whether and how climate policy recommendations are used by policymakers. It also identifies ‘use’ as a proxy for the influence of climate policy recommendations on government policy. Section 1.4 explains why the CCC provides a suitable focus for this thesis. Section 1.5 sets out the overall aim and research questions. Section 1.6 describes the overarching research design. Section 1.7 introduces the structure of this thesis and concludes the chapter.

1.2 The functions of climate advisory bodies

National policies on mitigation and adaptation have proliferated in recent decades; “a common feature of this phenomenon” is the establishment of an expert advisory body on climate change (Abraham-Dukuma *et al.*, 2020, p. 1). Such bodies are established within “competitive” advisory systems in which governments receive recommendations and advice from many sources (Crowley and Head, 2017, p. 2) including think tanks (Djordjevic and Stone, 2023; Zhao and Zhu, 2023), academics (Brans, Timmermans and Gouglas, 2022), and internal policy units (Weiss, 1992), as well as from the public, lawyers, and on commission from the government (Belfiore, 2022; Capano *et al.*, 2023).

To delineate climate change advisory bodies from other bodies that provide advice, throughout this thesis, the term *climate advisory body* is used. That term has been defined by Abraham-Dukuma *et al.*, (2020, p. 4) as:

“[A] formal institution established by legislation or policy processes and designated as [...] [a] ‘committee on climate change’, with the principal function of providing expert and evidence-based [recommendations] to inform state climate policy responses.”

This definition aligns with Crowley and Head’s (2017, p. 6) broader definition of advisory bodies. They distinguish advisory bodies from “short-term problem-solving groups (such as ad hoc working groups)” and “committees of public sector officials (such as government research units)” because these groups are not established to provide the government with ongoing recommendations “on matters requiring substantive scientific and technical analysis” (see also Stewart and Prosser, 2015, pp. 151–152 for a similarly broad definition of advisory bodies).

According to the definition by Abraham-Dukuma *et al.*, (2020) above, climate advisory bodies are now established in more than 40 countries (Averchenkova, Fankhauser and Finnegan, 2021, p. 1219). Although the composition and objectives of these bodies can vary by country (Weaver, Lötjönen and Ollikainen, 2019; Abraham-Dukuma *et al.*, 2020), their fundamental - often statutory - function is to produce “policy-relevant knowledge” in the form of science-based recommendations to national policymakers on the design and implementation of climate policies (Christensen and Serrano Velarde, 2019, p. 51). Such recommendations can therefore inform policymakers of “possible policy interventions” that could address climate change such as the introduction of a carbon tax (Sager *et al.*, 2020, p. 1349). They can also be required to monitor and evaluate progress against climate targets (Weaver, Lötjönen and Ollikainen, 2019). Beyond legislation, their broader function is to bring a long-term, evidence-based perspective “which, it is hoped, will make climate policy more informed, more predictable and less prone to political cycles” (Averchenkova, Fankhauser and Finnegan, 2021b, p. 1219; see also Lazarus, 2009).

Nevertheless, there are few studies on the ‘function’ of climate advisory bodies, meaning their intended purpose at the point of design (OED, no date e). Existing studies typically have a narrow focus on their formal - often statutory - functions and tend to provide a high-level cross-country comparison rather than an in-depth case study analysis of their design or operation e.g., see Weaver, Lötjönen and Ollikainen (2019), Abraham-Dukuma *et al.*, (2020), Christoff and Eckersley (2021), Dubash *et al.*, (2021), Lockwood (2021b), Nash and Steurer (2021) and Nash, Torney and Matti (2021).

In existing research, the context surrounding the creation of climate legislation is often very well studied, particularly in the case of the 2008 UK Climate Change Act e.g., see Lockwood (2013), Carter (2014), Lorenzoni and Benson (2014) and Carter and Childs (2017). Although these laws often create climate advisory bodies (Abraham-Dukuma *et al.*, 2020), little is known about how and why the statutory functions of these bodies were shaped, created, or designed by policymakers, or their influence on government policy once operational (Dudley, Jordan, and Lorenzoni, 2021, 2022; Nash, Torney, and Matti, 2021). Crucially, climate advisory bodies “deserve more systematic attention from the climate research community” (Sager *et al.*, 2020, p. 1337; see also Hustedt, 2013). This thesis sets out to answer that call.

1.3 The policy influence of climate advisory bodies

When considering the influence of scientific advisory bodies, a review in the field of international environmental politics makes us aware that “the institutional design” of these bodies can influence their “overall effectiveness” (Andresen *et al.*, 2018, p. 1). Indeed:

“...an advisory body might be constituted, through careful choice of members and terms of reference, with placatory or legitimising intentions in mind. [...] But even if not controlled or captured in such crude ways, advisory bodies can be used or ignored when expedient.” (Owens, 2015, p. 9)

Indeed, Crowley and Head (2017, p. 5) asserted that if climate advisory bodies are:

“...established in the expectation that expert scientific findings will flow directly into policy decision-making, they can be expected to fail this test.”

An examination of the “practices and characteristics of advisory bodies that endow them with authority – or not” can therefore provide a “fruitful line of enquiry” for research on the influence of policy recommendations (Owens, 2015, p. 126), as in this thesis (see Chapters 4 and 8).

As introduced, climate advisory bodies cannot force policymakers to use their advice; governments are “free to take it or leave it” (Salacuse, 2018, p. 324). In recognizing that their policy recommendations are often not legally binding, “much of the impact of advisory institutions comes through the ways in which policymakers use their advice and recommendations” (Nash, Torney, and Matti, 2021, p. 1113). As introduced, the longstanding concept of knowledge utilisation can serve as a proxy for policy influence (see Section 1.3.2.). The concept was developed by Carol Weiss and other scholars in the 1970s. It has been a recurrent area of study for public policy scholars for over five decades due to its continued “scientific and policy relevance” (Capano and Malandrino, 2022, p. 399; see also Capano *et al.*, 2023).

The existing knowledge utilisation literature identifies five main modes of use, as detailed in Chapter 2. In what is the most directly observable mode, *instrumental use* conceptualizes that knowledge is used by policymakers when making decisions about the introduction or termination of a policy (Dunlop, 2014). *Non-use* is often

conceptualized as the antonym of instrumental use, indicated by policymakers rejecting or ignoring knowledge (Rich, 1997). Despite the focus of existing empirical research on instrumental use (Johnson *et al.*, 2009), it must be recognized that “the issue of knowledge utilisation is not limited to a straightforward dichotomy between using and not using scientific knowledge” (Schrefler, 2010, p. 324). Indeed:

“A question frequently asked about advisory bodies is whether they have been influential. But the question is not easily answered. [...] influence can take many forms – direct or indirect, visible or subtle, immediate or long term, superficial or profound.” (Owens, 2015, p. 125)

Existing research has therefore led to the recognition that influence can extend beyond the instrumental use of knowledge, and this thesis accordingly adopts this view (see Chapters 2, 6, and 7). In recognition that the concept of knowledge utilisation is underpinned by five different modes of ‘use’, including non-use, hereon this thesis uses the term ‘(non-)use’ for brevity to collectively refer to all five modes of knowledge utilisation.

1.3.1. Honing the concept of knowledge utilisation: From ‘knowledge’ to ‘policy recommendations’

Existing research on knowledge utilisation tends to use the term ‘knowledge’ without employing a “precise definition” (Owens, 2015, p. 5). In fact, the definitions that are employed are “often vague in general use” (*ibid*). As introduced, the concept of knowledge utilisation has been applied to ‘knowledge’ in a variety of different forms including academic research (Weiss, 1980) and policy advice (Owens, 2011, 2015). Following the approach of Owens (2015, p. 6), and in recognition of the broad applications of the concept of knowledge utilisation in existing research, this thesis defines knowledge broadly as a “skill or expertise acquired in a particular subject through learning” (OED, no date f).

Advisory bodies are conceptualized as being part of the “knowledge regime”, meaning:

“...the organizational and institutional machinery that generates data, research, policy recommendations, and other ideas that influence public debate and policymaking.” (Campbell and Pedersen, 2014, p. 3)

Advisory bodies typically produce policy recommendations that are intended to “support policymakers’ decision-making by analyzing policy problems and proposing solutions” (Halligan, 1998, p. 1686, quoted in Brans, Timmermans and Gouglas, 2022, p. 24). Indeed, climate advisory bodies produce “policy-relevant knowledge” in the form of climate policy recommendations (Christensen and Serrano Velarde, 2019, p. 51; see also Weaver, Lötjönen and Ollikainen, 2019 and Sager et al., 2020).

Following the arguments set out in this section, this thesis considers climate policy recommendations to be a form of knowledge. It therefore applies the concept of knowledge utilisation to study whether and how policymakers use climate policy recommendations. For consistency throughout the thesis, the term ‘knowledge’ – as previously defined – refers to knowledge in forms other than recommendations, whilst the term ‘recommendations’ is reserved for references to existing research that focuses on knowledge in that specific form. The terms ‘advice’ and ‘recommendations’ are used interchangeably because they are considered to be synonyms by the Oxford English Dictionary, and so also in this thesis (OED, no date a).

1.3.2. ‘Use’ as a proxy for policy influence

In his review of five decades of empirical research on knowledge utilisation, Christensen (2021, p. 456) concluded that the concept of knowledge utilisation can be used as a proxy to understand “the influence of experts and their knowledge over public policy”, particularly through single case studies that involve analysis of policy documents and semi-structured interviews with experts and policymakers, as in this thesis (see Section 1.6 and Chapter 3). This is because the ‘use’ of knowledge by policymakers is indicative of the extent to which “final policy decisions match initial expert preferences”, and so:

“...the basic assumption is that the closer a final policy decision comes to the initial preferences of experts, the greater the degree of expert influence.”
(Christensen, 2021, p. 464)

The suggestion that ‘use’ is a proxy for influence is long-established. In his seminal research on the use of social science research by policymakers, Rich (1977, p. 200, emphasis added) asserted that “if information is used, it is by definition *‘influencing’* policy decisions”.

This thesis therefore follows the approach of Christensen (2021) and adopts Dür's (2008, p. 561) definition of policy influence as "an actor's ability to shape a decision in line with her preferences". It conceptually and empirically operationalises this definition by following the arguments in the seminal work of Kirkhart (2000, p. 7), specifically that policy decisions can be influenced through instrumental use, conceptual use, and symbolic-political use, as well as imposed use (Weiss, Murphy-Graham and Birkeland, 2005). In this thesis, non-use is therefore indicative of knowledge that has not influenced policy because it was rejected or ignored by policymakers which "amounts to [...] a decision not to act" (Jasanoff, 1990, p. 78), as explored in detail in Chapter 2.

From the literature on knowledge utilisation, Christensen and Serrano Velarde (2019, p. 51) derived the expectation that whether policymakers use climate policy recommendations is associated with the "structure and practices" of recommendations, meaning how they were produced and disseminated. They also expected the "features of the policy area", such as its salience, degree of contestation, and uncertainty, to be important as well (*ibid*). Indeed, a review of scientific advisory bodies in the field of environmental politics revealed that:

"Often, their influence (or lack thereof) is contingent on the nature of the issue being scrutinized. That is, the higher the intensity of political conflicts and scientific uncertainty, the less likely it is that scientific advice will be adhered to." (Andresen *et al.*, 2018, p. 2)

Radaelli (1995, p. 160) poses the "theoretical challenge" to determine "*when and how* knowledge matters in the policy process." However, existing research on knowledge utilisation "present[s] strikingly different arguments about the *conditions under which expert knowledge is used* in policymaking" (Christensen, 2021, p. 461). Some scholars emphasize the importance of *endogenous*¹ knowledge characteristics, such as its quality (Weiss, 1977), how it is presented (does it address a named actor?) (Goldstein, 2009), and the extent to which it supports or challenges the policy status quo (Russell

¹ Throughout this thesis, endogenous conditions are considered to be those that originate "from within" a recommendation (OED, no date c), such as whether they include delivery targets or an addressee (see Chapter 2).

and Benton, 2011). Other scholars place greater emphasis on exogenous² conditions such as the personal relationships between knowledge producers and policymakers (Oliver *et al.*, 2014), the replacement of policymakers after an election (Cairney, 2016), or the occurrence of ‘focusing events’, such as extreme weather events, which can increase political and public attention on a policy problem (Kirchhoff, Lemos and Engle, 2013). Moreover, existing research primarily focuses on instrumental use (Johnson *et al.*, 2009) and “there has been little attempt to [...] [set] out the conditions under which different types of usage may be expected to emerge” (Boswell, 2009, p. 9). These gaps in existing understandings of knowledge utilisation motivate the author’s specification of the overall aim and research questions that this thesis will address (see Section 1.5).

A search of scholarly databases, including ScienceDirect and JSTOR Journals, amongst others, did not identify any existing conceptual frameworks, analytical frameworks, or empirical investigations that explored how and why climate policy recommendations were (not) used by policymakers across the five modes of knowledge utilisation. Moreover, the influence of these bodies once established is notably understudied. This thesis is therefore dedicated to conceptually and empirically addressing these gaps in prevailing work, as summarised in Section 1.5 and detailed in Chapters 2, 3, 6, 7 and 8.

1.4 Case selection: the UK Climate Change Committee

The CCC is selected as a suitable focus for this thesis for three main reasons. First, it is the oldest climate advisory body of its kind in the world. It has existed for over a decade and so a sufficiently long-term perspective can be used to analyse developments in its functions, and the (non-)use of its recommendations, over time. This longitudinal perspective is important because a focus on “short-term decision-making will underestimate the influence” of expert knowledge on public policy (Sabatier, 1988, p. 131). Second, the CCC is a typical climate advisory body because its policy recommendations are not legally binding on the government and it does not have a “straightforward delegation of powers” to introduce or change policy

² Throughout this thesis, exogenous conditions are considered to be those that originate “from outside” the recommendation (OED, no date d), such as the occurrence of extreme weather events or a general election (see Chapter 2).

(Lockwood, 2013, p. 1343), meaning “it has influence based on reputation and authority rather than formal powers” (*ibid*, p. 1346). Third, the CCC is widely regarded as “central to the UK’s climate policy” (Averchenkova and Lázaro, 2020, p. 3; see also Lockwood, 2021a). It has therefore been suggested that “because the CCC is the government’s statutory advisor” on climate change, an assessment of whether and how policymakers use its recommendations would constitute “a sharp test” of its policy influence (Averchenkova, Fankhauser and Finnegan, 2021, p. 1223).

The selection of the CCC as the case study of this thesis is further justified – and motivated – by the identification of several gaps in the existing literature that the author aims to address through the design of specific research questions (see Section 1.5). In particular, the context surrounding the creation of the 2008 UK Climate Change Act (CCA) is well documented e.g., see Lockwood (2013, 2021b), Carter (2014), Lorenzoni and Benson (2014) and Gillard (2016), but very little is known about how and why the CCC’s advisory functions were formulated in the CCA, and whether they developed over time through “remit creep”, a phenomenon that statutory bodies established in legislation are “expected to be particularly prone to” (Turnpenny, Russel and Rayner, 2013, p. 588). Although there was reportedly some debate about the powers and functions that should be bestowed on the CCC in the CCA (Lockwood, 2021b), how and why the CCC’s advisory functions were formulated as they appear in the CCA has not been studied.

Moreover, unlike most national climate laws, the CCA pays additional, but relatively less (Muinzer, 2018), attention to adaptation. As such the CCA established an Adaptation Committee³ (AC) to provide the CCC with:

“...advice, analysis, information or other assistance as the Committee may require in the exercise of its functions...” (HM Government, 2008, Schedule 1, 16(10))

Despite the establishment of the AC alongside the CCC, and the growing need for climate adaptation, the AC barely features within the existing literature and the context for its creation is notably understudied.

³ Formerly the Adaptation Sub-Committee.

Finally, there is only limited insight into the influence of the CCC⁴. Existing claims of the CCC's influence on public policy are restricted to the acceptance of its advice on carbon budgets by successive governments e.g., see Nash and Steurer (2019), Averchenkova and Lázaro (2020), Averchenkova, Fankhauser and Finnegan (2020, 2021a) and Lockwood (2021a), despite some difficulty in agreeing its advice on the fourth carbon budget e.g., see Lockwood (2013, 2021b) and Carter (2014).

A much-overlooked statutory advisory function of the CCC, however, is to provide annual progress reports to the UK Parliament on the government's progress against carbon budgets, and therein to provide policy recommendations that are designed to meet those targets. The relative legal underpinnings of its carbon budget advice compared to its policy recommendations are subtle but important: when setting carbon budgets the CCA stipulates that the government "must take into account the advice" of the CCC (HM Government, 2008, Part 1, 9(1)(a)), whilst it is only required to "respond" to the CCC's recommendations in its annual progress reports (HM Government, 2008, Part 2, 37(1)). These recommendations therefore "do not carry any statutory weight" (Averchenkova, Fankhauser and Finnegan, 2021, p. 1220). Moreover, some prevailing research observed in passing that the CCC's policy recommendations seem to "have largely gone unheeded by [the] Government" (Averchenkova, Fankhauser and Finnegan, 2021, p. 1231). The CCC itself has previously reported that:

"…the government's progress in acting on our recommendations from last year's progress report has been relatively limited, with no progress in some areas." (CCC, 2016b, p. 166)

Despite these observations, it is not known what policy recommendations the CCC has provided to the UK Parliament since the creation of the CCA, the extent to which those recommendations were (not) used by UK policymakers, or why. This thesis endeavours to address these gaps in existing knowledge, as now set out.

⁴ Throughout this thesis, unless stated otherwise, reference to the CCC includes its Adaptation Committee (AC).

1.5 Overall aim and research questions

As described throughout this chapter, there are significant gaps in contemporary understandings of the functions and influence of climate advisory bodies. The overall aim of this thesis is therefore to offer an in-depth and systematic examination of the oldest body of its kind, the CCC. In doing so it endeavours to offer novel contributions to the established literature on knowledge utilisation and the growing literature on climate change advisory bodies. Three research questions were adopted to address the overall aim and gaps identified in the previous section:

1. What are the statutory advisory functions of the CCC and how were they formulated between 2007 and 2020?
2. To what extent, if at all, did the characteristics of the CCC's mitigation and adaptation recommendations change between 2009 and 2020?
3. To what extent – and under what conditions – were the CCC's mitigation and adaptation recommendations used by the UK Government between 2009 and 2020?

This thesis primarily focuses on the period between 2009 and 2020 because it spans the CCC's first progress report in 2009 and across its first decade in operation. The first research question additionally analyses the period before the creation of the CCA in 2008. This study design follows Sabatier's (1987) argument that at least a decade of perspective is required to understand knowledge utilisation and policy change, as now described.

1.6 Research design

The research design of this thesis is a longitudinal, sequential mixed methods case study analysis of the CCC and its policy recommendations. Each element of the design is now summarised, and further detail is provided in Chapter 3.

This thesis follows Sabatier's (1987) advice and adopts a longitudinal design because this enables developments in the functions and influence of the CCC to be traced over time. It also follows a precedent established by existing studies on advisory bodies and their recommendations that have a study period of at least a decade e.g., see Owens

(2015). Further, it addresses a gap in existing studies on advisory bodies, specifically that few have “considered the role and influence of expert advice over extended periods of time” (Owens, 2015, p. 3).

A single case study is adopted because it enables the detailed and intensive study of a single organisation (Bryman, 2016). Studies in comparative public policy have shown that policy advisory systems vary across national institutional systems and policy domains and so a single case study allows for the focused study of an organisation in its socio-political context (Hustedt, 2013). The single case study design of this thesis also addresses the observation that “in-depth, longitudinal studies of individual advisory bodies are rare” (Owens, 2015, p. 3).

The author of this thesis adopts a mixed methods research design because this enables qualitative and quantitative insights to be combined to explain a complex phenomenon (Morse, Cheek, and Clark, 2018), such as knowledge utilisation (Christensen, 2021). This design was selected to address the limitations of existing studies which tend to attribute policy influence to an advisory body based on a narrow dataset and limited empirical investigation (Martens, 2010). Accordingly, public policy scholars assert that knowledge utilisation should be empirically studied via mixed methods to collect data across all five modes of (non-)use e.g., see Sabatier (1987, 1988), Turnpenny, Russel and Jordan (2014) and Reader (2015).

A sequential mixed methods design involves the collection and analysis of data in an order that enables initial and preliminary results to inform subsequent data collection and analysis (Flick, 2018). This approach was developed because it enables insights from quantitative and qualitative methods to be combined through the “triangulation” of different perspectives and aspects of the phenomenon under study (Flick, 2018, p. 527), as well as the cross-checking of findings to increase their validity (Bryman, 2016, p. 697). For example, the work of Russell and Benton (2011) is “[p]erhaps the most comprehensive work in this field” because it combines multiple quantitative and qualitative methods in a sequential research design (Reader, 2015, p. 497). Specifically, Russell and Benton (2011) undertook a quantitative content analysis of the recommendations from UK Select Committees and a regression analysis of the government’s associated responses. They concluded that “a purely quantitative approach” yielded only a “partial understanding of Select Committee influence and

may even be misleading” (*ibid*, p. 73). They therefore undertook supplementary qualitative interviews to “answer some of our unanswered questions remaining at the end of the quantitative [analysis]” (*ibid*, p. 89). Qualitative interviews have long been used to gain insight into less direct forms of influence, such as conceptual use and symbolic-political use, and their causal conditions, as shown in the work of Bober and Bartlett (2004), Boswell (2009), and Owens (2015).

A content analysis of the government’s responses to recommendations was identified as a direct measure of “expert influence” because it examines the “preference attainment of expert actors” through the proportion of recommendations that were accepted by the government (Christensen, 2021, p. 465). A benefit of undertaking a longitudinal content analysis of documents to measure influence is that this allows a researcher “to map patterns of knowledge use over time with the degree of consistency a written record offers” (Turnpenny, Russel and Jordan, 2014, p. 251).

The author of this thesis therefore employed three methods – content analysis, regression analysis, and elite and expert interviews – to enable an empirical investigation of all five modes of knowledge utilisation and their causal conditions, as well as an exploration of this thesis’ additional interest in the CCC’s statutory advisory functions. The selection of these methods for these purposes was informed by the approaches of prevailing empirical research e.g., see Weiss (1980), Hindmoor, Larkin and Kennon (2009), Owens (2015) and Gillard (2016).

The unit of analysis throughout this thesis is the policy recommendations provided by the CCC to the UK Parliament in its annual progress reports between 2009 and 2020. These recommendations form a longitudinal and interannually comparable dataset because they were produced with the same remit, for the same audience, and within a similar timeframe, as stipulated by the CCA. The ad hoc advice that the CCC provided to policymakers in letters was therefore excluded from analysis because it did not meet these criteria (see Chapter 8).

1.7 Structure of the thesis

Having identified its overarching aim, research questions, and design, the rest of this thesis unfolds as follows. Chapter 2 develops a novel conceptual framework to understand whether and why climate policy recommendations are (not) used by

national policymakers. It reviews the existing literature on the five modes of (non-)use that underpin the concept of knowledge utilisation and derives a definition of each for this thesis. It then synthesizes insights from prevailing research on climate policy and knowledge utilisation to derive some expectations for conditions that could influence utilisation. Notably, the reviewed literature had a binary focus (on ‘use’ vs. non-use) and so this language is incorporated into the conceptual framework to reflect existing understandings of this topic. Four conditions of ‘use’ and non-use are derived that are endogenous and exogenous to climate policy recommendations, namely *recommendation characteristics*, *interactions with intended knowledge users*, *recommendation dissemination*, and the *prevailing policy context*. Chapter 3 provides a detailed description of the sequential mixed methods design of this thesis. It discusses the data collection and analysis methods that are undertaken by the author to gain insight into all five modes of (non-)use and address the three research questions.

Chapters 4 to 7 present the empirical findings of this thesis. Chapter 4 examines what statutory advisory functions the CCC was given under the CCA, and the key areas of parliamentary debate that shaped these functions, through a content analysis of over 300 documents published by the UK Parliament, the UK Government, and the CCC between 2007 and 2020. It demonstrates how and why the CCC’s statutory advisory functions were formulated as they appear in the CCA and traces subsequent developments in its functions after the creation of the Act. Throughout this thesis, the term *advisory* refers to “the power to make recommendations, without necessarily being empowered to enforce them” (OED, no date b), and *function* describes “the purpose or intended role of a thing” (OED, no date e).

Chapter 5 presents findings on the characteristics of the CCC’s mitigation and adaptation recommendations between 2009 and 2020. It empirically mobilises and interrogates the endogenous condition in the conceptual framework of this thesis, namely *recommendation characteristics*, which draws on normative desiderata for policy influence and suggests that, to be used by policymakers, recommendations should: have an addressee, include delivery targets, have a specific sectoral focus, have a clear recommended action, and support the policy status quo. It provides a systematic content analysis of these characteristics, traces any developments over time, and identifies additional characteristics of the CCC’s recommendations that were revealed inductively through analysis.

The third research question is addressed over two empirical findings chapters due to its importance and complexity. Chapter 6 addresses the first part of the question on *the extent* to which the CCC's recommendations were used in each of the five modes of (non-)use, as set out in Chapter 2, between 2009 and 2020. It combines insights from a content analysis of the government's written responses to the CCC's recommendations and 36 semi-structured elite and expert interviews with people from the CCC who wrote its recommendations, and the government officials who responded to them, over the study period. Chapter 7 addresses the second part of the question on the *conditions under which* the CCC's recommendations were (not) used by government officials. It offers a mixed methods account of the influence of the CCC's recommendations. It combines insights from a regression analysis of the relationship between the characteristics of the CCC's recommendations and the government's written responses with an analysis of qualitative interview data. It provides an empirical test of the expectations for the conditions for 'use' and non-use set out in the conceptual framework in Chapter 2 and clarifies which conditions were associated with each of the five modes of (non-)use. It also presents additional conditions that were inductively revealed from interviews.

Chapter 8 answers the three research questions and identifies the main conceptual, methodological, and empirical contributions of this thesis. It revisits the conceptual framework and offers empirically grounded revisions on the conditions for each of the five modes of (non-)use. It closes by identifying five priority areas for future research in this important and dynamic area of climate change governance.

Chapter 2

The (non-)use of climate policy recommendations as a form of knowledge: A conceptual framework

2.1 Introduction

As introduced in the previous chapter, climate advisory bodies proliferated in recent decades. They were established by governments around the world to produce “policy-relevant knowledge” in the form of recommendations (Christensen and Serrano Velarde, 2019, p. 51). These recommendations were rarely legally binding on the government, and so the influence of climate advisory bodies was thought to “come through the ways in which policymakers use” their recommendations (Nash, Torney and Matti, 2021, p. 1113).

This current chapter seeks to provide a conceptual framework through which the author can respond to Radaelli’s (1995, p. 160) “theoretical challenge” of determining “*when and how* knowledge matters in the policy process.” It synthesizes insights from existing literatures on knowledge utilisation and climate policy to identify four conditions that could influence whether and how climate policy recommendations are used by policymakers. It presents a new conceptual framework that visualizes expectations for the relationships between the four conditions and the ‘use’ and non-use of climate policy recommendations, in accordance with the binary language (of ‘use’ vs. non-use) of existing studies on this topic. The conceptual framework informs the data that is collected and analysed in this thesis (see Chapter 3) and is itself subject to detailed empirical testing (see Chapters 6 and 7).

This chapter unfolds in several parts. Section 2.2 introduces the concept of knowledge utilisation and the typology developed by Carol Weiss in the 1970s. Section 2.3 reviews the literature on Weiss’ five modes of (non-)use and defines each mode. Section 2.4 reviews – and synthesizes – existing literatures on knowledge utilisation and climate policy to derive four conditions that could conceivably influence whether climate policy recommendations are used – or not – by national policymakers. Section 2.5 visualises the conceptual framework of this thesis and concludes.

2.2 Knowledge utilisation: A review of the existing literature

The concept of knowledge utilisation emerged in the 1970s from concerns that social science research was not being used by - and therefore not having an influence on - policymakers e.g., see Patton et al., (1977), Weiss (1977), Weiss and Bucuvalas (1977), Pelz (1978), Caplan (1979) and Lindblom and Cohen (1979). These concerns were the motivation for the formative work of Carol Weiss, an evaluation scholar who had a lasting impact on the study of knowledge utilisation. In her seminal paper, *The Many Meanings of Research Utilisation*, Weiss (1979, p. 426) argued that:

“There is mutual interest in whether social science research intended to influence policy is actually “used”, but before that important issue can profitably be addressed it is essential to understand what “using research” actually means.”

In that paper, she reviewed a previously disparate literature characterised by “a diverse array of meanings” attached to the term ‘knowledge utilisation’ (Weiss, 1979, p. 426). She reflected that whether and how policymakers use knowledge was “an extraordinarily complex phenomenon” (*ibid*, p. 427). In part, this complexity was attributed to the challenge of defining and identifying whether and how knowledge had been ‘used’ (Radaelli, 1995; Rich, 1997). As summarised by Weiss and Bucuvalas (1977, p. 213), it was:

“...exceedingly unclear what constitutes a use. Is “use” the adoption of research recommendations intact, the nudging of a decision in the direction suggested by research findings, the reinforcement of a likely decision by research, the consideration of research findings [...], rethinking the nature of the policy issue, redefining informational needs? What kind of use is a “real” use? And how much is enough?”

Early knowledge utilisation literature had positivist, rational-instrumentalist underpinnings that held a “linear” view of the policymaking process (Hertin et al., 2009, p. 1186; see also Weiss, 1979, p. 427). It assumed that knowledge provided to policymakers would be of instrumental use, either as a solution to a problem or to enable a solution to be selected among alternatives, in a problem-solving model of knowledge utilisation (*ibid*). Following this linear-rational conceptualization, “the solution to inadequate influence on decisions” was to produce “better knowledge”

through methodological improvements (Cowell and Lennon, 2014, p. 264; see also Hertin *et al.*, 2009, p. 1186).

In a seminal contribution, Weiss (1986, pp. 224–225) critiqued the linear problem-solving model of knowledge utilisation and asserted that knowledge could influence policy through “alternative routes”, for example knowledge could be “the currency of bargaining” during negotiations between policy actors or it could have an indirect influence through a “slow shift” in the thinking of government officials over time. In subsequent decades, there was a recognition amongst scholars of the “complex, non-linear relationship” between knowledge and how – if at all – it was used by policymakers (Boaz and Oliver, 2023, p. 315). The instrumental view of knowledge utilisation was therefore recast as a “useful heuristic device” for understanding whether and how knowledge was used by policymakers (Hertin *et al.*, 2009, p. 1186) because it “retain[ed] a certain intuitive appeal and a modicum of explanatory power” (Owens, 2015, p. 7), despite providing only “a poor explanation of how knowledge *actually affect[ed]* decisions” (Cowell and Lennon, 2014, p. 264).

Indeed, through his integration of the literatures on knowledge utilisation and policy change, and with reference to Weiss’ work on the conceptual use of knowledge (see Section 2.3.3.), Sabatier (1988, p. 131) articulated that a focus on “short-term decision-making [would] underestimate the influence” of knowledge on public policy. Knowledge utilisation should therefore be conceptualised as a phenomenon that could unfold over a decade or more, and empirically investigated as such, to enable an examination of the different ways knowledge could be used, such as by altering the thinking of policymakers over “at least one formulation / implementation / reformulation” policy cycle (*ibid*).

Demonstrably, in their study on the use of environmental knowledge in land-use planning, Cowell and Lennon (2014, p. 270) concluded that “if one adopts a short-term, linear-rational perspective of knowledge utilisation” then a “failure” to use knowledge might be identified. Assessments of the influence of knowledge on policy should therefore adopt a longer-term view and recognise that knowledge could be used in less direct ways than the instrumental model would suggest (*ibid*). Similarly, Pelz (1978, p. 346) suggested that the perception that social science research was of non-

use to policymakers, amongst seminal knowledge utilisation scholars, was due to “an overly narrow” definition of knowledge utilisation.

Over five decades, Carol Weiss and her collaborators developed a typology of knowledge utilisation that established different ways knowledge could be ‘used’ (hereon referred to as ‘modes’). They conceptualized that ‘use’ could be instrumental, conceptual, symbolic-political (Weiss, 1979) or, most contemporarily, imposed (Weiss, Murphy-Graham and Birkeland, 2005). A fifth mode of non-use must also be acknowledged (Dunlop, 2014) because, as observed in the seminal work of Weiss (1977, p. 532), “the consensus seems to be that most [knowledge] bounce[s] off the policy process without making much of a dent on the course of events”. As such, a better understanding of non-use “would seem necessary to successful knowledge [use]” (Caplan, 1979, p. 462; see also Rich, 1997). Section 2.3 reviews these five modes and defines each for this thesis.

The typology of Weiss was adopted as the basis of the conceptual framework of this thesis for three reasons. First, although Weiss’ typology was developed from her studies on the (non-)use of social science research, Capano and Malandrino (2022) argued it can be applied to study knowledge in other disciplines and other forms, such as policy advice e.g., see Owens (2015). Second, their typology was considered to be an important development in the knowledge utilisation literature (Bober and Bartlett, 2004) because it recognized that “how and when decision makers use” knowledge was “varied and contingent” (Dunlop, 2014, p. 209). Finally, over five decades, studies on knowledge utilisation were “analytically well organised” around the “conceptual language” developed by Weiss (Dunlop, 2014, p. 210). The author’s adoption of Weiss’ typology as the basis for the conceptual framework of this thesis therefore aligned this current research with prevailing research on the concept.

Over the last five decades there was a “sustained empirical study of the uses of knowledge” (Dunlop, 2014, p. 209; see also Capano et al., 2023). However, reviews of prevailing studies on knowledge utilisation identified that the term ‘knowledge’ was often “vague” and without a “precise definition” (Owens, 2015, p. 5) and the term ‘use’ was often without “clear definitions” (Oliver, Lorenc and Innvær, 2014, p. 10).

The author identified climate policy recommendations as a form of knowledge to which the concept of knowledge utilisation would be applied (see Chapter 1). In

seeking to provide clear and empirically operational definitions of each mode of (non-)use, the author followed the advice of Weiss (1972, quoted in Altschuld, Yoon and Cullen, 1993, p. 279) “that while there are numerous ways of viewing utilisation, ultimately it must be tied to the direct act of making a decision”. The author therefore defined each mode in relation to policymakers because they were a primary recipient of policy recommendations and were often tasked with providing a formal response (Brans, Timmermans and Gouglas, 2022), as in the case of the CCC (Muinzer, 2018). The definition of each mode in these terms enabled their empirical mobilization in Chapters 3, 6, and 7. The next section reviews existing literature on the five modes of (non-)use and derives a definition for each.

2.3 Five modes of (non-)use: A typology

2.3.1. Instrumental use

According to Weiss’ typology, knowledge use could be *instrumental*. In this mode, policymakers would use knowledge to introduce or terminate policies based on “what the [knowledge] says” (Dunlop, 2014, p. 210; see also Altschuld, Yoon and Cullen, 1993, p. 281, Radaelli, 1995, p. 161 and Turnpenny, Russel and Jordan, 2014, p. 251). From a systematic review of the literature on knowledge utilisation, Miljand and Eckerberg (2022, p. 214) defined instrumental use as the application of knowledge:

“...in a direct way to influence what the decision-maker decides to do next, such as to terminate, extend, [or] change the content or design of a policy or programme.”

The instrumental use of knowledge could therefore help policymakers to identify a solution to a particular policy problem or select a solution among alternatives (Weiss, 1979, p. 427). A “linear and uni-directional” relationship was envisaged between knowledge and policy whereby “knowledge informs a presumably rational and ordered process of public policy formation” (Miljand and Eckerberg, 2022, p. 214).

In the existing literature on knowledge utilisation, instrumental use was consistently characterized by scholars as “immediate and directly observable” (Rich, 1997, p. 18; see also Bober and Bartlett, 2004, p. 365), as well as documentable (Rich, 1975, p. 241, 1977, p. 200). These characteristics were empirically mobilized in prevailing

public policy research which analysed a government's written responses to recommendations and identified that a written acceptance was "one of the most straightforwardly measured and attributed" markers of the influence of an advisory body on the government (Elston and Zhang, 2022, p. 663). Public policy scholars considered that a government's written acceptance of a recommendation was indicative of the "formal, direct influence" of the body that provided the recommendations to the government (Monk, 2012, p. 141; see also Russell and Benton, 2011, p. 90). For example, the Australian Law Reform Commission, an advisory body to national policymakers, annually reported on the proportion of its recommendations that were accepted by the government as one of its "key performance indicators" and therefore aimed to frame its recommendations in terms that would be "acceptable" to the government (Stewart and Prosser, 2015, p. 159). In another example, the "direct influence" of the recommendations from an advisory body in the Czech Republic on public policy was measured through acceptance responses from the government (Merklová and Ptáčková, 2016, p. 160). As summarised by Owens (2015, p. 127):

"…the prompt acceptance of recommendations, followed without undue delay by visible changes in policies, practices, or institutions, might be seen as one of the least ambiguous indicators that an advisory body is having an effect."

The author of this thesis therefore defined instrumental use as *the documented acceptance of recommendations for the purpose of introducing, changing, or terminating policy* (see Table 2.1). Following the seminal arguments of Sabatier (1988), that knowledge utilisation could occur over many years, the author did not define instrumental use as 'immediate' because the term was temporally undefined within the work cited thus far. Instead, evidence of instrumental use – as with the other four modes - was empirically investigated over the full 11-year study period of this thesis (see Chapter 3).

Having defined instrumental use in accordance with prevailing research, it must be acknowledged that instrumental use was criticized for "its lack of realism" (Amara, Ouimet and Landry, 2004, p. 78). Empirical knowledge utilisation research indicated that knowledge only occasionally had a direct influence on policy e.g., see Rich

(1975), Weiss (1979, 1980, 1986), Amara, Ouimet and Landry (2004) and Hunter and Boswell (2015). Demonstrably, Weiss (1980, p. 381) conducted interviews with policymakers about their use of social science research and found that knowledge was “not often ‘utilized’ in direct and instrumental fashion in the formulation of policy”. Indeed Weiss (1980, p. 397) concluded that:

“Instrumental use seems in fact to be rare, particularly when the issues are complex, the consequences are uncertain, and a multitude of actors are engaged in the decision-making process i.e., in the making of *policy*.”

Consequently, “pure instrumental use” was “not common” and so “expectations for immediate and direct influence on policy and programs [were] often frustrated” (Weiss, Murphy-Graham and Birkeland, 2005, p. 13; see also Sabatier, 1987, p. 677 and Capano and Malandrino, 2022, p. 401). As argued by Crowley and Head (2017, p. 5), if climate change advisory bodies were:

“...established in the expectation that expert scientific findings will flow directly into policy decision-making, they can be expected to fail this test.”

Nevertheless, instrumental use was the most empirically studied mode of (non-)use (Johnson *et al.*, 2009) because it “lends itself to empirical study” (Caplan, 1979, p. 469). This mode, therefore:

“...receives attention at the expense of other uses of knowledge (e.g., conceptual utilisation) whose effects are less predictable, but whose impact on policy may be considerably greater.” (Caplan, 1979, p. 469)

The rest of this section – and Chapters 3, 6, and 7 - therefore examine the other “less predictable” (*ibid*) modes of (non-)use. For now, we turn to consider the non-use of knowledge.

2.3.2. Non-use

As identified from a review of prevailing research on knowledge utilisation, the possibility of *non-use* must be acknowledged because knowledge can be “consciously eschewed or rejected” (Dunlop, 2014, p. 222). In his seminal paper *Measuring Knowledge Utilisation*, Rich, 1997 (p. 19) offered a formative definition of non-use as:

“Information that has been considered by a potential user but then rejected; Nothing is done with the information; or, implementation of the information has not occurred, but is under consideration.”

In her review, Dunlop (2014, p. 222) noted an absence of empirical studies on non-use. Nevertheless, Rich’s classic definition aligned with the empirical work of contemporary public policy scholars who assessed the influence of policy recommendations through an analysis of the government’s written responses. Whilst acceptance responses were indicative of instrumental use (see Section 2.3.1.), rejection responses were indicative of recommendations that had not influenced policy because “no new action is promised” (Monk, 2012, p. 145; see also Monk, 2010, p. 8 and Lynch and Whitaker, 2019, p. 932). Indeed, in a study on the influence of the recommendations from an advisory body in the Czech Republic, Merklová and Ptáčková (2016, p. 173) concluded it had “exerted only limited direct influence on the policymaking process” because “little of their advice was accepted by the government”. A further example of non-use can be found in the research of Russell and Benton (2011, p. 101) who identified that non-committal responses from the government called for further information before they would accept or reject a recommendation. Non-committal responses were therefore expected to be indicative of non-use because “in the regulatory context, a decision to wait for more data amounts to (or is perceived as) a decision not to act” (Jasanoff, 1990, p. 78). Following the reviewed work, the author of this thesis defined non-use as *the documented rejection or non-committal response to recommendations* (see Table 2.1).

Some existing empirical work suggested that longitudinal studies could encounter fewer instances of non-use and reveal greater committee influence (Hindmoor, Larkin and Kennon, 2009, p. 79), not least because of the phenomenon of the ‘delayed drop’ of “recommendations which were accepted but eventually dropped or, vice versa, rejected and subsequently implemented” (Russell and Benton, 2011, p. 70; see also Monk, 2012, p. 141). The author, therefore, followed the approach of prevailing empirical research, and the guidance of Sabatier (1988), and analysed all five modes of (non-)use over a decade (see Chapter 3).

2.3.3. Conceptual use

Conceptual use described that knowledge could influence policy by slowly changing the thinking of policymakers over a protracted period without being of any instrumental use (Rich, 1975, p. 242, 1977, p. 200; Altschuld, Yoon and Cullen, 1993, p. 279; Miljand and Eckerberg, 2022, p. 214). It was expected that the conceptual use of knowledge over time would “influence thinking and future decision making, as opposed to the immediate and observable action of instrumental use” (Bober and Bartlett, 2004, p. 365). By shaping the thoughts and attitudes of policymakers over time, the influence of conceptual use was therefore “to set the agenda for future policy measures” (Miljand and Eckerberg, 2022, p. 214; see also Rich, 1977, p. 200).

The underlying “imagery” of conceptual use was of knowledge “percolating through informed publics and coming to shape” the way policymakers thought about a policy problem and its solutions (Weiss, 1979, p. 429, see also 1986, p. 219). Weiss (1979, p. 429) referred to this as the ‘enlightenment model’ of knowledge. For example, Owens (2012, p. 13) identified the Royal Commission on Environmental Pollution (RCEP) as a “significant source of ‘enlightenment’” because its “knowledge and ideas percolate[d] gradually into policy over time”. Conceptual use therefore referred to “influencing a policymaker’s thinking about an issue” without being of “any specific, documentable use” (Rich, 1977, p. 200). In this mode, knowledge “creep[s] into policy deliberations” and so its influence was “more subtle” than envisaged by instrumental use (Weiss, 1980, p. 381).

Prevailing work on conceptual use emphasised that knowledge had a ‘gradual, diffuse, and indirect’ influence on policy e.g., see Weiss (1977, pp. 534–535, 1979, p. 429, 1980, p. 381), Bulmer (1981, p. 376), Boswell (2009, p. 5), Owens (2012, p. 13), Dunlop (2014, p. 211) and Miljand and Eckerberg (2022, p. 214). The author therefore defined conceptual use as *changes to the thoughts, attitudes, or framings of a particular policy problem and/or associated solutions over a protracted period* (see Table 2.1).

Writing on the limitations of conceptual use, some scholars expressed concern that the ‘percolation’ of knowledge to policymakers through unguided and indirect channels could result in knowledge being oversimplified, misunderstood, or unable to penetrate through to the centre of decision-making (Caplan, 1979; Weiss, 1979). Rather than

enlightenment, ‘endarkenment’ could instead occur if the knowledge that policymakers “hear about and come to accept is not necessarily the best, most comprehensive, or most up-to-date” (Weiss, 1986, p. 219).

Moreover, conceptual use was expected to be “less readily observable” than instrumental use (Rich, 1997, p. 18; see also Radaelli, 1995, p. 161) because “enlightenment shades into the diffuse, distributed effects of knowledge and ideas that have been described as ‘atmospheric’ influence” (Owens, 2012, p. 13). For some scholars, conceptual use could therefore have “pervasive – if ultimately unmeasurable – effects” (Weiss, 1980, p. 403). For example, empirical work drawing on self-reported measures of conceptual use during interviews with government officials identified that it was challenging to attribute policy change to the conceptual use of knowledge, not least because it was difficult for policymakers to cite a specific piece of knowledge that led them to change their position on a particular policy e.g., see Knorr (1977) and Weiss (1980, 1986). Indeed, only “rarely will policymakers be able to cite the findings of a specific policy that influenced their decisions” (Weiss, 1979, p. 429). Due to its gradual and diffuse nature, it was expected that conceptual use could only be observed over “lengthy periods of time” (Weiss, 1986, p. 217) although, as with instrumental use, the temporal expectations of conceptual use were undefined in existing work and so in this thesis. The empirical challenges introduced here are returned to – and addressed - in Chapter 3 where a longitudinal research design is adopted.

2.3.4. Symbolic-political use

This fourth mode of *symbolic-political use* started with the assumption that the position of policymakers on a particular issue had been “hardened” through years of debate or predetermined by a “constellation of interests” (Weiss, 1979, p. 429). These pre-established positions were not likely to “shake” or “be receptive to new” knowledge (Weiss, 1979, p. 429). Under these assumptions, knowledge was expected to be used to *support* (Altschuld, Yoon and Cullen, 1993, p. 279; Dunlop, 2014, p. 211; Miljand, 2020, p. 214), *justify* (Bober and Bartlett, 2004, p. 365), or *legitimize* (Weiss, 1991, p. 318; Hertin *et al.*, 2009, p. 1195; Miljand and Eckerberg, 2022, p. 214) a preexisting policy position or decision. Knowledge could also be used by policymakers to persuade others of their position or decision (Radaelli, 1995, p. 174), for example as “ammunition” to “neutralize opponents, convince waverers, and bolster supporters” if

there were entrenched opposing views (Weiss, 1979, p. 429). The symbolic-political use of knowledge could therefore increase the confidence of actors in their predetermined view, as well as reduce uncertainty and give them “an edge” in debates with those of the opposing view (Weiss, 1979, p. 429).

In prevailing work on knowledge utilisation, symbolic-political use was also referred to as “persuasive use” (Altschuld, Yoon and Cullen, 1993, p. 279; see also Bober and Bartlett, 2004, p. 365 and Johnson et al., 2009, p. 378) or “legitimizing use” (Miljand, 2020, p. 214; see also Boswell, 2009). For example, Miljand and Eckerberg (2022) undertook interviews with environmental policymakers to understand whether systematic reviews were of symbolic-political use. They found that policymakers used the reviews to “give weight” to their preexisting preference for continuing with a policy, both to senior colleagues and the public (*ibid*, p. 226). The temporal aspect of symbolic-political use was not discussed within prevailing work, other than the acknowledgement that “policies exist for some time, [and so] their political support must be continuously renewed” through the symbolic-political use of knowledge (Majone, 1989, p. 31).

Drawing on prevailing work, the author of this thesis defined symbolic-political use as *the use of recommendations to support, justify, or legitimize a preexisting policy preference or a decision that had already been made, or as ammunition in debates with opposition* (see Table 2.1). It is to the remaining mode of imposed use that we now turn.

2.3.5. Imposed use

The final mode of *imposed use* was first identified by Weiss, Murphy-Graham and Birkeland (2005) in their study about the effects of the Drug Abuse Resistance Evaluation (DARE) programme in the United States (US). It identified that the US Department of Education (DoE) had required school districts to introduce drug education programmes that had been approved by the DoE. Imposed use therefore describes the use of knowledge due to “pressure from the outside”, such as the government, which “obliges” actors to use certain knowledge (Weiss, Murphy-Graham and Birkeland, 2005, p. 16). It described that knowledge was used because it was “structured into institutional rules or mandated in some way” (Dunlop, 2014, p. 215). For example, in the DARE study, school districts would lose funding if they did

not introduce a drug programme; the government thereby “prescribed” the use of scientific evidence (*ibid*). Weiss and colleagues (2005, p. 16) therefore also termed imposed use “enforcement use, carrot-and-stick use, obligatory use, and pressured use”.

A search of databases including ScienceDirect and JSTOR Journal, amongst others, did not reveal any other research on imposed use. In a rare case, Alkin and King (2017) reviewed existing research on evaluation use. They acknowledged imposed use in a footnote as a “quirky addition” to the other modes of (non-)use (*ibid*, p. 448), and excluded it from their review and instead majored on instrumental use, conceptual use, and symbolic-political use. In another example, Patton (2015, pp. 136–137), following the work of Weiss *et al.*, (2005), recast imposed use as the “potential misuse” of knowledge because it “undermine[d] informed decision making” (*ibid*, p.131). Nevertheless, following the empirical work of Weiss and colleagues (2005) and Dunlop (2014), the author defined imposed use as *the use of recommendations because it was mandated through formal rules* (see Table 2.1).

2.3.6. Summary

Having reviewed all five modes, Table 2.1 summarises the definitions for each in this thesis. The chapter then turns to set out some expectations for the conditions under which climate policy recommendations might be used by policymakers, or not.

Table 2.1 The five modes of (non-)use.

Mode of (non-)use	Definition for this thesis
Instrumental use	The documented acceptance of recommendations for the purpose of introducing, changing, or terminating policy.
Non-use	The documented rejection or non-committal response to recommendations.
Conceptual use	Changes to the thoughts, attitudes, or framings of a particular policy problem and/or associated solutions over a protracted period.
Symbolic-political use	The use of recommendations to support, justify, or legitimize a preexisting policy preference or a decision that had already been made, or as ammunition in debates with opposition.
Imposed use	The use of recommendation because it was mandated through formal institutional rules or powers.

Source: author’s own composition

2.4 Operationalising the existing literature: The conditions for ‘use’ and non-use

This thesis began by setting out the “theoretical challenge” to determine “*when and how* knowledge matters in the policy process” (Radaelli, 1995, p. 160). This challenge reflects longstanding questions about *when*, *how*, and *why* knowledge is (not) used by policymakers e.g., see Patton et al., (1977, p. 149), Weiss and Bucuvalas (1977, p. 217), Bulmer (1981, p. 353) and Weiss (1991, p. 308). This section aims to develop a conceptual framework through which the author of this thesis can address Radaelli’s challenge.

As set out in Chapter 1, a core focus of this thesis is to understand the conditions under which climate policy recommendations can influence public policy across the five modes of (non-)use. During the literature review for this chapter, however, it became apparent that prevailing work predominantly focused on conditions that related to ‘use’, rather than one of the four specific modes of use set out in Section 2.3. The author’s observation aligns with the remarks of Boswell (2009, p. 9, emphasis added), specifically that existing research on knowledge utilisation has made “little attempt to [...] [set] out the conditions under which *different types* of usage may be expected to emerge”. Whilst it must be acknowledged that there is a small library of empirical research that examines the conditions for specific modes, such as Amara, Ouimet and Landry’s (2004) statistical analysis of predictors for instrumental use, conceptual use, and symbolic-political use, existing work primarily has a broader focus on conditions for knowledge ‘use’ or ‘uptake’ e.g., see Oliver, Lorenc and Innvær (2014). In their review of this literature, Johnson et al., (2009) align with these observations. They therefore caution against “drawing conclusions” about the conditions for specific modes of (non-)use, calling such an endeavour “problematic”, and instead suggest “reframing the conversation” to focus on the “empirically supported factors that support [...] ‘use’” (*ibid*, p. 389).

In a rare example, some scholars suggested that the ‘use’ of climate policy recommendations could be related to the “structure and practices” of recommendations, meaning how they are produced and disseminated, and the “features” of the policy area such as its salience, degree of contestation, and

uncertainty (Christensen and Serrano Velarde, 2019, p. 51); however, there was a notable paucity of existing research on this topic.

This section therefore synthesises insights from existing literatures on knowledge utilisation and climate policy to derive a conceptual framework of conditions that could influence whether climate policy recommendations are used by policymakers. To accurately reflect existing understandings of this topic, the language of ‘use’ and non-use is adopted throughout this section and in the conceptual framework. The framework is subject to detailed empirical interrogation later in this thesis to delineate the specific relationships between the four conditions – identified below – and each of the five modes of (non-)use set out in this chapter (see Chapter 7). We revisit this conceptual framework in Chapter 8 and update it based on the findings presented in this thesis. For now, conditions are identified as being relevant to ‘use’ and/or non-use. The conceptual framework is visualised in Figure 2.1 at the end of this chapter (see Section 2.5).

2.4.1. Recommendation characteristics

The author of this thesis conceptualized that the characteristics of policy recommendations, meaning their content and form, were fundamental areas of study for research on their (non-)use, specifically the “sender, message, channel, and receiver” of recommendations (Brans, Timmermans and Gouglas, 2022, p. 24). The identification of this condition followed from the seminal work of Weiss (1977, p. 538) who provided a formative assessment of the relationship between the “characteristics” of knowledge, in the form of social science research and recommendations, and its “usefulness” to government officials through elite interviews and regression analysis (see Chapter 3). Weiss studied various knowledge characteristics including its quality and the extent to which it challenged existing policies. A core conclusion was that the characteristics of knowledge were “important determinants of usability” (Weiss, 1977, p. 541; see also Weiss and Bucuvalas, 1977, p. 216). Indeed, from regression analysis and interviews with government officials Weiss and Bucuvalas (1980, p. 306) concluded that the “characteristics” of knowledge made “a sizable difference in [its] usefulness”, particularly its relevance, quality, and level of challenge to the policy status quo.

A longstanding tenet amongst public policy scholars was that *addressing* policy recommendations to a government actor with the power to “prioritize and champion the issue” would increase the likelihood that the recommendations would be “useful” to policymakers (Goldstein, 2009, p. 19; see also Scott and Shore, 1979 and Hoornbeek, 2000). Addressing recommendations to the actors in government with the most authority over a policy area was a “basic” strategy to attempt to change policy (Sabatier, 1987, p. 665).

The task of identifying and addressing recommendations to an actor that would ‘prioritize and champion’ the issue, as described by Goldstein (2009); however, was expected to be difficult in practice. For example, the policy recipients of recommendations were “likely to change on a yearly basis if not more frequently” and so the relevant and appropriate addressee may change over time (Oliver and Cairney, 2019, p. 3). Moreover:

“Recommendations ought to be directed towards those who have the power to act, but how, when environmental governance is increasingly distributed among different institutions and scales?” (Owens, 2012, p. 22)

As such, policy recommendations could “remain unutilized, even when targeted to a specific user” (Brans, Timmermans and Gouglas, 2022, p. 32; see also Bandola-Gill, Flinders and Anderson, 2021). The empirical work of public policy scholars Russell and Benton (2011, p. 28) showed that the non-use of recommendations could result if they were addressed to groups ‘other’ than the central government, such as industry and business stakeholders, because these recommendations:

“...have little chance of being implemented, or even read by, the audience they are aimed at, and have no obvious connection to government responsibilities.”

There was an “assumption” that addressing climate policy recommendations to “particular target groups” could “correct problems”, such as greenhouse gas emissions, provided the recommendations were addressed to “the target group [that] causally contribute[d] to the problem” (Sager *et al.*, 2020, p. 1339). However, there were “political questions of problem ownership and accountability or responsibility” because the causes and impacts of climate change were distributed across space and time (Hoppe, Wesselink and Cairns, 2013, p. 290). Demonstrably, in the UK, although

the government committed to responding to climate change through the 2008 Climate Change Act, it was “not clear what responsibility different parts of government, or different sectors, [had] for achieving” the UK’s climate targets (Willis, 2020, p. 33). Indeed, climate change was a cross-cutting policy issue that did not “fit neatly within the purview of existing government departments” and so it was “often unclear who [was] responsible for dealing with a given issue” (Christensen and Serrano Velarde, 2019, p. 49). And yet, addressing climate policy recommendations to:

“...political and administrative actors [that] do not have a direct stake in the issue, [...] are unlikely to adopt and act upon expert advice on the issue.”
(Christensen and Serrano Velarde, 2019, p. 51)

The inclusion of a specific addressee in climate policy recommendations was therefore expected to influence whether the advice would be of ‘use’ or non-use.

A second characteristic that was expected to be related to the ‘use’ or non-use of climate policy recommendations was their *sectoral focus*. This was because “mitigation and adaptation affect multiple sectors” and so there were expected to be multiple stakeholders involved that could “constrain” and “impede consensus” on acceptable policy approaches (Fröhlich and Knieling, 2013, p. 11). As well as a diversity of vested interests and stakeholders, there were varied sociopolitical, technical, and financial implications that made it difficult to decarbonize some sectors (Nurdiawati and Urban, 2021), such as buildings (Abbasi *et al.*, 2021) and aviation, shipping, and road transport (Chiaramonti, 2019; Chiaramonti *et al.*, 2021; Sharmina *et al.*, 2021). For adaptation, the water sector, particularly flood risk management, was identified as being particularly difficult to adapt to climate change because it required both infrastructural and behavioural changes (Dewulf, Meijerink and Runhaar, 2015).

There was extensive literature that described the need for cross-sectoral climate policies to deliver both mitigation and adaptation objectives e.g., see Bowen, Ebi and Friel (2014), Berry *et al.*, (2015) and Olazabal *et al.*, (2018). In their review of cross-sectoral climate policies, Berry *et al.*, (2015, p. 390) identified that cross-sectoral working presented the challenge of “collaboration across sectors, as well as engagement with multiple sectors”. The “effectiveness” of cross-sectoral climate policy “options” was expected to be “dependent” on their implementation (Nascimento *et al.*, 2022, p. 163). No studies were identified that had empirically

investigated the influence of the sectoral focus of recommendations on their subsequent (non-)use (see Chapter 8), yet from these cited works it was conceptualized that the sectoral focus of recommendations could influence whether they were of ‘use’.

A third characteristic that was expected to influence recommendation utilisation was the inclusion of details that would allow the recipient to understand how and when a recommendation might be implemented if accepted (Salacuse, 2018, p. 339). In climate policy recommendations, these details were expected to be present in the form of *delivery targets*, particularly a percentage emissions reduction or a timescale for delivery, because discussions of these targets dominated climate policy research e.g., see Pye et al., (2017), McLaren (2018), Nash and Steurer (2019) and Hale et al., (2020). Whether policymakers would accept recommendations that contained climate targets was expected to be dependent on many factors. Most prominently the resources available for implementation, as well as the perception of their progress and ambition relative to other countries or government departments (Hale *et al.*, 2020), and whether the pace of sectoral change required to meet a target was “politically infeasible” (Pye *et al.*, 2017, p. 4). There was scarce empirical work that examined whether the inclusion of targets in recommendations affected their (non-)use. This conceptualization – based on the existing climate policy literature – was empirically tested and developed throughout this thesis (see Chapters 7 and 8).

A fourth characteristic was identified as the *recommended action* that the recommendation called for, such as the development of a new strategy or the provision of funding. As identified in prevailing empirical work, if recommendations contained multiple actions they were expected to be “less likely to be effective” because “it may be easier for the government to dodge” part of a recommendation in its response (Russell and Benton, 2011, p. 31). In cases where recommendations contained one recommended action, empirical work consistently found that recommendations that called for the government to disclose information or review an existing approach were “easily accepted” because they supported the policy status quo and did not recommend changes to existing policy, the introduction of a new policy, or the provision of funding (Russell and Benton, 2011, p. 53; see also Benton and Russell, 2013, p. 785, Caygill, 2019, p. 309; Elston and Zhang, 2022, p. 676). Indeed, if a recommendation did not support the existing approach or opinion of policymakers then it was likely that the

policymakers would “fail to use [the] advice they [were] given” (Van Swol, Paik and Prahl, 2018, p. 25).

The author identified a fifth and final recommendation characteristic that was expected to be a condition for (non-)use, namely the *level of challenge to the policy status quo*. Throughout this thesis, the policy status quo refers to existing government policies and targets as well as the prevailing beliefs, values, and ideas that underpin policy decisions (Fischer, 2006; Owens, 2011, p. 84).

As found in the seminal work of Weiss (1977, p. 543), based on interviews with government officials, policy recommendations that challenged the policy status quo and advocated major changes to existing policies or thinking had a “negative relationship with use” because they were “not currently acceptable in the political system”. This was explicated further by Weiss and Bucuvalas (1977, p. 217) who expected that knowledge would be:

“...more likely to be used when it accepted the value orientations of potential users, when [it was] compatible with the philosophy and program structures in operation, and when its problem formulation and its conclusions fit the political climate. It might be seen as particularly useful when it supported the position that potential users already held and could be used as ammunition in their cause. [Knowledge] that challenged things-as-they-are seemed less likely to be judged useful by decision-makers than [knowledge] that confirmed and legitimated their positions.”

A consistent finding from empirical studies was that recommendations that called for greater policy change were more likely to be rejected by the government than those that supported it e.g., see Benton and Russell (2013), Caygill (2019) and Lynch and Whitaker (2019). Demonstrably, Russell and Benton (2011, p. 96) found that two-thirds of the recommendations from UK Select Committees that called for medium to large policy change “ultimately failed” because they were “in clear conflict with [the] existing policy direction” (*ibid*, p. 33). Indeed, of the recommendations that called for policy change, a smaller proportion were accepted, and a larger proportion rejected, than those that did not challenge the policy status quo (see Russell and Benton, 2011, p. 59). Similarly, Lynch and Whitaker (2019) found that although over half of the recommendations on Brexit from UK Select Committees were accepted by the

government, a high proportion asked for no or small policy change. Through multivariate analysis, they found that the only condition that had a significant effect on the government's responses was a recommendation's level of challenge to the policy status quo, whereby those that recommended major policy changes were significantly more likely to be rejected. Some public policy scholars therefore expected that the acceptance of recommendations that supported the policy status quo would have less influence on government policy than the acceptance of recommendations that challenged the policy status quo because "the price of easy acceptance is the impossibility of influencing policy" (Collingridge and Reeve, 1986, p. 34).

In relation to climate change, the policy status quo was reflected within national legal frameworks that represented the embedded values, practices, and assumptions of society (Scotford and Minas, 2019). Notably, new climate policies would need to be implemented and enforced within these existing legal systems; the policy status quo was therefore "highly relevant to the prospects of any new climate policy that seeks to bring about a social transformative agenda" (Scotford and Minas, 2019, p. 68). Indeed, "it is much easier for politicians to support the status quo than it is for them to argue that our civilization is not viable" (Willis, 2020, p. 66). Moreover, "people who benefit from the status quo rarely welcome someone with plans to disrupt it" (Mintrom, 2019, p. 314). For example, carbon lock-in in areas of fossil fuel production, consumption, and governance reflects that "powerful actors often benefit from creating and maintaining a state of lock-in [...] [and so they] lobby for policies that reinforce" the policy status quo (Seto *et al.*, 2016, p. 445). The author therefore conceptualized that a recommendation's *level of challenge to the policy status quo* could influence whether it was used by policymakers.

The characteristics set out in this section are identified by the author as being endogenous to a recommendation because they originated "from within" it (OED, no date c), for example whether they include *delivery targets* or an *addressee*. Predominantly, existing research on knowledge utilisation focused on exogenous conditions, meaning those that originated "from outside" a recommendation (OED, no date d), to which the next three conditions pertain.

2.4.2. Interactions with intended knowledge users

Although the previous section has established an expected relationship between the characteristics of recommendations and whether policymakers would use them, for knowledge to be “useable” it “requires more than better packaging” (Duncan, Robson-Williams and Edwards, 2020, p. 2). It was suggested - and long-espoused - that achieving “intended use by intended users” required interactions with the intended users of knowledge before it was formally provided to ensure it was relevant to their timelines, resources, funding, and priorities (Patton and Campbell-Patton, 2022, p. 10). The primary recipients – and therefore intended users – of policy recommendations were policymakers (Brans, Timmermans and Gouglas, 2022, p. 24).

Much had been written about the importance of interactions with policymakers before the provision of knowledge for its subsequent ‘use’. Demonstrably, in his seminal *Two-Communities Theory of Knowledge Utilisation*, Caplan (1979, p. 459) asserted that non-use occurred due to “often conflicting values, different reward systems, and different languages” of government policymakers who were focused on “obvious and immediate issues”, whilst knowledge producers, in his case social scientists, were concerned with “esoteric issues”. Throughout five decades of research on knowledge utilisation, scholars observed that a condition for non-use was a lack of interaction between policymakers and knowledge producers because the provided knowledge did not address – or align with – the needs, priorities, values, and timescales of policymakers e.g., see Weiss (1977), Scott and Shore (1979), Innvar et al., (2002), Birkeland, Murphy-Graham and Weiss (2005), Boswell (2009), Head (2010), Orton et al., (2011), Oliver et al., (2014), Donnelly et al., (2018), Wellstead, Cairney and Oliver (2018) and Klepac et al., (2022).

The long-espoused mechanism for ‘use’ was therefore to interact with government officials before the formal provision of knowledge. As summarised by Caplan (1979, p. 459):

“...the gap between the knowledge producer and the policymaker needs to be bridged through personal relationships involving trust, confidence, and empathy.”

Some scholars asserted that interactions between knowledge producers and intended government users “may be the only means to reduce” the likelihood that knowledge

will only be used due to “chance and purely adventitious events” (Caplan, 1979, p. 467). Other scholars argued that, for recommendations to be accepted, a relationship between the producers of recommendations and policymakers “must always exist” because the government must have “confidence in the advisor’s technical competence, integrity, and loyalty” (Salacuse, 2018, p. 328).

There was extensive empirical support for these claims. For example, a qualitative interview-based study on the use of health research by policymakers in Australia found that academics were better able to influence policy if they had interacted with government officials beforehand and understood – and therefore could address – the “needs and constraints” of policymakers (Haynes *et al.*, 2011, p. 1052). The importance of interactions and personal relationships between knowledge producers and policymakers for the ‘use’ of knowledge was reinforced in systematic reviews on the topic e.g., see Innvær *et al.*, (2002), Orton *et al.*, (2011), Oliver *et al.*, (2014) and Oliver and Cairney (2019). For example, a systematic review of studies on knowledge utilisation in public policymaking over 30 years concluded that improving relations between policymakers and knowledge producers was “the most promising” way to increase the use of expert knowledge in government policy (Capano and Malandrino, 2022, p. 417). Some scholars went so far as to argue that for knowledge brokers external to the government, such as advisory bodies, “proximity to decision-makers equalled influence” (Craft and Howlett, 2012, p. 82).

During interactions with intended users, recommendations could be co-produced to ensure they were relevant, timely, and aligned with the priorities and values of policymakers (Caplan, 1979; Rockwell, Dickey and Jasa, 1990; Van Swol, Paik and Prahl, 2018; Oliver and Cairney, 2019; Bandola-Gill, Flinders and Anderson, 2021; Eschen *et al.*, 2021; Capano and Malandrino, 2022; Boaz and Oliver, 2023). Co-production was therefore expected to overcome the aforementioned barriers to non-use and “deliver policy-usable knowledge” (Duncan, Robson-Williams and Edwards, 2020, p. 10).

The importance of interactions with government officials for use has been demonstrated for climate change knowledge in the form of long-term climate scenarios e.g., see Seely *et al.*, (2008), Jones *et al.*, (2017) and Howarth *et al.*, (2022). Based on the findings of these cited works, climate policy recommendations were not expected

to be used by policymakers unless they were “politically relevant [...] and address[ed] very practical concerns” (Sager *et al.*, 2020, p. 1341). For example, in their study on the use of climate science by American policymakers, Dilling and Lemos (2011, p. 680) found that “nearly every case of successful use of climate knowledge involved some kind of interaction between knowledge producers and users”. The author therefore conceptualised that whether knowledge producers interacted with the intended users before formal provision could be a condition for ‘use’ and non-use.

2.4.3. Recommendation dissemination

Although this thesis adopted the postpositivist view that knowledge utilisation did not necessarily follow its dissemination, effective dissemination was nevertheless identified as a necessary, if not sufficient, condition for use (Rich, 1997; Hoornbeek, 2000). A fundamental point was that the use of policy recommendations – in any mode – could not occur if they were not “disseminated in ways that reach decision-makers” (Klepac *et al.*, 2022, p. 715). As defined in the seminal work of Rich (1997, p. 15), *dissemination* “simply means that some channel of transmissions has been used to send data or information from one source to one or more other sources”.

There were two elements of dissemination of relevance to this conceptual framework. The first pertained to *how* recommendations were disseminated. According to Lindquist (1990, quoted in Brans, Timmermans and Gouglas, 2022, p. 26), policy recommendations could be disseminated to policymakers in two ways: “direct[ly]” through the publication of a report or through interactions with government officials or “indirect[ly]” via “intermediary bodies [such as Non-Governmental Organisations, the media, the private sector, think tanks and civil society organisations]” that interacted with civil servants. For knowledge to be “most useful” to policymakers it “must be provided through a variety of channels” to “establish political momentum” and reinforce support for its use (Goldstein, 2009, pp. 18–19). The indirect dissemination of climate change knowledge via peer-to-peer networks was shown to expand its “usability” for policymakers (Dilling and Lemos, 2011, p. 686; see also Wall, Meadow and Horganic, 2017 and Howarth *et al.*, 2022). A key insight from a study by Haynes *et al.*, (2011, p. 1053), who undertook interviews with Australian academics and policymakers, was that academics reported “an indirect means of influencing policy” through the dissemination of their research findings via their

“close relationships” with groups that were “key stakeholders in [government] consultation processes”.

Demonstrably, in her detailed study on the Royal Commission on Environmental Pollution (RCEP), Owens (2011, 2012, 2015) identified that its staff would test, promote, and informally disseminate its recommendations amongst its personal, professional, and policy networks. The RCEP’s members would informally “talk up” the recommendations they were developing such that government officials would “‘get wind’ of recommendations [...] [and] change tack... so [the RCEP] would appear to be giving retrospective recommendations” (Owens, 2015, p. 140). Upon formal receipt of the recommendations, the government could then gain political capital by claiming they were already taking the recommended action (*ibid*). Indeed, “the networks within which knowledge and ideas circulate become a mechanism” for “fostering the conditions that can ultimately bring about change” (Owens, 2011, p. 89).

The second element of recommendation dissemination pertained to *when* recommendations were disseminated. Some public policy scholars argued that whether policymakers used knowledge was “heavily determined by the ability of ‘generators’ to find the right moment to ‘deploy’ their knowledge” (Turnpenny, Russel and Jordan, 2014, p. 249; see also Whitty, 2015). It was well-documented in empirical research that if policy recommendations were not disseminated in a timely way they were not likely to be used because they were not relevant to the needs and interests of policymakers at the time they were received (Patton *et al.*, 1977; Rich, 1977; Weiss, 1980; Majone, 1989; Bober and Bartlett, 2004; Birkeland, Murphy-Graham and Weiss, 2005; Hustedt, 2013; Mintrom, 2019; Eschen *et al.*, 2021; Klepac *et al.*, 2022). This was because the knowledge would no longer be relevant:

“...by the time the scientific results are written up, [because] the policy problem has changed, and the search is no longer relevant, being the answer to yesterday’s questions.” (Collingridge and Reeve, 1986, p. 27)

Moreover, if knowledge was not disseminated in time for policy decisions to be made, then it was unlikely to be used (Rockwell, Dickey and Jasa, 1990; Husén, 1994; Bober and Bartlett, 2004; Donnelly *et al.*, 2018), not least because policymakers would not have had sufficient time to consider whether and how to use the knowledge (British Academy, 2008; Douglas, 2012; Whitty, 2015). As such, in their writing about the use

of climate change knowledge in the form of academic research, “usability [was] constrained where findings [were] communicated after decisions [had] already been made” (Ford, Knight and Pearce, 2013, p. 1321). The timing and means of dissemination were therefore expected to be a condition for ‘use’ and non-use.

2.4.4. Prevailing policy context

The final condition for the (non-)use of climate policy recommendations was related to the *prevailing policy context*. This phrase was used by the author of this thesis to encapsulate the ‘other’ factors in the “decision context” that could affect whether and how knowledge was used, specifically the sociopolitical, technical, and financial implications of accepting – and subsequently acting on – knowledge (Lemos and Rood, 2010, p. 674; see also Bruno Soares and Dessai, 2015, p. 13). As set out in a systematic review on this topic by Oliver et al., (2014, p. 1), it was “well recognized that policy is determined as much by the decision-making context (and other influences) as by research evidence”. As explicated further by Lorenz et al., 2017 (p. 433) in their research about the use of climate projections in local adaptation planning:

“...addressing the question of usability is not just about better understanding the interplay between what science can provide and what users need or want, but also about what users can actually do within the political and economic constraints within which they act.”

Moreover, the prevailing policy context was expected to change over time and affect the “social and political relevance” of the knowledge that was produced and disseminated to policymakers (Bandola-Gill, Flinders and Anderson, 2021, p. 220). The failure to produce and disseminate climate knowledge that considered the prevailing policy context was expected to result in its limited use by policymakers (Lorenz et al., 2017; see also Weiss, 1980). This expectation aligned with classical arguments that changes in the political landscape could incite changes in how – if at all - policymakers would use recommendations to make decisions (Calvert, 1985; Sabatier, 1986). In his writing on evidence-based policymaking, Cairney (2016, pp. 6–7) explicated this further:

“In some cases, policymakers ignore some evidence for years, and then, very quickly, pay disproportionate attention to the same evidence. This may

follow the replacement of some policymakers by others (e.g., after elections) or a ‘focusing event’ which prompts the same policymakers to shift their attention from elsewhere.”

This condition therefore goes beyond the three conditions set out so far in this conceptual framework because climate policy recommendations tell governments “*how* to do things” but they cannot tell policymakers “*whether* [they] should do them” because that is influenced by the prevailing policy context (Jamieson, 2014, p. 6, emphasis added). As explained by Jones et al., (2017, p. 568; see also Bremer et al., 2019):

“...promoting the uptake of climate information is only marginally about improving basic climate science; many of the biggest constraints (to use) relate to how political economy and institutional factors affect decision-making.”

Within the literature on the use of knowledge in public policy, focusing events were often cited as an enabling condition. It was expected that focusing events could incite “windows of opportunity that create a favourable political climate for the policy being proposed” (Lieberman, 2016, p. 455). During these events policymakers could have an increased focus on addressing a particular problem due to heightened public and political attention, increasing political pressure, or a change in the socioeconomic context (Kingdon, 1984; Cairney, 2016, 2018; Carmichael, Brulle and Huxster, 2017; Gunn, 2017; Cairney and Oliver, 2018). Moments of technological, economic, political, or social change were therefore expected to reduce some of the barriers to use associated with accepting knowledge that challenged the policy status quo due to the increased political willingness to act (Seto *et al.*, 2016).

In relation to the core interests of this thesis, extreme weather events were an often-cited example of focusing events that “have the potential to change dominant ways of thinking and acting” (Birkmann et al., 2010, p. 638; see also Baldwin and Ross, 2020). These events were expected to facilitate the use of knowledge due to increased public pressure for climate action (Kirchhoff, Lemos and Engle, 2013) and increased awareness of policymakers to climate risks e.g., see Lowrey, Ray and Webb (2009). However, prevailing research identified that use ceased when the weather event – and

public concern – faded (Kirchhoff, Lemos and Engle, 2013) which suggested “a limited window of opportunity for effective dissemination” (Jones *et al.*, 2017, p. 566).

Some of the constraints for the use of knowledge within the prevailing context were set out by Head (2010, p. 80) who articulated that when making policy decisions, governments were:

“...often motivated and influenced by many factors besides research evidence [...]. The mere availability of reliable research does not ensure its subsequent influence and impact. Political leaders are often preoccupied with maintaining support among allies, responding to media commentary, polishing leadership credentials, and managing risks.”

Demonstrably, the context within which policymakers made decisions was “inherently political and thus more responsive to public opinion and ministers’ career needs” than to scientific knowledge (Haynes *et al.*, 2011, p. 1051). These issues were articulated further by Boswell (2009, p. 6), who observed the non-use of expert knowledge, namely academic research, by policymakers, and explained that:

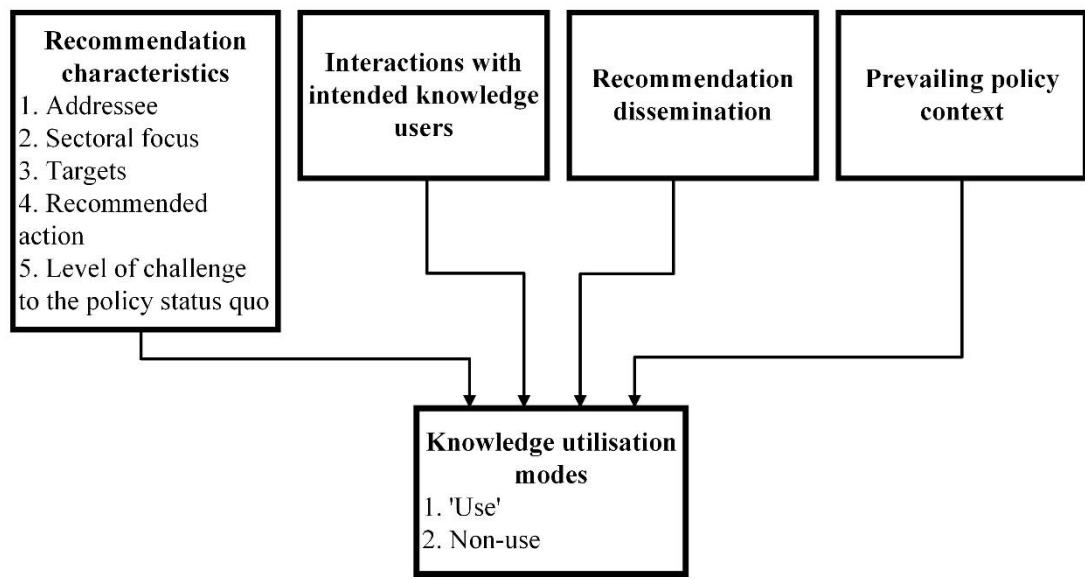
“...electoral pressures tend to trump the injunctions of expert knowledge. Politicians and officials are driven first and foremost by political exigencies, and so end up ignoring evidence where it fails to support more electorally appealing courses of action. [...] There is often a substantial gap between the sorts of policy advocated by experts in a field and those that meet the approval of public opinion and the mass media. Even where ministries have commissioned research themselves, it ends up gathering dust on a shelf because of the political unfeasibility of its policy implications.”

Demonstrably, “political attention is volatile [...] [and] politicians have little incentive to address long-term issues such as climate change if voters do not punish short-term thinking” (Sager *et al.*, 2020, p. 1336; see also Brans, Timmermans and Gouglas, 2022). Moreover, the recommendations of climate change advisory bodies tend not to be legally binding (see Chapter 1). As such the non-use of recommendations was expected to be related to a government not being required to accept them (Jasanoff, 1990).

2.5 Conclusions

This chapter has presented a novel conceptual framework of conditions that were expected to influence the ‘use’ or non-use of climate policy recommendations (see Figure 2.1.).

Figure 2.1 The conceptual framework.



Source: author’s own composition

From the author’s review and synthesis of previously disparate works of literature on knowledge utilisation and climate policy, this chapter has derived four conditions that were expected to relate to the ‘use’ or non-use of climate policy recommendations. These conditions were conceptualized as being endogenous or exogenous to recommendations, specifically *recommendation characteristics*, *interactions with intended knowledge users*, *recommendation dissemination*, and the *prevailing policy context*, shown in the four boxes at the top of Figure 2.1. As explained in Section 2.4, the binary language (of ‘use’ vs. non-use) was adopted to reflect existing understandings of this topic.

As set out in Chapter 1 and explicated further in the first half of this chapter, this thesis nevertheless aligns with the arguments of Boswell (2009, p. 12) and “accept[s] that knowledge can serve multiple functions”. The rest of this thesis is therefore dedicated to understanding:

“...which type of knowledge use prevails in different situations? Under which conditions can we expect [...] policymakers to draw on knowledge, respectively, as a means of problem-solving, as a source of legitimisation, or in order to substantiate policy preferences?” (*ibid*)

This chapter has provided a conceptual framework through which the author can respond to Radaelli’s (1995, p. 160) “theoretical challenge” of determining “*when and how* knowledge matters in the policy process” (see the epigram at the beginning of this thesis). It has identified four conditions that could be expected to broadly relate to knowledge ‘use’ and/or non-use.

The next chapter pivots to set out the data collection and analysis methods that were used to empirically mobilize and examine each of the five modes of (non-)use and their relationships with the four conditions established in this chapter. The modes and conditions presented in this conceptual framework are amended in Chapter 8 based on the empirical findings presented in Chapter 7.

Chapter 3

Data and methods

3.1 Introduction

The previous chapter developed the conceptual framework for this thesis and identified four conditions that could influence whether and why climate policy recommendations would be ‘used’ by policymakers. In order to develop an “analytical treatment” of “*when and how* knowledge matters in the policy process” (Radaelli, 1995, p. 160), this current chapter presents the data collection and analysis methods that were used to study each of the five modes of (non-)use, and thereby address the third research question (RQ). As set out in Chapter 1, the three research questions pertained to *how and why* the CCC’s statutory advisory functions were formulated in the 2008 Climate Change Act (RQ1), what the *characteristics* of the CCC’s policy recommendations were that it provided to the UK Parliament from 2009 to 2020 (RQ2), and *the extent to which – and under what conditions* – government officials used its recommendations during the study period (RQ3).

This current chapter unfolds as follows. Section 3.2 reviews the methodological approaches of existing empirical research on the five modes of (non-)use. It explains why, in this thesis, documents and interviews were selected as the primary sources of data that were analysed through content analysis and regression analysis. Section 3.3 explains how and why the insights from quantitative and qualitative methods were combined in a sequential mixed methods research design. Section 3.4 provides details on the specific data that were collected for this thesis, namely documents published by the UK Parliament, the UK Government, and the CCC, as well as from interviews with people who worked for the CCC or the UK Government during the study period. Section 3.5 explains how these data were analysed to address the three RQs. Section 3.6 concludes.

3.2 Measuring (non-)use: A review of existing empirical approaches

As introduced in Chapter 2, the five modes of (non-)use vary in their level of observability from instrumental use, indicative of direct policy influence, to conceptual use, which was described by prevailing work as diffuse, gradual, and indirect. In this section, the author of this thesis reviews “what research methods have been applied to the topic” to identify appropriate data collection and analysis methods (Bryman, 2016, p. 6). Table 3.1 summarises the methods that were used in prevailing research to study each of the five modes. These methods are explored further in the rest of this section to inform and justify the methods employed in this thesis.

Table 3.1 A summary of the data collection and analysis methods used in existing research to study each of the five modes of (non-)use.

Mode	Empirical measure of mode	Data		Exemplar references
		Collection	Analysis	
Instrumental use	Acceptance of recommendation	Documents	Content and regression	Monk (2012) and Elston and Zhang (2022)
		Documents and interviews	Content	Hindmoor, Larkin and Kennon (2009)
			Content and regression	Russell and Benton (2011), Caygill (2019) and Lynch and Whitaker (2019)
	Introduction of a new policy	Surveys	Content and regression	Altschuld et al., (1993) and Bundi and Trein, 2022)
		Interviews	Factor and regression	Weiss and Bucuvalas (1977)
			Content	Rich (1977)
Conceptual use	Changing an existing policy	Surveys	Content and regression	Altschuld et al., (1993)
		Documents and interviews	Content	Bober and Bartlett (2004)
		Interviews	Factor and regression	Weiss and Bucuvalas (1977)

Source: author's own composition

Continued overleaf

Table 3.1 continued.

Mode	Empirical measure of mode	Data		Exemplar references
		Collection	Analysis	
Non-use	Rejection of recommendation	Documents	Content and regression	Monk (2012)
		Documents and interviews	Content	Hindmoor et al., (2009)
			Content and regression	Russell and Benton (2011)
	Non-committal response to recommendation	Documents and interviews	Content	Hindmoor et al., (2009)
Conceptual use	Changes in the thinking, framing or understanding of a policy problem or its solution	Surveys	Regression	Bundi and Trein (2022)
			Content and regression	Altschuld et al., (1993)
		Documents and interviews and participant observation	Content	Owens (2015)
		Interviews	Factor and regression	Weiss and Bucuvalas (1977)
			Content	Patton et al., (1977) and Rich (1977)
Symbolic-political use	Justification of a decision that has already been made	Surveys	Content and regression	Amara et al., (2004) and Bundi and Trein (2022)
		Documents and interviews	Content	Bober and Bartlett (2004)
	Selected interest in publicising use to specific groups e.g., the media and the public	Surveys and documents and interviews and participant observation	Content	Boswell (2008a)
Imposed use	Use is mandated	Surveys	Content	James et al., (2018)

Source: author's own composition

As shown in Table 3.1, within existing empirical research on knowledge utilisation, each mode was predominantly studied using data collected from documents and interviews. These data were typically analysed using content and/or regression analysis. For example, several studies combined a content analysis of recommendation characteristics and the government's associated responses with a subsequent regression analysis to provide insight into the causal relationships between these data e.g., see Caygill (2019). A longitudinal content analysis of documents, including the reports from an advisory body and the government's responses to its recommendations, can enable a researcher to trace the "development and fate" of recommendations over time (Owens, 2015, p. 20). Interviews were identified as a particularly important qualitative research method for collecting data on "less quantifiable forms of influence" and their causal conditions (Russell and Benton, 2011, p. 72), namely conceptual use, symbolic-political use, and imposed use, as introduced in Chapter 2 and explained further in Section 3.4.2.

There were relatively few studies that employed surveys to study a mode of (non-)use. In one such example, James et al., (2018) undertook surveys to understand the imposed use of evidence-based practice methods on social workers. They concluded that surveys "certainly do not suffice to disentangle the complex (conscious and unconscious) processes at work" because any insights on knowledge utilisation were derived from self-reports (*ibid*, p. 774). For the same reason, Altschuld, Yoon and Cullen (1993, p. 284) concluded that surveys were unable to produce a valid measure of instrumental use or conceptual use and so, they argued, a "qualitative exploration via case studies [and] interviews" was needed to understand the causal conditions for these modes.

In their conclusion, James and colleagues (2018) called for qualitative research on the topic, such as participant observation. There were few studies identified that undertook this method to research knowledge utilisation (see Table 3.1). In part, this reflects that it can be difficult to gain the trust and permission from organizations to enter and observe the people therein (Hurst, 2023). A further limitation is that participant observations "may be entirely unrepresentative" (Silverman, 2020, p. 266) due to factors such as observer fatigue and lapses in attention which can give rise to issues for the reliability and validity of findings (Bryman, 2016, p. 275).

Following these arguments, the author of this thesis decided to collect data from documents and interviews and analyse them using content analysis and regression analysis. These methods enabled an empirical examination of the five modes, and four conditions, in the conceptual framework, and an analysis of the relationship between them (see Chapter 2). The next section explains how the insights from these methods were combined to address the three research questions.

3.3 A sequential mixed methods research design

As introduced in Chapter 1, this thesis has a longitudinal, sequential mixed methods case study research design. This design was adopted for two reasons. First, it enabled multiple data collection and analysis methods to be used sequentially to supplement findings from preceding analyses and inform further data collection and analysis (Morse *et al.*, 2018). A benefit of this design was that it enabled qualitative and quantitative approaches to be combined such that results had “more grounding” through the “triangulation” of different perspectives and aspects of the phenomenon under study (Flick, 2018, p. 527). The combination of data from qualitative and quantitative methods enabled findings to be “cross-checked” (Bryman, 2016, p. 697) to ensure they had “greater validity” because they had been “mutually corroborated” (*ibid*, p. 641).

Second, this design was selected because it can overcome some of the limitations of relying solely on qualitative interview data to gain an empirical understanding of knowledge utilisation, such as “problems of respondent memory and bias” (Weiss and Bucuvalas, 1977, p. 214). After all, “people do not always remember the source of their information and ideas” when asked about whether, how, and why they had used a specific piece of knowledge (*ibid*). Moreover, the recollections of interviewees can be “distorted by gaps in their memories, [and] different interviewees can give different information on the same topic” (Bogner, Littig and Menz, 2018, p. 654).

For example, in their study on the acceptance and rejection of policy recommendations from UK Select Committees, Russell and Benton (2011) undertook content and regression analyses of government responses to recommendations. After reporting the results, the authors concluded that a sequential mixed methods design was necessary because:

“...a purely quantitative analysis may give us only a partial understanding of Select Committee influence and may even be misleading. This is why we have complemented our data collection about the success of committee recommendations with interviews to provide greater context, as many other authors have previously done.” (*ibid*, p. 73)

The purpose of Russell and Benton’s (2011) interviews was to explain and elaborate on their quantitative findings because:

“...multivariate regression analysis of government acceptance [...] of committee recommendations was unable to explain much of the variation in recommendation success. [...] Although we learnt a great deal from our quantitative analysis, in many ways our qualitative analysis is far richer. It [helped] us to answer some of the unanswered questions remaining at the end of the quantitative [analysis] [...] about the influence of committee recommendations. It also [enabled] us to answer wider questions about committee influence.” (*ibid*, p. 89)

According to Benton and Russell (2013, p. 793), the triangulation of results from their quantitative and qualitative analyses was “crucial to making an objective assessment of committee impact on government”. The work of Russell and Benton has been called “[p]erhaps the most comprehensive work in this field” because it combined multiple quantitative and qualitative methods in a sequential research design (Reader, 2015, p. 497). In another example, to gain insight into the influence of an advisory body in the Czech Republic, Merklová and Ptáčková (2016, p. 159) first undertook a content analysis of documents that had been published by the advisory body and the government, and then triangulated these findings with data collected from semi-structured interviews with members of the body and the government, to examine “the nature of [its] policy advice” and its “role and influence in the policymaking process”.

The author of this thesis therefore adopted a mixed methods research design that combined insights from quantitative and qualitative approaches to address the three research questions of this thesis. As summarised in Table 3.2., the primary data sources were documents that had been published by the UK Parliament, the UK Government, and the CCC, as well as qualitative interviews with people who worked for the CCC

or the UK Government during the study period (see Section 3.4). Data were analysed using content analysis and regression analysis, as detailed in Section 3.5.

Table 3.2 Overview of data, collection, and analysis methods used to address each research question.

Research question	Data	
	Collection	Analysis
1. What are the statutory advisory functions of the CCC and how were they formulated between 2007 and 2020?	331 documents published from 2007-2020 by the UK Parliament, UK Government and the CCC	Content
2. To what extent, if at all, did the characteristics of the CCC's mitigation and adaptation recommendations change between 2009 and 2020?	19 annual progress reports published by the CCC 2009-2020	Content
3. To what extent – and under what conditions - were the CCC's mitigation and adaptation recommendations used by the UK Government between 2009 and 2020?	15 response reports to the CCC's recommendations published by the UK Government 2009-2020	Content and regression
	36 semi-structured elite and expert interviews	Content

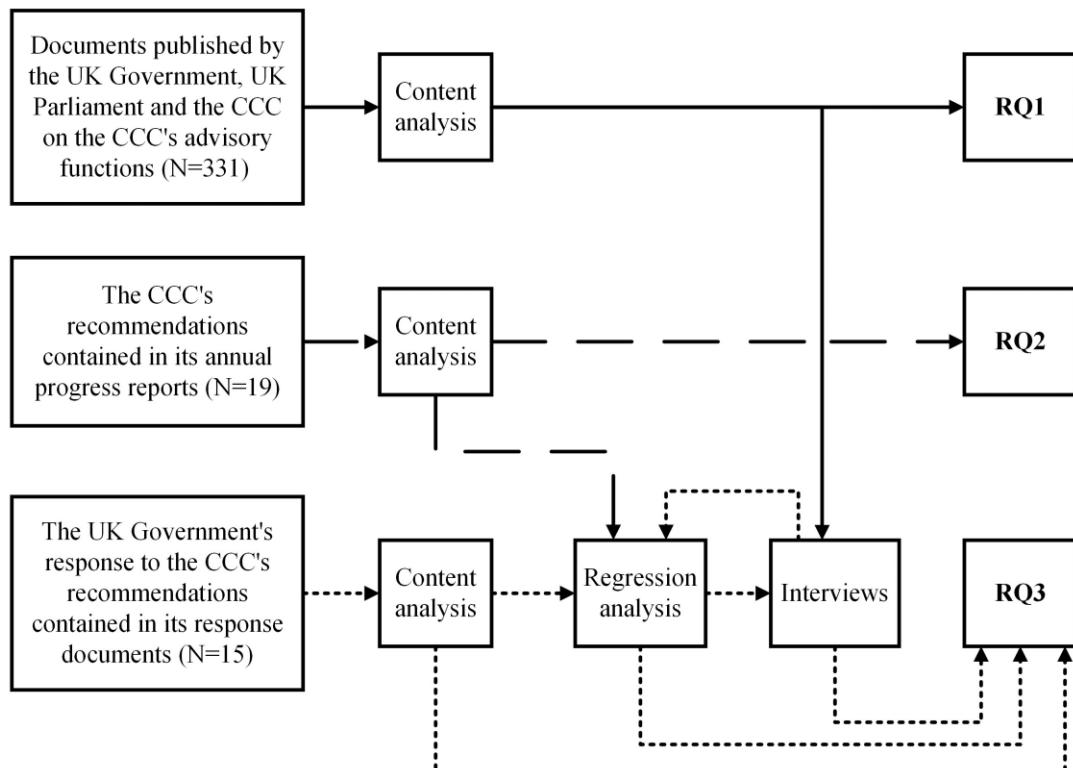
Source: author's own composition

To address the three research questions, insights from content and regression analyses were combined sequentially. In particular, a content analysis of the characteristics of the CCC's recommendations (for RQ2) was undertaken before analysis of the government's associated responses (for RQ3). This ordering allowed the author to combine the results from these analyses in a regression analysis of the relationships between these data. The ordering therefore provided an initial examination of “which knowledge [was] solicited” by the CCC and, subsequently, whether and how it was “actually taken into account by political [...] actors” (Christensen and Serrano Velarde, 2019, p. 51). Interviews were undertaken as the last phase of data collection to “complement” the results from the content analysis and regression analysis and “provide greater context” on different forms of influence and their causal conditions (Russell and Benton, 2011, p. 73). This ordering allowed the author to ask interviewees about the variables that were included in the regression analysis and the results from the preceding analyses. This followed the approach of Russell and Benton (2011) and

the advice of interview methodologists Roulston and Choi (2018). Figure 3.1 visualises the sequential mixed methods research design of this thesis. The rest of this chapter details how data were collected and analysed to address the three research questions.

Figure 3.1 Overview of the sequential mixed methods design of this thesis.

Interpretation: the arrows indicate that the findings from earlier analyses were inputs into subsequent analyses to address RQ3.



Source: author's own composition

3.4 Data collection

3.4.1. Documents

A key element of this research was the collection and analysis of documents. A total of 365 documents were collected to address all three RQs, of which 241 (66%) were analysed (see Section 3.5.1. for a description of how and why documents were excluded from analysis). All documents were publicly available and accessible online. Full details of the documents that were collected and analysed to address each RQ are set out in Appendix 1 and summarised below.

To answer RQ1 on the CCC's statutory advisory functions⁵, 331 documents were collected that pertained to the 2008 Climate Change Act (CCA), primarily parliamentary debates on the design of the CCA – and the CCC therein - before its establishment (2007-2008) and documents published by the UK government and the CCC once the CCA was operational (2009-2020). Documents were collected according to three groups. The first group of documents were those that had been published by the UK Government (N=9) and included the initial 2007 Climate Change Bill, the government's response to pre-legislative scrutiny of the Bill, and its triennial reviews of the CCC. The second group of documents were those that had been published by the UK Parliament (N=304), predominantly pre-legislative scrutiny of the Bill by UK Select Committees, parliamentary debates on the Bill in the House of Lords and the House of Commons, and amendments to the Bill that were tabled in each House. Although there were only 35 parliamentary debates on the Bill between 2007 and 2008 (UK Parliament, 2008), a total of 270 individual documents – that comprised the 35 debates - were collected using NVivo's NCapture function due to the pagination of the UK Parliament's website. The final group of documents were those published by the CCC (N=18), primarily its corporate plans and insight briefings, between 2009 and 2020.

To answer RQ2 on the characteristics of the CCC's recommendations, the CCC's annual progress reports were collected because they contained its statutory policy recommendations for the UK Parliament as mandated under the CCA. As a public body, the CCC uploaded its publications to its public website, including its annual progress reports. Standardised webpage search criteria were used to identify these reports for test-retest purposes (Bryman, 2016). A search yielded 19 annual progress reports for the UK Parliament on mitigation (N=12) and adaptation (N=7) published between 2009 and 2020. Although the CCC also provided ad hoc recommendations to government ministers in letters, these were not collected because they were not produced for the same audience and within a similar timeframe, hence they were not considered suitable for cross-year comparisons (see Chapter 8).

⁵ As defined in Chapter 1, throughout this thesis the term *advisory* refers to “the power to make recommendations, without necessarily being empowered to enforce them” (OED, no date b), whilst the term *function* describes “the purpose or intended role of a thing” (OED, no date e).

To answer RQ3 on the extent of – and conditions for - the (non-)use of the CCC’s recommendations, the government’s formal written responses to the CCC’s mitigation (N=12) and adaptation (N=3) recommendations were collected. If the UK Government responded to the CCC’s recommendations via other means, such as in a press release or on social media, these responses were excluded to curate a corpus of interannually comparable responses, as per the approach of Russell and Benton (2011). The government’s responses were analysed via a content analysis (see Section 3.5.1.) and regression analysis (see Section 3.5.2.). and supplemented with data collected from semi-structured interviews, to which we now turn.

3.4.2. Interviews

In addition to documents, data were also collected through semi-structured elite and expert interviews to address RQ3. A semi-structured format provided the author and the interviewee the flexibility to depart from the protocol to pursue unexpected and interesting points of discussion (Bryman, 2016), for example if the interviewee had experience working in a particular sector or at a particular point in the study period.

Between June and September 2023, 36 interviews were undertaken with people who worked for the CCC and wrote its recommendations (N=23) or worked for the UK Government and contributed to its responses to those recommendations (N=13) between 2009 and 2020. Interviewee details are summarised in Table 3.3. A full list of interviewees can be found in Appendix 2 including a summary of how the data from each interviewee is referred to in the empirical chapters of this thesis (see Chapters 6 and 7) according to their consent form.

Table 3.3 Summary of interviewees.

Organisation	Number of interviewees with experience in writing (CCC) or responding (UK Government) to the CCC’s recommendations on mitigation, adaptation, or both			
	Mitigation	Adaptation	Both	Total
CCC	11	6	6	23
<i>Committee Member</i>	7	3	3	13
<i>Secretariat</i>	4	3	1	8
<i>Communications</i>	0	0	2	2
UK Government	6	5	2	13
Total	17	11	8	36

Source: author’s own composition

A purposive and sequential sampling of interviewees was undertaken because the government's response documents to the CCC's recommendations were entirely anonymous. To acquire the names and contact details of the government officials who contributed to writing the government's responses to the CCC's recommendations, it was therefore crucial that interviews began with people who worked for the CCC. Initial access to the CCC was secured in February 2023 when the author travelled to the CCC's office in London to present the results from a content analysis of documents that had been undertaken to address RQ2 and had recently been published (see Dudley, Jordan and Lorenzoni, 2022). This allowed the author to network and establish rapport and trust with the CCC's staff, elements that were considered critical for accessing elites and experts for interviews (Goldstein, 2002; Harvey, 2011; Mikecz, 2012). The acknowledgements lists in the CCC's progress reports were also traced to identify staff that worked for the CCC during much of the study period (2009-2020). These interviewees were prioritized for recruitment due to their depth of insights, and to enable longitudinal analysis and a triangulation of experiences over the same period.

CCC interviewees were also prioritised for recruitment if they were expected to be able to provide the contact details for government officials to enable snowball sampling. This approach was critical to gaining the perspectives and understandings of the officials who responded to the CCC's recommendations (see Chapter 8). Snowball sampling has long been used to identify government officials to interview on their (non-)use of knowledge in policymaking e.g., see Patton et al., (1977). The approach has also been applied in more recent research on the CCA post-adoption to recruit policy actors for interviews, including from the CCC and central government, due to the "exclusive nature of policy networks" (Gillard, 2016, p. 29). A total of 17 interviewees were identified and recruited from snowball sampling, including all 13 government officials who were interviewed by the author for this thesis. Interviewees were recruited via email (N=31) or direct messages on LinkedIn (N=5).

As per the guidance of interview methodologists Roulston and Choi (2018), interview questions were derived from two sources. First, in relation to the conceptual framework developed in Chapter 2, the author asked interviewees about their experiences and observations of the five modes – and four conditions – of (non-)use. Interviewees were also asked for their reflections on other causal conditions for each mode. Second, questions were also derived from the findings of the preceding content

and regression analyses. For example, in accordance with the sequential mixed methods design (see Figure 3.1), interviewees were asked what might explain the statistically significant predictors for government responses, and whether the author's composition of independent variables aligned with the interviewees' working understandings of each variable. This approach allowed the author to gain a deeper understanding of the regression results and also enabled the composition of some variables to be refined. For example, the author had initially coded adaptation recommendations for whether they were focused on the water sector; however, several interviewees reflected that a delineation between recommendations that focused on flood risk management from those that addressed water supply and demand would better align with the features and operations in these areas. In another example, the author had initially coded mitigation and adaptation recommendations for whether they were addressed to a government department; however, government interviewees reflected that the regression findings would be clearer if they differentiated between those that were addressed to a sponsor or non-sponsor department of the CCC, in accordance with the 2010 Framework Document that granted responsibility for meeting statutory targets to sponsor departments (HM Government *et al.*, 2010).

Following the guidance of methodologists Wang and Yan (2012), interview questions were open-ended and designed to collect data on core topics of interest to this thesis, namely developments in the CCC's recommendations over time, whether and how they had been used across the five modes of (non-)use, and the associated causal conditions. The interview protocol received ethical approval from the UEA Science Research Ethics Committee (ETH2223-1786) in April 2023 before interviews commenced. The semi-structured interview schedule can be found in Appendix 3.

Ensuring the confidentiality of interviewees in transcripts and publications is widely advocated in ethical codes (Bryman, 2016, p. 127). Due to their standing in organizations, elites and experts are likely to be easily identifiable (Bogner, Littig and Menz, 2018). The issues and limits of confidentiality and anonymity are therefore particularly acute for expert and elite interviews and so these matters should be considered at all stages of the research project, as advocated in research ethics frameworks e.g., see CUREC (2020), ESRC (2021) and UREC (2021). The ethics of elite and expert interviews were considered and addressed by the author in the following ways.

Firstly, interviewees were recruited based on voluntary and informed consent whereby they were informed of the purpose of the study, its risks, benefits, and their right to withdraw at the point of initial contact, and again at the start of the interview. Second, each interviewee completed a consent form before the interview that recorded their preference for data handling, specifically whether their data would be on the record, pseudonymized, or anonymized. Interviewees were informed that it was difficult – if not impossible – to anonymize elite and expert interview data because they were likely to be re-identifiable through contextual information as they were a small cohort of high-profile individuals (Bogner, Littig and Menz, 2018; CUREC, 2020; Noé *et al.*, 2022). Where requested by the interviewee on their consent form, data were pseudonymized by replacing identifying features, such as names and job titles, with a general indication of whether they were a CCC or government interviewee. This approach followed prevailing studies that have used elite interviews e.g., see Hintze and El Emam (2018) and Keskitalo (2022). Finally, a transcription must be loyal to an expert's oral account (Brinkmann and Kvale, 2018). The author therefore undertook “member checking” (Saldana, 2013, p. 35) with interviewees by sending pertinent quotes, and a summary of the paragraph that the quote was used in, to interviewees during analysis so they could provide any clarifications or amendments to improve the accuracy of the findings reported in Chapters 6 and 7.

Interviews were carried out in the wake of the COVID-19 pandemic. The author therefore conducted the interviews remotely over video using Microsoft Teams (N=34) or by phone (N=2). Remote interviews offer many benefits that “challenge the presentation of the face-to-face interview as the ‘gold standard’” including less time and financial costs, increased interviewer and interviewee safety, flexible scheduling, and increased participation, particularly for elites who often have limited time available (Self, 2021, p. 3). The author benefited from these aspects and was able to undertake 36 interviews with a geographically dispersed and elite population over three months. Moreover, during each interview, the Microsoft Teams transcription function was run, and the audio was recorded with permission from each interviewee. A benefit of this approach was that the Teams transcription provided a verbatim written record of the interview that indicated which person was talking. After each interview, the author replayed the audio and checked the transcription for accuracy. It was read in detail to enable the author to get closer to the data, begin to identify key themes and

become aware of any similarities and differences between interviewee responses (Bryman, 2016). This approach increased the efficiency, reliability, and validity of the author’s analysis of the interview transcripts (Keen, Lomeli-Rodriguez and Joffe, 2022). Interview transcripts were analysed via content analysis, to which we now turn.

3.5 Data analysis

As introduced in Sections 3.2 and 3.3, the author undertook content analysis and regression analysis to address the three RQs. Each analysis is now described.

3.5.1. Content analysis

As set out in Section 3.4.1., documents were a core dataset of this thesis. Each set of documents, collected for each RQ, was analysed via a content analysis, as were the interview transcripts for RQ3. Content analysis is a way to analyse text and quantify the content therein “in terms of predetermined categories in a systematic and replicable manner” through the allocation of ‘codes’ to selected pieces of text (Bryman, 2016, p. 283), as explained below. Content analysis can also be used to analyse prevalent narratives or themes on a particular topic in a more qualitative approach, including analysis of documents and interview transcripts (Hurst, 2023), as in this thesis.

NVivo (Lumivero, 2017 and 2023) was used to store and analyse documents and transcripts because it was a well-established content analysis software with substantial user guidance e.g., see Schreier (2012), Saldana (2013) and Neuendorf (2020). NVivo was also selected because it can overcome some of the limitations of a manual content analysis such as human error, internal inconsistency, and a reduced ability to compare within – and across – coded text (Feldman, 1995; Marshall, 2002). This is because NVivo allows a researcher to apply multiple codes quickly and efficiently to a piece of text that is then stored in a searchable database, alongside a transparent log file of the coder’s actions, so that the text can be re-examined in the context from which it was coded (Jackson and Bazeley, 2019, p. 8). The use of NVivo in content analysis can therefore “enhance [the] transparency and trustworthiness” of the research process (Kaefer, Roper and Sinha, 2015, p. 1).

To ensure the transparency and replicability of each content analysis, the author developed a relevant codebook that set out the codes, coding rules, and coding exemplars that guided the coding of relevant data, as per Bryman (2016). Codes were:

“...a word or short phrase that symbolically assign[ed] a summative, salient, essence-capturing, and/or evocative attribute to a portion of [...] [text] data.” (Saldana, 2013, p. 3)

Each codebook set out a “branching coding system” of adult and child codes, the latter of which was applied to identified pieces of text, following the approach of content analysis methodologists Jackson and Bazeley (2019, p. 9). For example, in the content analysis of the characteristics of the CCC’s recommendations for RQ2, *sectoral focus* was an adult code with child codes that specified individual sectors such as energy, buildings, transport etcetera; each recommendation was ‘coded’ with one of these child codes to indicate its sectoral focus.

For each content analysis, preliminary adult and child codes were derived deductively from relevant literatures. During the pilot for each analysis, a purposive sample of documents or interview transcripts was read in detail to identify where the data – appropriate to the relevant RQ – was located and to refine the phrasing and number of child codes. For example, a pilot study of the CCC’s annual progress reports for RQ2⁶ identified that its recommendations – the unit of analysis – were consistently located in the Executive Summary, and so analysis of each report focused on the Executive Summary. This approach followed a postmodern perspective which did not uphold the classical view on the need to code a complete body of data (Saldana, 2013).

Throughout each content analysis, child codes were iteratively created, merged, and dissolved to maintain their discreteness and avoid duplication, as per Krippendorff (2004). This process also enabled codes to be inductively revealed as the analysis progressed. In these instances, documents that had previously been coded were re-analysed according to the newly identified codes, as detailed below.

For each RQ, the collected documents were analysed in chronological order. Where relevant, once a document had been coded, the expected counts for each adult and child code – as set out in the coding rules of the codebook – were compared to the

⁶ This pilot was undertaken during the author’s Master of Research (MRes) in Social Science Research Methods at the University of East Anglia in 2019 to 2020.

counts displayed in NVivo. For example, the content analysis of the government's responses to the CCC's recommendations involved regular checking of the counts in NVivo to ensure that the number of responses matched the number of recommendations that had been identified in the analysis for RQ2. If there were discrepancies, Matrix Coding Queries were run to determine if a response had been double counted or missed and, in such instances, the coding was rectified in NVivo. For the content analysis of interview transcripts for RQ3, the analysis was qualitative so the quantification and counting of codes was not needed (Hurst, 2023).

The author followed the approach of Kaefer, Roper and Sinha (2015) and used visualisation tools in NVivo to identify any links and relationships between codes, both within and across documents and, separately, interview transcripts. In particular, multiple Matrix Coding Queries were run in NVivo to cross-tabulate codes within and across documents or transcripts. These cross-tabulations produced a table that showed the count of data points that had been assigned to two codes. A benefit of using NVivo was that it allowed for the interrogation of coded data within its original context, and so this feature was used extensively to understand the identified intersections between codes. Data were extracted to Excel and analysed further through the calculation of descriptive statistics and graphs to identify patterns over time where relevant. Coding consistency and reliability measures, such as Kappa's coefficient, were also calculated where appropriate. The rest of this section provides additional detail on the three content analyses that were undertaken by the author.

Content analysis of the CCC's statutory advisory functions, 2007 to 2020 (RQ1)

As described in Section 3.4.1., a total of 331 documents were collected to address RQ1. A pilot investigation was initially undertaken of ten documents selected from different years and different institutions to identify whether, where, and how the CCC and its advisory functions were referred to in each document. The pilot quickly revealed notable variations in the length and format of these documents. It also revealed that the documents covered a wide range of topics beyond the CCC and its advisory functions, primarily the design and operation of the CCA, as well as the CCC's other statutory functions that were not studied in this thesis, such as those that pertained to emissions reporting and monitoring. Moreover, the language used across the documents to describe the CCC's advisory functions was somewhat consistent. For

example, the pilot revealed that the CCC was referred to as an “independent statutory body” (EFRA Committee, 2007, p. 9), a “new independent body” (HM Government, 2007b, p. 7) and an “independent non-departmental public body” (House of Lords, 2007a, col. 1125).

Due to the nature of parliamentary debates, discussions of the CCC’s advisory functions were not constrained to the same part of each document, not least because the documents did not contain a standard format or structure. The time and resource constraints of this thesis prevented the author from reading each of the 331 documents in their entirety to identify and code the relevant data. The author therefore derived a list of standardised search terms inductively from a literature review and during the pilot to ensure that the analysis focused only on data that pertained to the CCC’s statutory advisory functions. The list of search terms was refined during coding proper.

To ensure data were not excluded from coding, search terms were stemmed to their root form to ensure a systematic manual coding of the text e.g., see Rona-Tas et al., (2019) and Macanovic (2022). For example, the stemmed search term ‘advi-’ was used to simultaneously identify data on advice, advise, advising, advisory etcetera. Acronyms were also searched for, such as ‘CCC’ and ‘NDPB’. Each of the 331 documents was systematically searched using the standardised list of search terms in NVivo. Where search terms identified relevant text, the surrounding text was read in detail. If the data were identified as being relevant to the CCC’s statutory advisory functions, then it was coded following the codebook (see Appendix 4).

The author followed the methodology of Saldana (2013) whereby the identification of a new term to refer to the CCC or its advisory functions in later documents was cross-checked with earlier documents that had already been coded. For example, references to the CCC as a ‘commission’ were identified in debates in the House of Lords in January 2008 (House of Lords, 2008e, col. 1064) and so already-coded documents were re-searched for the term ‘commission’ to verify – and rectify as necessary – any data that pertained to the CCC’s advisory functions that had not been coded in the first instance. This ensured that insights gained from later documents informed coding decisions relating to earlier documents (Saldana, 2013). In these instances, NVivo coding stripes and text highlights were turned on when searching the document to identify if the data had already been coded.

If the search terms identified a section of text that, upon detailed reading, pertained to the CCC but not its advisory functions, for example on its reporting functions, then the data were not coded. If a document was searched for each of the terms on the search list and no results were found, then the document was excluded from analysis because it was deemed to not be relevant to the focus of RQ1. A total of 124 (37%) documents were excluded on this basis (see Appendix 1 Table 1 for the full list of documents that were collected and analysed for RQ1). A total of 207 documents were therefore analysed in NVivo as per the content analysis methodology set out in Section 3.5.1. Chapter 4 presents the empirical results of this analysis.

Content analysis of the characteristics of the CCC's recommendations, 2009 to 2020 (RQ2)

As described in Section 3.4.1., the CCC's annual progress reports from 2009 to 2020 on mitigation (N=12) and adaptation (N=7) were collected to address RQ2 because they contained its statutory policy recommendations (see Appendix 1 Table 2 for the full list of documents that were collected and analysed). A pilot⁷ revealed inconsistency in the CCC's language to describe its recommendations which were sometimes referred to as "policy requirements" (CCC, 2016b, pp. 16–17) or "milestones for the coming year" (CCC, 2018, pp. 21–22). The style of reports and the location of recommendations therein were also inconsistent over time. Across the corpus, the CCC most often located its recommendations in the Executive Summary of each report⁸. Based on the pilot, a definition of a recommendation was derived to ensure consistent textual interpretation over time as:

Any statement within the Executive Summary that an actor, whether named or not, should take some stated future action, indicated by terms such as 'required', 'should', 'must', or 'recommends' but excluding terms such as 'could'; it includes key details such as the addressee, target, and sectoral focus.

⁷ This pilot was undertaken during the author's Master of Research (MRes) in Social Science Research Methods at the University of East Anglia in 2019 to 2020.

⁸ Recommendations also infrequently appeared to be in the main body of the report or in its appendix, hence these were excluded for consistency.

Bullet-pointed actions following a statement such as ‘the CCC recommends...’ were treated as individual recommendations. These definitions and approaches aligned with those in the work of Russell and Benton (2011, p. 62) and Monk (2012, p. 144).

This content analysis aimed to identify the number of the CCC’s recommendations that were provided to the UK Parliament and their characteristics over time. Adult codes for this codebook were derived from the conceptual framework in Chapter 2 which identified *recommendation characteristics* as a condition that could facilitate knowledge ‘use’ or non-use, namely their: *addressee*, *sectoral focus*, inclusion of *delivery targets*, number and type of *recommended action(s)*, and *level of challenge to the policy status quo*.

The pilot for this content analysis revealed that some of the CCC’s recommendations were repeated over time, either partially or verbatim. *Repetition* was therefore inductively derived to be a sixth characteristic of the CCC’s recommendations and analysed across the corpus (see Chapter 5). Recommendations were traced over time and coded to indicate whether it was novel, meaning it had not appeared in previous progress reports, or whether it was a partial or verbatim repetition of a previous recommendation. A recommendation was considered to be a repetition if it put forward the same fundamental recommended action, such as to publish a strategy on a particular area or commit funding for a specified endeavour, as a previous recommendation. The repetition of recommendations was traced over time following the approach previously described for the content analysis of RQ1, namely using stemmed search terms derived from the recommendation itself, such as ‘strateg-’ or ‘fund-’, to search all the recommendations that had been identified in previous reports to determine if a recommendation was a repetition. This was enabled by the curation of a ‘master list’ of all recommendations across the CCC’s annual progress reports. Specifically, each recommendation was coded to an adult code in NVivo that formed a database of all recommendations across the corpus, meaning this could be searched to identify if recommendations in later reports were repetitions from earlier reports.

An empirical measure of the *level of challenge to the policy status quo* was derived from a longstanding theory developed by Fischer (1980, 1990, 2006). His four-level framework was developed over three decades from a synthesis of prevailing literature on policy evaluation. The author therefore distilled Fischer’s framework into its core

elements, specifically a typology of four levels of challenge to the policy status quo. These levels were used to analyse the extent to which the CCC's recommendations challenged the policy status quo because the CCC derived its recommendations from its evaluations of government policy.

As summarised in Table 3.4, at levels one and two of Fischer's typology, the CCC's recommendations were identified as supporting the policy status quo because they focused on whether the government was meeting existing targets, if existing targets were appropriate to address climate change, and whether they aligned with prevailing values and beliefs. At levels three and four, recommendations were identified as challenging the policy status quo because they evaluated whether existing policies would enhance or limit the achievement of wider societal values such as equity and justice, or if they recommended that an existing policy should be changed, or a new one introduced, to achieve these values or increase the government's ambition. Appendix 5 summarises the codebook used for the content analysis to address RQ2.

Table 3.4 Overview of Fischer's theory of policy evaluation and its application in this thesis.

Level of Fischer's typology*	Description of a policy evaluation at this level**	Application in this thesis***
1. Technical verification of policy objectives	Verifies whether existing policies are meeting declared objectives.	Recommendations coded at this level were <i>supportive of the policy status quo</i> as they evaluated if the government was meeting existing targets e.g., carbon budgets.
2. Situational validation of policy objectives	Evaluates whether policy objectives are appropriate and relevant to an identified policy problem.	Recommendations coded at this level were <i>supportive of the policy status quo</i> as they evaluated whether existing targets were appropriate to address climate change e.g., whether carbon budgets were at an appropriate level.

*verbatim Fischer (2006, p. 18) | ** summary of Fischer (1980, 1990, 2006) | *** author's interpretation

Source: author's own composition

Continued overleaf

Table 3.4 continued.

Level of Fischer's typology*	Description of a policy evaluation at this level**	Application in this thesis***
3. Systems vindication of value orientations	Evaluates whether a given policy objective enhances or limits the achievement of societal values (e.g., equality, freedom, community etc.) within existing social arrangements.	Recommendations coded at this level were <i>challenging of the policy status quo</i> because they evaluated the value implications of existing government policies and if they would address climate change in a way that achieved societal values such as equity, fairness, and justice.
4. Exploration of societal choices	Considers which societal values policies should ideally be built upon, and whether realising them requires a restructuring of society.	Recommendations coded at this level were <i>challenging of the policy status quo</i> because they evaluated whether existing policies should be changed, or new ones introduced, to achieve societal values and increase ambition on climate change.

*verbatim Fischer (2006, p. 18) | ** summary of Fischer (1980, 1990, 2006) | *** author's interpretation

Source: author's own composition

Finally, the author was the sole coder for all recommendation characteristics apart from the *level of challenge to the policy status quo* because this required the interpretation and application of theory. Multiple coders were therefore involved to improve the quality and reliability of findings (Church, Dunn and Prokopy, 2019). This followed the approach of existing studies that had used multiple coders to undertake a theory-

based content analysis e.g., see Azar et al., (2013). Accordingly, two additional coders⁹ were involved in coding recommendations for this characteristic.

The author developed the original codebook which was refined through discussion, feedback, and pilot coding with the additional two coders. The content analysis comprised the three coders performing three rounds of coding of all the CCC's mitigation and adaptation recommendations against Fischer's four levels. The author initially coded all recommendations against each level, referring to the codebook summarised in Table 3.4. The other two coders then blindly coded half of the recommendations each, referring to the same codebook, following the guidance of O'Connor and Joffe (2020). Time and resource constraints prevented a single second coder from coding the entire dataset; however, this meant that the second round of coding was undertaken by two people, and Cohen's kappa (k) indicated limited and varied coder agreement between the first and 'second' coder across Fischer's four levels (see Chapter 8). Instances of disagreement were identified and passed to a third coder to make the final decision by coding the recommendation blindly, following a "majority rules' decision" (O'Connor and Joffe, 2020, p. 9). Once the three rounds of coding were complete, each recommendation was deemed to have met a pre-determined threshold of consensus whereby at least two researchers had agreed on the level of each recommendation, following the rationale and approach of Haug et al., (2009). The results of this analysis are presented in Chapter 5.

Content analysis of the government's responses to the CCC's recommendations, 2009 to 2020 (RQ3)

The third content analysis involved an analysis of the UK Government's written responses to the CCC's policy recommendations that were identified in the content analysis for RQ2. As introduced in Sections 3.2. and 3.3., several existing public policy studies had analysed a government's written responses to recommendations by directly applying the codebook of Russell and Benton (2011) because it was "[p]erhaps the most comprehensive work in this field" (Reader, 2015, p. 497) e.g., see Caygill (2019), Lynch and Whitaker (2019) and Elston and Zhang (2022).

Following this precedent, the author traced the CCC's recommendations through to the government's written response documents. The government's responses to the CCC's

⁹ Namely the author's PhD supervisors, Professors Andy Jordan and Irene Lorenzoni.

mitigation recommendations (2009-2020) and adaptation recommendations (2015-2020)¹⁰ were coded according to the codebook of Russell and Benton (see Table 3.5). The responses were coded in the same NVivo file that had been used to undertake the content analysis for RQ2. This was done to enable the author to run cross-tabulations of the distribution of the government's responses across each of the characteristics of the CCC's recommendations. The government sometimes provided lengthy responses to a recommendation that were one or more pages long. In these instances, the most predominant response was coded by the author as per Table 3.5, following the approach of Russell and Benton (2011).

Table 3.5 Summary of the codebook used to code the UK Government's responses to the CCC's recommendations.

Adult code*	Description**
Accepted in full	The government explicitly accepted the recommendation in full and committed to undertake the recommended action.
Partially or implicitly accepted	The government agreed with the general thrust of the recommendation but not at the level of detail in the recommendation, or accepted part of a recommendation but did not respond to another aspect of it.
Neither accepted nor rejected	The recommendation received a neutral response, for example the government fully rejected part of it and fully accepted another aspect of it, or the government said it would consider the recommendation but did not commit to delivering it, or the government said it was already doing what the recommendation calls for but it was unclear when that action started.
Partially or implicitly rejected	The government rejected the recommendation but not explicitly such as by claiming the recommended action was not necessary, for example if it claimed that it had already done what was being recommended but what the government described was different to the recommendation, thereby 'dodging' it, or where part of a recommendation was explicitly rejected whilst another aspect was not responded to.
Rejected in full	The government explicitly rejected the recommendation in full, did not commit to any future action and gave no indication its position would change, instead stating that it 'disagreed with' or 'rejected' the recommendation.

*verbatim Russell and Benton (2011, p. 101-102) | *summary of Russell and Benton (2011, p. 101-102)

Source: Russell and Benton, 2011, p. 101-102

¹⁰ The UK Government started responding to the CCC's adaptation recommendations in 2015.

The fourth and final content analysis of this thesis was of the 36 semi-structured interview transcripts. As described in Section 3.5.1., this was a qualitative analysis that sought to identify the areas of agreement and disagreement among interviewees on the (non-)use of the CCC's recommendations, across all five modes, and their causal conditions. From the literature reviewed in Chapter 2, the five modes – and four conditions – were the child codes. Each transcript was read in its entirety and text was coded that aligned with the definitions of each mode or condition, as set out in the conceptual framework of this thesis. As previously described in this current chapter, the analysis also inductively derived any conditions for a mode that were identified by an interviewee. The results of this analysis are presented in Chapters 6 and 7.

3.5.2. Regression analysis

As set out in Table 3.1 (in Section 3.2), there was a precedent for public policy scholars to undertake a regression analysis of the relationship between the characteristics of recommendations and the government's written responses e.g., as in Russell and Benton (2011), Monk (2012), Caygill (2019), Lynch and Whitaker (2019) and Elston and Zhang (2022). This existing work focused on predictors for acceptance and rejection responses.

The author undertook a binary logistic regression analysis of the statistical relationship between the characteristics of the CCC's recommendations, which were coded to address RQ2, and the government's acceptance and, separately, rejection responses to those recommendations, which were coded to address RQ3. A third model was run that used non-committal responses as its dependent variable in alignment with the definition of non-use in this thesis which included both rejection and non-committal responses (see Chapter 2). These three models were run for the CCC's mitigation recommendations and, separately, its adaptation recommendations, meaning six models were run in total, each with one of the three responses as its dependent variable.

The aforementioned content analysis identified if a recommendation did not receive a response; in these cases, the recommendations were marked as 'system missing' in SPSS so as not to introduce bias. In particular, 27 mitigation - and 26 adaptation - recommendations were repeated verbatim for different government departments in the 2020 report; however, the government only provided one response to the initial recommendation. The response to the first appearance of the recommendation was

therefore coded and the repeated recommendations were marked as ‘system missing’. Additionally, adaptation recommendations only started receiving responses from the government in 2015 and so these were coded to 2020. Responses to the recommendations provided between 2010 and 2014 were therefore coded as ‘missing’. This meant that there was not sufficient statistical power to include the characteristics of *addressee* and *delivery targets* in the three adaptation models (see Chapter 8). The three mitigation models contained all six characteristics.

The independent variables in each model were the characteristics of recommendations that were coded to address RQ2. Two characteristics were handled as binomial variables whereby the characteristic was either present or absent in a recommendation, specifically *delivery targets* and *repetition*. The remaining four characteristics were coded as categorical variables, specifically *addressee*, *sectoral focus*, *recommended action*, and *level of challenge to the policy status quo*. The *level of challenge to the policy status quo* was derived from Fischer’s four-level theory of policy evaluation described in Table 3.4. Recommendations for each of the four levels were combined into one variable in SPSS to increase statistical power because some levels had less than 20 coded recommendations, particularly at levels 3 and 4. Recommendations were therefore recoded as (a) supporting the policy status quo (level 1 and/or 2), (b) challenging the policy status quo (level 3 and/or 4), (c) simultaneously supporting and challenging the policy status quo (level 1 and/or 2 and level 3 and/or 4) or (d) not meeting the criteria for any level. Cross-tabulations were run in SPSS to identify and curate a ‘multiple’ category for each categorical variable that was comprised of recommendations that, respectively, included multiple addressees, multiple sectors, multiple recommended actions, and both supported and challenged the policy status quo. Within each variable, if there were insufficient data for analysis, categories were merged with others if appropriate, or coded into an ‘other’ category to ensure sufficient statistical power.

SPSS outputs were interpreted to identify the statistical significance of any characteristic for any response at the standard .05 level. Cross-tabulations were also undertaken in SPSS to analyse the relative distribution of the government’s responses according to the characteristics of recommendations. Results from this analysis are reported in Chapter 7.

3.6 Conclusions

This chapter has provided an overview of the data collection and analysis methods that were used to address the three research questions set out in Chapter 1. It began by examining the approaches of existing empirical research that had studied the five modes of (non-)use and their causal conditions. It identified that there was a precedent to study each mode through a content analysis and/or regression analysis of documents and interview transcripts. It then set out the sequential, mixed methods research design of this thesis whereby the content analysis of documents, specifically of the characteristics of the CCC's recommendations and the government's associated responses, was undertaken before regression analysis because the results from these content analyses were used as the dependent and independent variables. The final phase of data collection was semi-structured interviews undertaken to complement and expand upon the quantitative findings from previous content and regression analyses.

These methods were informed by the overall aim and three research questions that underpinned this thesis, as well as its conceptual framework on the (non-)use of climate policy recommendations set out in Chapter 2. This chapter has therefore provided a detailed account of the author's "analytical treatment" of "*when and how* knowledge matters in the policy process" (Radaelli, 1995, p. 160) through the sequential mixed methods approach that was developed to address RQ3.

This thesis now moves to present the empirical results from these analyses in Chapters 4 to 7. Chapter 4 examines the results from a content analysis on the formulation of the CCC's statutory advisory functions as they appear in the 2008 Climate Change Act, to address RQ1. Chapter 5 addresses RQ2 through its presentation of results from a content analysis of the characteristics of the CCC's recommendations, and any developments, over time. RQ3 is addressed over two empirical chapters to provide the author with sufficient space to address both elements of the question in detail. Chapter 6 presents the results from a content analysis and qualitative interviews on *the extent to which* the CCC's recommendations were used across each of the five modes. Chapter 7 presents the findings from regression analyses and interviews on the *conditions* under which recommendations were (not) used by UK Government officials throughout the study period. Each of the three RQs is then answered and discussed in Chapter 8.

Chapter 4

The formulation of the CCC's statutory advisory functions, 2007 to 2020

4.1 Introduction

This chapter addresses the first research question of this thesis: *what are the statutory advisory functions of the CCC and how were they formulated between 2007 and 2020?*¹¹ The previous chapter described that over 300 documents were collected to address this question, namely those published by the UK Parliament, the UK Government, and the CCC between 2007 and 2020. This current chapter presents the findings from a content analysis of those documents. It identifies and traces developments in three main areas of debate that shaped the formulation of the CCC's statutory advisory functions: whether its advice should be mandatory for the government, whether its functions should be reformulated such that it introduces policy rather than advises on it, and whether it should advise only on mitigation or also adaptation. These formative areas of debate are traced through to documents published after the enactment of the 2008 Climate Change Act. Following the approach detailed in Chapter 3, this chapter does not address the CCC's other statutory functions.

The UK legislative process begins with a government consultation and publication of a draft Bill. Following pre-legislative scrutiny and its progress through the House of Lords and the House of Commons – for debate and amendments – the Bill becomes law after Royal Assent. This chapter is structured in chronological order and follows the UK legislative process. Section 4.2 examines the UK Government's initial formulation of the CCC in the 2007 Climate Change Bill and pre-legislative scrutiny of the Bill. Section 4.3 traces the main debates on the CCC's advisory functions in the Lords (Section 4.3.1.) and the Commons (Section 4.3.3.), as well as the amendments tabled in both Houses. Section 4.4 traces these debates in documents published by the CCC and the UK Government between 2009 and 2020. Section 4.5 summarises changes to the CCC's advisory functions over the study period. Section 4.6 concludes.

¹¹ Throughout this thesis the term *advisory* refers to “the power to make recommendations, without necessarily being empowered to enforce them” (OED, no date b) and the term *functions* describes “the purpose or intended role of a thing” (OED, no date e) (see Chapter 1).

4.2 The 2007 Climate Change Bill

4.2.1 Initial Government proposal: March 2007

In the UK the legislative process begins with a government consultation on a Bill. In March 2007 the UK Government launched a consultation on its Climate Change Bill (hereon ‘the Bill’ for brevity). The government proposed that the Bill would establish “a new independent body, the Committee on Climate Change” (HM Government, 2007b, p. 21). Under its initial formulation, the CCC was given three main advisory functions. First, to provide advice to the government on carbon budgets, domestic and international efforts to reduce greenhouse gas emissions, and the contributions made by sectors across the economy. Second, to take seven factors into account when formulating its advice including scientific knowledge about climate change and economic circumstances (HM Government, 2007b, p. 37). Finally, to provide other advice, analysis, information, or assistance when requested by the Secretary of State. Although Part 4 of the Bill created a duty for the Secretary of State to report to Parliament on adaptation “from time to time” (HM Government, 2007b, p. 79), the CCC’s functions - advisory and otherwise - were focused on mitigation, primarily carbon budgets. Under Part 2, the CCC was also required to provide an annual progress report to Parliament “setting out the Committee’s views on the progress made towards meeting” the carbon budgets and the 2050 target (HM Government, 2007b, p. 74), to which the Secretary of State was required to respond (HM Government, 2007b, p. 70).

Content analysis revealed that the CCC’s advisory functions were formulated in these terms for three reasons. First, in its consultation document, the government repeatedly stated its expectations for the CCC – and its advice – to be credible, transparent, and independent. It therefore gave the CCC the function to account for seven factors when formulating its advice:

“...so that – irrespective of the Government of the day – the analysis is seen as objective and free from political interference, which would otherwise potentially damage its credibility.” (HM Government, 2007b, p. 36)

Analysis showed that there were more references to these expectations – of the CCC’s credibility, transparency, and independence - in the government’s initial formulation of the Bill than in any of the subsequent pre-legislative scrutiny documents from Select

Committees (see Section 4.2.2.), suggesting they were an important consideration for the government when formulating the CCC and its advisory functions.

Second, the analysis revealed that the government formulated the CCC's advisory functions in the Bill to delineate them from its own decision-making powers. For example, a core function of the CCC was to provide advice to the government on carbon budgets that the government could choose whether to accept. Although the government stated in its consultation document that it could "respond explaining, where necessary, why the advice of the [CCC] had not been adopted" (HM Government, 2007b, p. 52), it stopped short of including this as a requirement in the Bill. The Secretary of State was therefore required to respond to the CCC's annual progress reports (Part 1, clause 11), rather than explain why the CCC's advice had not been followed in such circumstances, such as when setting carbon budgets.

Finally, the analysis revealed that the government formulated the CCC's advisory functions to contribute to a package of "checks and balances" in the Bill (HM Government, 2007b, p. 54). To that end, the Bill placed legal duties on the Secretary of State to seek and take account of the CCC's advice before making decisions, such as when setting carbon budgets (Part 1, clause 4) and altering carbon budgets (Part 1, clause 13). It argued this mechanism would "maintain the credibility and integrity of the framework [legislation]" (HM Government, 2007b, p. 35). The initial formulations of the CCC's advisory functions, set out in this section, were subject to much scrutiny and debate, to which we now turn.

4.2.2 Pre-legislative scrutiny: June – July 2007

After the government published its draft Bill, it moved to the pre-legislative scrutiny stage. In June and July 2007, three UK Select Committees each produced a document that scrutinized the draft Bill, namely the Environment Food and Rural Affairs (EFRA) Committee, the Environmental Audit (EA) Committee, and a Joint Committee with members drawn from the House of Lords and the House of Commons.

Analysis of these three documents identified the opening arguments of a debate that would persist throughout 2007 and 2008: whether the UK Government should be mandated to accept the CCC's advice, in recognition that the draft Bill placed no such duty on the Secretary of State. During pre-legislative scrutiny, these debates were

underpinned by the argument that the CCC – and its advice – would be strengthened if its advice were mandatory, as with the recommendations from the Monetary Policy Committee (MPC). Demonstrably, a proposal from the EFRA Committee was that the Secretary of State should be required to accept the CCC’s advice without debate to “establish the independence” of the CCC and:

“...position the Committee’s advice alongside that of the [MPC] whose interest rate decisions are not challengeable by the Chancellor of the Exchequer except under very extreme circumstances.” (EFRA Committee, 2007, p. 28)

Analysis of the three documents revealed that there was more support for the CCC’s advice remaining voluntary for the government, as in the 2007 Bill. A core argument for this formulation was that “the issues involved in climate change policy are bigger and more complex than those devolved to the MPC” (EA Committee, 2007, p. 60) and so “it is right that there should be political accountability” for climate policy (EA Committee, 2007, p. 56). To that end, the Joint Committee (2007, p. 49) proposed that the 2007 Bill left “room for strengthening the CCC’s advice”. They observed that the government was required to respond to “each [progress] report” from the CCC (HM Government, 2007b, p. 70) but not its advice therein. The Joint Committee therefore proposed that the government should be required to produce a public response to the CCC’s advice:

“...setting out how it intends to act upon the recommendations and, in the event that the Committee’s advice is rejected, giving a full explanation of the reasons for reaching a different decision.” (Joint Committee, 2007, pp. 49–50)

This amendment would enable the public to see “whether or not the Government had followed the Committee’s recommendations”, increase the transparency of the “relationship” between the CCC and the government, and “give more authority to the conclusions of the Committee” (Joint Committee, 2007, pp. 49–50). A similar proposal was made by the EA Committee (2007, p. 60).

The analysis also identified inaugural reflections on a second prominent area of debate that would contribute to the formulation of the CCC’s statutory advisory functions throughout 2007 and 2008: whether its function should be reformulated from the

provision of advice to the function of introducing policy instruments and setting climate targets (hereon ‘policymaking functions’). Some of the witnesses who gave evidence to the Select Committees (hereon ‘witnesses’) were concerned that the CCC’s initial advisory functions gave it little scope to influence government policy or provide authoritative advice. Cross-tabulations revealed that the witnesses who raised these concerns often made suggestions to strengthen the CCC’s impact, primarily by giving the CCC the powers to set, monitor, and enforce statutory targets for reducing emissions instead of the government. Demonstrably, Professor Kevin Anderson shared this view and argued that:

“The [CCC] really needs to have some teeth. It should not just be an advisory committee, the committee itself should actually manipulate the [policy] instruments [...]; it should be allowed to play with these things to achieve the targets. It should not be the role of [the] Government as a whole, which has other political concerns, to manipulate the instruments. They should be manipulated by the [CCC].” (EFRA Committee, 2007, p. 27)

These suggestions were a notable departure from the Bill which did not give the CCC any policymaking functions. Nonetheless, other witnesses argued that the CCC’s functions should not extend into policymaking because it would undermine its independence. There was a particular concern that a conflict of interest would arise if the CCC were to:

“...[propose] what the [carbon] budgets are, [set] the budgets and then [review] whether progress against those budgets was achieved.” (EFRA Committee, 2007, p. 26)

Despite lengthy consideration of this topic, none of the Select Committees recommended that the Bill should be amended to give the CCC policymaking functions. On the contrary, the EFRA Committee recommended:

“The [CCC] should not be a policymaking or delivery body, it should be focused on the provision of advice with regard to the budgets, and the publication of progress reports, but it must not be prevented from advising the Government on any matters that may come to its attention while carrying out its duties.” (EFRA Committee, 2007, p. 28)

To increase the impact of the CCC some Select Committees made recommendations to expand the CCC's functions beyond advising on carbon budgets into other areas, such as auditing the emissions statistics published by the Government (Environmental Audit Committee, 2007). Others recommended an expansion of the policy decisions that required the government to consider the CCC's advice. For example, the EFRA Committee and Joint Committee were concerned that there was no obligation for the Secretary of State to seek the CCC's advice before amending the 2020 and 2050 emissions reduction targets, and so they made recommendations to that effect. Moreover, the Joint Committee (2007) found that its witnesses were confused over whether the CCC was expected to provide specific – or broad – advice on a sector-by-sector basis and so they recommended:

“The [CCC] will be unable to fulfil its statutory duty to advise if it does not investigate in full the scope for sector-by-sector carbon emissions. [...] We recommend that the Bill explicitly set out that the [CCC] is required to advise the Secretary of State on contributions by each sector towards meeting the carbon budget.” (Joint Committee, 2007, p. 47)

Finally, there was debate about the topics on which the CCC should advise, such as emissions from international aviation and shipping. Notably, only one Select Committee discussed the adaptation reporting powers in the Bill (Joint Committee, 2007, p. 67), and none recommended that the CCC should be given any functions that pertained to adaptation.

4.2.3 Amendments: October – November 2007

The Government responded to the pre-legislative scrutiny in October 2007 and subsequently published an amended version of the Bill in November 2007 (HM Government, 2007a). The government introduced several amendments to “further strengthen the transparency and accountability of the Bill’s framework” (HM Government, 2007c, p. 6). For example, it added a requirement for the CCC to publish its advice (Part 2, clause 27(6)) and provide the reasons for its advice (Part 2, clause 27(3)) to “ensure the Committee is fully transparent in its workings and in the advice that it gives, and that the budget-setting process is fully transparent” (HM Government, 2007c, p. 24). The Government also introduced an amendment for the Secretary of State to publish the reasons for setting a carbon budget at a level different to that

advised by the CCC, in such circumstances (Part 1, clause 9). In relation to the CCC's progress reports, the requirement for the Secretary of State remained the same as in the initial March 2007 Bill: it was required to produce a response to "each [progress] report" of the CCC rather than the specific recommendations therein (Part 2, clause 29(1)), as had been proposed by Select Committees (see Section 4.2.2.).

The government also introduced a requirement for the Secretary of State to consider the CCC's advice in a wider set of circumstances, such as before amending the 2050 target (Part 1, 3(1)(a)) as recommended by the Joint Committee. The government made these amendments to "strengthen the Committee's role" and "further ensure that decisions are robust and based on a high level of transparent scrutiny" (HM Government, 2007c, p. 7).

Under Part 4 of the amended Bill an additional duty was put on the Secretary of State to lay a programme for adaptation before Parliament (Part 4, 49), in addition to their initial function of laying adaptation reports before Parliament "from time to time" (HM Government, 2007a, p. 26). Notably, the CCC was not given any additional duties in relation to adaptation and its advisory functions remained focused on mitigation, primarily carbon budgets.

Analysis traced recommendations from Select Committees through to the government's response to the pre-legislative scrutiny and identified several that were not accepted. This provided insight into the government's formulation of the CCC's advisory functions in the amended Bill, which remained largely unchanged from the initial Bill from March 2007. First, the Government set out its position that:

"…the Committee should not be a policy-making body, and we feel strongly that it should not be able to offer unsolicited advice on individual policies at any time." (HM Government, 2007c, p. 27)

The Government cited the amended Bill's new provision for the Secretary of State to request the CCC's advice as a mechanism to prevent the CCC from offering unsolicited advice. Moreover, the Government reinforced its delineation of the functions of the CCC and those of the government, in alignment with its initial position in the March 2007 Bill (see Section 4.2.1.), by stating:

“...we continue to believe that the Committee’s role should be to provide advice on [carbon] budgets but that the Government should be responsible for setting them [...] giving the responsibility for setting budgets to the Committee would probably be unworkable and would mean devolving significant policy decisions to an unelected body.” (HM Government, 2007c, p. 25)

Moreover, the government rejected the EFRA Committee’s recommendation for the Secretary of State to have a legal duty to accept the CCC’s recommendations without debate because that:

“...would make the [CCC] a de facto policymaking body. The role of the [CCC] is to provide expert advice and the role of the Secretary of State is to make decisions taking proper account of that advice.” (HM Government, 2007c, p. 72)

The Government argued that the responsibility for developing policy on carbon budgets and associated targets should rest with it rather than the CCC (HM Government, 2007c, p. 89). The government also rejected a recommendation from the Joint Committee that the CCC should advise the Secretary of State on sectoral contributions to carbon budgets because “it will be for Government to make policy decisions on where effort should be made” (HM Government, 2007c, p. 55). Moreover, the government rejected the EFRA Committee’s proposal “that the Committee may make recommendations at any time on the targets” (HM Government, 2007c, p. 72) because:

“...allowing the [CCC] to propose revisions to the targets when it likes would impact on the long term signals the targets in the Bill send and reduce certainty for business.” (HM Government, 2007c, p. 67)

Despite the government’s rejection of these recommendations, these remained prominent topics of debate in both Houses of the UK Parliament, to which we now turn.

4.3 Parliamentary debates

4.3.1 House of Lords: November 2007 – March 2008

In November 2007 an amended version of the Bill (see Section 4.2.3.) was introduced into the House of Lords for its 1st Reading. The Bill then proceeded through several stages where it was debated, and amendments were proposed. Analysis revealed that the most debated topic in the House of Lords (hereon ‘Lords’ for brevity) was whether the CCC should have advisory or policymaking functions, with no less than 134 references on this issue, therefore continuing debates on this topic from pre-legislative scrutiny of the Bill (see Section 4.2.2.). Analysis revealed that, during these debates, some Peers were concerned that if the CCC had the function to directly introduce or amend policy it would “damage [the CCC’s] impartiality and credibility as a technical-expertise independent body in its role of advising on targets” (House of Lords, 2008m, col. 1444). There were related concerns that:

“...for the [CCC’s] advice to be credible, it must be formulated outside the political arena and therefore above decisions on the particular choice of policy mechanisms. [...] ...any attempt to depoliticise decisions about policies by delegating them to the committee, [...] would also [...] de-democratise them.” (House of Lords, 2008f, col. 1071)

Further analysis revealed that there were underlying concerns about the balance of power between the CCC and the government. An often-stated argument by Peers was that if the CCC had a solely advisory function then the responsibility for making policy decisions would rest on the “democratically accountable body responsible for producing policy – which, after all, the Government are elected to do” (House of Lords, 2008d, col. 801). Moreover, some Peers argued that the CCC could more effectively hold the government to account if it had an advisory – rather than policymaking – function. This is exemplified by the arguments of Lord Rooker, the then-Minister of State for the Department for Environment, Food and Rural Affairs (Defra):

“If the [CCC] reports that, in its expert view, the UK is not on track to meet the budget, we would expect the Government to do everything possible [...]”

to satisfy the committee and [...] to be under intense pressure in Parliament and the court of public opinion.” (House of Lords, 2007h, col. 482)

Nevertheless, other Peers were concerned that the CCC’s policy influence would be reduced if its functions were entirely advisory. Demonstrably, it was asserted that “the only way in which the [CCC] can effect change” is if the Secretary of State accepts and implements its recommendations (House of Lords, 2008c, col. 773). Indeed, some Peers were concerned that the government could take action that went against the advice of the CCC. Lord Taylor, a Conservative member, therefore argued:

“...the Government’s creation of a [CCC] purely to advise the Secretary of State [would] be a wholly inadequate vehicle to bring science to the heart of this great endeavour [namely the creation of the 2008 Climate Change Act].”
(House of Lords, 2007b, cols 1128–1129)

Similarly, during 2nd Reading of the Bill, Earl Cathcart, a Conservative member, argued that:

“...the ‘advice only’ stance [of the CCC] by the Government gives the Government of the day wriggle room and the ability to make decisions that prioritize political expediency over the interests of the public—and the planet.” (House of Lords, 2007g, col. 1206)

Amendments were therefore tabled by some Peers to expand the CCC’s functions to increase its influence on government policy. For example, it was proposed that the CCC should prepare and approve the statement of UK emissions and the final statement for the carbon budget period instead of the Secretary of State (House of Lords, 2008q). However, some Peers were concerned that this would allow the CCC to advise on broader topics than carbon budgets and that it would therefore become politicised. Before these amendments were withdrawn, Lord Teverson, a Liberal Democrat, expressed his:

“...great concern if the [CCC] starts making major policy recommendations to government. [...] ...it would not depoliticise the decisions but would utterly politicise the committee. It would be like many other bodies [...] [that] make all kinds of recommendations and are therefore seen as part of

the political scenery and not as part of the scientific scenery.” (House of Lords, 2008d, col. 803)

However, Earl Cathcart disagreed and argued that:

“...giving the [CCC] full responsibility for overseeing this entire [climate change] programme would give it far greater credibility in the eyes of the public, industry and the three devolved administrations... [...] That is yet another reason why the responsibility for setting targets should rest with the [CCC] and not with the Secretary of State.” (House of Lords, 2007g, cols 1206–1207)

Analysis further revealed that an argument, made by Peers on no less than 42 occasions, was that the influence of the CCC and its advice could be increased if it was independent of the government. For example, Lord Taylor argued that the CCC’s independence would “allow [its] recommendations to carry more weight and have more impact” (House of Lords, 2008g, col. 1076). Indeed, there was broad agreement that the independence and transparency of the CCC and its advice would make it “a more effective and useful partner to the Government and Parliament in achieving the success of this legislation” (House of Lords, 2008e, col. 1063) because:

“...the standing of the [CCC] is a prerequisite for achieving the Bill’s aims. [...] The strength, expertise, and independence of the [CCC] is critical.”
(House of Lords, 2008g, cols 1077–1078)

Several amendments were therefore tabled by some Peers to ensure the independence of the CCC, such as through the appointment of members by the CCC itself instead of by the government (House of Lords, 2008j, col. 1107). There was also a suggestion that the CCC’s membership should include members from stakeholder groups so it could have “the legitimacy required for the public to support its recommendations and the independence to stand up to [the] government” (House of Lords, 2007f, col. 1196). This was not moved; however, as the CCC’s membership “must be expert, objective, and independent” (House of Lords, 2007d, col. 1157).

A third notable area of debate was whether the CCC’s advisory functions should be expanded to include adaptation. This was underpinned by concerns raised by some Peers that “in many ways, all [the CCC] does under the Bill is to advise on carbon

budgets and now, we hope, on adaptation as well" (House of Lords, 2008o, cols 1462–1463). The argument for the CCC to advise on adaptation was first put forward at the 2nd Reading of the Bill by Lord Waldegrave of North Hill, a Conservative Party politician, who argued:

“...the committee should have a rather more proactive recommendation role in relation to adaptation because it will be the source and base of authority which will help government and the people to understand that measures that are often inconvenient and costly are needed.” (House of Lords, 2007c, col. 1145)

Analysis revealed notable disagreements amongst Peers on how – if at all – the CCC should advise on adaptation. A prominent debate was whether a Sub-Committee should be created to deliver this function. This was first suggested at the 2nd Reading of the Bill by Baroness Young of Old Scone, a Scottish Labour member, who suggested that:

“...we need a similar committee, as an advisory group, to provide independent and expert scrutiny of progress on the adaptation programme. That group needs to be separate from the [CCC] so that the adaptation element of the agenda is given a proper focus.” (House of Lords, 2007c, col. 1148)

Other Peers agreed that a Sub-Committee was needed to ensure that both mitigation and adaptation were “properly represented at the level of expert advice” (House of Lords, 2008m, col. 1441) and because “adaptation must be brought up one or two more leagues in the Bill due to its importance” (House of Lords, 2008m, col. 1443). However, a prominent concern was that the CCC would not be able to advise on adaptation because “adaptation issues are of a different order, requiring different expertise and different skills” from mitigation (House of Lords, 2008h, col. 1082). There were therefore concerns that the CCC would become unfocused if its advisory functions were expanded to include adaptation. For example, Lord Rooker argued:

“There are several reasons why the committee or any sub-committees are not the right bodies to deal with adaptation. First, it is wrong to assume that a body with one type of scrutiny function should naturally be given another. Secondly, the committee could become unwieldy and unfocused if its remit

were significantly expanded to take on adaptation responsibilities.” (House of Lords, 2008m, col. 1444)

Other Peers put forward alternative formulations of the CCC that would enable it to advise on adaptation without the creation of a Sub-Committee. For example, it was proposed that the CCC should take adaptation into account when formulating its mitigation advice rather than providing separate advice on adaptation (House of Lords, 2007e, col. 1174). In another example, Baroness Northover, a Liberal Democrat, suggested the CCC could have an additional member knowledgeable on adaptation to account for adaptation in its mitigation advice (House of Lords, 2008i, col. 1090). Another formulation was that an Adaptation Sub-Committee could form from time to time rather than being a standing body (House of Lords, 2008k, col. 266). Comparably, some Peers argued that adaptation scrutiny should instead be the function of Select Committees which would negate the need for the CCC to advise on adaptation at all (House of Lords, 2008m, col. 1442). Nevertheless, some amendments to the Bill were moved in these three areas of debate, as now set out.

4.3.2 Legislative amendments: January 2008 - March 2008

The Lords made several amendments pertaining to adaptation to:

“...help ensure that the Government would be held fully accountable to Parliament for their policies and programmes on adaptation, as they are for those on mitigation.” (House of Lords, 2008l, col. 1339)

Under Schedule 1 (clause 16(1)), a requirement was added that the CCC “must establish a sub-committee to be known as the Climate Change Adaptation Sub-Committee” (hereon ‘AC’). Sub-clause 3(a-j) stipulated that the AC’s members should have expertise in contingency planning, flood risk, and risk management, amongst others. These changes came from amendment 131 tabled by Lord Rooker in March 2008 (House of Lords, 2008q) and were agreed upon during the Report Stage of the Bill (House of Lords, 2008m, col. 1446).

Notably, the AC was not given any functions under Schedule 1, advisory or otherwise. However, the Lords made amendments to the CCC’s functions that pertained to adaptation. For example, in Part 2, a sub-clause was added to clause 34 on the CCC’s function to advise on carbon budgets that gave the CCC the role of “acting through the

[AC] to provide expert advice to the Secretary of State' in relation to the government's adaptation programme" (House of Lords, 2008a, p. 18). A further sub-clause was added to clause 35 on the CCC's function of reporting to Parliament on progress in meeting carbon budgets. It added a requirement for the mitigation reports to include "the Committee's views on the programme for adaptation published by the Secretary of State" (House of Lords, 2008a, p. 18). These changes came from amendment 65 tabled in March 2008 by Lord Teverson and others (House of Lords, 2008q).

Moreover, under Part 4 the Lords added clause 57 that required the Secretary of State to provide Parliament with reports on progress in connection with adaptation. Agreement on amendment 193, tabled by Lord Rooker in March 2008, deleted the words "from time to time" from the Secretary of State's obligation to report on the impact of climate change (House of Lords, 2008b). This was done to "reassure noble Lords that we understand the urgency of adapting to climate change" (House of Commons, 2008l, col. 162).

The Lords also made amendments to increase the transparency of the CCC and its advice. For example, in March 2008 Lord Rooker tabled amendment 121 (House of Lords, 2008q) that added a clause under Part 2 that gave the CCC the additional function of advising the government on the level of the statutory 2050 emissions reduction target, as well as publishing its advice and the reasons for its advice (House of Lords, 2008a, para. 33). This amendment was agreed during the Report Stage (House of Lords, 2008l, col. 1434). The CCC was given additional functions to publish the advice it provided to the Secretary of State under Part 1, including its advice on the alteration of carbon budgets (clause 21(3)) (House of Lords, 2008a).

The Lords also made amendments to the functions of the Secretary of State in relation to the CCC's advice. For example, there were additional duties that required the Secretary of State to obtain and consider the CCC's advice, such as when altering carbon budgets (House of Lords, 2008a). Moreover, requirements were added for the Secretary of State to publish their reasons for not following the CCC's advice when amending the 2050 target (clause 4(6)), when setting or amending target percentages (clause 8(6)), and when setting carbon budgets (clause 10(4)), amongst others (House of Lords, 2008a). During the Report Stage, Earl Cathcart argued this would allow Parliament:

“...to evaluate whether there are justifiable reasons for ignoring the experts [...] [and allow the public to] get rid of that Government if they have been ignoring the expert advice on the future of the environment too often.”
(House of Lords, 2008n, col. 1457)

Further, amendment 171, tabled by Lord Holbeach and other Peers (House of Lords, 2008p), strengthened the government’s requirement to respond to the CCC’s advice. In previous versions of the Bill the government was only required to respond to ‘each of the CCC’s progress reports’. Their amendment specified that the government was more specifically required to respond “to the points raised by each [progress] report” from the CCC, namely its recommendations therein. This was agreed upon during the Report Stage and the Bill was amended accordingly (Part 2, clause 36(1)).

Interestingly, the analysis revealed several tabled amendments to the CCC’s advisory functions that were not moved following the debates set out in the previous section. For example, an amendment that would have introduced the power for the CCC to provide advice on its own initiative rather than when requested by the government was withdrawn (House of Lords, 2008q). Moreover, in March 2008 Lord Campbell-Savours tabled amendment 175 that would have required the CCC and the Secretary of State to agree on the CCC’s reports and recommendations. In such instances where the Secretary of State would not accept the CCC’s advice, the CCC would be required to remove the advice from its report and the Secretary of State would have to explain why they had refused to accept the CCC’s advice (House of Lords, 2008q). However, there were several concerns that this amendment would “reduce the transparency and independence of the process for taking decisions on carbon budgets” because “discussions about whether to agree the committee’s report and decisions will take place behind closed doors” (House of Lords, 2008n, col. 1459). Before the amendment was withdrawn, Lord Rooker argued that:

“...it is important that the [CCC] can provide independent, expert, transparent and credible analysis, unfettered by any need for prior agreement with Government or ministers. [...] [The amendment] risks concealing discussions between government and the committee, which could undermine the credibility of the committee’s advice.” (House of Lords, 2008n, col. 1461)

The Bill, as amended by the Lords (House of Lords, 2008a), was subsequently passed to the House of Commons for debate.

4.3.3 House of Commons: April 2008 – October 2008

By the end of March 2008, the Bill had gone through several stages in the Lords: 1st Reading, 2nd Reading, Committee Stage, Report Stage and 3rd Reading. In April the Bill passed to the House of Commons (hereon ‘Commons’) to repeat those stages. Analysis revealed that debates in the Commons extended longstanding debates that were first raised during pre-legislative scrutiny and subsequently in the Lords, such as whether the CCC should have advisory or policymaking functions and whether it should advise on adaptation or only mitigation.

First, on no less than 75 occasions Members of Parliament (MPs) spoke about whether the CCC should have advisory or policymaking functions. The central concern amongst MPs was that the Bill established functions whereby “the committee advises, and politicians decide” (House of Commons, 2008e, col. 60). Analysis revealed that these concerns were primarily focused on the CCC’s ability to hold the government to account, whereas the Lords were more concerned with the balance of power between the CCC and the government (see Section 4.3.1.).

At every stage of the Bill’s progression through the Commons, there was debate about whether the government should be mandated to accept the CCC’s advice. One argument was that the effectiveness of the Bill would be undermined if the CCC’s only function was to provide voluntary advice, as illustrated by the remarks of Tony Baldry, a Conservative MP, who argued:

“If ministers are effectively going to say, “We are only going to treat the [CCC] as an advisory committee—no more and no less,” what is actually left in the Bill? If the [CCC] is simply going to be some advisory committee, the recommendations of which ministers may or may not follow, it seems to me that this is a pretty hollow Bill. [...] Unless ministers are prepared to give an undertaking that they will implement the recommendations of the [CCC] [...] we will have only a process Bill that allows ministers maximum wriggle room to wriggle out of making any difficult decisions.” (House of Commons, 2008g, col. 80)

John Gummer, a conservative MP and later Chairman of the CCC (2012-2023), was similarly concerned that:

“...if the [CCC] is merely an advisory committee with no other strengths, the Bill is not the one that I fought for [...]. This Government are not going to listen to the [CCC]. ...the committee is merely advisory.” (House of Commons, 2008f, col. 75)

A common concern, as illustrated by Gregory Barker, the then-Shadow Minister for the Environment, was that if the government was not required to accept the CCC’s advice then it could “make a decision based on political challenges or even political expediency” (House of Commons, 2008j, col. 125). A related concern was that experts would be reluctant to sit on the CCC as members if its advice “will be ignored by the Government” (House of Commons, 2008g, col. 82).

These debates centred around whether the CCC or the government should have the power to set the 2050 target, on which MPs spoke no less than 46 times. Some MPs, such as Robert Ainsworth, a Labour MP, argued that “it should be for the [CCC], not politicians, to determine the scale of the effort needed” (House of Commons, 2008c, col. 55). Others, including Gregory Barker, supported the view that the:

“...targets should be set by the [CCC] [...] they should not be set on the say-so of politicians or as part of a bidding war between the parties about who is the greenest of them all.” (House of Commons, 2008k, col. 137)

Another argument for the CCC setting the 2050 target was that it would prevent the government from amending it downwards (House of Commons, 2008f, col. 71) and that:

“...the target would have more impact, importance, and authority if it were set by that committee rather than by politicians. [...] Allowing the committee to make the judgment call on what the target should be would, I hope, have a significant effect on public opinion and the authority and credibility of the target—far more so, I am afraid, than if the decision is made simply by politicians.” (House of Commons, 2008e, col. 62)

However, counterarguments in favour of the CCC retaining an advisory function were similar to those made in the Lords. For example, the then-Minister of State for Defra,

Phil Woolas, argued that a role in policy would undermine the CCC's credibility and impartiality and so the CCC "must therefore refrain from having a role in the choice of policy mechanisms needed to meet a [carbon] budget" (House of Commons, 2008i, col. 164). Moreover, it was argued that policy decisions should be made by the government to maintain political accountability, otherwise it "would deny Parliament, never mind the Government, the right to say no" to the CCC's recommendations (House of Commons, 2008i, col. 107). A new argument to those raised by Peers was put forward by Alan Whitehead, a Labour MP, that:

"If the committee is, indeed, advisory, it would be an abuse of the English language to say that its advice must be taken under all circumstances. Therefore, on the question of whether the Government must under all circumstances take the advice of the committee, the answer logically—not to abuse the English language—must be no." (House of Commons, 2008h, col. 94)

The second key finding from the analysis of debates of the Bill in the Commons was that there was significantly more discussion on the proposed function for the CCC to advise on adaptation than in the Lords, at 136 references compared to just 28 respectively. Analysis revealed that a key focus for MPs was ensuring the AC's work was consistent with that of the CCC (House of Commons, 2008b, col. 47). There was extended debate about whether adaptation advice should be provided by the CCC or a separate sub-committee. Demonstrably, Rob Morris, a Labour MP, asked the House:

"...for goodness' sake, why do we have a sub-committee of the [CCC] dealing with adaptation...? [...] We need the full membership of the [CCC] to deal not only with causes [of climate change] but with effects." (House of Commons, 2008d, col. 107)

These debates were summarised by Gregory Barker during the Committee Stage:

"There are those who would argue that adaptation ought to be central to the [CCC's] remit and that giving it to a sub-committee somehow makes it a junior, or lesser, part of the agenda. Some would say that we are trying to pigeonhole the adaptation agenda at a rank below that which it ought to occupy. I do not agree with them. Their lordships in the other place were right to establish the [AC] because it will require a slightly different skill set

from the one that may be present on the committee, which will be of a relatively limited size.” (House of Commons, 2008l, cols 272–273)

Cross-tabulations identified that debates on this issue intersected most frequently with discussion of the CCC’s status as an expert body. Demonstrably, Joan Ruddock, a Labour MP, put forward amendments during the Committee Stage to strengthen the AC’s functions because “an adaptation sub-committee could have a useful role” by providing “expert advice and scrutiny of how the Government assess the risks and implement the [adaptation] programme” (House of Commons, 2008l, col. 270). We therefore turn to consider the amendments proposed - and undertaken - to the CCC’s advisory functions by the Commons.

4.3.4 Further legislative amendments: July 2008 – November 2008

The most substantial amendments made to the Bill by the Commons pertained to adaptation. Under Part 2 a function was added for the CCC to provide advice on adaptation to national authorities on request. Under part 4 a new clause added a “duty of the [CCC] to advise the Secretary of State” on the preparation of their reports on the impact of climate change (House of Commons, 2008a, p. 26). The function to report on adaptation progress was reassigned to the CCC (House of Commons, 2008a, p. 26) from the Secretary of State (House of Lords, 2008a, p. 26). In particular, the CCC was required to include a biannual assessment of adaptation in its progress reports to Parliament on carbon budgets. The AC was given new functions under Schedule 1, specifically to provide the CCC with “advice, analysis, information or other assistance” as required for the CCC to provide adaptation advice on request and report on adaptation (House of Commons, 2008a, p. 48).

However, several tabled amendments were not moved. For example, in July 2008 Martin Horwood and Steve Webb tabled an amendment to add a clause to the Bill that would have enabled the CCC to “provide the Secretary of State with advice on any policy matters related to climate change” (House of Commons, 2008n). This followed concerns raised during the Committee Stage that the CCC would be denied “the right to comment and advise on the policies that will be required” to meet carbon budgets (House of Commons, 2008m, col. 461). However, Phil Woolas replied:

“I fear that to hand over policy recommendations on ‘any policy matters related to climate change’ would effectively franchise the Government to the committee.” (House of Commons, 2008m, col. 462)

The amendment was subsequently withdrawn.

In another example, Gregory Barker tabled amendment 53 that proposed the Bill should include annual targets for the net UK carbon account, to meet carbon budgets, and that the Secretary of State must obtain and take into account advice from the CCC before setting these annual ranges. As argued by Gregory Barker:

“The [CCC] would approach the exercise with not only an expert but an apolitical and dispassionate eye. That should prevent any unnecessary politicisation of the annual range, which could otherwise be backloaded, for example, so that much of the effort would fall into the final year of a budget, by which time the Government who had set the ranges might well be out of office.” (House of Commons, 2008l, col. 162)

Before the amendment was withdrawn, Phil Woolas articulated that he opposed it because it:

“...is not consistent with the role envisaged by all of us for the committee. [...] Decisions on policy matters should be made by the Government, not the [CCC], and we fear that amendment No. 53 would jeopardise that position, as it implicitly requires the committee to provide advice on the Government’s policy mix for meeting their overall carbon budget.” (House of Commons, 2008l, col. 164)

In a final example, amendment 57, also tabled by Gregory Barker:

“...would require the Secretary of State of the day to consult the committee on what effect that diversion from its scientific advice would have on the risks that the UK would face from [...] climate change.” (House of Commons, 2008j, col. 125)

Nevertheless, following the debates set out in Section 4.3.3., the amendment was subsequently withdrawn. On 29 November 2008, the Bill received Royal Assent and was legislated as the 2008 Climate Change Act (CCA) (HM Government, 2008). Following the amendments moved in the Lords (Section 4.3.2.) and the Commons

(Section 4.3.4.) the CCC was created with statutory advisory functions to provide the UK Parliament with advice on the level of carbon budgets, an annual progress report with recommendations on mitigation and, bi-annually, adaptation, as well as ad hoc advice on request. The CCC's advice was not legally binding on the government. The Secretary of State was only required to publish a response to the CCC's recommendations in its progress reports. The next section examines whether these functions were reformulated during the first decade of the CCA – and CCC's – operation.

4.4 The CCC's advisory functions after 2008

In November 2008 the CCA received Royal Assent, meaning the CCC was established in law. The framework document, published in 2010 by the CCC, the UK Government, and devolved administrations, set out the CCC's functions and working practices. Therein the CCC's advisory functions were defined exclusively in terms of “its statutory duties [...] to provide advice” (HM Government *et al.*, 2010, p. 4). The listed topics on which the CCC had a duty to advise did not deviate from the CCA and the legislation was quoted directly in several places e.g., see HM Government *et al.*, (2010, p. 15). In a section on the working relationship between the CCC and the UK Government, the document stipulated the:

“Committee’s role on policy [...] is to provide advice to Government on the level of carbon budgets and report to Parliament on progress towards them. The Secretary of State [...] is responsible for making decisions (both on the level of the carbon budgets and the policies needed to ensure the UK remains with them), taking proper account of the Committee’s advice. The Committee’s general presumption should be that its advice [...] does not include detailed recommendations or proposals on specific policies, which could be required to meet the carbon budgets, except when requested.” (HM Government *et al.*, 2010, p. 14)

This formulation was repeated in documents produced by the CCC between 2009 and 2020. For example, the CCC set out that it “is only advisory – the final decisions on the legislated targets and on all policies to meet them rests with the Government” (CCC, 2020b, p. 5). It noted that “this allows the democratically elected Government

the possibility to diverge from the CCC view, maintaining Government accountability on climate policy" (CCC, 2020c, p. 3). This argument echoed those made during parliamentary debates in the Lords and the Commons when the CCC's advisory functions were being formulated (see Section 4.3).

Moreover, the CCC's early formulations of its advisory functions did not deviate from the CCA. One of the CCC's longstanding business objectives was to fulfil its advisory duties under the CCA (CCC, 2009a, p. 6, 2010a, p. 7, 2011, p. 7, 2012a, p. 8, 2013a, p. 8, 2014a, p. 9, 2015a, p. 9, 2016a, p. 7, 2017a, p. 8, 2020d, p. 7). Before 2014, the CCC stated it would fulfil its statutory duties by responding to ad hoc requests for advice from the government (CCC, 2009a, p. 6, 2010a, p. 7, 2011, p. 7, 2012a, p. 8, 2013a, p. 8, 2014a, p. 9), advising on the government's adaptation programme (CCC, 2009a, p. 6, 2010a, p. 7, 2011, p. 7, 2012a, p. 8, 2013a, p. 8, 2014a, p. 9) and engaging with stakeholders to share evidence and analysis (CCC, 2009a, p. 4, 2010a, p. 4, 2011, p. 4, 2012a, p. 4, 2013a, p. 4), as stipulated by the CCA. Curiously, in these same documents, the CCC simultaneously presented an interpretation of its advisory functions that seemingly extended beyond its statutory duties towards the ambition of influencing policy, as demonstrated by its parallel objective that stated:

“...as required under the [CCA], the objective of the Committee is to be an independent and authoritative body *influencing* UK Government and devolved administration strategy in the areas of carbon budgets and preparedness for climate change in the UK.” (CCC, 2010, p. 4, 2011, p. 4, 2012, p. 4, emphasis added)

This suggests that the CCC had interpreted its statutory advisory functions to mean that the delivery of its functions would enable it to influence policy. This objective was not repeated in any of the CCC's subsequent corporate plans up to 2020. It is therefore noted here as a curious assertion from the CCC, particularly given the pre-legislative scrutiny and parliamentary debates on the CCC's influence (Sections 4.2. and 4.3.), that is empirically investigated in Chapter 7 of this thesis.

In 2014 the government undertook its first triennial review of the CCC. Although it considered whether the CCC should be merged with a government department - or even abolished - it concluded that the CCC's advisory functions were still required by the government, not least because “fulfilment of these functions helps the Government

with its own credibility regarding its approach to climate change policy, since this generally builds on the recommendations of the CCC" (HM Government, 2014, p. 10). However, the review noted that some of the respondents to its consultation:

“...felt that the CCC could increase its impact by engaging more with industry (and more widely) [...] as there is a gap between advice and implementation, particularly on adaptation [...]. However, there was a question of whether this should be the CCC’s role and whether others could or should perform this function [...]. ...it was seen as important that the CCC should not stray into ‘lobbying’ as this would damage its credibility.”
(HM Government, 2014, p. 33)

The government therefore made a formal recommendation for the CCC to enhance its stakeholder engagement (HM Government, 2014, p. 21). In subsequent corporate plans, the CCC presented stakeholder engagement as a way for it to not only fulfil its statutory advisory functions but also to:

“...[raise] awareness of our advice with government and a wider audience, with a view to informing the policy debate [...] and [...] [counter] misinformation about climate change action and policy rapidly and accurately.” (CCC, 2015a, p. 9, 2016a, p. 7, 2017a, p. 8, 2020d, p. 7)

This is an extension of the CCC’s statutory duties which only required the CCC to consider involving the public in the exercise of its functions (HM Government, 2008, p. 22). In 2020 the CCC reflected that increased stakeholder engagement helped to “maximize the report’s findings on UK policy and strengthen the CCC’s value and influence” (CCC, 2020c, p. 9) by testing “emerging findings and uncover[ing] potential disagreements and alternative perspectives in advance of final decisions on the carbon budgets” (CCC, 2020a, p. 9). Indeed, the CCC reflected that, in addition to formulating and providing advice, it had “also developed a broader role as a ‘knowledge broker’, engaging widely and promoting an evidence-based approach on climate change” (CCC, 2020c, p. 4).

The Government’s second review of the CCC in 2018 reported that “the breadth and detail of the CCC’s advice [had] further increased over the period since the organisation was last reviewed” (HM Government, 2018, p. 3). Like the 2014 review, the 2018 review advised against merging the CCC with a government department

because it would create “a perception that it is no longer able to fulfil its legislative requirement under the CCA with sufficient independence or political impartiality” (HM Government, 2018, p. 7).

4.5 A summary of the legislative process

This chapter has presented the empirical findings of a longitudinal content analysis of over 300 documents published by the UK Government, UK Parliament, and the CCC between 2007 and 2020. It identified three main areas of debate that shaped the formulation of the CCC’s statutory advisory functions in the CCA (2007-2008) and reinforced its statutory functions after its establishment (2009-2020). These debates were traced across the legislative process and beyond, as now summarised.

In the government’s initial formulation of the CCC’s advisory functions in the Climate Change Bill in March 2007, the CCC was required to provide the government with advice in three areas, all pertaining to mitigation: carbon budgets, domestic and international efforts to reduce emissions, and on the contributions made by sectors across the economy. The government was required to respond to each of the CCC’s progress reports but not to the specific recommendations therein. The CCC had no functions in relation to adaptation; rather, the Secretary of State was required to report to Parliament on adaptation ‘from time to time’. Analysis revealed these functions were formulated because the government wanted to establish the CCC as credible, transparent, and independent. Moreover, its functions were formulated in those terms to delineate the advisory functions of the CCC from the policymaking functions of the government, thereby positioning the CCC as part of a series of ‘checks and balances’ because the government was required to ‘seek and take account’ of its advice in specified circumstances. In the documents published by the UK Parliament that followed the government’s consultation on the Bill, the analysis identified three areas of debate that shaped the CCC’s statutory advisory functions from 2007 to 2008.

First, there was longstanding debate about whether the CCC’s recommendations should be voluntary or mandatory for the government. This was first raised in pre-legislative scrutiny of the Bill when the EFRA Committee suggested the government should be required to accept the CCC’s advice ‘without debate’. The government rejected this recommendation, citing that this would make the CCC ‘a de facto

policymaking body'. Thereafter, this was a prominent focus of parliamentary debates on the Bill. Analysis revealed that debates on this proposed reformulation of the CCC's functions were concentrated around four recurring themes: concerns from some MPs and Peers about the balance of power between the CCC and the government; the influence of the CCC and its recommendations on government policy; the independence of the CCC from the government; and political accountability for climate policy.

Moreover, some MPs and Peers expressed concern that the government could make decisions that went against the CCC's advice if it was voluntary, which gave the government 'wriggle room' to make decisions based on politics rather than science. Further, some Peers asserted that 'the only way' the CCC could influence government policy was if the government chose to accept and implement its recommendations, which was argued to be a 'wholly inadequate vehicle to bring science to the heart' of the CCA. In the Commons, it was argued by MPs that if the CCC was 'simply going to be some advisory committee' whereby ministers could decide whether to follow their recommendations, then the Bill would be 'pretty hollow'.

Despite recurrent debate on this topic, the government held firm on its initial formulation of the CCC's statutory advisory functions: the CCC could advise, and the government would decide. Nevertheless, the Lords amended the Bill to 'strengthen' the CCC and its advice by requiring the Secretary of State to respond to the 'points raised by each' of the CCC's progress reports, rather than simply responding to 'each report' as in the earlier version of the Bill. Documents published by the CCC and the UK Government between 2009 and 2020 upheld the formulation of the CCC's recommendations as non-binding, with the CCC describing itself as 'only advisory'. Curiously, in its corporate plans from 2010 to 2012, the CCC offered a reinterpretation of its statutory advisory functions: 'the objective of the Committee is to be an independent and authoritative body *influencing* UK Government'. These claims are empirically tested in Chapter 7.

A second adjacent area of the debate centred around whether the CCC's functions should be reformulated: rather than providing recommendations on policy, should the CCC instead introduce and amend policy instruments and targets? This was first raised as an area of discussion during pre-legislative scrutiny of the Bill. The EFRA

Committee reported the view of an expert witness, from whom they had received evidence, that the CCC ‘should not just be an advisory committee, the committee itself should actually manipulate the [policy] instruments’. Parliamentary debate in both Houses considered whether the CCC’s functions should be reformulated such that it would set, monitor, and enforce policy instruments and targets. Analysis revealed that arguments on both sides of the debate focused on: the credibility of the CCC and the CCA, contingent on whether the CCC or the government were responsible for ‘overseeing the entire [climate change] programme’; and concerns that climate policy decisions risked becoming politicised and ‘de-democratised’ if they were made by the CCC, an unelected body that could not be held to account by Parliament or the public. Again, the government held firm: a reformulation of the CCC’s functions such that it would introduce policy instruments and targets was ‘not consistent with the role envisaged by all of us for the committee; decisions on policy matters should be made by the Government, not the CCC’. This formulation – of the delineation between the CCC’s advisory functions and the government’s policymaking functions - was reinforced in documents published by the UK Government and the CCC from 2009 to 2020.

Finally, there was debate across the corpus about whether the CCC should advise only on mitigation or also on adaptation and, if so, how. In the Climate Change Bill published in March 2007, the CCC had no functions pertaining to adaptation and the Secretary of State was required to report to Parliament on adaptation ‘from time to time’. Whether the CCC should advise on adaptation was a prominent area of debate following post-legislative scrutiny, particularly in the Commons. MPs and Peers recognized that the Bill was focused on mitigation; the debate on adaptation therefore focused on whether the CCC had the resources, expertise, and skills to advise on adaptation and, if not, if the CCC’s mitigation advice should consider adaptation, whether adaptation advice should be provided by a sub-committee to the CCC, an ad hoc committee, or Select Committees. Some Peers were concerned that the CCC’s remit would become ‘unwieldy and unfocused’ if its function was expanded to include the provision of recommendations on adaptation as well as mitigation.

Nevertheless, the Lords amended the Bill by creating an Adaptation Sub-Committee (AC) under the CCC but did not provide it – or the CCC – with any adaptation advisory functions. The Commons amended the Bill further by transposing the function of

reporting to Parliament on adaptation from the Secretary of State to the CCC. The AC was given functions to provide the CCC with ‘advice, analysis, information or other assistance’ as required for the CCC to deliver its new function of advising Parliament on adaptation. The corporate plans published by the CCC – including its AC - from 2009 to 2020 reinforced the formulation that it would advise on the government’s adaptation programme. In its review of the CCC in 2014 the government noted ‘a gap between advice and implementation, particularly on adaptation’ and so they suggested the CCC should increase its engagement with industry, which it reportedly did in subsequent corporate plans.

4.6 Conclusions

The results of the longitudinal content analysis presented in this chapter have revealed that there was prominent debate about the CCC’s statutory advisory functions between 2007 and 2008 wherein its functions were formulated and reformulated by Select Committees during pre-legislative scrutiny and, subsequently, by MPs and Peers.

Two formulations – of the CCC’s recommendations being mandatory for the government, and of the CCC introducing policy instruments and targets – were not reflected in the CCA. The CCC’s statutory advisory functions therefore reinforced the government’s initial formulation in the 2007 Climate Change Bill: the CCC could advise, but the government would decide. Although these two formulations were not formally reflected in the CCA, amendments to the Bill were made in the Commons and the Lords to increase the transparency of the CCC’s recommendations by requiring their publication, as well as requiring the government to respond to the CCC’s recommendations and publish their response. These amendments reflected recurring discussions of the influence of the CCC and its recommendations on government policy, the balance of power between the CCC and the government, and accountability for climate policy. A third formulation of the CCC – whereby it would advise Parliament on adaptation – was formally reflected in the CCA, which created an AC to support the CCC’s function of advising on adaptation.

Documents published by the CCC and the UK Government after 2008 upheld the CCC’s statutory advisory functions and did not reformulate them. For three years (2010 to 2012) the CCC offered a reinterpretation of its statutory advisory functions

wherein it stated one of its objectives was to influence government policy through the delivery of its statutory advisory functions. Whether the CCC was successful in influencing government policy is the devoted attention of Chapters 6 and 7. For now, this thesis turns to present findings on what recommendations the CCC provided to the UK Parliament on mitigation and adaptation between 2009 and 2020, what their characteristics were, and whether they changed over time.

Chapter 5

The characteristics of the CCC's recommendations, 2009 to 2020

5.1 Introduction

The previous chapter examined the bestowment of the CCC's¹² primary statutory advisory function in the 2008 Climate Change Act, namely to provide recommendations on mitigation and adaptation to the UK Parliament. The current chapter addresses the second research question of this thesis: *To what extent, if at all, did the characteristics of the CCC's mitigation and adaptation recommendations change between 2009 and 2020?* It presents the results of a content analysis of the recommendations in the CCC's annual progress reports¹³. The analysis traced five characteristics that were expected to influence whether government officials would use the recommendations, namely their *addressee*, *sectoral focus*, inclusion of *delivery targets*, *recommended action*, and *level of challenge to the policy status quo* (see Chapter 2). It also presents any characteristics that were inductively revealed during analysis (see Chapter 3). This chapter describes each characteristic; the extent to which they facilitated the (non-)use of recommendations is revealed in Chapter 7.

This chapter is structured as follows. Section 5.2 provides an overview of the number of recommendations in the CCC's reports and how they were presented over time. Sections 5.3 to 5.7 respectively report the findings on each of the five characteristics. Section 5.8 presents a sixth characteristic that was inductively identified, namely *repetition*. Section 5.9 presents cross-tabulations between the characteristics of mitigation (5.9.1.) and adaptation (5.9.2.) recommendations to provide further insight. Section 5.10 concludes. Each section presents the findings for mitigation and then adaptation for clarity rather than a direct comparison between the policy areas.

¹² Throughout this thesis, unless stated otherwise, reference to the CCC includes its Adaptation Committee (AC).

¹³ This chapter presents, and develops, the findings in a peer-reviewed publication by Dudley, Jordan, and Lorenzoni (2022) in *Global Environmental Change* (doi: 10.1016/j.gloenvcha.2022.102589). The conceptualization, methodology, analysis, investigation, and writing of the original article were done by the author. Andy and Irene assisted with coding each recommendation's *level of challenge to the policy status quo* and reviewed the article before submission. This chapter was written solely by the author and develops the article through further analysis, namely cross-tabulations between characteristics (see Chapter 3), and detailed examples that demonstrate the characteristics over time.

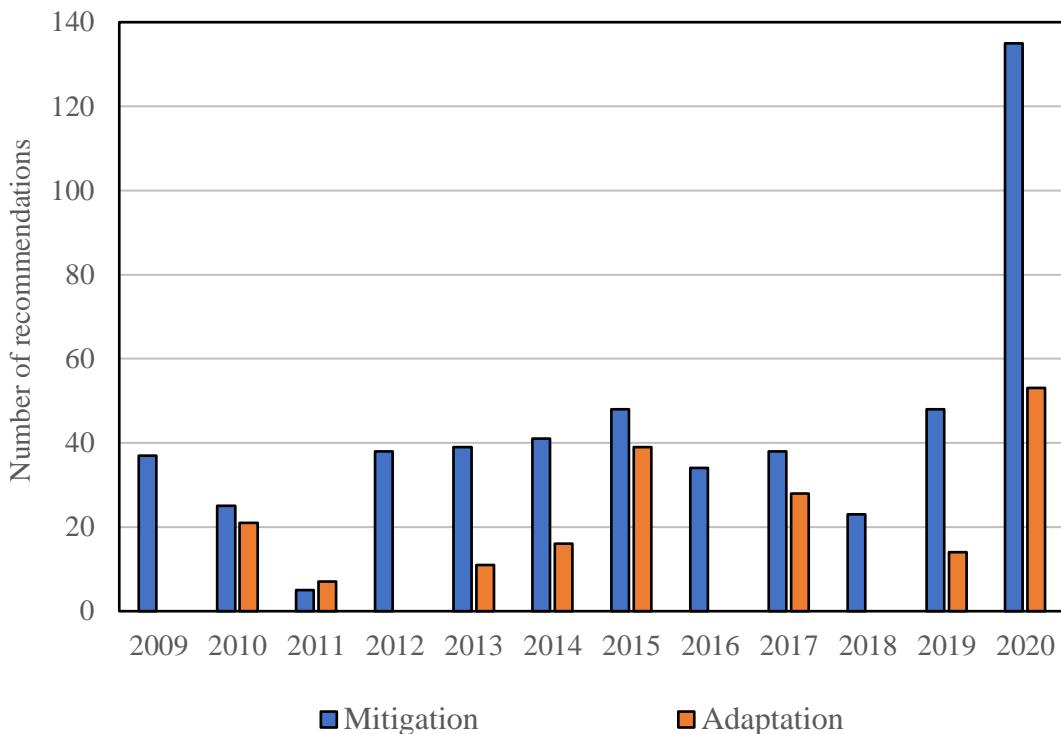
5.2 Overview

Analysis revealed that between 2009 and 2020 the CCC provided no less than 700 recommendations to the UK Parliament, addressing mitigation (N=511) and adaptation (N=189). As shown in Figure 5.1 there was notable interannual variation in the number of recommendations provided each year. Demonstrably, in its first annual progress report in 2009, the CCC provided 37 mitigation recommendations; in 2020, it provided 135. The number of recommendations provided each year increased steadily between 2018 and 2020. Whilst the 2020 report appears to be anomalous within the study period of this thesis, it should be noted that it rather indicates a marked step change in the number of mitigation recommendations that the CCC provided to the UK Parliament each year. Demonstrably, it provided no less than 242 in its progress report in 2021, 327 in 2022, and 300 in 2023 (CCC, 2021, 2022, 2023a). Although out of scope for analysis in this thesis, these additional recommendations could be a focus of future research (see Chapter 8).

As set out in the 2008 Climate Change Act (CCA) the Adaptation Committee (AC) provided adaptation recommendations to the UK Parliament in biannual progress reports. The AC's recommendations exhibited some – but markedly less – interannual variation in their number (see Figure 5.1). On average the UK Parliament received 15 recommendations in the AC's progress reports (SD 17.06). As with mitigation, the number of adaptation recommendations increased from 2019 to 2020 and also thereafter, with no less than 50 recommendations in the AC's 2021 progress report and 94 in its 2023 report (AC, 2021, 2023) (see Chapter 8).

As well as a proliferation of recommendations, particularly after 2018, the analysis also revealed marked variation in their format and presentation over time which affected how, if at all, each characteristic was present. A brief overview is now provided. The chapter then presents a detailed account of the characteristics of the CCC's recommendations over time (see Sections 5.3. to 5.8.).

Figure 5.1 The number of mitigation and adaptation recommendations that were provided to the UK Parliament each year, 2009 to 2020.



Source: author's own composition

The presentation of mitigation recommendations in the CCC's progress reports changed throughout the study period. Between 2009 and 2014, recommendations were presented as bullet points, either as paragraphs of text or in a textbox. In these years, the characteristics of recommendations were inconsistent and varied according to the phrasing of an individual recommendation, such as whether it named an addressee or specified a delivery target. From 2015 to 2020 the CCC presented its recommendations in tables; table headings and columns served to make the inclusion – or exclusion – of characteristics consistent within each report. For example, in 2015 the CCC's mitigation recommendations were presented in a table wherein recommendations were organised by sector and columns served to standardise the inclusion of an addressee and timeline for the delivery of each recommendation (CCC, 2015b, pp. 40–43). Comparably, in 2016 and 2017 recommendations were presented in tables that were organised by sector but did not include addressee or timeline columns which meant that the inclusion of these characteristics was intermittent and recommendation-dependent (CCC, 2016b, pp. 16–17, 2017b, pp. 17–18).

The format of adaptation recommendations was similarly variable across the study period. In earlier reports, recommendations were presented as bullet-pointed paragraphs of text; the inclusion of characteristics was inconsistent and dependent on the phrasing of individual recommendations e.g., see AC (2010, p. 7, 2011, pp. 8–9). In 2015 the AC first presented its recommendations in a table, wherein columns standardised the inclusion of an addressee and timeline for each recommendation (AC, 2015, pp. 19–26). For the first time, the CCC’s 2020 report included the AC’s adaptation recommendations alongside its mitigation recommendations. These joint recommendations were presented in 14 tables that were addressed to one or more government departments and included a standard ‘timing’ column (CCC, 2020e, pp. 24–47). The following sections provide further detail on each characteristic.

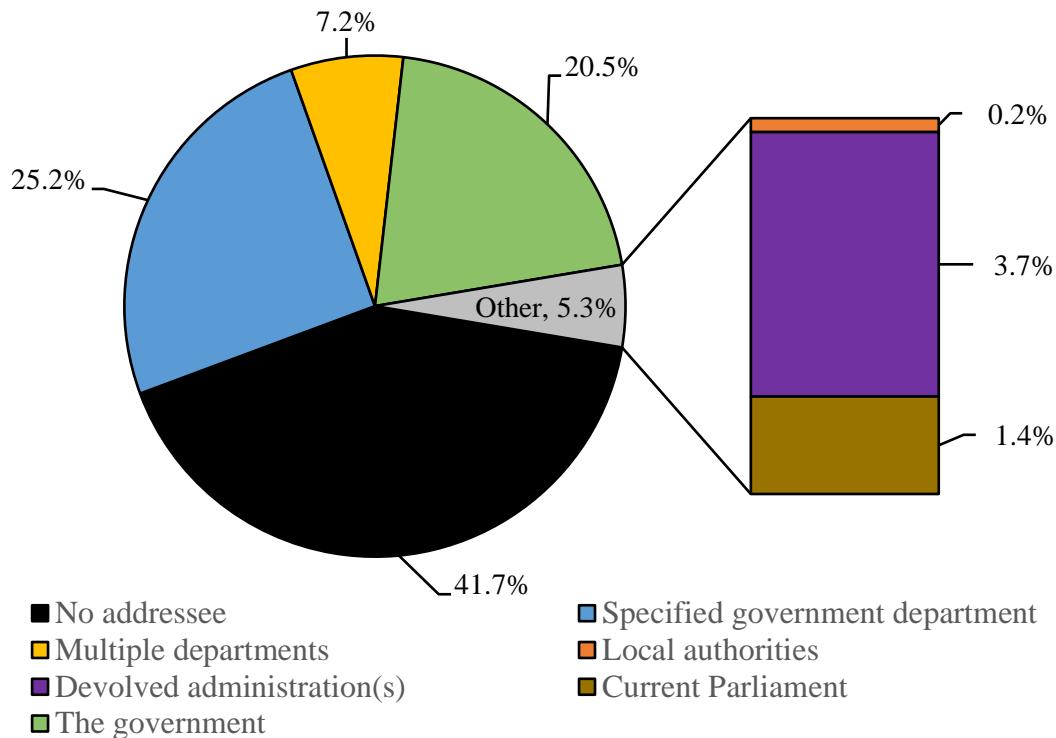
5.3 To whom were recommendations addressed?

Mitigation

Between 2009 and 2020, just over half (58%) of the CCC’s 511 mitigation recommendations were addressed to a named actor. As shown in Figure 5.2, recommendations were predominantly addressed to a specified government department, accounting for just under half of all recommendations with an addressee (N=129 of 298). Notably, 35 of these recommendations were in the 2013, 2014, and 2015 progress reports; they primarily addressed the department that sponsored the CCC under the 2010 Framework Document, meaning the department with the primary responsibility for meeting the emissions reduction targets in the CCA (HM Government *et al.*, 2010, p. 7)¹⁴. The remaining 94 recommendations that were addressed to a specified government department were in the 2020 report, wherein the CCC presented its recommendations in 14 tables, each addressed to one or more departments. The addressed departments included its sponsor and, more broadly, the departments for transport, housing, defence, international trade, health, education, and the Treasury, amongst others.

¹⁴ Between 2009 and 2020 the AC was sponsored by the Department for Environment, Food and Rural Affairs (Defra). The CCC was sponsored by the Department for Energy and Climate Change (DECC) from 2009 to 2016 and the Department for Business, Energy, and Industry Strategy (BEIS) until 2023.

Figure 5.2 The proportion of the CCC's mitigation recommendations that were addressed to a named actor, 2009 to 2020.



Source: author's own composition

As shown in Figure 5.2, 7.2% of the CCC's 511 mitigation recommendations were addressed to two or more government departments; notably, all of these were in the 2020 report. For example, one table was entitled:

“Recommendations for the Foreign and Commonwealth Office, the Department for Business, Energy & Industrial Strategy, the Department for International Development and the COP26 Unit” (CCC, 2020e, p. 26)

More often, the CCC embedded multiple addressees within the body of its recommendations, for example:

“Working with [the Department for Work and Pensions (DWP)], [the Department for Education (DfE)] and [the Department for Business, Energy and Industrial Strategy (BEIS)], develop a strategy for a Net-Zero workforce that ensures a ‘just transition’ for workers transitioning from high-carbon to low-carbon and climate resilient jobs, integrates relevant skills into the UK's education framework and actively monitors the risks and opportunities arising from the transition.” (CCC, 2020e, p. 45)

The analysis also identified that, between 2013 and 2017, 19 recommendations were addressed to one or more devolved administrations, despite them receiving separate annual progress reports to the ones provided to the UK Parliament that were analysed in this thesis (see Chapter 8 for further discussion).

Across the study period, mitigation recommendations were more consistently addressed to the government as a whole, rather than a specified department. Recommendations with this characteristic were typically listed as bullet points or paragraphs of text that followed a broad statement such as “the Committee believes that *the Government* should...” (CCC, 2009, p. 11, emphasis added). Every progress report between 2009 and 2020 included at least one recommendation addressed simply to ‘the government’, apart from the 2018 and 2019 reports, wherein recommendations had no addressee.

Indeed, between 2009 and 2020, over 40% (N=213) of mitigation recommendations had no addressee. Recommendations with this characteristic were concentrated in the first half of the study period. Demonstrably, in the period 2009 to 2015, on average two-thirds of the recommendations that were provided each year were not addressed to a named actor. For example, in 2012 the CCC included 38 mitigation recommendations in its annual progress report, presented as bullet points in a textbox. A third of these were addressed simply to ‘the government’, embedded within the recommendation itself, and the remaining two-thirds had no addressee, as shown here:

- (1) “Improve the evidence base on the energy efficiency of appliances, district heating, surface transport emissions by mode, agriculture emissions, waste emissions.” (CCC, 2012b, p. 13)

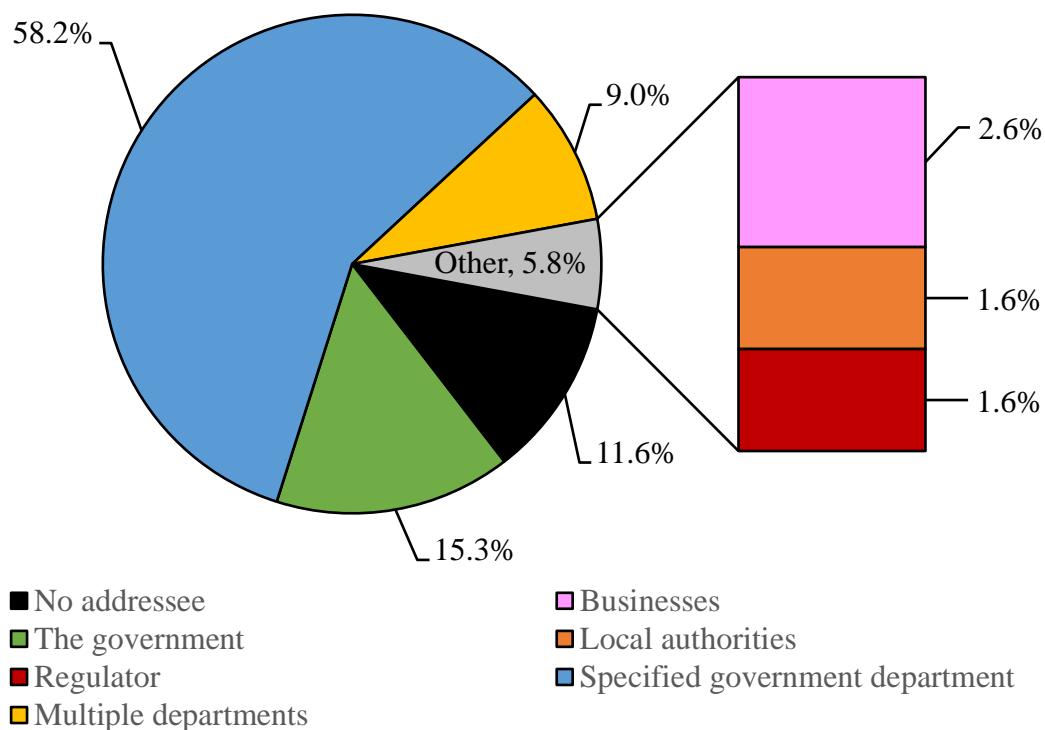
- (2) “Enforce the current motorway speed limit.” (CCC, 2012b, p. 13)

In summary, between 2009 and 2019 there was not a consistent format for presenting mitigation recommendations, and more than half (57%) of the 376 recommendations provided in these years did not have an addressee. The CCC’s 2020 report marked a step change in the specificity of its recommendations because it organised them by one or more named government departments for the first time.

Adaptation

As set out in Section 5.2, the AC provided 189 adaptation recommendations to the UK Parliament in biannual progress reports between 2010 and 2020; of these, 88% were addressed to a named actor. As shown in Figure 5.3, just over half were addressed to a specified government department, predominantly the AC's sponsor department, Defra. Notably, in the period 2015 to 2020, all 134 of the AC's adaptation recommendations had an addressee, primarily Defra. The consistent inclusion of an addressee was revealed to be related to the formatting of recommendations, namely the presentation of recommendations in tables that contained an 'owner' column (AC, 2015, pp. 17–26, 2017, pp. 19–23) or through the indication of 'departmental owner(s)' at the end of each bullet-pointed recommendation (AC, 2019, pp. 16–17).

Figure 5.3 The proportion of the AC's adaptation recommendations that were addressed to a named actor, 2010 to 2020.



Source: author's own composition

The second largest category of addressee were those simply addressed to 'the government' (N=29). All but two of the recommendations with this characteristic were concentrated in the period 2010 to 2015, with the remaining two provided in 2019. As with mitigation, these recommendations tended to be listed as bullet points that

followed the statement ‘the government should...’ or this phrase was embedded within the text of the recommendation itself, for example:

“*The Government should* press on with its reform of the abstraction regime so that the price of water reflects its scarcity.” (AC, 2013, p. 9, emphasis added)

Less than 10% of all adaptation recommendations were addressed to multiple government departments (N=17), half of which were in the 2020 report as described for mitigation. Less than 5% of all adaptation recommendations were addressed to groups outside of the government, namely local authorities, businesses, or an industry regulator. For example, in 2015 the AC addressed a recommendation that pertained to surface water flood management to Ofwat, the regulator for water and sewage in England and Wales:

“Ofwat should require each water company to report on the area of land where aboveground [Sustainable Urban Drainage Systems], including permeable paving, has been installed over the current Asset Management Plan period to 2020, as part of delivering the industry-wide commitment to reduce sewer flooding incidents by 33%.” (AC, 2015, p. 17)

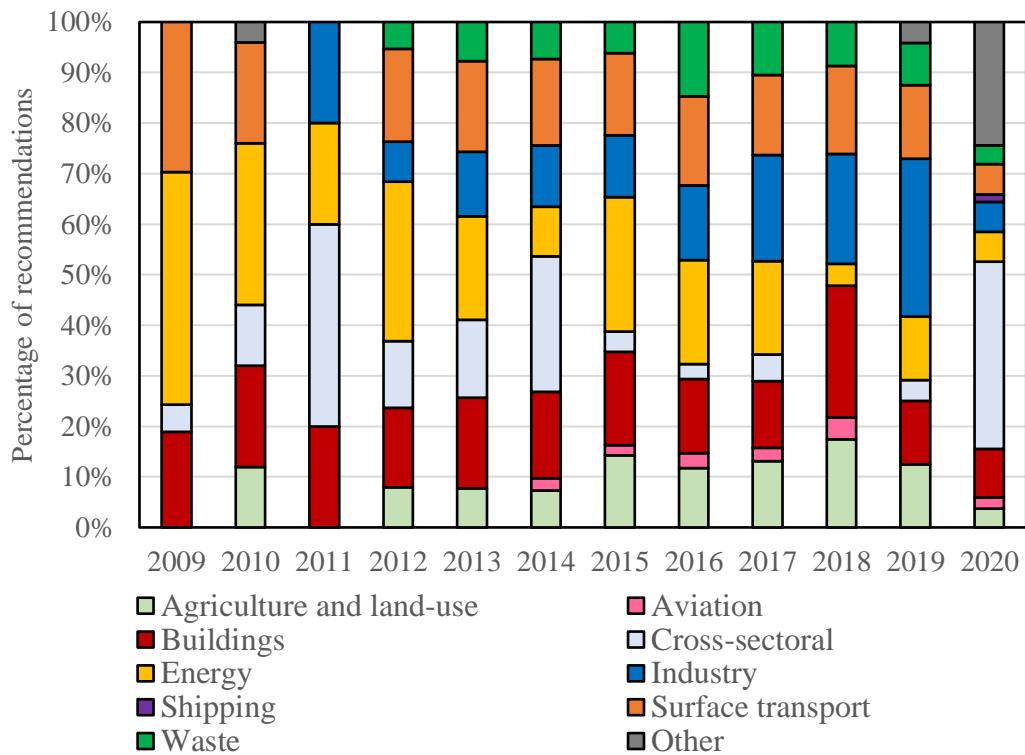
In summary, across the study period, only 22 (of 189) adaptation recommendations did not have an addressee, all of which were in the period 2010 to 2014. All subsequent recommendations had an addressee, predominantly a specified government department, most often its sponsor department Defra. We now turn to the other characteristics of the CCC’s recommendations, beginning with their sectoral focus.

5.4 Which sectors did they focus on?

Mitigation

There was an apparent variation in the number and type of sectors that the CCC's mitigation recommendations focused on each year (see Figure 5.4). Over the study period, the sectoral focus of recommendations changed in three main ways. First, the number and type of sectors its recommendations focused on broadened. In its first report in 2009, the CCC's recommendations focused on three economic sectors: energy, surface transport, and buildings; only 5% (N=2 of 37) were cross-sectoral. Over time the CCC steadily addressed more sectors, reaching ten in 2020.

Figure 5.4 The sectoral focus of the CCC's mitigation recommendations, 2009 to 2020.



Source: author's own composition

Second, over the study period, the CCC increased the proportion of its recommendations that were cross-sectoral from two (5%) in 2009 to 50 (37%) in 2020, compared to an 11-year annual average of 14% of recommendations. Cross-sectoral mitigation recommendations typically pertained to the outperformance of carbon budgets and the integration of Net Zero into policymaking, for example:

“Integrate Net Zero into all policymaking and ensure procurement strategies are consistent with the UK's climate objectives.” (CCC, 2020e, p. 38)

Third, between 2009 and 2020, the focus of mitigation recommendations shifted from the decarbonisation of the energy sector to other, arguably more challenging-to-mitigate, sectors including agriculture and land-use (from 2010), industry (from 2011), waste (from 2012), and aviation (from 2014). Demonstrably, the proportion of recommendations that focused on the energy sector decreased from 46% (N=17 of 37) in 2009 to 6% (N=8 of 135) in 2020. Over the study period, the characteristics of the CCC's mitigation recommendations changed to address a broader range of sectors, and became increasingly cross-sectoral, particularly in its 2020 report.

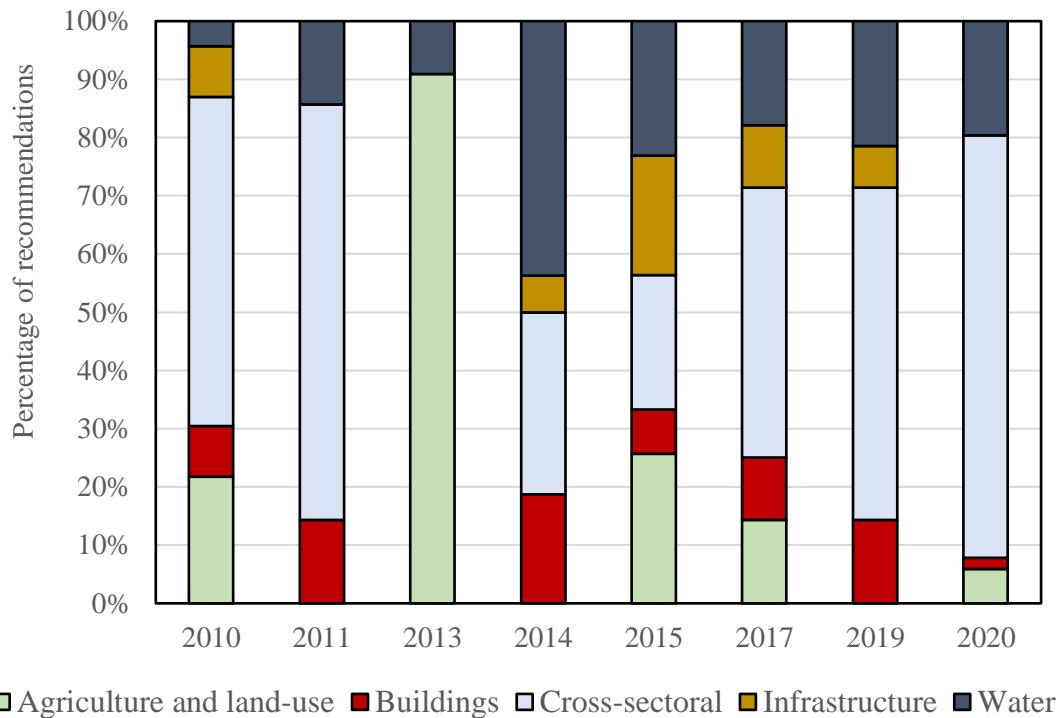
Adaptation

Between 2010 and 2020 the AC's adaptation recommendations focused on the same four sectors, namely water, infrastructure, buildings and agriculture and land-use (see Figure 5.5). Nearly half (48%) of its 189 recommendations were cross-sectoral and typically pertained to the integration of adaptation into planning and decision-making. This was a sustained focus of the AC's recommendations throughout the study period, for example:

- (1) “Ensure there is clear responsibility for adaptation allocated under the new delivery arrangements and mechanisms to ensure cooperation between delivery bodies.” (AC, 2010, p. 11)
- (2) “Develop a plan for funding climate resilience across infrastructure, society, and the economy, equivalent to the work currently being undertaken on Net Zero.” (CCC, 2020e, p. 27)

Analysis revealed that the AC maintained a tight and consistent focus on four sectors between 2010 and 2020. Moreover, the proportion of its recommendations that were cross-sectoral increased steadily between 2015 and 2020 from 23% to 73% respectively.

Figure 5.5 The sectoral focus of the AC's adaptation recommendations, 2010 to 2020.



Source: author's own composition

5.5 To what extent did they include delivery targets?

As described in Chapters 2 and 3, recommendations were coded for whether they included delivery targets, specifically (1) a timescale for delivery, (2) a quantitative target, such as a percentage emissions reduction or specified funding amount, (3) both of these targets, or (4) neither target.

Mitigation

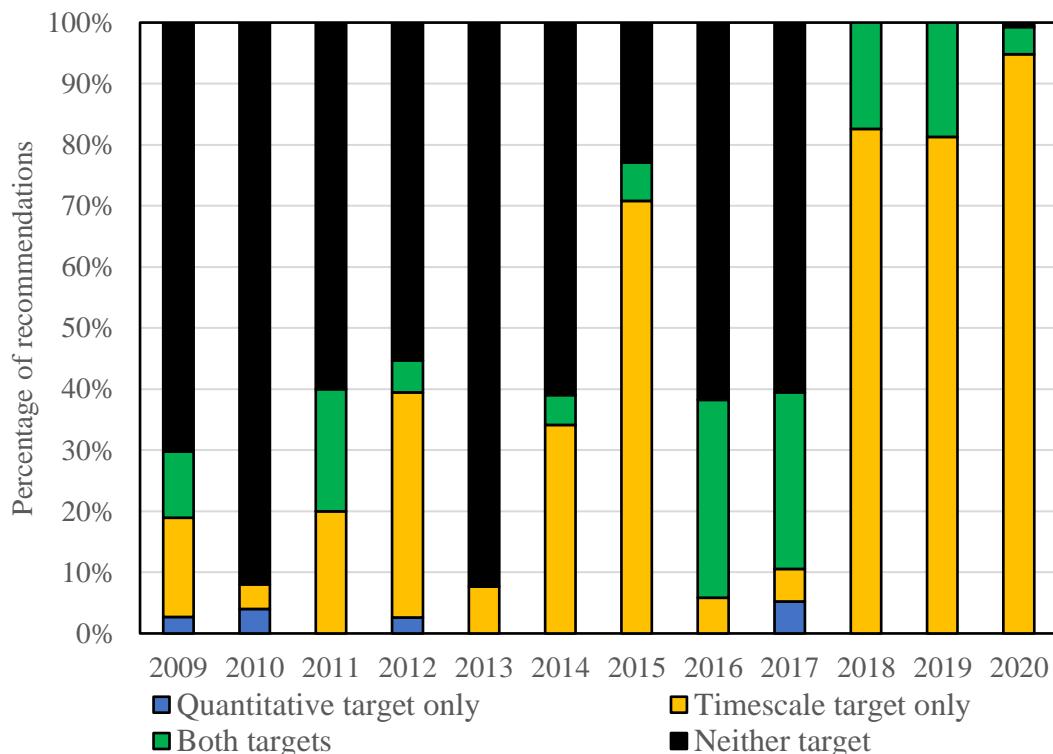
Between 2009 and 2020, just over a third (37%) of the CCC's 511 mitigation recommendations contained no delivery targets. These recommendations were concentrated in the period up to 2017 (see Figure 5.6). They tended to be more qualitative and value-based than those that contained targets. They were also more ambiguous in the pace and ambition of action envisaged by the CCC, for example:

- (1) “Engage with EU partners to strengthen the carbon price in the EU [Emissions Trading Scheme (ETS)].” (CCC, 2012b, p. 13)

(2) “Agree the contract for the first new nuclear project.” (CCC, 2013b, p. 14)

(3) “A strategic approach to carbon capture and storage deployment in the UK.”
(CCC, 2016b, p. 16)

Figure 5.6 The proportion of the CCC’s mitigation recommendations that included delivery targets, 2009 to 2020.



Source: author’s own composition

Across the corpus, just over half (N=263) of the 511 mitigation recommendations only contained a timescale for delivery; though notably 128 of these were in the 2020 report, wherein each table of recommendations contained a ‘timing’ column. Moreover, the CCC’s definition of a timescale varied across the study period. Until 2014 it primarily embedded a target year within the recommendation itself, for example:

(1) “*No later than 2016, commit funding for low-carbon generation in the period beyond 2020.*” (CCC, 2014, p. 16, emphasis added)

(2) “*By 2016, publish a commercialisation strategy for offshore wind that includes levels of ambition to 2030, cost reductions required to sustain that ambition and the Government’s role in supporting those reductions.*” (CCC, 2014, p. 16, emphasis added)

Comparably, the CCC presented this characteristic differently in its 2015 report; it specified a ‘deadline’ for each recommendation as either “ahead of 2016 progress report” or “ahead of 2017 progress report” (CCC, 2015b, pp. 40–43).

Between 2018 and 2020 all mitigation recommendations contained a target, predominantly a timescale, though the notation remained varied. Its 2018 report provided specific timescale targets for delivering the recommendations such as “first half of 2019” or “early 2019” (CCC, 2018, p. 22). In 2019, instead of specified years, a timescale was indicated through the organisation of recommendations into two table columns that were entitled “priorities for the coming year” or “longer-term milestones”, the latter of which included recommendations for actions that had long lead times, such as:

- (1) “Decision on the future of the gas grid in the mid-2020s.” (CCC, 2019, p. 15)
- (2) “All new heating systems to be low carbon from 2035.” (CCC, 2019, p. 15)

The 2020 report adopted a similar approach to the 2018 report, with recommendations organised in a table with a ‘timing’ column which included entries such as “by Q1 2012”, “H1 2021”, and “now and ongoing” (CCC, 2020e, pp. 27–28).

In summary, the analysis revealed that whether and how the CCC’s mitigation recommendations included delivery targets varied notably year-on-year. Nevertheless, between 2018 and 2020 recommendations consistently included a target, primarily a timescale, which was attributed to a standardised presentation of recommendations in tables that contained a ‘timing’ column.

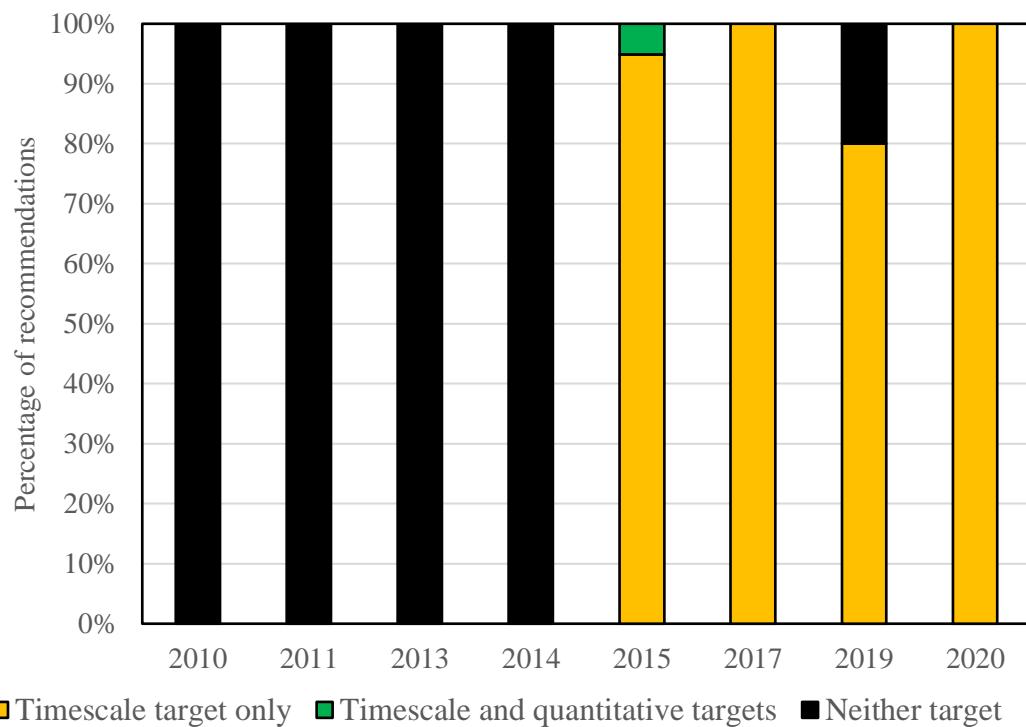
Adaptation

As shown in Figure 5.7, between 2010 and 2014 none of the AC’s 55 adaptation recommendations contained a target. As with mitigation, the scope, pace, and ambition of these recommendations were ambiguous, as demonstrated by this example:

“The UK appears to have a comparative advantage in some adaptation products and services but recent sales growth by UK companies has been slower than that in other major producing countries. The Government

should explore the reasons for this and consider if more could be done to promote exports.” (AC, 2014, p. 12)

Figure 5.7 The proportion of the AC’s adaptation recommendations that included delivery targets, 2010 to 2020.



Source: author’s own composition

Between 2015 and 2020, 96% of the 134 adaptation recommendations provided in these years contained a timescale for delivery, and a further two additionally contained a quantitative target, both in 2015. As with mitigation, the notation of a timescale varied over time from “early 2017” (AC, 2015, p. 20), to the “next [National Adaptation Programme (NAP)] in 2018” (AC, 2017, p. 19), to “by 2021” (AC, 2019, p. 17) to the standardised notation in the 2020 report which included “H1 2021” and “now and ongoing” (CCC, 2020e, p. 24). Analysis therefore revealed that the AC’s recommendations consistently included a timescale for delivery after 2015, though the notation was variable year-on-year.

5.6 To what extent did they challenge the policy status quo?

As described in Chapters 2 and 3, each recommendation's *level of challenge to the policy status quo* was coded using Fischer's four-level typology of policy evaluation. At levels 1 and 2 recommendations were considered to support the policy status quo because they pertained to existing policies, values, or beliefs. At levels 3 and 4 recommendations were considered to challenge the policy status quo, for example if they recommended the introduction of a new policy or for the consideration of wider societal values such as equity, justice, and fairness.

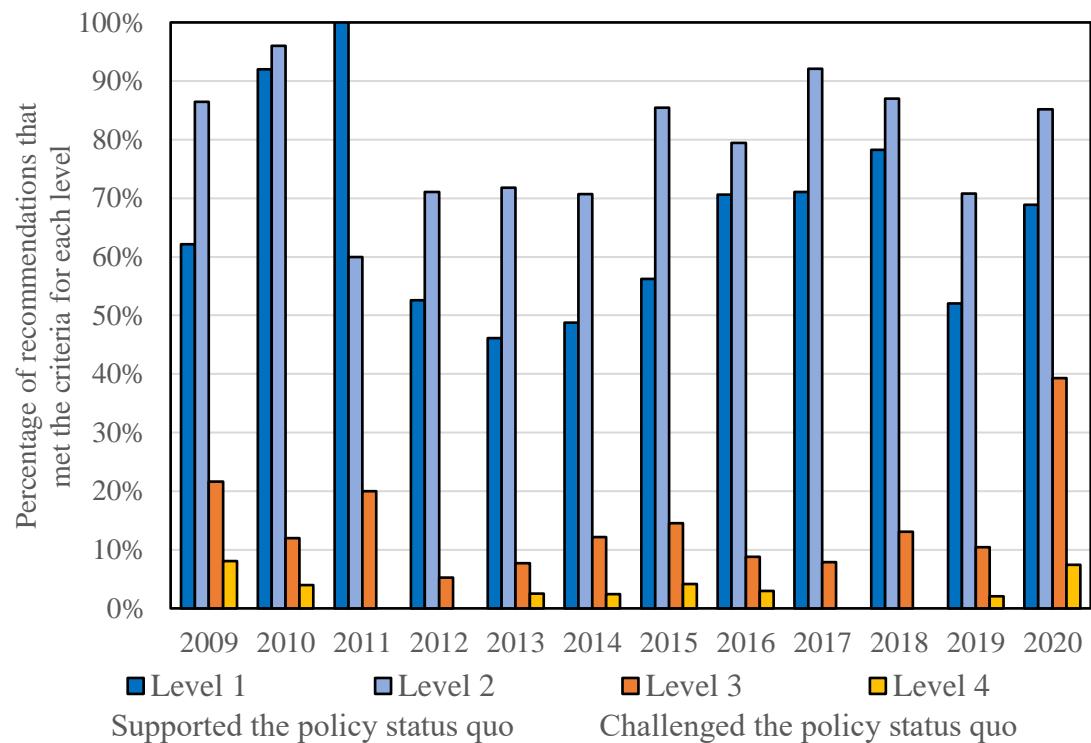
Each recommendation was coded four times to record whether it met the criteria for each level. The sum of the numbers reported in this section is therefore greater than the 511 mitigation, and 189 adaptation, recommendations that were provided to the UK Parliament during the period because some recommendations met the criteria for more than one – or none – of the four levels (see Chapter 3).

Mitigation

Between 2009 and 2020, the CCC's mitigation recommendations were consistently supportive of the policy status quo at level 1 (N=323) and/or level 2 (N=415) (see Figure 5.8). At these levels, recommendations consistently referred to the delivery of existing policy obligations, such as carbon budgets and Net Zero, and the implementation of prevailing policy commitments such as Electricity Market Reform (EMR), for example:

- (1) "Roll-out Smarter Choices to encourage better journey planning and increased use of public transport across the UK." (CCC, 2009b, p. 11)
- (2) "Continue with auctions under [EMR], maintaining momentum by adhering to the proposed timings and working with industry to learn lessons from the first auctions." (CCC, 2015b, p. 40)

Figure 5.8 The proportion of the CCC's mitigation recommendations that supported or challenged the policy status quo, 2009 to 2020.



Source: author's own composition

Across the study period, relatively fewer mitigation recommendations challenged the policy status quo with only 14% (N=96) at level 3 and a mere 3% (N=20) at level 4. At these levels, recommendations tended to underline the importance of fair and equitable decarbonisation, demonstrably: “ensure costs fairly distributed and a just transition” (CCC, 2019, p. 15). They also emphasised the need for climate policy to achieve co-benefits and address other policy areas such as human health and pollution, for example:

“Take an active role in climate policy development that also has health benefits, such as active travel, access to green space, air quality, better buildings and healthier diets.” (CCC, 2020e, p. 43)

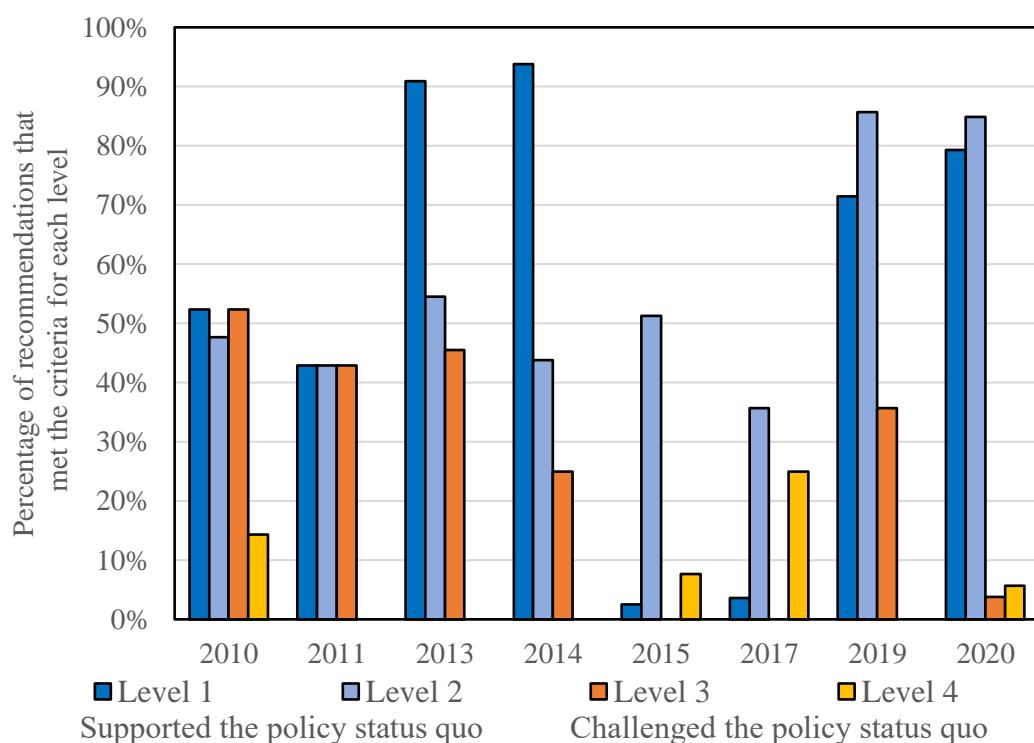
The 2020 report contained the most recommendations that were situated at levels 3 and/or 4, suggesting the CCC became more willing to challenge the policy status quo towards the end of the study period. Nevertheless, as shown in Figure 5.8, the CCC continued to reinforce the need to implement existing policies and deliver prevailing commitments throughout the 11 years. This indicates that the CCC had a sustained dual focus on both delivering existing policy commitments and extending the government's ambitions in certain areas (see Section 5.9).

Adaptation

Between 2010 and 2020, the AC's adaptation recommendations were predominantly supportive of the policy status quo; the majority of its 189 recommendations were situated at level 1 (N=93) and/or level 2 (N=113) (see Figure 5.9). Recommendations at these levels focused on the integration of adaptation into existing policies or the delivery of prevailing obligations, such as the government's statutory requirement to produce a National Adaptation Programme (NAP) every five years, for example:

- (1) "...the second NAP should: [...] set clear priorities for adaptation; [...] ensure objectives are outcome-focused, measurable, time-bound and have clear ownership; [...] and [...] include effective monitoring and evaluation." (AC, 2017, p. 19)
- (2) "In order to improve the resilience of ecosystems to climate change, the Government should ensure that current regulations are fully implemented. It should also ensure that the value of ecosystem services is reflected in decision-making." (AC, 2013, p. 9)

Figure 5.9 The proportion of the AC's adaptation recommendations that supported or challenged the policy status quo, 2010 to 2020.



Source: author's own composition

Across the study period, a minority of the 189 adaptation recommendations challenged the policy status quo at level 3 (N=30) and/or level 4 (N=16). Notably, recommendations at these levels were most prevalent in the AC's earlier reports, particularly in 2010, 2011, and 2013, and notably less prevalent in its 2020 report (see Figure 5.9). These recommendations tended to advocate action beyond the scope and ambition of existing policies, as well as the consideration of co-benefits and wider societal values in government policy, for example:

“The Government should strengthen implementation of current regulations to tackle deep-seated and persistent pressures, such as water and air pollution, to restore wildlife sites to good condition, and to expand habitat area. The Government should incentivise further habitat restoration and creation by maintaining funding for agri-environment schemes through reforms to the Common Agricultural Policy and developing effective market mechanisms that place an economic value on nature, such as through biodiversity offsetting and payment for ecosystem services.” (AC, 2013, p. 10)

To summarise, the earlier reports of the AC (between 2010 and 2013) contained the highest proportions of recommendations that challenged the policy status quo, most prominently at level 3. Recommendations at level 3 consistently evaluated whether existing government policies would enhance or limit the achievement of societal values such as equality and freedom, but stopped short of recommending that a policy should be changed or introduced, as at level 4. Comparably, adaptation recommendations in the latter half of the study period were less challenging of the policy status quo overall, yet more prevalent at level 3 than 4. The significance of a recommendation's *level of challenge to the policy status quo* for its subsequent (non-)use is detailed in Chapter 7. For now, we turn to the penultimate characteristic.

5.7 What action(s) did they advocate?

Mitigation

As with the previous characteristics, there was notable interannual variation in the recommended action at the core of each of the CCC's 511 mitigation recommendations (see Table 5.1). Nearly half (48%) contained multiple recommended actions for

various tasks such as policy development, policy evaluation, stakeholder consultation, and the implementation of an existing policy, as demonstrated by this example:

“Build on the existing approach to incentivising low-carbon heat in residential buildings: *commit funding* for the Renewable Heat Incentive (RHI) to 2020 and *commit to extending this approach* beyond 2020 unless and until an alternative mechanism is in place; *extend the Green Deal* to cover the upfront cost of low-carbon heat technologies funded under the [RHI] and *consider using Government guarantees* to lower the financing cost; *develop measures* to improve consumer confidence in renewable heat.”
(CCC, 2014, p. 16, emphasis added to indicate each recommended action)

Table 5.1 Overview of the recommended action at the core of each mitigation recommendation, 2009 to 2020.

Recommended action	Number of recommendations*
Multiple actions	247
Coordinate policy action across sectors	131
Introduce a policy or policy framework	98
Plan future action or design a new policy	86
Set a new policy objective or target	76
Introduce a strategy	73
Consult or engage with other actors, sectors, or countries	68
Introduce or strengthen incentives	68
Strengthen or extend an existing policy	56
Implement existing policy	52
Improve the evidence base for decision-making	52
Review or evaluate an existing law, policy, or approach	52
Commit or provide funding	51
Not clear	47
Trial, deploy, or commercialize emerging low-carbon technology	45
Outperform existing targets or increase pace and ambition	22
Introduce a new law	11
Weaken or remove an existing policy	5

*Note the total number of recommendations is >511 because some recommendations included more than one action (see Chapter 3).

Source: author's own composition

Across the corpus, mitigation recommendations that contained a single recommended action most commonly advocated for the coordination of policy action across sectors, the introduction of a policy or policy framework, the development of a plan for future action or the design of a new policy. Only five recommendations advocated for the weakening or removal of an existing policy, as demonstrated by this recommendation:

“Replace voluntary industry-led framework, which has so far failed to meet emissions targets in England, Wales or Scotland, with a stronger framework to deliver [greenhouse gas emissions] abatement to take effect from 2019.”
 (CCC, 2018, p. 22)

In summary, the CCC’s mitigation recommendations advocated for a variety of actions across the study period, most prominently to coordinate climate action across sectors. Notably, nearly half of all mitigation recommendations contained more than one recommended action.

Adaptation

As shown in Table 5.2, adaptation recommendations that contained only one action most commonly advocated for the coordination of policy across sectors, the development of a plan for future action or the design of a new policy, or the improvement of the evidence base for decision-making.

Table 5.2 Overview of the recommended action at the core of each adaptation recommendation, 2010 to 2020.

Recommended action	Number of recommendations*
Multiple actions	99
Coordinate policy action across sectors	80
Plan future action or design a new policy	64
Improve the evidence base for decision-making	52
Review or evaluate an existing law, policy, or approach	43
Consult or engage with other actors, sectors, or countries	17
Strengthen or extend an existing policy	16
Implement existing policy	14
Set a new policy objective or target	14
Introduce or strengthen incentives	12

Source: author’s own composition

Continued overleaf

Table 5.2 continued.

Recommended action	Number of recommendations*
Introduce a policy or policy framework	10
Not clear	10
Introduce a strategy	7
Commit or provide funding	4
Outperform existing targets or increase pace and ambition	3
Introduce a new law	2
Trial, deploy, or commercialise emerging low-carbon technology	2
Weaken or remove an existing policy	0

*Note the total number of recommendations is >189 because some recommendations included more than one action (see Chapter 3).

Source: author's own composition

Nevertheless, just over half (52%) of the AC's 189 recommendations contained multiple recommended actions; two-thirds of those provided in 2013, 2015, 2017, and 2019 had this characteristic, as in this example:

“Taking a strategic approach to land use planning – for example to (i) *ensure* that new buildings and infrastructure are sited in areas that *minimise exposure to flood risk, do not increase flood risk to others, and do not create a legacy of flood defence or water supply costs*; (ii) *manage competing pressures on land* – urban, natural and agricultural – in response to a changing climate; and (iii) *enhance green space* where effective in the design of towns and cities to help manage surface water drainage and cope with rising temperatures and heatwaves.” (AC, 2010, p. 8, emphasis added to indicate each recommended action)

The significance of multiple recommended actions for (non-)use is examined in Chapter 7. For now, we now turn to consider the final characteristic of the CCC's recommendations.

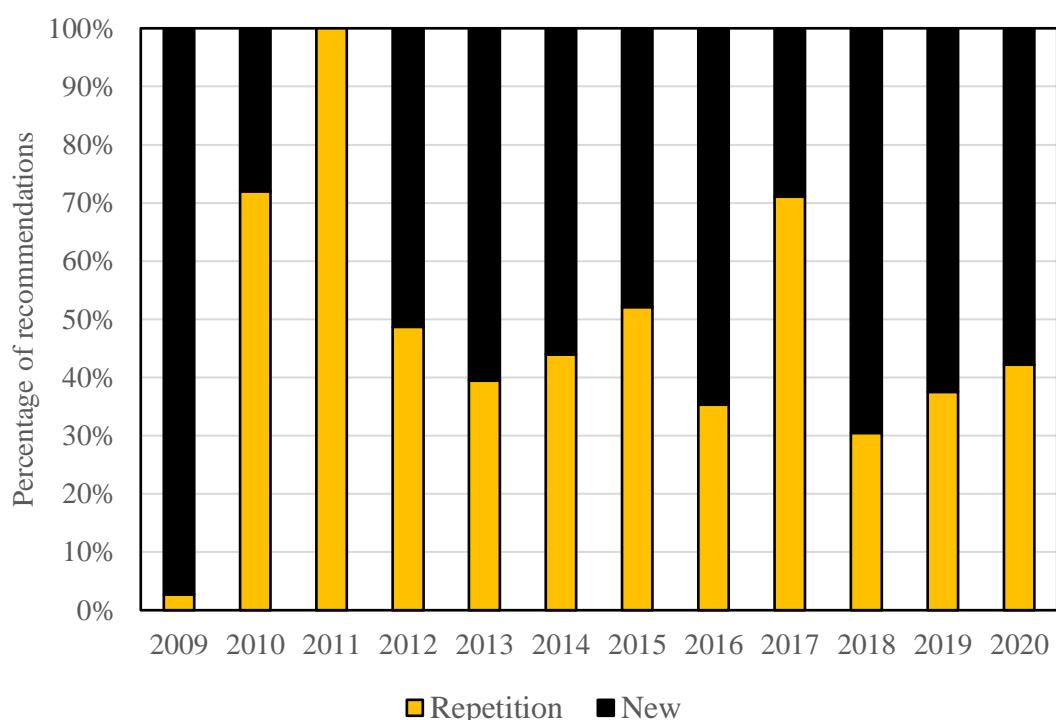
5.8 To what extent were they repeated over time?

As explained in Chapter 3, the pilot analysis for this thesis inductively revealed that some of the CCC's recommendations were repetitions, both within and across its progress reports. This characteristic was therefore investigated across the corpus.

Mitigation

Analysis revealed that no less than 43% of the CCC's 511 mitigation recommendations were a repetition of a previous recommendation. As shown in Figure 5.10 there was notable interannual variation in the relative proportion of mitigation recommendations each year that were either provided for the first time (i.e., new) or a repetition. Between 2018 and 2020 the relative proportion of new mitigation recommendations declined and repeated recommendations became more prevalent.

Figure 5.10 The proportion of the CCC's mitigation recommendations that were a repetition each year, 2009 to 2020.



Source: author's own composition

The repetition of recommendations year-on-year can be exemplified with an example from the aviation sector. In 2015 the CCC first recommended:

“Publish an effective policy framework for aviation emissions: plan for UK 2050 emissions at 2005 levels (implying around a 60% increase in demand) and push for strong international and EU policies.” (CCC, 2015b, p. 41)

In its three subsequent reports the CCC provided partial repetitions of this same recommendation whereby the phrasing was slightly different, but the core recommended action was the same:

- (1) “A plan to limit UK aviation emissions to around 2005 levels by 2050, implying around a 60% potential increase in demand, supported by strong international policies.” (CCC, 2016b, p. 17)
- (2) “A plan to limit UK aviation emissions to the level assumed when the fifth carbon budget was set: around 2005 levels by 2050, implying around a 60% potential increase in demand, supported by strong international policies.” (CCC, 2017b, p. 18)
- (3) “Publish a plan to limit UK aviation emissions to the level assumed when the fifth carbon budget was set (i.e., around 2005 levels in 2050, implying around a 60% potential increase in demand), supported by strong international policies.” (CCC, 2018, p. 22)

In its 2019 report, the CCC reported that this aviation recommendation had been “partly” delivered by the government (CCC, 2019, p. 63) because:

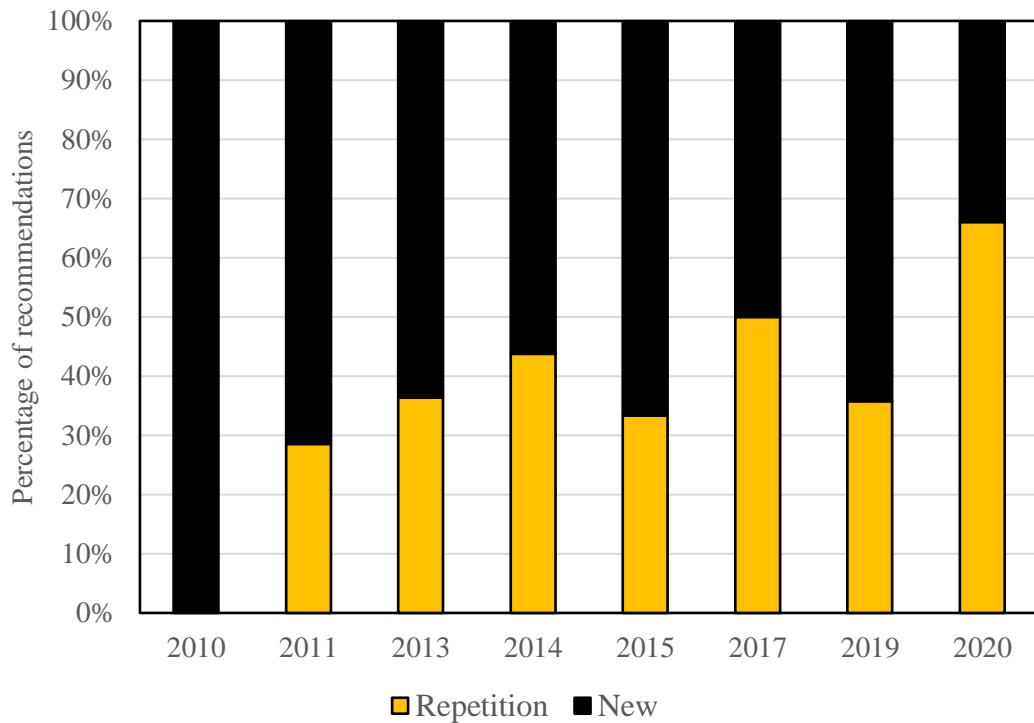
“The Government launched a consultation in December 2018 on its long-term vision for aviation. Within this, it accepted the Committee’s long-standing planning assumption that for an economy-wide target of an 80% emissions reduction, aviation emissions in 2050 should be no higher than those in 2005 (i.e. 37.5 MtCO₂e). However, the final Aviation Strategy has not yet been published and the Government has not set out the implications of limiting emissions for aviation demand.” (CCC, 2019, p. 55)

Notably, this recommendation was not repeated in its 2020 report. This example raises some interesting questions about why recommendations were repeated and at what point they stopped repeating. These questions are addressed in Chapter 7. For now, we turn to consider the repetition of adaptation recommendations.

Adaptation

Across the study period, no less than 42% of the AC’s 189 adaptation recommendations were a repetition. As shown in Figure 5.11 the relative proportion of adaptation recommendations that were repeated increased from 2011 to 2020.

Figure 5.11 The proportion of the AC's adaptation recommendations that were a repetition each year, 2010 to 2020.



Source: author's own composition

The repetition of adaptation recommendations can be exemplified in the buildings sector. In 2011 the AC first recommended that a policy to reduce the risk of overheating in buildings should be introduced:

“We identified a number of low-regret actions for buildings that could save individual householders money, as well as reducing the UK's vulnerability to climate change. These include measures to [...] protect buildings from overheating in summer (such as increasing window shading).” (AC, 2011, p. 10)

In each of its subsequent reports from 2014 to 2020 the AC provided partial repetitions of this recommendation. The recommendations were phrased slightly differently but the core recommended action was the same:

- (1) “...there is a [...] fundamental need to adapt the existing building stock and design new buildings to be safe and comfortable in a hotter climate. [...] A standard or requirement is needed in order to ensure new homes

are built to take account of the health risks of overheating now and in the future.” (AC, 2014, p. 9)

- (2) “[Department for Communities and Local Government (DCLG)] should, before the ASC’s next report in 2017, evaluate the latest evidence and subsequently introduce a new standard or regulation on reducing the risk of overheating in new homes.” (AC, 2015, p. 22)

Notably, in 2017, 2019, and 2020, the AC repeated this recommendation multiple times within each report and addressed each to one or more government departments. Demonstrably, in 2017 the AC addressed the repeated recommendation to the DCLG:

“As recommended in our 2015 report, a standard or regulation should be put in place to reduce the risk of overheating in new homes.” (AC, 2017, p. 21)

In the same progress report, the AC also addressed the repeated recommendation to three other departments, namely those for health, education, and justice, specifically that:

“Further action should be taken to assess and reduce the risks of overheating in existing buildings, with the priorities being hospitals, schools, care homes and prisons.” (AC, 2017, p. 21)

This example demonstrates that the characteristics of repeated recommendations changed over time. In this case, the recommendation to reduce the risk of overheating in buildings became more prolific and specific over time, particularly between 2015 and 2020. Across six progress reports, the AC repeated this recommendation no less than ten times, addressed to seven specified departments and the national health regulator. The recommendation was also repeated more than once in its reports published after 2015. This example therefore raises interesting questions about the characteristics of repeated recommendations that are explored in the next section, and whether and how *repetition* influenced the government’s response to recommendations, as explained in Chapter 7.

5.9 Cross-tabulations between characteristics

This chapter has so far presented findings on each of the six characteristics of the CCC's mitigation and adaptation recommendations. This current section presents the results of cross-tabulations between these characteristics to reveal which were most often present in the same recommendation, thereby providing further insight into the characteristics of the CCC's recommendations over time.

5.9.1. Mitigation

As shown, the CCC's mitigation recommendations became increasingly cross-sectoral over the study period (see Section 5.4); cross-tabulations revealed that as well as becoming more numerous, cross-sectoral recommendations also became more specific through the consistent inclusion of a delivery timescale and an addressee, particularly in 2020. Demonstrably, just over half (53%) of its 86 cross-sectoral recommendations were addressed to a specified government department, 36 of which were in the 2020 report. Moreover, 56 (of 86) cross-sectoral recommendations included a timescale for delivery, 49 of which were in the 2020 report and four were in the 2019 report. This suggests that the characteristics of the CCC's recommendations changed towards the end of the study period, becoming more cross-sectoral and specific through the consistent inclusion of a timescale and an addressee for delivery.

Further cross-tabulations revealed that cross-sectoral recommendations accounted for the greatest proportion of recommendations that challenged the policy status quo at level 3, accounting for 39% of the 96 level 3 recommendations across the corpus. Cross-sectoral recommendations also accounted for 30% of the 20 level 4 recommendations, the second highest sectoral category after buildings. The majority of level 3 and/or level 4 cross-sectoral recommendations were in the 2020 report, with a smaller number in 2019. The 2020 report was therefore a notable departure from previous reports and indicated that the CCC's cross-sectoral recommendations were becoming more willing to challenge the policy status quo, as well as becoming more specific in their targets and addressee.

Mitigation recommendations that were most challenging of the policy status quo were consistently focused on the buildings sector. Between 2009 and 2020, 35% of the 20 level 4 recommendations were focused on buildings, as were 22% of the 96 level 3

recommendations. Buildings sector recommendations at these higher levels were distributed across the study period, rather than being concentrated in a particular year, with only four of the level 3, and none of the level 4, buildings recommendations occurring in the 2020 report. The CCC consistently included buildings recommendations at these higher levels in each of its reports alongside recommendations that were supportive of the policy status quo. Moreover, all eight of the buildings sector recommendations in its first report in 2009 were situated at level 3 and/or level 4, as shown in these examples:

- (1) “Make a major shift in the strategy on residential home energy efficiency, moving away from the existing supplier obligation, and leading a transformation of our residential building stock through a whole house and street-by-street approach, with advice, encouragement, financing and funding available for households to incentivize major energy efficiency improvements.” (CCC, 2009b, p. 11)
- (2) “The current Carbon Emission Reduction Target (CERT) scheme for energy efficiency improvement in homes should be replaced by a new Government-led policy including: a whole house approach [...]; a neighbourhood approach [...]; low-cost long-term financing for households to be repaid from energy bill reductions following energy efficiency improvement, and to be blended with grant funding (especially for the fuel poor). Additional policy measures are also likely to be required to accelerate the purchase of efficient appliances...” (CCC, 2009b, p. 13)

These cross-tabulations suggest that the CCC’s recommendations had a sustained and dual focus on both implementing existing buildings policies and introducing policies that extended beyond prevailing approaches, values, and beliefs.

Finally, cross-tabulations between *repetition* and the previously reported characteristics revealed four insights on the distribution of repeated recommendations across the 511 mitigation recommendations. First, just under half (47%) of the 297 recommendations with an addressee were a repetition, compared to over a third (39%) of the 214 recommendations without an addressee. More specifically, higher levels of repetition were observed for recommendations that were addressed to a department

that did not sponsor the CCC (53%, N=46 of 86) compared to those that were addressed to a sponsoring department (38%, N=15 of 39).

Second, the highest levels of repetition pertained to those that were focused on amongst the hardest-to-mitigate sectors, specifically the waste sector (52%, N=16 of 31), aviation (50%, N=4 of 8), agriculture and land use (48%, N=21 of 43), and surface transport (46%, N=36 of 76). Repeated recommendations within each of these sectors respectively advocated for (1) banning the landfill of biodegradable waste; (2) publishing an effective policy framework for aviation emissions; (3) developing a framework for monitoring and reducing agricultural emissions; and (4) addressing barriers to the uptake of electric vehicles.

Third, there was little difference in the respective rates of repetition across Fischer's four levels; however, the highest rate of repetition was at Fischer's level 4 where 55% (N=11 of 20) of recommendations at this level were a repetition. The lowest level of repetition was at level 3; 43% (N=41 of 96) of recommendations at this level were repetitions. Recommendations at levels 1 and/or 2 had similar rates of repetition at 48% (N=153 of 323) and 46% (N=189 of 415) respectively. Recommendations at the highest level of challenge were therefore repeated more than those that supported the policy status quo. Finally, a substantial 44% (N=109) of the 247 recommendations that contained multiple recommended actions were a repetition.

These cross-tabulations therefore indicate that the repetition of a recommendation was associated with its *addressee*, number of *recommended actions*, *sectoral focus*, and *level of challenge to the policy status quo*. The relationship between these characteristics and the government's written responses is explored in Chapter 7.

5.9.2. Adaptation

Cross-tabulations between *addressee* and *delivery targets* revealed that just over a third of the AC's adaptation recommendations that did not contain targets also did not have an addressee (38%, N=22 of 58). Moreover, two-thirds of the recommendations that had no addressee and no targets also contained multiple recommended actions (N=15 of 22). The combination of these three characteristics increased the ambiguity of recommendations because it was unclear who should deliver which recommended

action or when. Demonstrably, the following recommendation from 2011 had no addressee, no targets, and contained multiple recommended actions:

“Water companies have not yet made any specific investment in climate adaptation to tackle potential shortfalls in water supply. Delay of investment could lead to higher costs in the future or increased risks of water shortages. We identify scope to better manage the gap between supply and demand caused by climate change through *a greater level of ambition* on water efficiency programmes; *reforms to the abstraction regime* to reflect water scarcity; and *more robust approaches* to factoring climate change uncertainty into long-term investment planning.” (AC, 2011, p. 10, emphasis added to indicate each recommended action)

Further analysis revealed that recommendations with these three characteristics were all concentrated between 2010 and 2014. Comparably, between 2015 and 2020, 98.5% (N=132 of 134) of adaptation recommendations contained both a timescale for delivery and an addressee, predominantly a specified government department (N=121 of 132). Moreover, of the 68 recommendations with multiple recommended actions that were provided to the UK Parliament between 2015 and 2020, all were addressed to a specified government department and all but one additionally included a timescale for delivery. Demonstrably:

“Adaptation plans are needed to address the scale of climate risk that the UK faces from climate change impacts overseas. Cross-government working is required to develop and implement these plans. (Departmental owners – Defra, FCO, DIT, DfID, Home Office. Timescale – by 2021).”
(AC, 2019, p. 16)

Across all sectors, adaptation recommendations therefore became increasingly specific through the consistent inclusion of *delivery targets* and an *addressee* after 2015. This was attributed to the change in the AC’s presentation of its recommendations from paragraphs of text into a standardised table format that included the consistent indication of an addressee and delivery timescale for each recommendation.

Finally, cross-tabulations between *repetition* and the other five characteristics revealed two main insights. First, the sector with the highest proportion of repeated recommendations was buildings (73%, N=11 of 15). As set out in Section 5.8, these

repeated recommendations consistently advocated for the risk of overheating in buildings to be addressed through the introduction of a standard or regulation. Second, across the corpus, the highest level of repetition was for recommendations at levels 1 and/or 2 (49.5% and 50.4% respectively) compared to recommendations at levels 3 and/or 4 (33.3% and 31.3% respectively). Half of the repeated level 1 and/or 2 recommendations occurred in the 2020 report wherein the AC repeated two recommendations in each of the 14 tables addressed to different departments, described as ‘priorities for all departments’ that pertained to departmental adaptation planning and addressing the most urgent risks in the latest Climate Change Risk Assessment. Analysis therefore suggests that the repetition of recommendations was associated with their *sectoral focus* and *level of challenge to the policy status quo*, as explored further in Chapter 7.

5.10 Conclusions

This chapter has presented a content analysis of the characteristics of the CCC’s 700 mitigation and adaptation recommendations that it provided to the UK Parliament in its annual progress reports between 2009 and 2020. It has revealed three main findings.

First, the characteristics of the CCC’s recommendations exhibited marked interannual variation across the study period. How – if at all – the six characteristics were present in recommendations varied year-on-year. These fluctuations were associated with how recommendations were presented in the CCC’s reports. The organisation of recommendations in tables served to standardise if and how certain characteristics were attributed to each recommendation, particularly an addressee or specified timescale for delivery.

Second, mitigation and adaptation recommendations became more specific over the study period. This was demonstrated through a shift from recommendations primarily having no addressee or being addressed simply to ‘the government’ in the formative years of the CCC, to addressing recommendations to one or more specified government departments from the middle of the period. This was most prevalent in the 2020 report, wherein joint mitigation and adaptation recommendations were organised in tables, each addressed to one or more named departments for the first time. Over the same timeframe, recommendations increasingly included a timescale for their

delivery, though the notation varied from a specified year to a more qualitative indication of whether recommendations were short or longer-term priorities.

Third, despite the variations in the characteristics of the CCC's recommendations, analysis revealed that they were nevertheless relatively repetitious. No less than 43% of mitigation - and 42% of adaptation – recommendations were a repetition of a previous recommendation. Cross-tabulations revealed that, for both policy areas, the repetition of recommendations was associated with their *sectoral focus* and *level of challenge to the policy status quo*. For mitigation, recommendations were also more repetitious if they were addressed to a department that did not sponsor the CCC.

This chapter has therefore provided detailed insight into whether and how six characteristics of the CCC's recommendations changed over its first decade of operation, including a detailed account of their repetition for the first time. The next chapter presents the findings from a content analysis of the government's responses to the CCC's recommendations and interviews with staff from the CCC and the UK Government, to reveal *the extent to which* the CCC's recommendations influenced government policy over time. Chapter 7 returns to the characteristics presented in this chapter and reveals whether and how each one predicted acceptance, rejection, or non-committal responses from the government, alongside a broader consideration of other conditions that influenced whether and how climate recommendations were used by government officials.

Chapter 6

The CCC's recommendations: The extent of their (non-)use, 2009 to 2020

6.1 Introduction

The previous chapter demonstrated that the characteristics of the CCC's¹⁵ recommendations were variable over the study period; nevertheless, nearly half were repetitions. The third research question (RQ3) of this thesis therefore asks: *To what extent – and under what conditions – were the CCC's mitigation and adaptation recommendations used by the UK Government between 2009 and 2020?* As set out in Chapter 1, RQ3 is addressed over two empirical chapters. This chapter presents the findings from a content analysis of the government's responses to recommendations and interviews with relevant staff from the CCC and the UK Government¹⁶. It addresses *the extent to which* recommendations were of instrumental use, non-use, conceptual use, symbolic-political use, and imposed use to civil servants. Chapter 7 addresses *the conditions under which* recommendations were (not) used by government officials in each mode.

This current chapter is structured as follows. Section 6.2 reports the results from a content analysis of the government's written acceptance responses to recommendations as a proxy measure of instrumental use (Section 6.2.1.), and related findings from interviews (Section 6.2.2.). Section 6.3 does the same for non-use, taking rejection and non-committal responses as proxies. The remaining three modes of (non-)use are less quantifiable than instrumental use and non-use (see Chapters 2 and 3). Following the approaches of existing empirical studies on knowledge utilisation, the extent of the conceptual use, symbolic-political use, and imposed use of recommendations was explored through qualitative interviews, the findings of which are presented in Sections 6.4 to 6.6 respectively. Each section covers mitigation and then adaptation for clarity rather than a direct comparison between the policy areas. Section 6.7 concludes.

¹⁵ Throughout this thesis, unless stated otherwise, reference to the CCC includes its Adaptation Committee (AC).

¹⁶ All interviews took place between June and September 2023. Appendix 2 describes the interviewees. Appendix 3 summarises the interview schedule.

6.2 Instrumental use

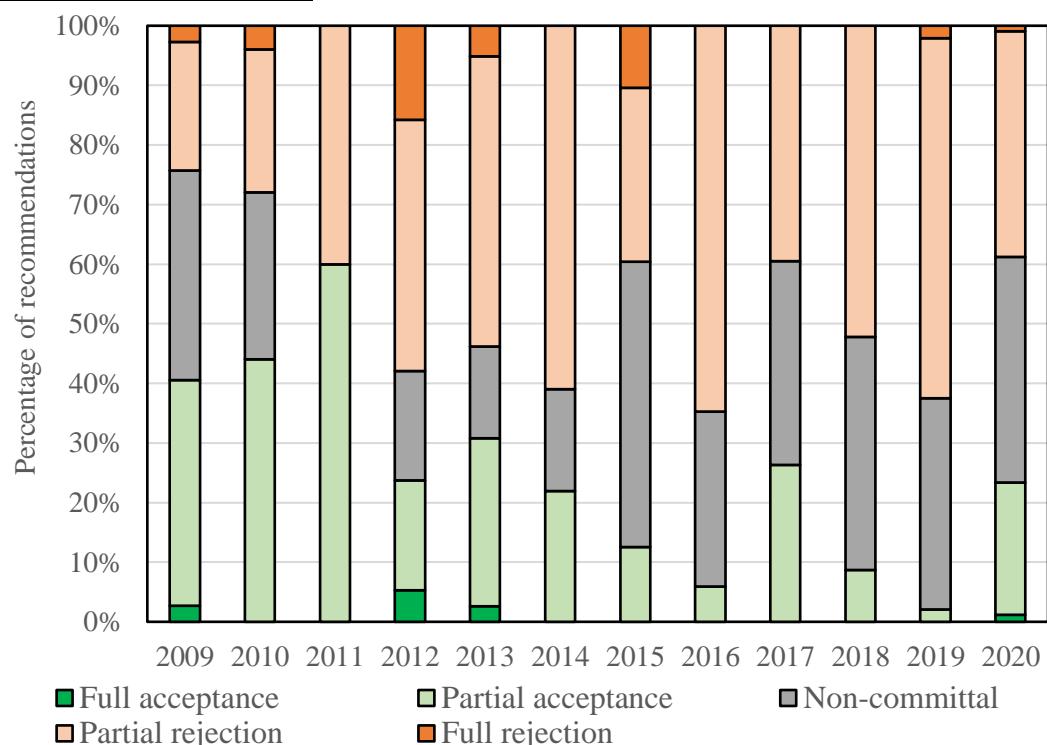
As set out in Chapter 2 the author defined instrumental use as *the documented acceptance of recommendations for the purpose of introducing, changing, or terminating policy*¹⁷.

6.2.1. Content analysis

Mitigation

Analysis of the UK Government's written responses to the CCC's 484¹⁸ mitigation recommendations revealed that, between 2009 and 2020, a fifth (22%, N=105) were accepted, of which only 1% (N=5) were accepted in full. A greater proportion of recommendations were accepted in the early years of the CCC (2009-2011) compared to the later years of the study period (2012-2020) (see Figure 6.1).

Figure 6.1 The proportion of the CCC's mitigation recommendations that received acceptance, rejection, or non-committal responses from the government each year, 2009 to 2020.



Source: author's own composition

¹⁷ The terms 'acceptance' and 'instrumental use' are therefore used interchangeably in this thesis.

¹⁸ As set out in Chapter 5 the CCC provided 511 mitigation recommendations to the UK Parliament between 2009 and 2020. 27 recommendations in the 2020 report were excluded from analysis because they were repeated verbatim; the government only provided a response to the first occurrence of each recommendation, which was coded (see Chapter 3).

Between 2009 and 2011, just under half (43%, N=29) of the 67 recommendations provided in these years were accepted by the government. Comparably, between 2012 and 2020, less than a fifth (18%, N=76 of 417) were accepted. For example, in 2019 only one recommendation of the 48 provided that year was accepted by the government. In that case, the CCC's recommendation for "formal inclusion [of aviation and shipping] in Climate Change Act targets" (CCC, 2019, p. 14) received a partial acceptance from the government because it recognized:

"...the importance of a good international inventory and [so] we are [...] minded to include these emissions in domestic legislation at a later date."

(HM Government, 2019b, p. 90)

The second lowest rate of acceptance was observed in 2016, when only two (5%) recommendations were partially accepted, one for the implementation of the Smart Inventory on agricultural emissions and the other for policies to increase the uptake of electric vehicles (HM Government, 2016).

Across the whole study period, only five (1%) of 484 mitigation recommendations were accepted in full by the UK Government. In these five responses, the government explicitly accepted the CCC's recommendation and often stated the primary motivation for acceptance as the work of the CCC and committed to future action. For example, in 2012 the CCC provided the recommendation to "Start the non-residential Green Deal no later than January 2013" (CCC, 2012b, p. 12). The government responded with acceptance in full:

"The Government accepts the CCC's recommendation. The non-domestic Green Deal will be available at the same time, the end of January 2013, as the domestic Green Deal." (HM Government, 2012, p. 26)

Predominantly, over the study period, mitigation recommendations tended to receive partial acceptances (N=100). In these responses, the government either: accepted the general thrust of the recommendation but not the specific details therein; indicated that its acceptance was associated with the work of a body other than the CCC; or accepted part of the recommendation but ignored another part of it. Demonstrably, in June 2013 the CCC provided the recommendation:

“Ensure measures are in place to adequately support fuel-poor electrically heated households, either within the Energy Company Obligation [ECO], or otherwise. Ensure that the [ECO] continues to the point where all fuel-poor households have benefitted from it, and address very high rates of fuel poverty found in the devolved administrations.” (CCC, 2013b, p. 14)

The government’s response was of partial agreement because it agreed with the overall thrust of the recommendation but indicated that it had already actioned the recommendation in response to the work from a body other than the CCC:

“The Government notes the CCC’s recommendation that measures should be in place to provide support for electrically heated fuel poor households [...]. The Government has now confirmed the decision to adopt a new indicator for the measurement of fuel poverty in response to the independent Hills Review of Fuel Poverty [published in September 2012].” (HM Government, 2013, pp. 24–25)

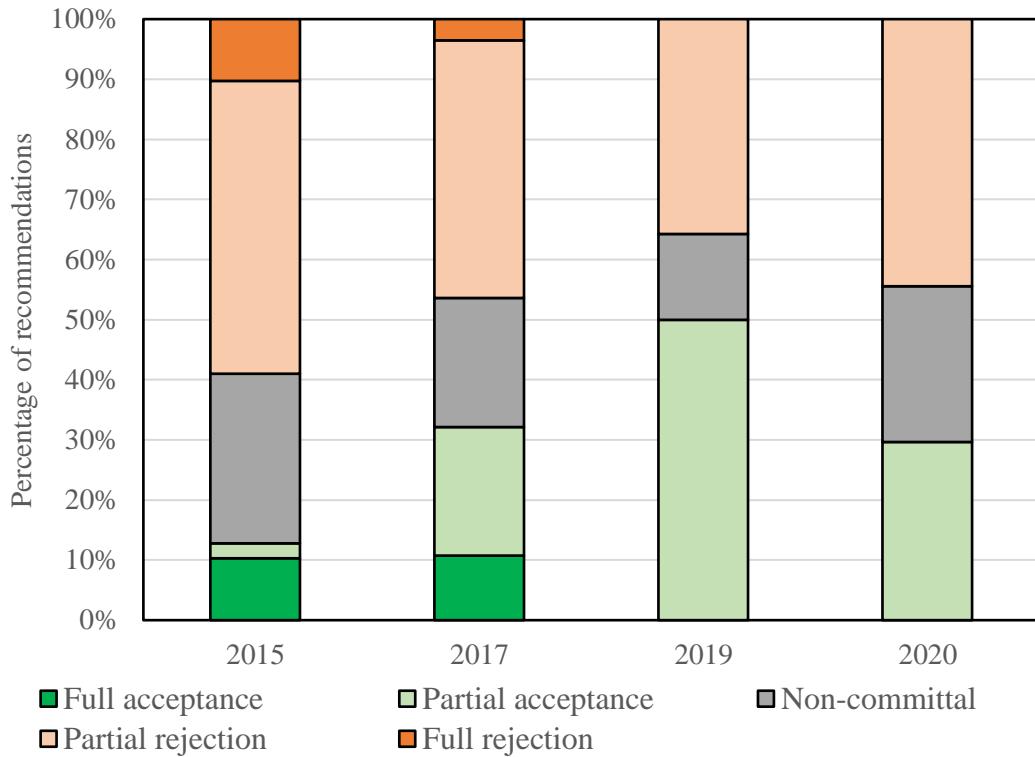
We now turn to consider the government’s written acceptance of the Adaptation Committee’s (AC) recommendations.

Adaptation

As set out in Chapter 5 the AC provided 189 recommendations to the UK Parliament between 2010 and 2020; however, the first statutory report to which the government was required to respond was in 2015 (HM Government, no date). Between 2015 and 2020, of the 108 adaptation recommendations to which the government responded, just over a quarter (27%, N=29) were accepted, of which seven (6%) were accepted in full.

As shown in Figure 6.2 the relative proportion of adaptation recommendations that received a full acceptance was comparable in 2015 (10.3%) and in 2017 (10.7%). Thereafter, the analysis did not reveal any further instances of either full acceptance or full rejection responses. Instead, the proportion of partial acceptance responses increased between 2015 and 2019 but declined in 2020.

Figure 6.2 The proportion of the AC's adaptation recommendations that received acceptance, rejection, or non-committal responses from the government each year, 2010 to 2020.



Source: author's own composition

Although 6% (N=7) of adaptation recommendations were accepted in full, these responses were only found in 2015 and 2017. Primarily they related to recommendations that pertained to the National Adaptation Programme (NAP), which the government had a statutory mandate to produce under the 2008 Climate Change Act (CCA). For example, in 2015 the AC put forward several recommendations on the NAP:

“The second [NAP] should set clear priorities for adaptation to make sure the most important and urgent issues are being addressed.” (AC, 2015, p. 19)

In its response, the government accepted this recommendation in full because it stated:

“We agree with the recommendation and fully intend to set clear adaptation priorities in the second NAP report”. (HM Government, 2015, p. 11)

In 2017 the AC provided a partial repetition of its 2015 recommendation on the NAP (AC, 2017, p. 46). In its response, the government again accepted the recommendation in full and recognized that:

“This reiterates the [AC’s] recommendations for the overall approach to the next NAP that were made in their first statutory assessment published in June 2015. [...] We agree that the next NAP should set clear priorities. Priority areas for action over the next five years have been identified in the second [Climate Change Risk Assessment (CCRA)]. These will be the focus as we develop the next NAP.” (HM Government, 2017, pp. 9–10)

Nevertheless, as with mitigation, adaptation recommendations predominantly received partial acceptances from the government (N=22), totalling 20% of all responses to the AC’s recommendations. In these responses, on balance, the government accepted part of a recommendation but ignored another aspect of it. Demonstrably, in 2017 the AC provided a long recommendation that contained three recommended actions that pertained to the second NAP: first, the recommendation called for the NAP to focus on “evidence and evaluation”, specifically work from “UK Research and Innovation (UKRI) and individual research councils to develop the evidence base” for the third CCRA; second, the recommendation called for “more attention [...] to the evaluation of existing policies and approaches”; third, “the costs and benefits of more ambitious policy options need to be considered and appraised” (AC, 2017, p. 17). The government’s response was one of partial acceptance because it agreed with the thrust of the first two recommended actions but ignored and did not address the third point about costs and benefits, as now demonstrated:

“We agree that there is an ongoing need for evidence and evaluation to inform policy development, risk assessment and the assessment of progress. [...] The appraisal of policy options and evaluation of existing policies is central to the ongoing work of government departments. [...] We agree [on] the need to work through and with others, including [UKRI], the research councils and the wider scientific community, in order to develop the evidence base for a robust CCRA3 in 2022.” (HM Government, 2017, pp. 10–11)

In summary, the content analyses indicate that the CCC’s mitigation and adaptation recommendations were of limited and intermittent instrumental use to government officials. This chapter now presents the results from qualitative interviews on the instrumental use of recommendations.

6.2.2. Interviews

Mitigation

The results from the content analysis set out in the previous section revealed that relatively more of the CCC's mitigation recommendations were accepted in the period 2009 to 2011 compared to 2012 to 2020. Analysis of interviews with longstanding members of the CCC supported these findings. Demonstrably a founding member of the CCC recalled that between 2008 and 2011 there was a "honeymoon period" during which a high proportion of the CCC's recommendations were accepted by the government (Interviewee 2, CCC). Indeed, during the first three years of the CCC's operation, there was:

"…a reluctance from the government to reject recommendations because of the fact the [CCA] had only been relatively recently agreed with a huge load of consent and they wanted to get things off to a positive start [...] so they wanted to accept, or at least not reject, [recommendations] where they could." (Interviewee 8, CCC)

After the CCC's provision of its fourth carbon budget advice in 2011 "all of a sudden, the honeymoon period where anything we said was accepted was over" (Interviewee 2, CCC). As detailed in Chapter 7, this decline in the government's acceptance of recommendations was associated with the CCC's shift away from the energy sector and towards harder-to-mitigate recommendations such as the buildings sector (Interviewee 8, CCC). Analysis of interview data therefore supported the findings from the content analysis that *the extent* of the instrumental use of mitigation recommendations varied over time and was greater in the first three years of the CCC's existence than in the rest of the study period (Interviewees 19, 21, and 27, CCC; Interviewee 22).

Despite the focus of this thesis on the CCC's recommendations that were contained in its annual progress reports (see Chapter 1), analysis revealed that interviewees consistently compared these recommendations to the CCC's carbon budget advice when reflecting on the extent to which they were of instrumental use. Interviewees predominantly reflected that the CCC's recommendations had been subject to less instrumental use than its carbon budget advice (Interviewees 20, 33-35, UK

Government; Interviewees 21-23, 25, and 27, CCC; Interviewee 32). As summarised by one government official:

“...it [was] much easier for the government to accept [the CCC’s] advice on setting the carbon budget [...] than to accept some of the individual recommendations [in its progress reports] [...] [because] setting the overall target [was] a lot easier than agreeing to specific policies.” (Interviewee 28, UK Government)

Similarly, one interviewee recalled that the CCC’s recommendations in its progress reports “had less success in landing with the government compared to the recommendations on the carbon budget itself” (Interviewee 25, CCC). The conditions for the instrumental use of recommendations are detailed in Chapter 7.

Adaptation

As set out in Section 6.2.1., the content analysis revealed that a quarter of adaptation recommendations were accepted by the government over the study period. Interviewees had very limited insight on whether adaptation recommendations were accepted by the government; instead, interviewees predominantly responded with observations and experiences of their non-use, as detailed in Section 6.3.2. (Interviewee 26, CCC; Interviewees 13 and 32).

This section has therefore revealed that the CCC’s recommendations on mitigation and adaptation were not typically – or consistently – accepted by the UK Government, and only rarely in full. The extent of the instrumental use of the CCC’s recommendations was therefore limited over the study period, the causal conditions for which are explored in Chapter 7. For now, this chapter pivots to present findings on the extent of non-use, drawing on quantitative and qualitative findings.

6.3 Non-use

As set out in Chapter 2, the author defined non-use as *the documented rejection or non-committal response to recommendations*¹⁹.

¹⁹ The terms ‘rejection’, ‘non-committal’ and ‘non-use’ are therefore used interchangeably throughout this thesis.

6.3.1. Content analysis

Mitigation

Between 2009 and 2020 nearly half (47%, N=226) of the CCC's 484 mitigation recommendations were rejected by the UK Government, of which 17 were rejected in full. A further third (32%, N=153) received a non-committal response. Over the study period, two-thirds of mitigation recommendations were therefore of non-use to civil servants in the UK Government, according to the definition of this thesis.

As shown in Figure 6.1 (see Section 6.2.1.), non-committal and rejection responses were predominant between 2009 and 2020 and the proportion of mitigation recommendations that received either of these responses increased over time. Between 2009 and 2011, just over half (57%, N=38) of the 67 recommendations in these years received a rejection or non-committal response. Comparably, between 2012 and 2020, 82% (N=341 of 417) of recommendations received either of these responses.

Recommendations that were rejected in full received a response wherein the government explicitly rejected or disagreed with the recommended action(s) therein. Demonstrably, in 2012 the CCC recommended that the government should “enforce the current motorway speed limit” (CCC, 2012b, p. 13). However, the government responded with a rejection in full, stating that it:

“...does not accept the CCC’s recommendation that the current motorway speed limit should be more rigorously enforced as a way of delivering carbon savings. Enforcement of the speed limit is an operational decision for the Police.” (HM Government, 2012, p. 36)

Predominantly, rejection responses to mitigation recommendations were partial (N=209) rather than full. In partial rejection responses, the government either claimed that the recommended action was not necessary because it was already being addressed by existing policies, provided information on existing policies that were not relevant to the recommendation, thereby ‘dodging it’, or explicitly rejected part of a recommendation but ignored another aspect of it (see Chapter 3). Demonstrably, in 2019 the CCC recommended: “Contingency plans for delayed or cancelled low-carbon generation projects” (CCC, 2019, p. 15). The government provided a page-long response that was indicative of a partial rejection because it primarily described

existing policies and provided additional information that ‘dodged’ the essence of the CCC’s recommendation, as now summarised:

“In the event of a delay or cancellation to a planned low-carbon generation project, there already exist market mechanisms, such as the Capacity Market (CM), to bring forward new capacity. [...] Additionally, the [Contracts for Difference] scheme is the government’s main mechanism for supporting new large-scale renewable electricity generation. [...] The UK’s newly built nuclear power plant, Hinkley Point C, remains on track. Earlier this year Hinkley Point C achieved its biggest milestone yet, J-zero, which is the completion of the common raft for the Unit 1 nuclear island. [...] To ensure that the UK has a credible plan to deliver future low-carbon capacity, the government recently published a number of consultations on new approaches to financing firm low-carbon generation projects.” (HM Government, 2019b, p. 30)

Analysis revealed that the remaining third of the CCC’s mitigation recommendations received a non-committal response from the government. As set out in Chapter 3, non-committal responses were characterized by an indication that the government would consider the recommendation but required further information before deciding whether to accept or reject it or through the acceptance of part of a recommendation but rejection of another part. Demonstrably, in 2013 the CCC recommended:

“Consider stronger levers to reduce the amount of biodegradable waste that is sent to landfill, including further provision by local authorities for separate collection of food waste, and review landfill bans on major sources of biodegradable waste.” (CCC, 2013b, p. 15)

The government’s response was non-committal because it explicitly accepted part of the recommendation and rejected another part of it:

“The Government agrees with the CCC that we need to reduce the amount of biodegradable waste sent to landfill. However, we do not agree that landfill bans are the best way to achieve this goal at present.” (HM Government, 2013, p. 47)

We now turn to consider the non-use of adaptation recommendations.

Adaptation

Of the AC's 108 adaptation recommendations that received a government response between 2015 and 2020, 53 were rejected and 26 received a non-committal response, meaning nearly three-quarters were of non-use to government officials.

As shown in Figure 6.2 (Section 6.2.1.), the relative proportion of these responses varied over time. Only five adaptation recommendations received a full rejection, four of which were in the government's first statutory response report in 2015. For example, in 2015 the AC recommended:

“...the Department for Communities and Local Government (DCLG) should develop an approach to assess whether systemic risk is increasing or reducing as a result of individual decisions on the location of new national infrastructure assets.” (AC, 2015, p. 21)

In its response the government rejected this recommendation in full; it cited a series of existing policy approaches that, in its view, were already delivering what the CCC had recommended and concluded that it therefore did “not believe an overarching national policy statement is necessary” (HM Government, 2015, p. 20).

Predominantly, as with mitigation, adaptation recommendations were partially rejected (N=48 of 108) by the government. In these cases, part of a recommendation was often rejected whilst another part was not addressed. Demonstrably, in 2015 the AC recommended:

“[The] DCLG should adopt and deliver a goal of reversing the decline in urban greenspace, and work with local authorities to begin delivering an implementation strategy by the time of the ASC's next report in 2017.” (AC, 2015, p. 22)

The government responded with a partial rejection:

“While we appreciate the [AC's] concern, the essence of this recommendation is already reflected in the strong national planning policy in place, local authorities' responsibilities for their areas and the tools available to communities to protect urban greenspace. National planning policy is already clear about the importance of green space and green

infrastructure and encourages its provision as part of new development.”
(HM Government, 2015, p. 25)

As an example of a non-committal response, in 2015 the AC recommended that:

“[The] DCLG should, before the [AC’s] next report in 2017, evaluate the latest evidence and subsequently introduce a new standard or regulation on reducing the risk of overheating in new homes.” (AC, 2015, p. 22)

The government’s response was non-committal because it stated that it would need further information before it could take a firm view on whether to accept the recommendation and so it did not commit to future action:

“The Government will consider potential research to understand better what an overheating standard might look like and the options to help industry and others address the risks. The Government also needs to know what the associated costs and benefits are before a decision can be made on how best to reduce the overheating risk.” (HM Government, 2015, p. 24)

The chapter now turns to present findings from qualitative interviews on the non-use of mitigation and adaptation recommendations.

6.3.2. Interviews

Mitigation

As set out in the previous section, the content analysis revealed that over two-thirds of the CCC’s mitigation recommendations were not used by the UK Government because they received either a rejection or non-committal response. The author’s analysis of qualitative interview data supported this finding. Demonstrably a longstanding member of the CCC’s Secretariat throughout the study period recalled:

“Our overall sense [was] that we [made] lots of good recommendations and then most of them [were] just ignored. [...] Fundamentally, if the government doesn’t want to do something, then us telling them to do it is not going to lead to them doing it. So, there [were] quite a few areas where we [made] recommendations, [for example] on dietary change and aviation demand, and we [knew] we [had] to make those recommendations because we [knew] they were the right thing to do, but we also [knew] that they were

not going to lead to anything [because they would be rejected].”
(Interviewee 23, CCC)

As shown in Figure 6.1, the proportion of mitigation recommendations that were of non-use increased between 2012 and 2020. This was supported by the reflections from longstanding CCC interviewees. Demonstrably, an experienced senior official of the CCC throughout the study period recalled that after the first three years of the CCC:

“[Its recommendations shifted from a focus on energy generation and it] got into issues around [the decarbonisation of] buildings and energy-intensive industry and jobs implications and potentially looking as if they (the government) were interfering with individual household decisions then it became more difficult for them [to accept the CCC’s recommendations] over time.” (Interviewee 8, CCC)

Many interviewees shared a sense of frustration at the non-use of the CCC’s recommendations (Interviewees 2-6, 8, 11, 14, and 19, CCC; Interviewee 27). As introduced in Section 6.2.2., there was a sense amongst some government interviewees that the CCC’s recommendations in their annual progress reports were “less influential” than its advice on carbon budgets (Interviewee 20, UK Government; also Interviewees 17 and 18, UK Government).

Adaptation

Analysis of interview data supported the findings from the content analysis that adaptation recommendations were predominantly of non-use between 2015 and 2020 (Interviewee 5, CCC; Interviewees 17, 18, 29 and 30, UK Government). Demonstrably, as reflected by one interviewee “there’s a whole list [of adaptation recommendations] where they just haven’t been accepted” by the government (Interviewee 13). Similarly, one government official recalled that, during the study period, “a lot” of the AC’s recommendations “were [either] not accepted or a direct answer was avoided”, and so its responses tended to be rejection or non-committal (Interviewee 15, UK Government).

This section has therefore confirmed the findings from the content analysis, that the CCC’s mitigation and adaptation recommendations were predominantly of non-use to civil servants. This chapter now turns to present findings on the extent to which

recommendations were of conceptual use, symbolic-political use, and imposed use by government officials during the study period.

6.4 Conceptual use

As set out in Chapter 2 the author defined conceptual use as *changes to the thoughts, attitudes, or framings of a particular policy problem and/or associated solutions over a protracted period*. The extent of the conceptual use of the CCC's recommendations was explored through qualitative interviews with people who worked for the CCC or the UK Government during the study period, respectively either writing or responding to its recommendations (see Chapter 3).

During each interview, the author presented the definition of conceptual use – as above – and asked interviewees to reflect on whether they had seen evidence of the conceptual use of the CCC's recommendations during the study period. Interviewees often replied in the affirmative and cited instances where its recommendations had been reflected in the work of other bodies as a demonstration of their conceptual use because, in their view, this indicated that the CCC had influenced the thinking or position of others. Demonstrably, Lord Deben, a longstanding Chairman of the CCC during the study period (2012-2023), gave a comprehensive account of the conceptual use of the CCC's recommendations:

“[The CCC] change[d] the views of people around [the government]. [...] It [was] not only directly advising government and opposition, but you (the CCC) [were] also creating a climate within which government and opposition can operate. So, others too [were] picking up these things so that they understand it. [...] You create the atmosphere in which the government is operating, and the opposition is operating and [...] that's part of what you do.” (Interviewee 16, CCC)

In another example, an experienced member of the CCC's Secretariat recalled that:

“...a lot of the evidence base that the CCC created, including [its] recommendations, [were] used by other groups for their own purposes in both directions of the argument [by Non-Governmental Organisations and industry] [...] so the CCC's recommendations [...] percolate[d] into the

debate quite effectively [...] through that sort of back door, in a sense, to view the landscape according to the CCC.” (Interviewee 2, CCC)

For some interviewees, the conceptual use of the CCC’s recommendations was more prevalent than instrumental use. Demonstrably, one senior government official during the study period reflected that:

“I think that the recommendations from the [CCC] have little or no direct effect on the government’s policy ambition. It has more of an indirect effect on government policy because its recommendations can be reported in the press and start to shift wider stakeholder views [on climate policy ambition] which can help the government to formulate policy [in the long term, due to increased stakeholder support] in combination with analyses and evidence from other sources. Do the CCC’s recommendations directly change the ambition of the government? No, I don’t think they do at all.” (Interviewee 18, UK Government)

Analysis of interview transcripts further revealed that, in some cases, the conceptual use of the CCC’s recommendations occurred before their instrumental use. Interviewees consistently reflected that the conceptual use of the CCC’s recommendations over several years slowly changed the thinking of government officials, as well as the public and industry, and, in some cases, the government accepted some of the CCC’s recommendations that it had previously rejected (Interviewees 2, 6, 9, 10, 14, 19, 23, and 26, CCC; Interviewee 33, UK Government; Interviewees 13 and 32). Demonstrably, a member of the CCC’s Secretariat explained that, beyond instrumental use, policy influence was:

“...also about describing a problem in a new way and getting your interpretation [...] accepted by the stakeholders. That’s a powerful way of having an impact [and] the CCC succeeded in that. [...] [Conceptual use] is part of that process of osmosis where the initial idea needs to be socialized and shared, so changing the way people think about the problem has to build and the consensus has to be reached [before it can be accepted].” (Interviewee 2, CCC)

Indeed, one senior member of the CCC reflected that “I think the influence of the CCC on wider public debate can’t be kind of overestimated, it’s been really important at that

higher level” (Interviewee 21, CCC; also Interviewee 25, CCC). As explained by a longstanding member of the CCC’s Secretariat, its recommendations:

“[Helped to] build the public case for climate action [and make climate change] a much more evidence-based, common-sense discussion [...]. I think that high-level strategic leadership [of the CCC’s recommendations] has been the real value of what the committee’s done.” (Interviewee 11, CCC)

Demonstrably, longstanding members of the CCC’s Secretariat cited the conceptual use of the CCC’s recommendations for the decarbonisation of the buildings sector. Throughout the study period, these recommendations were predominantly not used by government officials (as explained in Chapter 7). Nevertheless, some CCC interviewees identified that the conceptual use of these recommendations occurred in the space between their non-use and their eventual instrumental use. Demonstrably, an experienced member of the CCC’s Secretariat recollected that:

“[Over] 15 years of the CCC, some of the things that are now starting to bear fruit are things we’ve been chipping away at that entire time; I think buildings is a really good example of this [specifically heat pumps]. [...] [Some recommendations] are a slow burn [...] they take a long time [to be accepted].” (Interviewee 11, CCC; this view was also shared by Interviewees 10, 25 and 26, CCC)

For example, a longstanding member of the CCC’s Secretariat recalled that the CCC first recommended that the government should make decisions on the role of electrification and hydrogen in buildings decarbonisation by the mid-2020s in its ‘Next Steps for UK Heat Policy’ report (CCC, 2016c). This recommendation was subsequently repeated in its annual progress reports in 2017 (p. 17) and 2019 (p. 15). The interviewee reflected that since 2016:

“...there has been a journey [...] [for government to] talk about buildings decarbonisation and [increase its] willingness to at least put policies in place, which might be ineffective, but at least they’re trying. That’s been a journey and we’re still not at the end of the journey, but there’s been a lot of progress [in the thinking and understanding of government officials] behind the scenes, it just hasn’t come to fruition yet.” (Interviewee 23, CCC)

Although some interviewees had observed the conceptual use of the CCC's recommendations, others questioned whether conceptual use was indicative of policy influence:

“What exactly does [conceptual use] mean? It means people are paying attention to what the CCC has done, it doesn’t necessarily mean that something has changed immediately because of the CCC’s work”.
(Interviewee 9, CCC)

Other interviewees had observed conceptual use but noted that “in some cases, it is difficult to make a direct attribution” to policy influence because groups other than the CCC could provide the government with similar recommendations (Interviewee 15, UK Government; also Interviewee 20, UK Government). Indeed, one interviewee reflected on the conceptual use of the CCC’s recommendations that it:

“...certainly [was not] enough to overcome huge [government] inertia [...] but you have to have faith that the accumulation of the work, the pressure, the communication, the analysis and so on has some impact on the way people in government are thinking.” (Interviewee 27)

To summarize, this section has presented findings from analysis of interview data that revealed the CCC’s mitigation and adaptation recommendations were of conceptual use during the study period, particularly by changing the thinking of the government, industry, and the public over several years, particularly around heat pumps. The analysis also indicated that the conceptual use of recommendations sometimes occurred in the space between their non-use and their eventual instrumental use, as demonstrated further in Chapter 7.

6.5 Symbolic-political use

As set out in Chapter 2, the author defined symbolic-political use as *the use of recommendations to support, justify, or legitimize a preexisting policy preference or a decision that had already been made, or as ammunition in debates with opposition*. As with conceptual use, interviewees were presented with this definition and asked whether and how they had observed this during the study period.

Analysis revealed that the CCC's recommendations were primarily of symbolic-political use during internal negotiations within – and across – government departments, such as in funding bids to the Treasury (Interviewees 15, 20, 28, 30, 33-36, UK Government; Interviewee 11, CCC; Interviewees 24 and 31); however, some government interviewees did not recall using the CCC's recommendations in this way (Interviewees 17 and 18). Other government officials recalled the symbolic-political use of the CCC's recommendations to demonstrate leadership in a particular area, especially in the run-up to events that would attract media attention and public scrutiny such as a Conference of the Parties (COPs) when the government would consider “how can we demonstrate global leadership here?” (Interviewee 35, UK Government; also Interviewees 19, 23, and 25, CCC; Interviewees 27 and 31). In recognition that its recommendations could be of symbolic-political use to government officials, an experienced member of the CCC's Secretariat recalled that:

“The leadership of the CCC would talk regularly with the leadership of [the Department of Energy and Climate Change (DECC)] [...] and that would give a sense of where the politics lie, right? The politics between departments, the fights that are there, the things that are difficult and why some things aren't progressing [...] and then you could try and use the tools at your disposal which are your words on the page and the words that you say and who you say them to, to try and play into that field [...] so we were trying to understand from the politics where the art of the possible was.”
(Interviewee 11, CCC)

Analysis revealed that few interviewees recalled any instances of the political use of adaptation recommendations and that the symbolic use of adaptation recommendations had been limited. In a rare example, in 2019 the AC recommended:

“Adaptation must be integrated systematically into the 25-year Environment Plan goals and the Environmental Land Management Scheme (ELMS) outcomes.” (AC, 2019, p.16)

The recommendation initially received a partial acceptance from the government in its formal written response (HM Government, 2019a, p. 19) because it stated the:

“...government is also in agreement that climate change adaptation must be integrated systematically into [ELMS] [and] [...] government will continue to develop this important policy.”

Baroness Brown, a Chair of the AC over the study period (2017 onwards) reflected; however, that since 2019 that recommendation had been relegated to symbolic use because:

“We’re seeing the right words about adaptation being taken into account in the (ELMS) but it’s taking much longer to come through than anybody expected [...] we’re seeing words that adaptation is going to be key throughout [ELMS] but we’re not actually seeing yet the policy measures that demonstrate adaptation is really seen throughout.” (Interviewee 26, CCC)

In summary, analysis of interview transcripts revealed that interviewees had mixed views and experiences of the symbolic-political use of the CCC’s recommendations. Whilst some government officials had used recommendations during internal negotiations within or between departments, particularly in funding bids to the Treasury, others could not recall using recommendations in this way. Particularly on adaptation, analysis indicates that recommendations were not subject to political use but, on at least one occasion, they were of symbolic use. The conditions for symbolic-political use are set out in Chapter 7. This chapter now turns to present the extent of the final mode of (non-)use.

6.6 Imposed use

As set out in Chapter 2, the author defined imposed use as *the use of recommendations because it was mandated through formal institutional rules or powers*. As detailed in Chapter 4, despite much debate during the creation of the CCA about whether the CCC’s recommendations to the government should be mandatory, the CCC’s statutory advisory duties were such that it did not have any legal powers to force the government to accept its recommendations. Analysis of interview data confirmed that the CCC’s recommendations were not – and in fact *could* not – be of imposed use during the study period because of its legal underpinnings (Interviewees 2, 8, 10, 12, 21, and 23, CCC; Interviewees 20 and 33, UK Government). As summarised by one interviewee “the

committee can't make" the government accept its recommendations because "it isn't an executive part of the government" (Interviewee 4, CCC). Indeed, the government officials that responded to the CCC's recommendations:

"...had to think about other things, they [were] the ones who [were] ultimately politically responsible and they were not obliged under the CCA to accept all these detailed recommendations." (Interviewee 21, CCC)

The analysis further revealed that the CCC was conscious that it could not impose the use of its recommendations and sought to ensure that its recommendations were not used in that way. Lord Deben reflected that, over his tenure, he had been:

"...very tough about not having mission creep because the moment you (the CCC) move away from what the law says you are supposed to do you give opportunities for people to complain about what it is that you've done. [...] Not allowing mission creep was very important because if one had allowed mission creep then you (the CCC) would become a political figure and the independence of the CCC is hugely important." (Interviewee 16, CCC)

Moreover, one interviewee recalled a dynamic whereby the government reinforced its expectations that the CCC should:

"...never be getting above ourselves and thinking that we [were] the government of the country because we [weren't, we were] an advisory body [...] [and so] we should not be expecting slavish following [of our recommendations]. [...] If the government felt that we would stray too much, they would tell us 'This isn't your role, your role is an independent advisor to us' [...] [otherwise] we might have our knuckles wrapped. [...] The top civil servant in Number 10 could just have a conversation with our Chief Executive and say, 'Don't go too far, old boy'." (Interviewee 6, CCC)

Moreover, several interviewees reflected on whether the CCC's recommendations *should* be of imposed use. Analysis revealed that these reflections aligned with the debates in 2007 and 2008 around whether the CCC should be an advisory or policymaking body (see Chapter 4). Demonstrably, several interviewees shared the view that the CCC was:

“...not a policymaking body [...] it should be for the politicians, the government, to decide what it does [...] it was not for the committee to be designing policy, that was for the government.” (Interviewee 8, CCC)

Indeed, “the scenario where everything the CCC says just gets accepted... it would be unnatural, wouldn’t it?” (Interviewee 2, CCC). It was suggested that people outside the CCC “would wonder if the CCC [was] doing its job properly if every single recommendation” was accepted by the government (Interviewee 5, CCC). From the perspective of one government official, if the CCC could impose the use of its recommendations on the government:

“...that would be absolutely the wrong thing to do, these are political decisions, they are not for the CCC to make. It's fine for them to make recommendations. But ultimately [...] I don't think giving that level of legislative or legally backed power or authority to what is a technocratic and unelected body would be a sensible thing to do. [...] Otherwise, you're just outsourcing. You might as well not have an energy minister if they have to do what the CCC says, right? [...] And also, some of their recommendations, I think, aren't always that politically savvy or I wouldn't do it that way. So, I think, fine for them to give their view, but it's legitimate for ministers to ultimately have the power to judge which recommendations to [accept] and which not to.” (Interviewee 20, UK Government)

Consequently, one interviewee acknowledged that due to “the lack of statutory underpinning for accepting the recommendations that we made [...] our reports were somewhat repetitive” (Interviewee 10, CCC). Moreover, there were “lots of reasons” for the government not to accept the CCC’s recommendations and so, without being able to impose the use of its recommendations, it was “much harder” for the CCC to “force and catalyse a change” (Interviewee 10, CCC).

Analysis of interview data therefore revealed that the CCC’s recommendations were not of imposed use by government officials. Moreover, the CCA and the CCC’s statutory underpinnings prevented it from imposing the use of its recommendations on the government (see Chapter 4 for further detail).

6.7 Conclusions

In relation to the third research question of this thesis, this chapter has addressed *the extent* to which the CCC's recommendations were used in each of the five modes between 2009 and 2020. It has revealed four main findings.

First, over the study period, non-use was the most predominant mode; over two-thirds of mitigation, and nearly three-quarters of adaptation, recommendations received a non-committal or rejection response from the government. Predominantly, recommendations were partially rejected whereby the government would claim the recommended action was not needed because, in its view, existing policy was already delivering what the CCC had recommended. Combined insights from content analysis and analysis of interview data revealed that, for mitigation, the proportion of recommendations that were of non-use increased from just over half of recommendations between 2009 and 2011 to over three-quarters between 2012 and 2020. Analysis of interview data revealed that this coincided with a decline in the political consensus that had underpinned the creation of the CCA, and the CCC's shift to providing recommendations on harder-to-decarbonize sectors such as buildings, as explored further in Chapter 7.

Second, the instrumental use of recommendations was found to have been limited and intermittent across the study period; there was only one year in which acceptance accounted for more than half of the government's responses, namely in 2011 for mitigation and in 2019 for adaptation. Over the study period, only a third of mitigation and adaptation recommendations were of instrumental use, primarily indicated by a partial acceptance response from the government.

Third, analysis of interview data revealed that the CCC's mitigation recommendations were principally subject to political use over the period, particularly during internal negotiations within and between government departments. For adaptation, no interviewees recalled the political use of recommendations and there was only one recalled instance of the symbolic use of recommendations, namely in relation to the integration of adaptation into ELMS.

Finally, interviewees from the CCC and the government were unanimous that the CCC could not impose the use of its recommendations due to its legal underpinnings in the CCA that delineated its advisory functions from the policymaking role of the

government. Interestingly, several interviewees reflected on whether the CCC's recommendations *should* be of imposed use. Analysis revealed that the arguments raised during these interviews were tightly aligned with those raised by MPs and Peers during the creation of the CCA and the CCC, as set out in Chapter 4. Demonstrably, interviewees agreed that the CCC should not have the power to impose the use of its recommendations because the legal responsibility for meeting the targets in the CCA rested with the government. Instead of the CCC being able to impose the use of its recommendations, interviewees acknowledged that the government could accordingly decide which recommendations to accept and which to reject. The next chapter therefore pivots to address the second half of the third research question: *under what conditions* were the CCC's recommendations subject to each mode of (non-)use?

Chapter 7

The CCC's recommendations: The conditions for their (non-)use, 2009 to 2020

7.1 Introduction

The previous chapter presented findings on the extent to which the CCC's recommendations were of instrumental use, non-use, conceptual use, symbolic-political use, and imposed use between 2009 and 2020. It revealed that non-use was predominant, accounting for over two-thirds of recommendations. This chapter presents the findings from regression analysis and elite interviews on *the precise conditions under which* the CCC's recommendations were (not) used by the government. It provides an empirical test of the relevance of each of the four conditions in the conceptual framework, outlined in Chapter 2, for instrumental use, non-use, conceptual use, and symbolic-political use²⁰. It also presents several other conditions that were inductively revealed to be important for a given mode during the analysis of interview transcripts.

The remainder of this chapter unfolds as follows. Section 7.2 presents the results of regression analyses of the relationship between the six *recommendation characteristics*, identified in Chapters 2 and 5, and the instrumental use and non-use of recommendations²¹, as revealed in Chapter 6. The chapter then reports the findings from qualitative interviews²² with those working for the CCC or the UK Government; the interviews explored the endogenous and exogenous conditions²³ for instrumental use, non-use, conceptual use, and symbolic-political use, the findings of which are presented in Sections 7.3 to 7.6 respectively. Section 7.7 concludes. Amendments to the conceptual framework are offered in Chapter 8 based on the findings presented in this chapter.

²⁰ The previous chapter revealed that the CCC's recommendations were not of imposed use because the CCA did not grant the CCC relevant powers; this mode is therefore not analysed in this chapter.

²¹ The written acceptance of recommendations by the government was a proxy for instrumental use, and rejection and non-committal responses were proxies for non-use (see Chapters 2 and 3).

²² All interviews took place between June and September 2023. Appendix 2 describes the interviewees. Appendix 3 summarises the interview schedule.

²³ In this thesis 'endogenous' refers to characteristics that originate "from within" a recommendation (OED, no date c), and exogenous conditions describes those that originate "from outside" a recommendation (OED, no date d) (see Chapter 2).

7.2 The statistical significance of recommendation characteristics

7.2.1. Instrumental use

Regression analysis revealed that only one characteristic was a condition for the instrumental use of mitigation recommendations, as indicated by its statistical significance at the .05 level (see Table 7.1). Specifically, recommendations with a cross-sectoral focus were over four times more likely to be accepted by the government ($p=<.001$) than recommendations that addressed a specific sector.

The instrumental use of mitigation recommendations was revealed to be less likely under two conditions. First, if they were focused on the buildings sector, they were 53% less likely to be accepted than those focused on other sectors ($p=.033$). Second, if they included delivery targets, they were 59% less likely to be accepted than those without targets ($p=.002$).

The only predictor for the instrumental use of adaptation recommendations was *repetition*, whereby repeated recommendations were nearly five times more likely to be accepted than those provided for the first time ($p=.011$) (see Table 7.2).

7.2.2. Non-use

There are two proxies for non-use throughout this thesis, namely rejection and non-committal responses from the government (see Chapters 2 and 3). Regression analysis revealed that two characteristics were conditions for the rejection of mitigation recommendations (see Table 7.1). First, if recommendations were addressed to a government department that was not a sponsor of the CCC²⁴, they were two times more likely to be rejected than if they were addressed to a sponsoring department, simply ‘the government’, or had no addressee ($p=.011$). Second, if mitigation recommendations were focused on the waste sector, they were two times more likely to be rejected than recommendations focused on any other sector ($p=.047$). Although just outside the standard .05 level of significance, mitigation recommendations with

²⁴ Under the 2010 Framework Document (HM Government *et al.*, 2010, p. 7), government departments with lead responsibilities for mitigation and adaptation were assigned as sponsors of the CCC and AC respectively. Between 2009 and 2020 the AC was sponsored by the Department for Environment, Food and Rural Affairs (Defra). The CCC was sponsored by the Department for Energy and Climate Change (DECC) from 2009 to 2016 and then Department for Business, Energy, and Industry Strategy (BEIS) until 2023.

delivery targets were 1.5 times more likely to be rejected than those without targets ($p=.054$). The only predictor for a non-committal response to mitigation recommendations was a focus on the buildings sector ($p=.005$).

For adaptation, the only characteristic that predicted a rejection response was a focus on flood risk management; recommendations with this characteristic were over four times more likely to be rejected than recommendations focused on any other sector ($p=.016$). Rejection responses were less likely if adaptation recommendations were supportive of the policy status quo ($p=.021$). Although just outside the standard .05 level of significance, if recommendations included multiple recommended actions, they were two times more likely to be rejected than those that contained only one action ($p=.053$). None of the characteristics were predictors for non-committal responses to adaptation recommendations. Further, no single recommended action was a significant predictor for the instrumental use or non-use of recommendations in either policy area.

In summary, for mitigation, two characteristics were identified as conditions that either increased or decreased the likelihood of instrumental use, namely *sectoral focus* and the inclusion of *delivery targets*, whilst *addressee* and *sectoral focus* were conditions for non-use. For adaptation, the only condition for instrumental use was *repetition*; *sectoral focus* and *level of challenge to the policy status quo* were conditions for non-use. The Nagelkerke R² values estimated that the six characteristics in the mitigation regression models could explain between 9% and 19% of the variance in the government's responses to those recommendations. For adaptation, Nagelkerke R² values suggested that the four included characteristics could explain between 28% and 36% of the variance in responses (see Tables 7.1 and 7.2). These values indicate that the characteristics of recommendations did not solely determine the instrumental use or non-use of recommendations in either policy area. Therefore, this chapter moves to consider the findings from qualitative interviews on the endogenous and exogenous conditions for instrumental use, non-use, conceptual use, and symbolic-political use.

Table 7.1 Binary logistic models of the relationship between mitigation recommendation characteristics and government responses.

	Government response					
	Acceptance		Rejection		Non-committal	
	O.R.	S.E.	O.R.	S.E.	O.R.	S.E.
Addressee						
Addressed to a sponsor dept.	1.15	(0.45)	1.42	(0.36)	0.67	(0.37)
Addressed to a non-sponsor dept.	0.45	(0.42)	2.07**	(0.29)	0.75	(0.29)
Addressed to two or more depts.	1.47	(0.45)	0.74	(0.45)	0.94	(0.41)
Addressed to devolved administrations	0.95	(0.76)	0.66	(0.58)	1.61	(0.57)
Other addressee e.g., local authorities, regulators etc.	1.35	(0.74)	0.31	(0.64)	2.89	(0.57)
Addressed only to 'the government'	0.84	(0.35)	1.35	(0.27)	0.89	(0.27)
Sectoral focus						
Agriculture	0.85	(0.42)	1.01	(0.31)	1.20	(0.33)
Transport	1.10	(0.29)	1.11	(0.23)	0.92	(0.25)
Buildings	0.47*	(0.36)	0.85	(0.24)	2.02**	(0.25)
Energy	1.33	(0.28)	0.82	(0.24)	1.11	(0.26)
Industry	0.72	(0.36)	0.96	(0.27)	1.47	(0.29)
Waste	0.39	(0.59)	2.19*	(0.39)	0.73	(0.42)
Cross-sectoral	4.43***	(0.37)	0.36**	(0.34)	0.87	(0.34)
Delivery targets						
Recommendation has targets	0.41**	(0.30)	1.57	0.23	1.18	(0.25)
Repetition						
Recommendation was a repetition	1.24	(0.25)	0.86	0.20	0.99	(0.21)
Level of challenge to the policy status quo						
Supports the policy status quo	1.30	(0.25)	1.02	(0.22)	0.82	(0.21)
Challenges the policy status quo	1.07	(0.51)	0.51	(0.49)	1.95	(0.44)
Supports and challenges the policy status quo	1.02	(0.33)	1.12	(0.28)	0.84	(0.28)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Columns show the Odds Ratio (O.R.) and Standard Error (S.E.) in brackets.

Source: author's own composition

Continued overleaf

Table 7.1 continued.

	Government response					
	Acceptance		Rejection		Non-committal	
	O.R.	S.E.	O.R.	S.E.	O.R.	S.E.
Recommended action						
Plan for future	0.88	(0.42)	1.01	(0.33)	1.24	(0.33)
Increase ambition	1.07	(0.53)	0.44	(0.61)	1.55	(0.48)
New policy	0.82	(0.31)	1.34	(0.24)	0.96	(0.26)
Implement or extend existing policy	0.96	(0.55)	1.29	(0.44)	0.85	(0.47)
Provide funding	1.23	(0.44)	0.87	(0.38)	1.07	(0.41)
Evaluate existing policy	0.94	(0.39)	0.80	(0.32)	1.47	(0.33)
Engage with stakeholders	1.68	(0.50)	0.85	(0.51)	0.67	(0.55)
Multiple actions	1.10	(0.25)	0.95	(0.21)	1.13	(0.22)
Constant	0.31	(0.36)	0.46	(0.31)	0.60	(0.31)
Nagelkerke R²	0.19		0.15		0.09	
Number of recommendations	484		484		484	

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Columns show the Odds Ratio (O.R.) and Standard Error (S.E.) in brackets.

Source: author's own composition

Table 7.2 Binary logistic models of the relationship between adaptation recommendation characteristics and government responses.

	Government response					
	Acceptance		Rejection		Non-committal	
	O.R.	S.E.	O.R.	S.E.	O.R.	S.E.
Sectoral focus						
Water supply and demand	6.24	(1176.91)	2.79	(0.80)	0.60	(0.89)
Flood risk management	.000	(8238.38)	4.52*	(0.63)	0.76	(0.63)
Coasts and oceans	40.05	(1176.91)	0.37	(1.25)	1.07	(1.21)
Buildings	3.25	(1176.91)	0.78	(0.93)	4.40	(0.85)
Infrastructure	24.05	(1176.91)	0.65	(0.66)	0.97	(0.82)
Agriculture and land use	27.01	(1176.91)	1.33	(0.54)	0.18	(0.96)
Cross-sectoral	28.67	(1176.91)	0.59	(0.47)	0.74	(0.55)

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Columns show the Odds Ratio (O.R.) and Standard Error (S.E.) in brackets.

Source: author's own composition

Continued overleaf

Table 7.2 continued.

	Government response					
	Acceptance		Rejection		Non-committal	
	O.R.	S.E.	O.R.	S.E.	O.R.	S.E.
Recommended action						
Plan for future	7.75	(1.36)	0.41	(1.04)	0.63	(1.0)
Evaluate existing policy	0.77	(0.61)	1.56	(0.52)	0.76	(0.62)
New policy	0.62	(0.65)	0.62	(0.56)	2.01	(0.55)
Multiple actions	0.45	(0.53)	2.37	(0.45)	0.70	(0.51)
Level of challenge to the policy status quo						
Supports the policy status quo	1.83	(0.44)	0.40*	(0.39)	2.0	(0.50)
Challenges the policy status quo	0.49	(0.76)	1.86	(0.66)	0.80	(0.97)
Supports and challenges the policy status quo	1.50	(0.61)	0.99	(0.56)	0.69	(0.91)
Repetition						
Recommendation was a repetition	4.46**	(0.59)	0.40	(0.53)	0.57	(0.65)
Constant	0.02	(1176.91)	1.31	(0.49)	0.28	(0.57)
Nagelkerke R²	0.36		0.28		0.28	
Number of recommendations	108		108		108	

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Columns show the Odds Ratio (O.R.) and Standard error (S.E.) in brackets.

Source: author's own composition

7.3 Instrumental use

7.3.1. Recommendation characteristics

The previous section showed that only two characteristics were statistically significant predictors for the instrumental use of recommendations: a *cross-sectoral focus* for mitigation, and *repetition* for adaptation (see Section 7.2.1.). This section reports findings from qualitative interviews that develop and expand upon these results.

Cross-sectoral focus

Analysis of interview data confirmed that a cross-sectoral focus was indeed a condition for the instrumental use of recommendations. Interviewees underlined the relevance of this condition for both policy areas, stating that cross-sectoral recommendations

were ‘easier’ for the government to accept than those focused on a specific sector, “both in financial terms and political terms” (Interviewee 3, CCC; also Interviewee 25, CCC, and Interviewees 29 and 30, UK Government). A reason for this was that cross-sectoral recommendations tended to be “more qualitative and less quantitatively fixed” (Interviewee 24). Accepting cross-sectoral recommendations would therefore “tie [the government’s] hands less” than if it accepted sector-specific recommendations (Interviewee 27; also Interviewees 4 and 14, CCC, and Interviewee 29, UK Government).

Recommendation repetition

Qualitative interview data confirmed that *repetition* was a significant condition for the instrumental use of recommendations and expanded its relevance to both policy areas. It also revealed that repetition was a symptom of non-use because repetition followed previous rejection or non-committal responses from the government (Interviewees 1-9, 11, 12, 14, 19, 21-23 and 25, CCC; Interviewees 13, 22, 27 and 32).

Analysis of interview data revealed that there were three main reasons why repetition facilitated instrumental use. First, in the period between repetitions, stakeholder support for a recommendation could increase, as well as the weight of evidence following publications from the CCC or the Intergovernmental Panel on Climate Change (IPCC) (Interviewee 16, CCC; Interviewee 32). For these reasons, repeated recommendations were more likely to be accepted (Interviewees 22, 30 and 33, UK Government; Interviewees 3 and 10, CCC). As explained by one interviewee:

“The first time [the CCC gave a recommendation] we (the government) might think ‘this is probably a good idea, but the data is not good enough’ [to accept it]. And then the next [report] cycle round, maybe we’ve got another [Met Office] impact assessment or more data. Then the CCC can use that to strengthen their argument, and the government can see that [...] the evidence suggests [accepting the recommendation] is now sensible.”
(Interviewee 28, UK Government)

The second reason pertained to changes in the government that could occur in the period between repetitions; it was not necessarily “the same [government] apparatus” that received the repeated recommendation (Interviewee 12, CCC; also Interviewees 6, 8 and 12, CCC, and Interviewee 1). As such, if the CCC “chip[ped] away at

something long enough, a different minister [would] turn up" (Interviewee 29, UK Government; also Interviewees 4 and 11, CCC, and Interviewees 30 and 34, UK Government). Indeed, "a year later [...] ministers may have changed and there might be one that's more willing to accept the recommendation" (Interviewee 17, UK Government; also Interviewee 36, UK Government). The repetition of recommendations therefore had:

"...a performative element where, regardless of whether [the CCC thought] the recommendation [would] be effective in the near term [...] if the current government [did not] want to do it, a future government might be watching and think 'we'll do the things [recommended by the CCC] when we're in charge'." (Interviewee 23, CCC)

A third reason that was consistently emphasized by government interviewees pertained to the three months that the government had to provide a statutory response to the CCC's recommendations under the 2008 Climate Change Act (CCA). Government interviewees reported that three months did not provide officials with sufficient time to evaluate the implications of accepting a recommendation which meant that recommendations that were provided for the first time would often receive a rejection or non-committal response. *Repetition* was therefore a condition for instrumental use because civil servants had had more time to consider the recommendation and could accordingly provide internal advice to ministers to accept a recommendation when it was repeated (Interviewees 18, 20, 28, 30, 35 and 36, UK Government; Interviewees 6 and 25, CCC; Interviewee 31). In some cases, officials recalled advising their minister to accept a repeated recommendation because it was perceived to be "a problem that was not going away" (Interviewees 28, 30, and 31, UK Government). As such, if the CCC only provided a recommendation once and did not "follow it up" with a repetition then it was "not going to happen" (Interviewee 28, UK Government; also Interviewees 29 and 35, UK Government).

Support of the policy status quo

In this thesis, the policy status quo refers to existing government policies and the underpinning beliefs, values, and ideas (see Chapter 2). Regression analysis identified that support of the policy status quo reduced the likelihood that adaptation recommendations would be of non-use (see Table 7.2). Interviews added further

nuance to these results: many interviewees cited support of the policy status quo as a condition for the instrumental use of recommendations in both policy areas (Interviewees 2, 4, 5, 8, 9, 11, and 25, CCC; Interviewees 20, 29, 30 and 35, UK Government; Interviewees 1, 13, 31 and 32).

Predominantly, government interviewees reflected that support of the policy status quo facilitated instrumental use because the government's response needed to be "agreed collectively" across departments, coordinated by the relevant lead department for the policy area, via a write-round process (Interviewee 28, UK Government; also Interviewees 15, 20, 29 and 30, UK Government). As such, if the recommendation pertained to something which "was already government policy, then there could be no objection" (Interviewee 28, UK Government). Moreover, "if the government was already thinking in the way" recommended by the CCC then accepting the recommendation would not require "much change of direction" (Interviewee 28, UK Government). These considerations meant that recommendations that supported the policy status quo were ultimately "easier" for the government to accept (Interviewee 32). As described by one government official, expediency was "the main thing" that drove recommendation acceptance because:

"...if there [was] a policy in flight already and [the recommendation was] not going to significantly add to the cost of the policy, or even better might reduce the cost, and it [would not] significantly increase the time it [would take] to implement that policy then there was a rock-solid case [for acceptance]. [...] It was much, much, much easier [to accept that recommendation] than choose to do something new from scratch."

(Interviewee 30, UK Government)

This section has revealed that three endogenous characteristics were conditions for the instrumental use of recommendations in both policy areas: a *cross-sectoral focus*, *repetition*, and *support of the policy status quo*. We now turn to exogenous conditions.

7.3.2. Interactions with intended knowledge users

This condition described any interactions between knowledge producers and the intended user before the knowledge was formally provided (see Chapter 2). Analysis of interview data revealed that interactions with government officials facilitated

instrumental use for three reasons. First, meetings between the CCC and officials before the formal provision of recommendations enabled both sets of actors to understand the other’s position on a sector or policy (Interviewees 33 and 34, UK Government). These meetings therefore provided the CCC with the opportunity to consider “what might be more or less acceptable to the government” (Interviewee 25, CCC) and to consider whether to reframe its recommendations based on any objections raised by officials (Interviewees 6, 8, 23, and 25 CCC).

Second, as introduced in Section 7.3.1., the government only had a three-month period to respond to the CCC’s recommendations. The CCC would therefore meet formally with officials and ministers before the publication of a progress report to “warm them up a bit” to their forthcoming recommendations (Interviewee 13; also Interviewee 32). For some interviewees, these interactions were therefore “absolutely, definitely important” for facilitating acceptance (Interviewee 17, UK Government); however, “it would not have been acceptable for the government to reject recommendations based on a lack of engagement” (Interviewee 25, CCC).

Third, the previous section described that civil servants could produce internal advice for their minister to accept a recommendation. One objective of the CCC’s interactions with the government was therefore to garner support from “a sufficiently senior person” before a recommendation was formally provided to try to increase the likelihood of its acceptance (Interviewee 23, CCC). Indeed, without a senior official to “champion” a recommendation it was “never going to go anywhere” (Interviewee 28, UK Government). Demonstrably, as recalled by Interviewee 22, the government’s acceptance of some of the CCC’s “difficult recommendations” around flood defences required “a very strong personal accord with the people who were making the decision; [acceptance was about] relationship building”.

7.3.3. Prevailing policy context

This condition described the exogenous sociopolitical, technical, and financial considerations that contextualized and informed policymaking, including focusing events such as extreme weather events, and the priorities and commitments of incumbent governments (see Chapter 2).

Analysis of interview data revealed that existing policy commitments facilitated instrumental use in some cases. Demonstrably, in its first progress report in October 2009, the CCC recommended that the government should reform the UK's electricity market (CCC, 2009b, p. 11). In its response in January 2010, the government accepted this recommendation (HM Government, 2010b, pp. 28–29). Interviewees revealed that a predominant condition for acceptance was the legal requirement for the government to meet decarbonisation targets in the CCA and implement the 2009 European Renewable Energy Directive (Interviewee 33, UK Government). The Directive gave the government “a very, very high level of ambition for delivering renewable energy at a time of high political salience” (Interviewee 11, CCC). The CCA was “important and complementary” to the Directive because it “pointed in the same direction” and so the government “had to come up with a programme that would achieve” its commitments (Interviewee 33, UK Government).

In another example, the 2016 Brexit referendum changed the prevailing policy context and facilitated the acceptance of three longstanding agriculture and land-use recommendations, specifically on monitoring and reporting agricultural emissions and removing financial and non-financial barriers to tree planting, because:

“Coming out of Europe meant the government had to develop a new agricultural policy [to replace the EU Common Agricultural Policy], [...] that was the driver [of acceptance]. If we had remained in Europe, we’d probably be repeating those same recommendations now.” (Interviewee 14, CCC)

Finally, the analysis of interview transcripts further revealed that extreme weather events were a predominant condition for instrumental use. These events could increase the chance a minister would accept the CCC’s recommendations, especially if the government’s response was “due in a week where we’d had record temperatures and the public [were] saying ‘we really care about this’” (Interviewee 36, UK Government). Particularly for the acceptance of adaptation recommendations, extreme weather events:

“...really helped to get ministers on side if something was happening at the time or had happened in recent memory. So, I very clearly remember the times when my minister felt passionate and willing to make [adaptation] a

big part of her agenda and to go and persuade other ministers to take it seriously was when we had heat waves and flood events.” (Interviewee 30, UK Government)

Demonstrably, the AC repeated its recommendation to reduce the risk of overheating in buildings no less than 10 times between 2011 and 2020 (see Chapter 5) but each time it received non-committal and rejection responses (see Chapter 6). In 2021 the government published its Heat and Buildings Strategy which included a plan to reduce the risk of overheating in buildings, as long recommended by the AC (HM Government, 2021b). In this case, acceptance was influenced by increasing evidence of the effects of warmer summers on buildings from the IPCC and media coverage of extreme weather events (Interviewee 32), both of which “helped to reinforce the recommendation and push the government into a position where it felt like it had to do something [on overheating]” (Interviewee 26, CCC), particularly when the media reported high death rates during heat waves (Interviewee 13). Indeed, a government official reflected that:

“...heat waves helped us to influence the Heat and Buildings Strategy and the Future Homes Standard. [...] There were a couple of heat waves around that time [...] [and] the point was made quite clearly that not only were people dying in heat waves but there was an aggregate productivity loss to the economy and [heat waves] were getting some traction in the media. [...] So [acceptance] was due to a combination of those factors.” (Interviewee 30, UK Government)

Nevertheless, extreme weather events were a transient condition for instrumental use because they only “create[d] a moment of jeopardy for a month or so and then it bypass[ed]” (Interviewee 31; also Interviewees 34 and 35, UK Government). The following section presents the final condition for instrumental use.

7.3.4. Stakeholder support

Analysis of interview data inductively revealed a fourth condition of instrumental use that pertained to stakeholder support for the recommendation. As explained by a member of the AC, its recommendations:

“...might finally tip the balance [for acceptance], but [...] there had to be [...] a mountain of other persuasive recommendations [from stakeholders] pulling in that same direction to make it happen; [...] a single recommendation from the AC [was] not going to do it. [...] Most of the recommendations we made [...] had already been said by other people [...] we were just putting our collective shoulders to the wheel to reinforce points already made.” (Interviewee 7, CCC)

Analysis revealed that support from the public, business, and industry was particularly important for acceptance because their collective support indicated a “broader consensus behind a recommendation” which made “a lot of difference” to the likelihood it would be accepted (Interviewee 15, UK Government; also Interviewees 18 and 34, UK Government). If there was stakeholder support:

“...the government [was] more likely to come round to that view [...] [and accept the recommendation] [...] because the government is ultimately democratic and relies on consent to do anything and if there is no agreement from stakeholders then it will be harder to implement and it will be politically contentious and not delivered.” (Interviewee 35, UK Government)

As such, if there was “public demand” for a recommendation then it was more likely to be accepted (Interviewee 6, CCC), particularly if there was “constituency pressure” during extreme weather events (Interviewee 22). Government officials emphasized the influence of business and industry support on its acceptance of recommendations; “just having an external body say the government should do X wouldn’t be enough [for it to be accepted]” due to concerns about pushback from stakeholders (Interviewee 28, UK Government; also Interviewees 17 and 18, UK Government). On the other hand, if there was support for a recommendation from “multiple respectable sources, such as the Financial Times or The Economist”, as well as “other very credible, authoritative people saying the same thing”, then the government would:

“...take [the CCC’s recommendations] more seriously. [...] The CCC recommending something and no one else vocally supporting it [made] it much easier for the government to ignore a recommendation than if [...] the big business representative organizations and the [Non-Governmental

Organisations (NGOs)] and the energy companies all support[ed] it as well, then it was more likely to happen.” (Interviewee 29, UK Government)

Demonstrably, in the CCC’s 2019 (p. 14) and 2020 (p. 37) progress reports it recommended bringing forward a ban on new petrol and diesel vehicles to the early 2030s. A reason why the government accepted this recommendation was because there was support from industry. As described by one interviewee:

“If the government thought it was going to be unpopular, they wouldn’t have [accepted] it. But because we said they should do it and [...] people were pretty supportive across the auto industry [...] and we weren’t the only country considering this they thought ‘well, actually, yeah, we probably can do this’. [...] I don’t think our recommendation was sufficient, if we’d recommended it and the industry was hostile to it, it wouldn’t have happened.” (Interviewee 23, CCC)

As introduced in Section 7.3.3., a condition for the government’s acceptance of the CCC’s recommendation for Electricity Market Reform (EMR) was its prevailing domestic and international policy commitments. Analysis of interview data revealed that another condition was stakeholder support. As recalled by one interviewee, the CCC engaged with electricity companies, investor groups, and academics to galvanize support for EMR such that its recommendations would be “implementable for policymakers” because they had considered the needs and interests of multiple stakeholders (Interviewee 11, CCC). Stakeholder support therefore influenced acceptance in this case; however, the CCC was accordingly “one influence in the EMR process but not the only one” (Interviewee 23, CCC). Indeed, one government official felt that “it would be an overreach to say the CCC were instrumental in the policy design” of EMR, but the CCC was nevertheless “very helpful and supportive in making the general case for action on renewables and climate change” (Interviewee 33, UK Government). Moreover, “it would be a bit simplistic to say that EMR happened because the CCC recommended it” because, whilst “it was a recommendation that was followed [...] the government would have reformed the electricity market anyway” because there was support from the “government, Ofgem, and the National Grid” (Interviewee 20, UK Government). Future research might therefore extend this

analysis through a detailed network analysis to understand the influence of the CCC relative to other stakeholders for EMR (see Chapter 8).

7.4 Non-use

7.4.1. Recommendation characteristics

Three characteristics had statistically significant relationships with non-use: for mitigation, *addressee* and *sectoral focus* were significant, particularly a focus on buildings or waste; for adaptation, *sectoral focus*, particularly on flood risk management, and the *level of challenge to the policy status quo* (see Section 7.2.2.). This section reports findings from qualitative interviews that develop and expand upon these results.

Addressee

Regression analysis revealed that if mitigation recommendations were addressed to a department that did not sponsor the CCC, such as the transport or defence department, they were two times more likely to be rejected than if they were addressed to a sponsoring department or had no addressee. Analysis of interview data confirmed and expanded the relevance of this finding to both policy areas.

Whilst sponsor departments had legal responsibility for meeting the targets in the CCA (Interviewees 6 and 25, CCC; Interviewee 24), climate change was a “peripheral issue” for non-sponsoring departments (Interviewee 29, UK Government; also Interviewee 34, UK Government). Indeed, non-sponsoring departments had priorities other than climate change and so “the incentive on them to say ‘yes’” to the CCC’s recommendations was “much, much lower” than on the sponsor departments (Interviewee 28, UK Government). Non-sponsoring departments could also “dispute they [were] accountable” for delivering the CCC’s recommendations because they did not have the same legal responsibilities as sponsor departments (Interviewee 31; also Interviewees 6 and 8, CCC, and Interviewees 35 and 36, UK Government).

For adaptation, many interviewees identified that Defra, the AC’s sponsor department, often struggled to persuade non-sponsoring departments that climate change was a priority (Interviewees 5, 11, 21, 25 and 26, CCC; Interviewee 30, UK Government; Interviewee 31). Moreover, “it was very difficult for [the AC] to gain traction” with

non-sponsoring departments because they left “climate adaptation for Defra to pursue” (Interviewee 10, CCC).

Further, some government interviewees reflected that emissions reductions were needed across the economy under the CCA, but the distribution of reductions was perceived to be uneven across departments. As such, if the CCC recommended that a department should increase its policy ambition²⁵ it could be “politically unpalatable” and those recommendations were unlikely to be accepted (Interviewee 36, UK Government; also Interviewee 35, UK Government). Addressing recommendations to non-sponsoring departments was accordingly a condition for non-use due to their priorities, responsibilities, and interactions with the CCC.

Delivery targets

Regression analysis indicated that the inclusion of targets in mitigation recommendations would increase the likelihood of rejection; however, this was just outside the standard .05 level of significance (see Section 7.2.2.). Nevertheless, analysis of interview data revealed that the inclusion of targets in recommendations did in fact increase the likelihood of non-use in both policy areas.

Between 2010 and 2015 “there was a general neuralgia against targets”, both in principle and because the government was focused on austerity; if the CCC “were suggesting something with a target that needed more money, that was problematic” for acceptance, particularly because reduced civil service numbers in Defra meant that the CCC’s recommendations “were not falling on fertile ground; [...] our resources were shrinking and austerity was the priority” (Interviewee 28, UK Government). As described by one interviewee:

“[If recommendations contained targets] or had a funding commitment that you (the government) need to be spending ‘2 billion a year by 2025’ [...] unless you’re sure you’ve got the backing [from senior officials to accept the recommendation] then the response has to be no.” (Interviewee 24)

Moreover, if recommendations contained targets they were “more specific” and “more explicit” which “pushe[d] [the government] towards a rejection” (Interviewee 8, CCC; also Interviewees 2, 4, 11 and 19, CCC; Interviewee 29, UK Government; Interviewee

²⁵ Details withheld at the request of the interviewee to prevent their identification.

27). Some interviewees suggested this was because the government could be more easily held to account for delivering recommendations with targets and so “the easy response” was “just to say no” (Interviewees 6, CCC; also Interviewees 21 and 25, CCC, and Interviewees 20, 28, 29 and 35, UK Government) rather than “trying and failing” to deliver it (Interviewee 2, CCC; also Interviewee 29, UK Government, and Interviewee 31). As such, a civil servant was unlikely to advise their minister to accept a recommendation if it included targets, particularly if it was “politically impossible and politically undesirable” to deliver due to “political sensitivities” (Interviewee 29, UK Government). For example, if the government accepted a recommendation that contained a specified percentage emissions reduction target for a sector it would “start to cut away” at the cross-economy flexibility for meeting carbon budgets under the CCA and so these recommendations would be “less welcome” by the government (Interviewee 36, UK Government).

Sectoral focus

Regression analysis identified that if mitigation recommendations were focused on the waste sector, they were more likely to be of non-use. Interviewees did not provide any further insight on this finding because the waste sector was a “marginal” focus for the CCC (Interviewee 19, CCC; also Interviewee 21, CCC).

Comparably, in support of the regression findings, interviewees consistently identified the buildings sector as one of the most difficult sectors to decarbonize and, consequently, a sector for which the CCC had struggled to achieve traction (Interviewees 11, 12, 22, 23 and 27 CCC; Interviewee 24, UK Government; Interviewee 27) because it “impinge[d] much more on electoral politics than anything on the renewables or energy supply side” (Interviewee 21, CCC). A reason for this was that the initial investment costs and challenges of decarbonizing the buildings sector were:

“...more obvious to consumers and voters [compared to the initial costs of decarbonizing electricity generation] and so it was more difficult politically [to accept recommendations on the buildings sector].” (Interviewee 11, CCC)

For example, between 2009 and 2019 the government consistently rejected the CCC’s recommendations for policies to drive the replacement of domestic fossil fuel boilers

with alternative low-carbon heating systems such as heat pumps (CCC, 2009b, p. 23, 2013b, p. 14, 2016b, p. 16, 2017b, p. 17, 2018, p. 21, 2019, p. 15). Interviewees revealed that these recommendations were rejected, at least in part, because they would:

“...require [the public] to make an upfront investment in [...] the way they heat their home [...] and [the government] was very wary about being seen to be telling people what to do.” (Interviewee 8, CCC)

As such, there was an “intrinsic problem” with these recommendations (Interviewee 28, UK Government). There was also a “huge fossil fuel gas lobby and a boiler lobby” that were “trying to hang on to the status quo” (Interviewee 24; also Interviewees 19 and 25, CCC). A further condition for the rejection of the CCC’s recommendations on boiler replacement was that they were:

“...hugely contentious [...] the reality was a lot of [homeowners that had oil and gas boilers] were located in Conservative-voting rural constituencies and so a lot of MPs [were] lobbying to say, ‘don’t accept tough targets on boiler retrofits’.” (Interviewee 24)

Moreover, interviewees identified that house developers had “a longstanding objection” to the CCC’s recommendations on buildings because “developers don’t like too many regulatory hurdles, so the government felt [...] it should avoid putting more regulatory hurdles in their way” (Interviewee 9, CCC; also Interviewees 6 and 8, CCC). For example, in 2006 the government committed to ensuring new homes would be zero carbon from 2016 (Weaver, 2006). Although buildings regulations were tightened in 2010, the “2013 changes were less stringent than initially proposed” (CCC, 2014b, p. 34). The CCC therefore recommended the implementation of the Zero Carbon Homes (ZCH) Standard without further weakening (CCC, 2014b, p. 16, 2015b, p. 40); however, the government rejected these recommendations and the ZCH Standard:

“...got ditched by the Chancellor very quickly in 2015 [...] and that was all to do with developer costs and slowing down the new build housing market [...] because developers can say ‘well it’s a break on growth if you impose too high construction costs’. [...] So those [recommendations] are very, very hard to land and historically they have not landed.” (Interviewee 24)

A further reason why a focus on the buildings sector facilitated non-use was that, between 2009 and 2020, responsibility for the energy efficiency of buildings was “often the remit of the department [namely the Department for Communities and Local Government (DCLG)] that was not leading on climate change” and so there was “a long-running issue” of “unfulfilled recommendations” (Interviewee 5, CCC). A reason for this was that the DCLG reportedly:

“...didn’t see climate issues as being in their top five list of priorities [...] and DECC or BEIS as the sponsoring department were unable to move it up their priority list.” (Interviewee 25, CCC)

Having established the significance of interactions with government officials for the acceptance of recommendations (see Section 7.3.2.), some CCC interviewees recalled that they had difficulty securing meetings with DCLG and it was:

“...a more distant department [than its sponsor department]; we didn’t meet so regularly with [DCLG] officials, we didn’t meet nearly as regularly with [its] ministers.” (Interviewee 10, CCC)

Demonstrably, one interviewee reflected:

“[DCLG] just really didn’t get climate, they didn’t think it was important. So [in relation to the CCC’s recommendations on] building standards, ZCH, even the easy stuff ‘let’s make a new build home as good as it can be’ [...] they just didn’t really want to do it, they didn’t have people who wanted to engage on it [...] we couldn’t even really get meetings with the officials, let alone meetings where they agreed with us, let alone have [officials] persuade their minister that it was the right thing to do.” (Interviewee 23, CCC)

For adaptation, analysis of interview data confirmed that a focus on flood risk management was a condition for non-use for reasons that were similar to those for the buildings sector. First, the AC’s recommendations on incentivizing property-level flood resilience measures and investing in Sustainable Urban Drainage Systems (SUDS) were rejected by the government, in part because they “would all require shifting policy” (Interviewee 13). Second, if the AC’s recommendations on flood defences “require[d] a great deal of spending, there [was] a very, very high bar for them to be agreed” (Interviewee 29, UK Government; Interviewee 10, CCC). As such,

if the “money was not there [for new flood defences], it was not likely to be accepted” (Interviewee 17, UK Government; also Interviewee 15, UK Government and Interviewee 22). Further, “flood risk is a very politicized issue [...] and tackling it is a minefield of many different interests” (Interviewee 15, UK Government).

Demonstrably, in 2007 the Pitt Review, following heavy summer floods, recommended the introduction of a legal requirement for developers to install SUDS in new housing developments (Pitt, 2007). Although this was included in Schedule 3 of the 2010 Flood and Water Management Act (HM Government, 2010a), Schedule 3 was not ratified. The AC therefore made recommendations for the implementation of Schedule 3 in 2014 (p. 10), 2019 (p. 17), and 2020 (p. 35) that received rejection and non-committal responses from the government. One interviewee recalled that:

“There was a big impact on developers from introducing regulations around SUDS. [...] At the time DCLG were [...] being leaned on quite hard by the housing developers about the potential costs of having to install [SUDS] as part of new developments [...] so DCLG were very close to housing developers, they listened to their arguments [...] as opposed to what Sir Michael Pitt recommended in his report. [...] [The recommendation required] more expenditure from the developer side [...] [so it was] thrown out.” (Interviewee 10, CCC)

Having established *sectoral focus* as a condition for the non-use of recommendations in both policy areas, we now turn to consider other influential endogenous conditions.

Multiple recommended actions

Although just outside the standard .05 level of significance, regression analysis indicated that the inclusion of multiple actions in adaptation recommendations would increase the likelihood of rejection compared to recommendations that only contained one action (see Section 7.2.2.). Interviews not only confirmed this relationship but also revealed that it applied to mitigation. As explained by one government official, if a recommendation contained multiple recommended actions, then the government could:

“...just reject it because of one of the [sub-areas within] the recommendation. [...] And sometimes the flow of sub-recommendations

made sense to the people writing it but when the government read it, they didn't see that they worked together, or they had additional information that suggested they wouldn't work together so that would be another reason to reject it. [...] If [the CCC] had made three separate recommendations, they might get one of them accepted, whereas if [they] put all three together, then all of them [would] be rejected." (Interviewee 28, UK Government)

Put simply, if recommendations contained multiple recommended actions, then it increased the likelihood the government would consider them "undeliverable" and reject them (Interviewee 29, UK Government; also Interviewee 8, CCC).

Challenge to the policy status quo

Regression analysis revealed that recommendations in support of the policy status quo were less likely to be rejected (see Section 7.2.2.); no significant relationship was identified between those that challenged the policy status quo and any government response. Nevertheless, qualitative interview data revealed this to be a condition for non-use in both policy areas for four reasons.

First, existing government policy was the starting position for the government's responses to the CCC's recommendations "which is where the problem comes in about changing policy" (Interviewee 13; also Interviewee 8, CCC). As described previously, the government's response had to be agreed upon by departments via a write-round process and so "any change to current policy could be objected to by any department" (Interviewee 28, UK Government; also Interviewees 15, 18, and 34-36, UK Government, and Interviewee 24). One government official recalled that it was difficult for a recommendation that challenged the policy status quo to receive cross-government agreement because departments:

"...all had different policy priorities and [often] none of them [were] climate change [...] and [we had] the normal challenges of tight budgets, ministers wanting to make an impact whilst they were in office and trying to get things through as quickly as possible and with the minimum number of problems added to their delivery." (Interviewee 30, UK Government)

During the write-round process, "key Ministries [...] such as [DCLG] and the Treasury would often intervene and say [they were not] happy" for the government to accept a

recommendation from the CCC (Interviewee 24); non-committal and rejection responses were therefore a “negotiated middle ground” between the interests and priorities of different departments (Interviewee 18, UK Government). Indeed, if recommendations conflicted with the views of a minister or the party’s manifesto they tended to receive “a very strong rejection” (Interviewee 15, UK Government; also Interviewees 17, 30, 35 and 36, UK Government; Interviewees 1, 13 and 31). From the government’s perspective, if a recommendation was:

“...not in line with current policy [then the government was] much more likely to say no, and if there were countervailing forces then you’ll definitely say no. [...] On major policy changes ministers are really very, very reluctant to bring big changes [...] because by being ambitious they just get it in the neck from all sorts of stakeholders.” (Interviewee 28, UK Government)

Second, if recommendations called for the introduction of a new policy, regulation, or law then “unless a minister had already agreed to a change in policy” before the CCC recommended it, it was “much, much harder, almost impossible” for the government to accept it (Interviewee 13; also Interviewees 4 and 8, CCC) because of the personnel and funding required to introduce a new policy (Interviewees 18, 30 and 35, UK Government). Further, the UK Government’s legislation programme had a finite amount of parliamentary time (Interviewees 24, 29 and 30, UK Government; Interviewee 16, CCC). The CCC’s recommendations were therefore “competing with every other sector on getting parliamentary time” and “were likely to be turned down”: “if somebody else want[ed] a new regulation to improve the [National Health Service (NHS)], the NHS [would] always win” the parliamentary time over the CCC (Interviewee 29, UK Government; also Interviewee 18, UK Government). Moreover:

“...legislation is subject to very tight control by the Cabinet Office with cross-government Cabinet agreement so unless [an official could] secure that in advance of accepting a CCC recommendation [they] wouldn’t get away with saying ‘yes, we’ll regulate minimum standards for X’ [so those recommendations would be rejected].” (Interviewee 24)

Third, although the recommended action of providing funding for a new policy was not statistically significant for any government response (see Tables 7.1 and 7.2),

interviewees recalled that recommendations for the introduction of a new policy could have cost implications and the Treasury did not “want to spend money”, so that was “a really big factor in not wanting to accept recommendations for new policy” (Interviewee 17, UK Government; also Interviewee 18, UK Government). Consequently, the government would “just out of hand reject [...] recommendations if they were perceived as challenging economic growth” (Interviewee 1; also Interviewee 13) or if “the state, [...] voters, [...] or businesses would have to pay” for the new policy (Interviewee 28, UK Government). Moreover, as described by one interviewee:

“...the Treasury will adamantly not break the precedent that it is the Chancellor who retains the ultimate control of public spending and that’s delivered principally through three-year spending rounds. [...] That context really makes a lot of what the CCC recommend very difficult [to accept]; even if a departmental minister [wants to accept it] the Treasury won’t let you accept it, [officials] don’t have the policy powers to accept recommendations that [...] [require] money or new regulations.”
(Interviewee 24)

As such, if a recommendation “require[d] a significant change in spending” it was “probably not until the spending review that the government [might be able to accept it]” (Interviewee 5, CCC; also Interviewees 17 and 36, UK Government). Demonstrably, if the AC’s recommendations were provided:

“...outside of that short intensive period of deciding how money gets spent, then the reality is the government [was not] going to change the way that it spen[t] money on adaptation.” (Interviewee 30, UK Government; also Interviewee 14, CCC)

Finally, as detailed in Section 7.4.3., there was only a three-month period in which the government could respond to the CCC’s recommendations. Consequently, producing a response document “was the focus, rather than upending and changing what government was doing” which meant if a recommendation was “hard, expensive, and would take [a] long [time to implement] then it was really, really difficult [to accept]” (Interviewee 30, UK Government; also Interviewees 4, 5 and 23, CCC; Interviewees 28, 29 and 36, UK Government; Interviewees 17 and 31). Indeed, a commitment from the government to introduce a new policy required internal “negotiations over many,

many, many months” and that was “not really practical in the timescale of the government’s response to the CCC” (Interviewee 24; also Interviewees 20, 29, 30, 34, 35 and 36, UK Government). As such, the response:

“...would reflect what ministers had already decided to do. [...] [The recommendations] weren’t a trigger for new policy development that wasn’t already being considered. [...] The response to the [CCC’s] report was seen by ministers and [...] officials as a mechanistic process that just had to be done rather than something where you’re really looking at policy in a fundamental way in response to those recommendations [...] the timing dictates it had to be like that.” (Interviewee 20, UK Government)

We now turn to the penultimate condition for non-use.

7.4.2. Prevailing policy context

Two elements of the prevailing context were revealed to be conditions for non-use: the priorities of incumbent governments and existing policy commitments. One interviewee recalled:

“Since 2008 we’ve had the financial crisis, then Brexit, then the COVID-19 pandemic... there’s just been a series of really big things that have been very, very absorbing of government bandwidth and it’s been economically quite tough, so the willingness to take decisions on expensive bits of climate policy has, unsurprisingly, taken a bit of a hit.” (Interviewee 24)

For example, whilst Brexit provided an opportunity for the government to consider long-discussed agricultural policy changes and accept some of the CCC’s longstanding recommendations on agriculture and land-use (see Section 7.3.3.), other interviewees identified Brexit as a reason for the increased proportion of rejection and non-committal responses to the CCC’s recommendations after 2016 (see Chapter 6). This was because Brexit “simply [took] up all of the political space and all of the capacity to do anything that was difficult and controversial”, particularly on climate policy because it was a “difficult, expensive and long-term policy area” (Interviewee 27; also Interviewees 12 and 19, CCC; Interviewee 18, UK Government). Indeed, between 2016 and 2020, Brexit dominated “everything the government was thinking about” (Interviewee 34, UK Government).

Moreover, the extent to which senior government officials considered climate change a priority was identified as a condition for non-use because “civil servants might agree” with the CCC’s recommendation, “but at the end of the day, it was the ministers that decide[d]” which were accepted (Interviewees 14, CCC; also Interviewee 9, CCC; Interviewees 15, 17, 18, 28-30 and 33, UK Government; Interviewees 22). One interviewee recalled that “officials tried to put proposals to ministers [on adaptation] and ministers block[ed] them” (Interviewee 13). For adaptation, Defra Secretaries of State between 2009 and 2020 “tended [...] not to be as bought in [to climate change] as the ministers at the top of DECC and BEIS” (Interviewee 11, CCC). It was therefore difficult for officials to “persuade” some Secretariates of State to accept the AC’s recommendations because they did not believe that climate change was “a problem” (Interviewee 29, UK Government; also Interviewees 17 and 30, UK Government; Interviewees 13 and 22). Moreover, if Net Zero was not “a top five issue” for the incumbent Prime Minister then it was “very hard” for civil servants to “push” ministers to accept recommendations because the centre of government did not indicate that climate change was “an absolute massive priority” (Interviewee 34, UK Government).

The second aspect of the prevailing context that was revealed to be a condition for the non-use of adaptation recommendations was existing policy commitments, particularly those in the CCA. As described by Baroness Brown, a Chair of the AC during the study period (2017 onwards), the AC’s recommendations did not have “the same force of law” under the CCA as the CCC’s mitigation recommendations because there were no statutory targets for adaptation (Interviewee 26, CCC). Many interviewees therefore felt that adaptation was perceived as a lower priority for the government than mitigation (Interviewees 2, 3, 5, 7, 8, 11, and 26, CCC; Interviewee 30, UK Government; Interviewees 13 and 22). Demonstrably, without statutory targets, the Treasury did not have to “make funding available” for adaptation and there was a perception amongst some government officials that it was not “legally essential” to accept the AC’s recommendations (Interviewee 26, CCC; also Interviewee 16, CCC). Moreover, the absence of a statutory adaptation target, and the delayed requirement for the government to respond to the AC’s recommendations until 2015, made it:

“...much harder to define where the [AC] sat in the decision-making landscape [...] it was [perceived by some officials as] ‘just another body

with an opinion’ as opposed to [the government’s] statutory adviser that the [CCA] says the government had to respond to.” (Interviewee 2, CCC)

As a consequence of this policy context, the AC’s recommendations had “no teeth” and there was “no compulsion or incentive” for the government to accept them (Interviewee 7, CCC). This was echoed by another interviewee who recalled that:

“...adaptation hasn’t had that political impetus that has made the government nervous of disagreeing with the CCC. [...] What doesn’t happen, certainly on adaptation, is a diktat coming down from ministers about changing the level of ambition, that’s why nothing ever really changes, so you’ve got groups of officials trying to implement [the AC’s recommendations] but they’ve got very little room to manoeuvre if there’s no ministerial direction on changing policy. [...] Political interest in adaptation [...] is by far and away the most important and biggest driver [of non-use] [...] and there just hasn’t been notable interest [in adaptation] since 2012 compared to the five years previous to that.” (Interviewee 13)

We now turn to the final condition of non-use.

7.4.3. Response time

Analysis of interview data inductively revealed a third condition for non-use that pertained to the three months the government had to respond to the CCC’s recommendations. Interviewees consistently identified this as a condition for non-use (Interviewees 4 and 8, CCC; Interviewees 29, 30, 35 and 36, UK Government). This was because the response time did not “give the government the time or space to really engage with the CCC’s recommendations in a substantial way”, in part because “half of that time [was] parliamentary recess when ministers [were not] around” (Interviewee 20, UK Government). Moreover:

“...because the response represent[ed] HM Government [...] the [internal] clearance process absorb[ed] much of the back end, so policy teams often only had three or four weeks to respond to the recommendations.” (Interviewee 24; this view was also shared by Interviewees 15, 17, 18, 20, 24, 28, 29, 34-36, UK Government; Interviewee 31)

A further challenge for officials was that the CCC often provided hundreds of recommendations in its progress reports (as described in Chapter 5) which meant it was:

“...quite easy for ministers to glaze over a little bit; recommendation 243 [was] never going to get that much attention [...] when you’re giving that many recommendations.” (Interviewee 20, UK Government)

Relatedly, there was “always a really small team” in Defra tasked with coordinating the government’s responses to the AC’s adaptation recommendations (Interviewee 31). Rejection and non-committal responses could therefore reflect, at least in part given the preceding findings, that officials lacked the time and resources to undertake “a large piece of work” to “really grapple” with the recommendations, particularly when “there were so many” (Interviewee 31; also Interviewees 15, 18, 28, 30 and 36, UK Government and Interviewee 11, CCC).

7.5 Conceptual use

Throughout this thesis, conceptual use is defined as *changes to the thoughts, attitudes, or framings of a particular policy problem and/or associated solutions over a protracted period* (see Chapter 2).

7.5.1. Recommendation characteristics

Interview analysis revealed that *repetition* was a condition for conceptual use because it enabled the CCC to “nibble away” at the thinking of civil servants (Interviewee 6, CCC) and reinforce its recommendations in government “consciousness” over time (Interviewee 31). For example, the CCC recommended that emissions from international aviation and shipping should be included in the UK’s carbon budgets in its progress reports in 2019 (p. 14) and 2020 (p. 38). Although the government had informally accepted the recommendation during meetings with the CCC, it was reluctant to formally accept it in writing and so the CCC:

“...kept repeating it to make sure it [did not] slip away and [...] slide from being the consensus position. [...] I think an MP asked the question in Parliament ‘Does the government accept this from the CCC?’ and the minister said, ‘Yes but we’re not going to tie ourselves in legislation’ [...]”

so [we] did see a bit of an official acceptance even if it wasn't yet written down formally." (Interviewee 11, CCC)

In another example, an interviewee described that the AC's repetition of its recommendation to reduce overheating in buildings enabled its conceptual use because civil servants had:

"...been thinking about it for quite a long time [...] so there [was] that attrition [...] and it start[ed] to creep into the recommendations that [were] being made to ministers internally in their departments, [...] it gradually [became] part of normal conversation and [got] accepted, but [conceptual use was] a very slow way of getting [to acceptance]." (Interviewee 26, CCC)

As first introduced in Chapter 6, these examples further demonstrate the importance of repetition for conceptual use and, moreover, that in some cases conceptual use could precede the instrumental use of recommendations (see Chapter 8).

7.5.2. Recommendation dissemination

This condition describes formal dissemination, such as via the publication of reports, as well as informal dissemination, including via intermediary bodies and the media (see Chapter 2). Both forms of dissemination were revealed to facilitate conceptual use because the CCC was therefore "not just chipping away at the government [...] [but also] the [policy] landscape as a whole which includes businesses and public narratives" (Interviewee 11, CCC; also Interviewees 7, 16, CCC; Interviewee 29, UK Government). This was important in cases where a recommendation was not of instrumental use; the CCC could have a slow and indirect influence on government thinking through a "drip, drip, drip effect" whereby:

"...other actors [would] hear about [a recommendation] and maybe push it themselves [...] [so] there [was] the opportunity for industry associations to go and lobby the government on the same topic." (Interviewee 19, CCC)

The indirect dissemination of recommendations via intermediary actors was particularly important for adaptation due to its legal standing relative to mitigation (see Section 7.4.2.). As such the AC:

“...were much more reliant on getting [the] media, government and House of Commons’ committees and other people like that behind us [...] to echo our [recommendations] and add pressure to the government. [...] We [found] it very helpful for getting our message into government when [parliamentary committees] pick[ed] up our recommendations and help[ed] us to hammer them home, [...] those [were] very helpful mechanisms for us to keep pushing the message into government.” (Interviewee 26, CCC)

For example, Baroness Brown recalled that the AC’s recommendations on reducing overheating in buildings were “picked up” by technical experts from the Chartered Institution of Building Services Engineers who were serving on the committees developing building regulations (Interviewee 26, CCC). She therefore felt that the AC had been able to achieve:

“...influence through those people working on technical committees saying [the recommendation was] really important [...] [because] that means [the recommendation was] coming to the civil servants through those people saying it’s important. Those are important routes in [to government policy], it’s not all through ministers and the government. A lot of it is quite long-term working with civil servants or working with groups who work with civil servants to get those changes made.” (Interviewee 26, CCC)

Moreover, the CCC was able to achieve a slower and indirect influence on government policy by “chipping away” at government, industry, and public objections to recommendations (Interviewees 11 and 23, CCC). The CCC therefore shaped the thinking of actors in some areas by slowly “dripping” its recommendations into the media’s coverage of climate change which “help[ed] to gradually shift the government’s understanding of key issues, based on the evidence” (Interviewee 3, CCC). For example, the CCC repeated its recommendation on the deployment of heat pumps in its progress reports in 2013 (p. 14), 2016a (p. 16), 2017 (p. 17) and 2018 (p. 21), in other publications (CCC, 2016c), and through public radio interviews (Interviewee 3, CCC). Although these recommendations were “frequently rejected” between 2009 and 2020 they nevertheless “sat there as part of the public and private discourse” (Interviewee 25, CCC). The repeated dissemination of this

recommendation via multiple channels over time was an important condition for its conceptual use because:

“...it can take longer than the three months between the progress report and official government response allows for governments and the public to understand why that change is needed.” (Interviewee 25, CCC)

Indeed, after 2020 the government introduced policies that aimed to increase heat pump uptake across the housing stock, something that the CCC had “long pushed” (Interviewee 11, CCC). The conceptual use of the CCC’s recommendations was therefore further identified to precede their eventual acceptance in some cases (Chapter 8). We now turn to the final mode of symbolic-political use and its conditions.

7.6 Symbolic-political use

Throughout this thesis, symbolic-political use is defined as *the use of recommendations to support, justify, or legitimize a preexisting policy preference or a decision that had already been made, or as ammunition in debates with opposition* (see Chapter 2).

7.6.1. Prevailing policy context

This condition has so far been revealed to influence instrumental use (Section 7.3.3.) and non-use (Section 7.4.2.). The analysis revealed that events in the prevailing policy context could also facilitate the symbolic-political use of recommendations, particularly if the government could signal leadership in the run-up to a Conference of the Parties (COP) (Interviewee 35, UK Government; Interviewee 25, CCC). Demonstrably, the CCC’s recommendation to include aviation and shipping in the CCA was of symbolic-political use because:

“...the reason why we really succeeded in [getting that recommendation accepted in] 2020, apart from having chipped away over the years, was just because we had a moment of leverage and we used it. So, in 2020 there was meant to be COP26 in September [...] and obviously because the UK was COP President it didn’t want to be seen to be turning down our recommendations in this flagship report about bold decarbonisation, so we used that moment of maximum influence to really push for [the

recommendation to be accepted]. [...] We [...] made it maximally difficult for them to reject the advice and, because of the large amount of scrutiny they were under, they accepted it.” (Interviewee 23, CCC)

Nevertheless, the analysis revealed that whether the prevailing context was a condition for symbolic-political use was dependent on “which Prime Minister or Secretary of State you were engaging with” (Interviewee 27; also Interviewee 17, UK Government and Interviewee 31).

7.6.2. Government inertia

Analysis of interview data inductively revealed a second condition for symbolic-political use that was more predominant than the prevailing policy context, namely government inertia on climate change. Although the CCC was “never going to take [the government] to court for a judicial review” (Interviewee 6, CCC), its recommendations were used as “ammunition” in some court cases, initiated by NGOs, that alleged the government was not meeting its commitments under the CCA (Interviewees 6, 8 and 16, CCC), such as the government’s plans to build a third runway at Heathrow airport (Interviewee 5, CCC) (e.g., see Harrabin, 2020).

Analysis revealed that in some cases the CCC would have discussions with civil servants about whether it could make a recommendation to unlock desired progress in an area of inertia (Interviewee 19, CCC; also Interviewee 32). As described by one interviewee:

“...some of the recommendations were in [the progress report] to give power to the bits of the government machine that were trying to get something through. [...] [We] were trying to empower parts of Whitehall, which might be ministers, [...] officials, [...] or departments that were fighting to get this [recommendation] done [...] and often they [were] in a fight because they need[ed] to get money out of the Treasury as they did with EMR.” (Interviewee 11, CCC)

Similarly, as introduced in Chapter 6, government interviewees described how they would use the CCC’s recommendations when “negotiating with the Treasury” for funding in a particular sector and that its recommendations were “always extremely helpful in that respect” (Interviewee 33, UK Government; also Interviewees 15, 34,

and 36, UK Government; Interviewee 24). Demonstrably, one interviewee recalled that:

“Lord Deben even had one minister, whom I won’t name, saying “it is really helpful to have you telling me to do [these recommendations] because then I can say to other parts of the government, including the Treasury, ‘*I’m not just making this up, I’ve been told to do it by the CCC to meet our statutory targets*’. So [the recommendation provided] ammunition for a minister who was actually on our side and wanted to do something.” (Interviewee 4, CCC)

Government inertia also influenced the symbolic-political use of recommendations in inter - and intra - departmental policy negotiations. Officials observed that using the CCC’s recommendations during these negotiations added more “weight” to policy discussions than if a recommendation had been proposed internally because of the CCC’s reputation as a credible advisory body (Interviewee 36, UK Government; also Interviewee 35, UK Government, and Interviewee 31). For example, a government official recalled that the Heat and Buildings Strategy (HM Government, 2021b):

“...had been very Net Zero focused [...] [but] we were able to [...] influence both the [Department for Levelling Up, Housing and Communities (DLUC)²⁶] and BEIS [...] [by using] the CCC’s recommendations, and our own internal policy view as well, in a really useful way to apply pressure in a positive way to other government departments [to accept the AC’s recommendation] and build in things about overheating into other policies like the Future Homes Standard.” (Interviewee 30, UK Government)

In another example, in 2019 the CCC recommended the formal inclusion of emissions from international aviation and shipping in the CCA (CCC, 2019, p. 14). The government accepted this recommendation, in part because DECC were able to “use the fact the CCC had made that recommendation as extra argumentation in favour of moving in that direction” during its conversations with the Treasury and the Department for Transport which increased DECC’s “leverage” (Interviewee 28, UK Government).

²⁶ DCLG were renamed DLUC in 2021.

7.7 Conclusions

This chapter has presented the results of a mixed methods analysis of conditions for the instrumental use, non-use, conceptual use, and symbolic-political use of climate policy recommendations. It has set out four main findings. First, regression analysis revealed that some of the *recommendation characteristics* identified in Chapter 2 were conditions for instrumental use or non-use. The instrumental use of mitigation recommendations was more likely if they had a cross-sectoral focus; for adaptation, repetition was the *only* predictor of acceptance. Instrumental use was *less* likely if mitigation recommendations were focused on the buildings sector or included delivery targets. For mitigation, two characteristics predicted non-use: addressing recommendations to a department that did not have legal responsibility for climate change and focusing on the waste or buildings sectors. For adaptation, focusing on flood risk management predicted non-use, whilst supporting the policy status quo made non-use less likely.

Second, the characteristics of recommendations only accounted for an estimated 9% to 19% of the variance in government responses to mitigation recommendations, and between 28% and 36% for adaptation, as indicated by the Nagelkerke R^2 values for each regression model. This suggests that *recommendation characteristics* did not solely – or predominantly – determine the instrumental use or non-use of recommendations in either policy area.

Third, analysis of interview data revealed that conditions that were exogenous to recommendations had a marked influence on whether they were of instrumental use, non-use, conceptual use, or symbolic-political use by government officials. In many cases, interview data confirmed and expanded on the regression findings, particularly by extending the relevance of a characteristic to both policy areas, such as the importance of repetition for the government's acceptance of recommendations. There was only one instance of interviewees disconfirming the regression results, specifically that a focus on the waste sector was not a significant condition for the non-use of mitigation recommendations as had been indicated by the regression analysis.

Finally, analysis of interview data inductively revealed four new conditions that were not emphasized in the existing literature reviewed in Chapter 2, namely: *stakeholder support* and *repetition* for instrumental use, the government's *three-month statutory*

response time for non-use, and *government inertia* for symbolic-political use. The findings presented in this chapter have therefore clarified and expanded upon the author's original conceptualisation of the relationship between different conditions and the 'use' and non-use of recommendations, as set out in Chapter 2.

Chapters 4 to 7 have presented the empirical findings of this thesis. The next and final chapter returns to answer the three research questions, demonstrate the contributions of this thesis to existing knowledge, propose amendments to the conceptual framework based on the findings of this thesis, and recommend priority areas for future research.

Chapter 8

Conclusions

8.1 Introduction

This thesis has examined the statutory advisory functions of the UK Climate Change Committee (CCC), its policy recommendations, and their influence on government policy. It opened with Radaelli's fundamental challenge: to "develop an analytical treatment" of "*when and how* knowledge matters in the policy process" (Radaelli, 1995, p. 160). It has responded to this challenge in two main ways. First, through its conceptualization of the conditions that could facilitate the 'use' or non-use of climate policy recommendations. Second, through its longitudinal, mixed methods analysis that empirically tested these claims. By studying the CCC over an eleven-year period and empirically mobilizing the longstanding concept of knowledge utilisation, this thesis has demonstrated that its recommendations had a notable - if largely indirect - influence on mitigation and adaptation policy, but only under certain specific conditions. Existing climate advisory bodies cannot force governments to use their recommendations; this thesis therefore provides important insights into the precise conditions under which governments use their advice, if at all, and provides a new perspective on the 'black box' of government decision-making that determines whether, how, and why their recommendations are (not) used.

The remainder of this chapter unfolds as follows. Section 8.2. answers the three research questions (RQs) by drawing on the empirical findings presented in Chapters 4 to 7. Sections 8.3. and 8.4. set out the conceptual and methodological contributions of this thesis to existing literatures, particularly those addressing knowledge utilisation and public policy. Section 8.5. details the empirical contributions of this thesis that are derived from its empirical testing of the conceptual framework. Section 8.6. provides an amended conceptual framework based on the empirical findings from the author's mixed methods analysis. It identifies the specific conditions under which each of Weiss' five modes of (non-)use occur, thereby moving beyond the binary focus (on 'use' vs non-use) of existing research. Section 8.7. reflects on the limitations of this thesis and identifies five main areas of future research in this important and dynamic area of climate change governance.

8.2 The three research questions

RQ1: *What are the statutory advisory functions of the CCC and how were they formulated between 2007 and 2020?*

RQ1 was addressed through an analysis of over 300 documents published by the UK Government, UK Parliament, and the CCC between 2007 and 2020. The analysis identified – and traced the evolution of – three prominent parliamentary debates that shaped the CCC's statutory advisory functions²⁷ from 2007 to 2008 and were subsequently reinforced in documents published after 2009 (see Chapter 4).

First, the content analysis of parliamentary debates revealed that there was extensive debate over whether the government should be mandated to accept the CCC's advice. It was first raised in pre-legislative scrutiny of the 2007 Climate Change Bill by the Environment, Food and Rural Affairs (EFRA) Select Committee, which recommended the government should be required to accept the CCC's advice without debate to "establish the independence" of the CCC (EFRA Committee, 2007, p. 28). As the Bill progressed through both Houses of the UK Parliament, this remained a prominent point of contention spanning four recurring themes: the balance of power between the CCC and the government; the influence of the CCC and its recommendations on government policy; the independence of the CCC from the government; and political accountability for climate policy. Nevertheless, the government held firm: the CCC could advise on policy, but the government – and only the government - would ultimately decide on policy. This clear delineation of power between the CCC and the UK Government was reinforced in documents published by the CCC and the UK Government after the adoption of the CCA.

The content analysis revealed a second prominent area of debate: whether the CCC should have the legal powers to directly manipulate climate policy instruments, following the model of the UK Monetary Policy Committee, rather than simply advising on them. The debate focused on: the credibility of the CCC and the CCA, both contingent on whether the CCC or the government were responsible for "overseeing the entire [climate change] programme" (House of Lords, 2007g, cols

²⁷ Throughout this thesis, the term *function* refers to the "purpose or intended role" of the CCC (OED, no date e). *Advisory* describes having "the power to make recommendations, without necessarily being empowered to enforce them" (OED, no date b).

1206–1207); and concerns that climate policy decisions would become politicised and “de-democratised” if they were made by the CCC (House of Lords, 2008f, col. 1071). After all, the CCC was an unelected body that could not be held to account by Parliament or the public (House of Lords, 2008f, col. 1071). Again, the government held firm: as articulated by Phil Woolas, the then Minister of State in Defra, a reformulation of the CCC’s functions, such that it would directly manage climate policy instruments and targets, would “not [be] consistent” with the functions the government had envisaged for the CCC, specifically that “decisions on policy matters should be made by the Government, not the CCC” (House of Commons, 2008l, col. 164). Documents published by the UK Government and the CCC from 2009 to 2020 reinforced the delineation between the CCC’s advisory functions and the government’s policymaking functions.

The third and final area of debate pertained to whether the CCC should only advise on mitigation, or mitigation *and* adaptation. In the 2007 Bill, the CCC was required to advise on mitigation, primarily carbon budgets, and the Secretary of State was required to report to Parliament on adaptation “from time to time” (HM Government, 2007b, p. 79). Whether the CCC should advise on adaptation was a prominent area of debate following post-legislative scrutiny of the Bill, particularly in the Commons. Reformulations to its functions were debated and discarded, including that its mitigation advice should integrate adaptation instead of providing separate advice on adaptation, and that a separate body should advise on adaptation rather than the CCC. There were concerns amongst parliamentarians that advising on adaptation required additional skills, resources, and expertise; the CCC’s remit therefore risked becoming “unwieldy and unfocused” if it was expanded (House of Lords, 2008m, col. 1444).

Nevertheless, their Lordships succeeded in amending the Bill to create an Adaptation Sub-Committee (AC). The Commons amended the Bill further by transferring the function of reporting to Parliament on adaptation from the Secretary of State to the CCC. The AC was given functions to provide the CCC with “advice, analysis, information or other assistance” as required for the CCC to deliver its new function of advising Parliament on adaptation (House of Commons, 2008a, p. 48). Documents published by the CCC and the UK Government after 2008 confirmed that its function was indeed to provide advice on both mitigation *and* adaptation.

The 2008 CCA set out the CCC's²⁸ statutory advisory functions, namely to provide recommendations to the government on climate mitigation and adaptation (HM Government, 2008, pt. 2). The government was mandated to respond to the CCC's recommendations; however, the CCA did not grant the CCC any powers to force the government to accept its recommendations or to manipulate and manage climate policy instruments itself. The decision for how, if at all, the CCC's recommendations would be used rested solely with the government.

In summary, Chapter 1 began with the observation that the existing literature suggests that no existing climate advisory bodies have been delegated statutory policymaking functions (Averchenkova, Fankhauser and Finnegan, 2021, p. 1221). By tracing parliamentary debates over time, this thesis has revealed how and why the CCC has the statutory powers that it has, specifically why its recommendations "do not carry any statutory weight" (Averchenkova, Fankhauser and Finnegan, 2021, p. 1220). Crucially, two proposed policy functions for the CCC were not included in the CCA, namely for its recommendations to be mandatory for the government, and, relatedly, for it to be given the power and responsibility to manage climate policy instruments and targets directly. This thesis has also provided a first account of the parliamentary debates that preceded – and shaped – the creation of the AC. In answering this RQ1, the author has therefore provided detailed insight into why statutory policymaking functions are not automatically bestowed on new climate advisory bodies, as revealed in the case of the CCC, the oldest body of its kind. It has identified the factors that shaped the formulation of the CCC's statutory functions that may be relevant to climate advisory bodies in other countries, namely political demands for democratic accountability, transparency of decision-making, and preserving the balance of power between the government and its advisory bodies.

RQ2: To what extent, if at all, did the characteristics of the CCC's mitigation and adaptation recommendations change between 2009 and 2020?

This question was addressed through a detailed content analysis of the characteristics of the CCC's recommendations contained in its annual progress reports. The analysed characteristics were derived from those identified in Chapter 2, namely: *addressee, delivery targets, sectoral focus, recommended action, and level of challenge to the*

²⁸ Unless stated otherwise, hereon reference to the CCC includes its Adaptation Committee (AC).

policy status quo. A pilot exercise identified that some of the CCC's recommendations were repeated over time – both partially and verbatim – and so a sixth characteristic (*repetition*) was also analysed.

Chapter 5 presented the results of this analysis. For the first time, it identified that the CCC provided no fewer than 700 recommendations to the UK Parliament on mitigation (N=511) and adaptation (N=189) between 2009 and 2020. It revealed that the characteristics of its recommendations exhibited notable interannual variation both within – and across – the areas of mitigation and adaptation.

Three main changes were traced over a decade. First, the number of recommendations the CCC provided to the UK Parliament increased substantially over time. The 2009 report included no fewer than 37 mitigation recommendations, whereas the 2020 report included 135. On average the CCC provided 43 mitigation recommendations to the UK Parliament each year. Adaptation recommendations were found to be less numerous, with 21 in the AC's first report in 2010 and 53 in the 2020 report, and an average of only 16 adaptation recommendations per year. Notably, this trend continued after 2020; the CCC provided over 1000 recommendations to the UK Parliament in its annual progress reports between 2021 and 2023 (see Section 8.7.2.).

Second, the extent to which the CCC's recommendations exhibited these six characteristics varied over time. For example, in the latter half of the study period, mitigation recommendations became increasingly specific through the inclusion of a timescale for delivery and an addressee, primarily one or more specified government departments, though this had always been common practice for adaptation recommendations. In another example, across the period, adaptation recommendations were predominantly cross-sectoral and otherwise consistently focused on four sectors, namely infrastructure, water, buildings, and agriculture and land-use. For mitigation, the number and type of sectors that its recommendations addressed broadened from four in 2009 to ten in 2020. Two-thirds of the total number of cross-sectoral mitigation recommendations were in the 2020 report alone. Moreover, adaptation recommendations exhibited a greater challenge to the policy status quo in the CCC's first report than in its last, whereas the opposite was observed for mitigation.

Third, recommendations were nevertheless revealed to be relatively repetitious. No less than 43% of mitigation – and 42% of adaptation – recommendations were a

repetition of a previous recommendation. Cross-tabulations between characteristics revealed that, for both policy areas, recommendations with a specific sectoral focus or a higher challenge to the policy status quo were more frequently repeated. For mitigation, repeated recommendations were more likely to be addressed to a government department that did not sponsor the CCC under the 2010 Framework Document (HM Government *et al.*, 2010, p. 7), meaning it did not have lead responsibility for fulfilling the statutory targets in the CCA. Examples include the transport, health, and defence departments.

In response to RQ2, this thesis has provided the first systematic account of the CCC's recommendations over its first decade of operation and revealed that their characteristics exhibited notable interannual variability. Across the period, mitigation recommendations increasingly included a timescale for delivery and an addressee, whereas adaptation recommendations already included these earlier in the period. The analysis further revealed that recommendations were relatively repetitious and that higher levels of *repetition* were associated with different characteristics, primarily their specific *sectoral focus* and *level of challenge to the policy status quo*. The coded characteristics were used to address RQ2; they also provided data to address RQ3, to which we now turn.

RQ3: *To what extent – and under what conditions - were the CCC's mitigation and adaptation recommendations used by the UK Government between 2009 and 2020?*

This question was answered through a content analysis of the government's written responses to the CCC's recommendations, a regression analysis of the relationship between government responses and recommendation characteristics (revealed in answer to RQ2), and 36 semi-structured interviews with relevant elites and experts working for the CCC or the UK Government. Each analysis empirically mobilized aspects of the conceptual framework of this thesis, allowing the claims therein to be subjected to detailed empirical testing (see Section 8.5. for the specific empirical contributions of this research).

This question proved the most complex and challenging to answer because it directly addresses Radaelli's fundamental puzzle of “*when and how* knowledge matters in the policy process” (Radaelli, 1995, p. 160). RQ3 was therefore addressed over two chapters. Chapter 6 addressed the *extent* of (non-)use across all five modes and

provided three main findings. First, mitigation and adaptation recommendations were predominantly of non-use to government officials between 2009 and 2020, as measured through the proxies of rejection and non-committal responses to recommendations (see Chapters 2 and 3). Nearly half of all recommendations were rejected by the UK Government. A further third of mitigation – and a quarter of adaptation – recommendations received a non-committal response. Analysis of interview transcripts revealed that the repetition of recommendations was a symptom of non-use because it followed rejection or non-committal responses from the government. These findings aligned with the recollections of CCC staff. In an especially pertinent example, one staff member reflected that:

“Our overall sense [was] that we [made] lots of good recommendations and then most of them [were] just ignored. [...] Fundamentally, if the government doesn’t want to do something, then us telling them to do it is not going to lead to them doing it. So, there [were] quite a few areas where we [made] recommendations, [...] [and we knew] they were not going to lead to anything [because they would be rejected].” (Interviewee 23, CCC)

The analysis presented in Chapter 6 therefore provides the first detailed examination and demonstration of the non-use of the CCC’s recommendations, thereby lending empirical support to prevailing research which had observed in passing that its recommendations seemed to “have largely gone unheeded by [the] Government” (Averchenkova, Fankhauser and Finnegan, 2021, p. 1231).

Second, interviews revealed that the CCC’s recommendations nevertheless had an indirect influence on policy through the modes of conceptual use and symbolic-political use. On the former, CCC staff described that its recommendations shaped the thinking of government officials, the public, and industry over a longer period: they were described as “percolating” into policy via a “back door” (Interviewee 2, CCC). As regards symbolic-political use, civil servants repeatedly described how they used the CCC’s recommendations within Whitehall battles:

“Lord Deben even had one Minister, whom I won’t name, saying “it is really helpful to have you telling me to do [these recommendations] because then I can say to other parts of the government, including the Treasury, ‘I’m not just making this up, I’ve been told to do it by the CCC to meet our statutory

targets'. So [the recommendation provided] ammunition for a Minister who was actually on our side and wanted to do something." (Interviewee 4, CCC)

Some CCC interviewees recalled that they discussed with civil servants the recommendations that they could include in their progress reports to "give power to the bits of the government machine" that needed "to get money out of the Treasury" (Interviewee 11, CCC). Indeed, several civil servants reported how they had used the CCC's recommendations as 'leverage' when negotiating with the Treasury for funding in a particular sector (Interviewees 15 and 33-36, UK Government).

Third, many interviewees agreed that – precisely because the CCC lacked the statutory powers to force the government to accept its recommendations – their use could not be imposed. In claims reminiscent of those originally aired in the parliamentary debates before 2008 (revealed in answer to RQ1), some civil servants felt that imposed use would be "absolutely the wrong thing to do" because "it's legitimate for ministers to ultimately have the power to judge which recommendations to [accept] and which not to" (Interviewee 20, UK Government).

Chapter 7 reported findings on the *conditions under which* the CCC's recommendations were of instrumental use, non-use, conceptual use, and symbolic-political use to civil servants. It presented three main findings. First, each mode was revealed to occur under different conditions. For example, *recommendation characteristics* and *recommendation dissemination* were associated with conceptual use, whereas the conditions for symbolic-political use were the *prevailing policy context* and *government inertia*.

Second, in cases where different modes were influenced by the same condition, the detailed analysis identified and clarified the specific dimensions of the condition that were relevant to each mode, as detailed in Section 8.5. For example, the *prevailing policy context* was identified as a condition that affected all modes except conceptual use. This was because the wider policy context directly informed the use (or not) of recommendations in the short term rather than over the longer timeframe that underpinned conceptual use. Analysis of interview data further revealed its relevance for each mode: extreme weather events were perceived to be important for the instrumental use of adaptation recommendations, particularly to reduce the risk of overheating in buildings because heatwaves increased media coverage and public

pressure on the government in the short-term; the priorities of incumbent governments were thought to have facilitated non-use if they directed government resources away from climate change, such as under the Conservative Government's austerity programme between 2010 and 2015; and the occurrence of Conferences of the Parties (COPs) were thought to have been important for symbolic-political use, particularly if the government could signal its leadership in the run-up to a COP because it "didn't want to be seen" to be turning down CCC's recommendations (Interviewee 23, CCC).

Third, the legal framework underpinning the CCC (as revealed in answer to RQ1) was revealed to have had a lasting influence on whether, how, and why its recommendations were used by the UK Government. Most pertinently, there was a continuing perception amongst some CCC and government interviewees that adaptation had a lower standing in the CCA because there were no statutory national targets for adaptation equivalent to the carbon budgets for mitigation; interviewees identified the lower legal prominence of adaptation as a condition for non-use because, without statutory targets, the Treasury did not have to "make funding available" and some government officials felt it was not "legally essential" to accept the AC's adaptation recommendations (Interviewee 26, CCC). This confirms Owens' (2015, p. 126) assertion, stated in Chapter 1, that the "practices and characteristics of advisory bodies that endow them with authority – or not" can provide a "fruitful line of enquiry" for research on the influence of policy recommendations. Specifically, this thesis' initial analysis of the CCA revealed that the CCC was not endowed with the powers to force the acceptance of its recommendations and that adaptation was not intended to be its core focus. Subsequent analysis revealed that the CCC's statutory underpinnings facilitated the non-use of its recommendations, particularly on adaptation. This was due to an absence of a statutory target equivalent to mitigation, and a delayed requirement for the government to respond to adaptation recommendations until 2015, which meant the AC was perceived by some officials as "'just another body with an opinion'" (Interviewee 2, CCC).

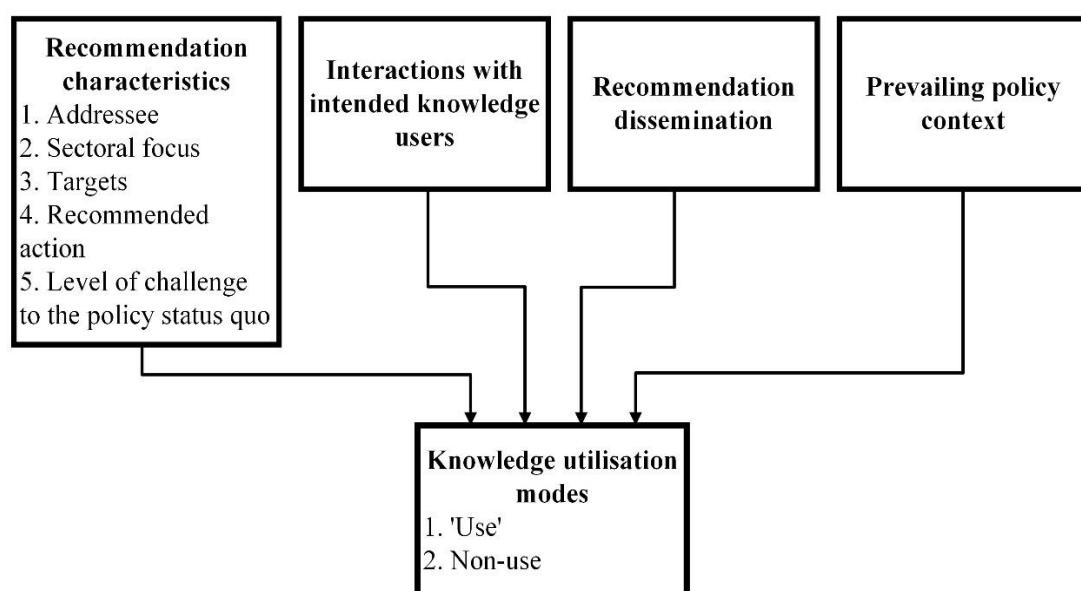
In answering RQ3, this thesis has revealed that knowledge – in the form of climate policy recommendations – can influence government policy under certain specific conditions that are relevant to instrumental use, conceptual use, and symbolic-political use. It also revealed that recommendations were of non-use to government officials for many reasons including a lack of stakeholder support, the absence of legal

responsibility for meeting statutory targets in some departments, and the perceived negative impacts on the electorate from the acceptance of recommendations in certain sectors, such as increasing domestic heat pump uptake. The following sections detail the conceptual, methodological, and empirical contributions of the findings presented in Chapters 2, 4, 5, 6 and 7.

8.3 Conceptual contributions

The primary contribution of Chapter 2 was to provide an original conceptual framework through which the author could respond to Radaelli's (1995, p. 160) "theoretical challenge" of determining "*when and how* knowledge matters in the policy process." It did so by providing a first review and synthesis of previously disparate works of literature on knowledge utilisation and climate policy. It combined insights from these existing literatures to derive one endogenous, and three exogenous, conditions that could be expected to facilitate the 'use' or non-use of climate policy recommendations, namely *recommendation characteristics*, *interactions with intended knowledge users*, *recommendation dissemination* and *the prevailing policy context* (see Figure 8.1). The existing empirical research reviewed in Chapter 2 was focused on the 'use', 'usability', or 'uptake' of knowledge rather than a specific mode of knowledge utilisation. Figure 8.1 therefore reflected this dichotomy (of 'use' vs. non-use) to demonstrate existing understandings of this topic.

Figure 8.1 The conceptual framework.



Source: author's own composition (see also Figure 2.1, Chapter 2)

The purpose of Figure 8.1 was to provide a novel conceptualization of whether and why policy recommendations could be used by government officials. It provided a first synthesis of previously disparate literatures to derive an understanding of what conditions might contribute to the government using (or not) climate policy recommendations. The conceptual framework therefore provided a “coherent framing” for the author’s methodological decisions and interpretation of empirical findings (Owens, 2015, p. 4). This contributes to existing knowledge utilisation studies which “tend towards abstraction” because few combined a conceptual framework with rich empirical insights (*ibid*), as in this thesis. The framework was subsequently subject to a detailed, multi-method empirical interrogation to identify and delineate the specific conditions under which each of Weiss’ four modes of use are more likely to occur.

8.4 Methodological contributions

The methodological contributions of this thesis were related to the data collection and analysis that was undertaken to empirically test the conceptual framework. For the first time, the author developed a novel and in-depth mixed methods approach to study the five modes of (non-)use and each of their conditions. This went beyond the standard methodological approaches of existing knowledge utilisation studies which tended to apply one, often qualitative, method to study one mode in isolation, rather than undertaking mixed methods and/or studying more than one mode at the same time (see Chapter 3).

This thesis combined insights from content analysis, regression analysis, and 36 semi-structured elite and expert interviews with people who worked for the CCC or the UK Government between 2009 and 2020. This methodology included – but went beyond – a content analysis of the government’s written responses to the CCC’s recommendations because that alone is a “poor register of influence” (Bates, 1985, p. 50). The mixed methods approach was therefore novel and beneficial because it allowed the author to empirically investigate all five modes of (non-)use and their causal conditions through appropriate methods. For example, qualitative interviews were undertaken to elicit data on the modes and their conditions that were indicative of “less quantifiable forms of influence” (Russell and Benton, 2011, p. 72), such as conceptual use which is less “immediate and observable” than instrumental use (Bober and Bartlett, 2004, p. 365). It also allowed the author to triangulate the findings from

quantitative and qualitative methods and thereby gain different perspectives on this complex phenomenon and cross-check the findings to increase their validity (Bryman, 2016, p. 697).

This thesis contributed to existing research on the influence of the CCC which has tended to focus on the acceptance of its carbon budget advice rather than examine the influence of its policy recommendations that are designed to meet those targets (see Chapter 1). Before this thesis, there was no systematic, longitudinal account of *what* recommendations the CCC had provided to national policymakers, how - if at all - their *characteristics* had changed over time, or what *influence* - if any - they had on government policy. The mixed methods methodology of this thesis therefore enabled the author to undertake a detailed and comprehensive analysis of these notably understudied elements.

A further contribution was to collect and analyse data from interviews with 13 government officials who contributed to writing the government's official responses to the CCC's recommendations over the study period (see Chapters 6 and 7). For the first time, the perspective of these actors was documented through a dedicated and thorough snowball sampling approach. Many interviewed CCC staff did not have any insight into how the government's responses to their recommendations were produced or by whom. The understandings gained from these interviews are therefore notable, not least because the government's response documents were entirely anonymous, and no existing studies were found that had interviewed the civil servants that had produced official government responses to the CCC's recommendations. Through its mixed methods methodology, this thesis therefore offers a glimpse into the 'black box' of the internal politics, motivations, and preferences of government officials that were revealed to determine whether, how, and why climate policy recommendations were (not) used during the study period.

More specifically, this thesis has made four methodological contributions to existing public policy research that analysed a government's written responses to recommendations. First, the author developed a systematic content analysis methodology that enabled data on all five *recommendation characteristics* in the conceptual framework to be collected and analysed. The methodology included deductively developing original codebooks from the literature reviewed in Chapter 2,

and subsequently refining them during the content analysis (see Appendix 5). The in-depth methodology offered in Chapter 3 goes beyond the methodologies of existing studies on this topic which tend to provide a high-level description of the characteristics they coded rather than a detailed, transparent, and replicable methodology (Mayring, 2000; Saldana, 2013; Neuendorf, 2020 e.g., see Benton and Russell, 2013).

A second contribution was to collect and analyse data on three *recommendation characteristics* for the first time, namely: their *sectoral focus*, whether they contained *delivery targets*, and whether they were a *repetition* of a previous recommendation. In a novel approach, the inclusion of these three characteristics in the content analyses and regression analysis expanded the approaches of similar studies on this topic, which tended to focus only on the *addressee*, *recommended action*, and *level of challenge to the policy status quo* of recommendations e.g., see Russell and Benton (2011). Section 8.5. details the empirical contributions of this thesis that were derived from the author's inclusion of these previously unstudied characteristics in her mixed methods analysis.

Third, the author derived a theoretically informed empirical measure of each recommendation's *level of challenge to the policy status quo*. This measure was derived from Fischer's four-level typology of policy evaluation (1980, 1990, 2006) (see Chapter 3). Existing empirical research often studied this characteristic on a scale from recommendations that called for 'no or small change' to existing policies to those that called for a 'large change' e.g., see Lynch and Whitaker (2019, p. 11). The robustness of this measure has, however, been questioned (Elston and Zhang, 2022, p. 678). In this thesis, three coders therefore coded this characteristic to increase the robustness of the results, following Haug et al., (2009). Moreover, the codebook was designed to grade recommendations for their level of challenge to the policy status quo "in order to not exaggerate the influence of insignificant recommendations" and thereby provide "a more reliable assessment of influence" than prevailing studies (Russell and Benton, 2011, p. 69).

A fourth contribution was the author's examination of two proxy measures of non-use, namely rejection and non-committal responses. Existing public policy research focused on acceptance and rejection responses e.g., see Hindmoor et al., (2009). Although some prevailing work provided descriptive statistics on non-committal

responses (e.g., see Russell and Benton, 2011 and Elston and Zhang, 2022), no existing research was found that ran a third regression model with non-committal responses as its dependent variable. In this thesis, the analysis of non-committal responses empirically mobilized – and confirmed – seminal arguments from knowledge utilisation scholars that if a government responded by saying it would only consider a recommendation (Rich, 1997, p. 19) it was tantamount to a “decision not to act” and therefore indicative of non-use (Jasanoff, 1990, p. 78).

8.5 Empirical contributions

The mixed methods approach adopted in this thesis enabled the author to clarify the relationships between the four conditions in the conceptual framework and the five modes of (non-)use. The findings – as summarized in this section – provide much greater detail than found in existing empirical research on knowledge utilisation, which tended to describe the conditions for knowledge ‘use’ or ‘uptake’ without specifying which mode was under empirical investigation (see Figure 8.1).

8.5.1. Recommendation characteristics

Statistical regression analyses and interviews revealed that *recommendation characteristics* facilitated three modes of (non-)use, namely instrumental use, non-use, and conceptual use. This finding clarified and expanded existing understandings in the public policy literature which associated *recommendation characteristics* simply with ‘use’ or non-use (Goldstein, 2009) but not a specific mode.

For the first time, this thesis offered an empirical demonstration of the relationship between a cross-sectoral focus of recommendations and their instrumental use. Recommendations with this characteristic were revealed to be “easier” for the government to accept because they were less prescriptive and “tie[d] [the government’s] hands less” than those for specific sectors (Interviewee 27).

It also offered the first empirical account of the *repetition* of recommendations over a decade through a systematic content analysis (see Chapter 5). A further contribution was to demonstrate that repetition was a condition for instrumental use (see Chapter 7). This was because stakeholder support and the weight of evidence could increase over time and, in the period between repetitions, a new government minister could be

installed who was “more willing to accept the recommendation” (Interviewee 17, UK Government), particularly if civil servants and government ministers perceived a repeated recommendation to be “a problem that was not going away” (Interviewees 28, 30, and 31, UK Government). Mixed methods analysis further revealed that the only characteristic that facilitated conceptual use was *repetition* because it allowed the CCC to “nibble away” at the thinking of civil servants (Interviewee 6, CCC) and reinforce its recommendations in government “consciousness” over time (Interviewee 31). These findings offer valuable empirical support for the seminal research claim made by Weiss (1980, p. 402) that repetition was “the only route to the accretion of policy without decision”. It also confirms the findings from Russell and Benton’s (2011, p. 78) interviews with civil servants that “it takes time to persuade [the] government to change its mind”.

In the first empirical mobilization of Fischer’s four-level typology as a measure of each recommendation’s *level of challenge to the policy status quo* (see Section 8.4.), mixed methods analysis revealed that support of the policy status quo was a condition for instrumental use. This lends empirical support to existing public policy research that reported the same finding e.g., see Russell and Benton (2011), Benton and Russell (2013), Caygill (2019) and Lynch and Whitaker (2019). It also provided a first account of the specific relevance of this characteristic for the instrumental use of climate policy recommendations.

Turning now to non-use, the mixed methods analysis identified that five *recommendation characteristics* (namely *addressee*, *delivery targets*, *sectoral focus*, *recommended action*, and *challenge to the policy status quo*) were causal conditions for knowledge non-use. The author made empirical contributions in each area, as now summarised.

Chapter 7 revealed that addressing recommendations to a named government department that did not sponsor the CCC under the 2010 Framework Document (HM Government *et al.*, 2010, p. 7) was a condition for non-use. This was because non-sponsor departments did not have legal responsibility for meeting the climate targets in the CCA and some interviewees had observed that they could dispute their accountability for delivering the CCC’s recommendations (Interviewees 6 and 8, CCC; Interviewees 35 and 36, UK Government; Interviewee 31). Indeed “the incentive on

[non-sponsor departments] to say ‘yes’” to the CCC’s recommendations was perceived by civil servants to be “much, much lower” than on the sponsor departments (Interviewee 28, UK Government). These findings therefore confirmed the expectations of Christensen and Serrano Velarde (2019, p. 51) that addressing recommendations to:

“...political and administrative actors [that] do not have a direct stake in the issue [of climate change] [means] they are unlikely to adopt and act upon expert advice on the issue.”

A further contribution was that the inclusion of *delivery targets* in recommendations was revealed to be a condition for non-use. Recommendations with targets often called for specific funding commitments which was “problematic” because, during the study period, government “resources were shrinking and austerity was the priority” (Interviewee 28, UK Government). Moreover, if the government accepted recommendations that included targets, then it would “start to cut away” at the flexibility for meeting targets in the CCA and so these recommendations were “less welcome” by the government (Interviewee 36, UK Government). To date, existing research has not empirically explored the relationship between this characteristic and (non-)use. This thesis therefore offers a first account of this condition and its relevance to the non-use of climate policy recommendations.

Mixed methods analysis also provided the first empirical demonstration of the relationship between the *sectoral focus* of climate policy recommendations and their non-use. Specifically, interviewees reported the importance of three main features of the buildings sector for non-use: the initial investment costs of decarbonisation were “more obvious to consumers and voters” than the initial costs of decarbonizing electricity generation and so it was “difficult politically” to accept recommendations on this issue (Interviewee 11, CCC), not least because the government was “very wary about being seen to be telling people what to do” with their homes (Interviewee 8, CCC); house developers had “a longstanding objection” to the CCC’s recommendations on buildings (Interviewee 9, CCC); and during the study period buildings decarbonisation was “often the remit of the department that was not leading on climate change” and so there was “a long-running issue” of “unfulfilled recommendations” (Interviewee 5, CCC). Interviewees provided similar reasons for

the non-use of adaptation recommendations on flood risk management, including that “flood risk is a very politicized issue [...] and tackling it is a minefield of many different interests” (Interviewee 15, UK Government). These findings contributed empirical support to existing climate policy research which suggested that the characteristics of certain sectors, such as the presence of multiple stakeholders with competing interests, could “constrain” and “impede consensus” on acceptable policy approaches (Fröhlich and Knieling, 2013, p. 11). This was indeed revealed to be the case, particularly in relation to buildings decarbonisation and flood risk management.

Moreover, the inclusion of *multiple recommended actions* in a recommendation was revealed to be a condition for non-use, not least because the government was more likely to consider it “undeliverable” (Interviewee 29, UK Government) due to one of the recommended actions therein (Interviewee 28, UK Government). Although Russell and Benton (2011, p. 31) did not include this characteristic in their regression analysis, they suggested that if recommendations contained multiple actions they were “less likely to be effective”. This thesis confirmed these expectations.

The fifth characteristic that was revealed to be a condition for non-use was if a recommendation *challenged the policy status quo*. Interviews with civil servants revealed this was because the government’s responses to recommendations were “agreed collectively” by departments via a write-round process. As such, if a recommendation advocated for the introduction of a new policy or challenged an existing value, policy, or belief then it “could be objected to by any department” (Interviewee 28, UK Government; also Interviewees 15, 17, 18, 28, 30, and 34 to 36, UK Government, and Interviewee 24). Non-committal responses and outright rejections were therefore a “negotiated middle ground” between departments (Interviewee 18, UK Government). This analysis confirmed the conventional wisdom that if recommendations call for great policy change, they are more likely to be rejected by the government e.g., see Russell and Benton (2011), Benton and Russell (2013), Caygill (2019) and Lynch and Whitaker (2019). It also added additional nuance because it clarified that the government’s reticence to accept recommendations that challenged the policy status quo was primarily related to its priorities, resources, and bureaucratic procedures.

Finally, the regression models revealed that the characteristics of recommendations did not fully explain the instrumental use or non-use of mitigation or adaptation recommendations (see Chapter 7). The Nagelkerke R^2 values estimated that, at least for mitigation, the six characteristics could explain only 19% of the variance in acceptance responses, 15% of rejections, and 9% of non-committal responses. The respective values for adaptation were 36%, 28% and 28% based on the four included characteristics (*addressee* and *delivery targets* were excluded due to insufficient data (see Section 8.7.). As confirmed through analysis of interview data, exogenous conditions were therefore likely to have had a greater influence on the four modes of (non-)use, to which we now turn.

8.5.2. Interactions with intended knowledge users

This thesis lends empirical support to the seminal argument of Caplan (1979, p. 459):

“...the gap between the knowledge producer and the policymaker needs to be bridged through personal relationships involving trust, confidence, and empathy.”

The interview analysis presented in Chapter 7 confirmed and clarified this by demonstrating that the CCC's interactions with government officials were a facilitating condition for instrumental use, thereby reducing the ambiguity of the language of 'use' in the existing literature (reviewed in Chapter 2, see Figure 8.1). These interactions, often formal meetings between the CCC and civil servants before the formal provision of its recommendations, enabled the CCC to consider “what might be more or less acceptable to government” (Interviewee 25, CCC) and to consider whether to reframe its recommendations based on any objections raised by officials (Interviewees 6, 8, 23 and 25 CCC). These interactions could also facilitate instrumental use because they provided the CCC with the opportunity to gain the support of a “sufficiently senior person” within the government (Interviewee 23, CCC) to “champion” a given recommendation otherwise it was “never going to go anywhere” (Interviewee 28, UK Government).

8.5.3. Recommendation dissemination

Chapter 7 revealed that this condition was only relevant to conceptual use. The interviews confirmed that indirect dissemination of the CCC's recommendations - via

the media and intermediary bodies – was relevant because it enabled recommendations to have a slow and indirect influence via a “drip, drip, drip effect” whereby other actors would “hear about” a recommendation and “maybe push it themselves” (Interviewee 19, CCC). Indirect dissemination was particularly important for adaptation recommendations due to their lower legal standing in the CCA (see Section 8.2.), especially if the media, professional bodies, or parliamentary committees “echo[ed]” their recommendations and reinforced their importance to civil servants (Interviewee 26, CCC). These findings lend empirical support to existing public policy research which suggests that the dissemination of knowledge via intermediary bodies facilitates an “indirect means of influencing policy” (Haynes *et al.*, 2011, p. 1053).

8.5.4. Prevailing policy context

The analysis presented in Chapter 7 revealed that this was a condition for all modes except conceptual use. These findings therefore clarified the language in the original conceptual framework, derived from existing literatures on knowledge utilisation and climate policy, that the *prevailing policy context* would be a condition for ‘use’ (see Figure 8.1). For example, analysis of interview data confirmed that the occurrence of extreme weather events was a condition for instrumental use, particularly of adaptation recommendations, but only in the short term. This lends empirical support and gives added clarity to existing research that identified extreme weather events could increase the ‘use’ of “climate information” (Kirchhoff, Lemos and Engle, 2013, p. 15). Demonstrably, during the study period the AC repeated its recommendation for the government to reduce the risk of overheating in buildings no less than 10 times. This was not accepted until 2021 following the occurrence of heat waves that “were getting some traction in the media”, primarily reports of associated deaths and “aggregate productivity loss[es] to the economy” (Interviewee 30, UK Government). Extreme weather events were therefore identified as a notable – if transient – condition for instrumental use because they only “create[d] a moment of jeopardy for a month or so and then it bypass[ed]” (Interviewee 31; also Interviewees 34 and 35, UK Government).

8.5.5. Four new conditions

The analysis of interview transcripts inductively revealed four additional new conditions for (non-)use (see Chapter 7). For instrumental use, *stakeholder support* was important because:

“...the government is ultimately democratic and relies on consent to do anything and if there is no agreement from stakeholders then it will be harder to implement [the recommendation] and it will be politically contentious and not delivered.” (Interviewee 35, UK Government)

Repetition was inductively revealed to be a characteristic that facilitated both instrumental use and conceptual use (see Section 8.5.1.). The *three-month period* that the government had to respond to recommendations was consistently identified by officials as facilitating non-use because it did not “give the government the time or space to really engage with the CCC’s recommendations in a substantial way” (Interviewee 20, UK Government). Regarding symbolic-political use, *government inertia* provided the opportunity for the government to signal leadership in an area or add ‘leverage’ to internal negotiations for funding or policy development (Interviewees 15 and 33-36, UK Government). These four conditions were not emphasized in the existing research reviewed in Chapter 2. This thesis therefore identified their relevance for the (non-)use of climate policy recommendations for the first time.

8.5.6. The modes of (non-)use: an emerging order?

As revealed in Chapters 6 and 7, in some cases the conceptual use of recommendations was revealed to precede – and contribute to – their instrumental use. Analysis revealed that conceptual use:

“...is part of that process of osmosis where the initial idea needs to be socialized and shared, so changing the way people think about the problem has to build and the consensus has to be reached [before it can be accepted].”
(Interviewee 2, CCC)

For example, interviewees described that the instrumental use of the CCC’s recommendations on heat pumps followed the CCC shaping government and public understanding of heat pumps through the formal and informal dissemination of its recommendations throughout the study period, including via intermediary actors and

the media. The conceptual use of these recommendations “help[ed] to gradually shift the government’s understanding of key issues, based on the evidence” (Interviewee 3, CCC) and, after 2020, the government introduced policies that aimed to increase heat pump uptake across the housing stock, something that the CCC had “long pushed” (Interviewee 11, CCC).

Moreover, the conceptual use of recommendations was revealed to precede the symbolic-political use of the CCC’s longstanding recommendation to include emissions from international aviation and shipping in the CCA. The CCC had “chipped away” at government thinking on this recommendation “over the years” and, in 2020, the UK was the COP26 President which provided “a moment of leverage” and, “because of a large amount of scrutiny” officials were under, it was accepted because the government “didn’t want to be seen to be turning down our recommendations in this flagship report about bold decarbonisation” (Interviewee 23, CCC).

For the first time, this research has empirically revealed that the modes of (non-)use can in fact be related to one another: this finding runs counter to some early understandings in knowledge utilisation studies that presented each mode as linear and discrete (see Chapter 2).

8.6 The (non-)use of climate policy recommendations: An amended conceptual framework

This thesis began with Radaelli’s (1995, p. 160) fundamental “theoretical challenge” to “develop an analytical treatment of such questions as *when and how* knowledge matters in the policy process.” As explained in Section 8.3., the author developed a conceptual framework of the conditions for the ‘use’ and non-use of climate policy recommendations (see Figure 8.1). Mixed methods analysis was then undertaken to empirically test these claims (see Chapter 3). For the first time, this thesis has therefore provided an *analytical treatment* of *when and how* knowledge matters in the policy process. It has revealed that a combination of quantitative and qualitative methods was required to provide rich and detailed insights on the five modes - and four conditions - of (non-)use presented in Chapter 2. Qualitative interviews were particularly important because they enabled four new conditions for (non-)use to be inductively revealed from the experiences and observations of interviewees (see Section 8.5.5.).

The empirical findings presented in this thesis suggest that the conceptual framework should be amended in the following ways, as shown in Figure 8.2. First, the amended framework includes all five modes of (non-)use. This adds detail to the language of ‘use’ in the original framework which was based on the existing knowledge utilisation literature which tended not to specify the mode that was under investigation. In the revised framework, the ‘black box’ of ‘use’ is therefore expanded upon to reveal the specific modes of instrumental use, conceptual use, symbolic-political use, and imposed use. The incorporation of all five modes of (non-)use goes beyond existing approaches which tended to focus on one mode in isolation (see Chapters 2 and 3). This thesis’ examination of all five modes of (non-)use – and the associated amendments to the conceptual framework shown in Figure 8.2 – therefore serve to address a limitation of some existing knowledge utilisation that produce “a balance sheet of accepted and rejected recommendations” because this “is a poor register of influence” (Bates, 1985, p. 50).

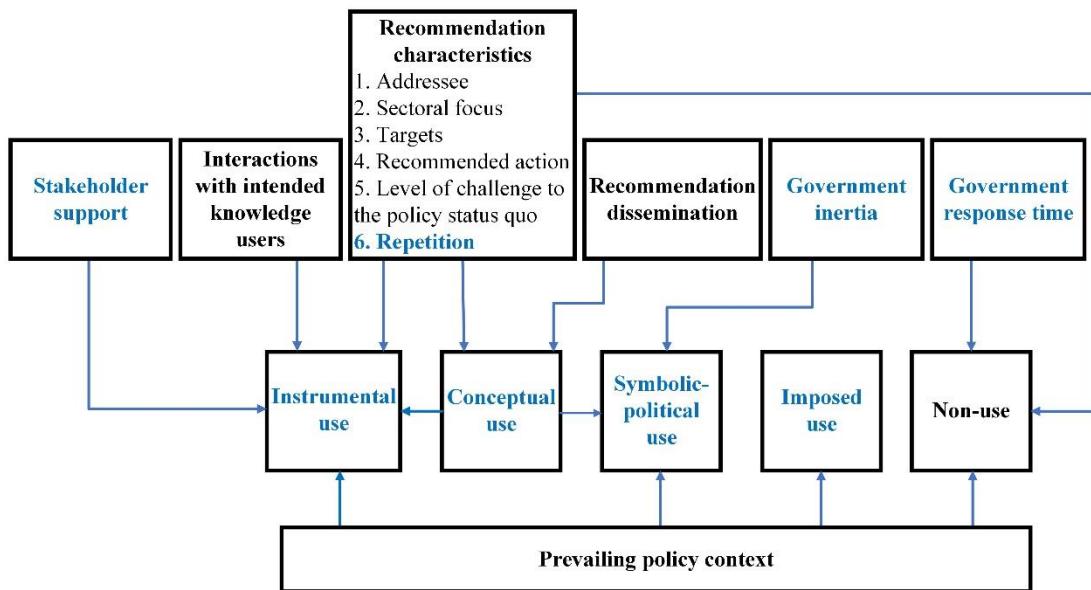
Second, the analysis presented in Chapter 7 revealed the specific relationships between each of the four original conditions and the five modes. These relationships are therefore elucidated and explicitly indicated in the amended framework with arrows (see Figure 8.2).

Third, the mixed methods analysis inductively revealed four new conditions and their relationships to the five modes; these are also included in the framework. The empirically grounded identification of these conditions therefore contributes to the existing literature, reviewed in Chapter 2, that did not emphasize the importance of these conditions for any of the five modes.

Fourth, the finding that conceptual use preceded the instrumental use and symbolic-political use of recommendations in some cases is also reflected in the revised framework with arrows.

Figure 8.2 presents an amended conceptual framework based on the empirical findings presented in this thesis. Revisions to the original framework are indicated with **blue text** and **blue arrows (indicating effect)**. Black text identifies elements that were in the original framework (in Figures 2.1 and 8.1). Figure 8.2 therefore offers a first empirically grounded framework of the conditions that facilitate whether, how, and why climate policy recommendations are (not) used by national policymakers.

Figure 8.2 The conceptual framework: suitably amended.



Source: author's own composition

This thesis began with a challenge: to determine *when and how* knowledge matters in the policy process (Radaelli, 1995, p. 160). Through its mixed methods analysis, it has addressed this challenge in two ways. First, the conditions presented in Figure 8.2 indicate *when* knowledge matters. The framework stipulates that both endogenous and exogenous conditions can facilitate when knowledge is used by policymakers, if at all. It confirms that for knowledge to be “useable” it “requires more than better packaging” (Duncan, Robson-Williams and Edwards, 2020, p. 2). The four new conditions (outlined in Section 8.5.5.) are also indicated in the top part of this diagram.

Second, Figure 8.2 presents all five modes of (non-)use and thereby indicates *how* knowledge matters in the policy process, if at all. Three modes of ‘use’ were revealed to matter to civil servants in different ways: the instrumental use of recommendations enabled the government to make specific climate policy decisions; conceptual use served to shape civil servants’ understanding of a policy problem over time, as well as the public and industry; and symbolic-political use allowed officials to have additional ‘leverage’ during internal negotiations for funding and policy development. The analysis presented in Chapter 7 confirmed the expectations from seminal knowledge utilisation research, specifically that non-use indicates that knowledge did not ‘matter’ to policymakers because it was rejected or received a non-committal response.

This thesis has therefore addressed Radaelli's challenge: it has demonstrated that knowledge, in the form of climate policy recommendations, matters to the policy process *when* certain specific conditions are present that are relevant to *how* the knowledge may (not) be used.

8.7 Limitations and new research priorities

This section reflects on several limitations that became apparent during the writing of this thesis and identifies relevant areas of future research.

8.7.1. From recommendation acceptance to implementation

Among public policy scholars, the government's written acceptance of recommendations is an established proxy for policy influence; however, governments are often not bound to follow through on their written responses. In fact, they may implement a recommendation after rejecting it in a phenomenon known as the delayed drop (Monk, 2009b; Russell and Benton, 2011). Accordingly, Elston and Zhang (2022, p. 670) "caution against regarding the acceptance of a recommendation as a guarantee of its implementation." Although a government's written response is a "test of immediate influence", additional analysis of recommendation implementation can "tease out longer-term influence" (Russell and Benton, 2011, p. 49).

Future research could address this limitation by looking beyond the scope of this thesis, which focused on the government's written responses to recommendations three months after their provision in accordance with the timetable in the CCA, and analyse whether recommendations were implemented in the longer term. A challenge of this research would be the time and resources required, not least because it is "painstaking" work (Benton and Russell, 2013, p. 777). One could therefore follow the approach of Russell and Benton (2011), who undertook a content analysis of key government documents, such as legislation and white papers, to trace the implementation of recommendations through to government policy. Russell and Benton (2011, p. 50) reported that it was "very difficult to search every possible source of information" due to the time and resources available, so they supplemented their quantitative analysis with interviews with civil servants and enlisted a team of researchers to help with the content analysis and interviews.

Future research could also analyse the government’s responses to - and implementation of - the CCC’s ad hoc recommendations that it provided to government ministers in letters. These recommendations were timely and reactive to current affairs, such as its letter to the Secretary of State for Business, Energy and Industrial Strategy in February 2022 after the government’s announcement of an expansion of oil and gas drilling in the North Sea (CCC, 2023b). Analysis of these ad hoc recommendations could therefore extend the findings of this thesis and explore whether the *prevailing policy context*, such as the occurrence of extreme weather events or COPs, facilitates the acceptance and implementation of these recommendations which are intended to “address specific or time-sensitive issues” (CCC, 2020c, p. 7).

8.7.2. Extending the study period

This thesis focused on the period 2009 to 2020, following Sabatier’s (1987) argument that at least a decade is required to understand knowledge utilisation and policy change. This thesis examined a period of eleven years. However, the recommendations in the first few progress reports had ‘existed’ for longer than the recommendations in the 2020 report. Future research could therefore extend the study period, specifically by using the methodology presented in Chapter 3 to derive data on the characteristics of the 1013 mitigation and adaptation recommendations published after 2020 (CCC, 2021, 2022, 2023a; AC, 2023) and the government’s written responses to them (HM Government, 2021a, 2023a, 2023c, 2023b). Crucially, this would ensure some *recommendation characteristics* could be included in regression analysis that were excluded in this thesis due to insufficient data, namely the characteristics of *addressee* and *delivery targets* for adaptation recommendations.

Moreover, a longer study period would allow for the *implementation* of recommendations to be traced over time. For example, Chapter 7 revealed that during the study period, the government accepted the CCC’s recommendations to bring forward a ban on new petrol and diesel vehicles to the early 2030s, and to increase the uptake of heat pumps; however, in 2023 these policy commitments were weakened by the UK Government, against the CCC’s advice (Rowlatt, 2023). The proposed future research would therefore provide a useful extension to the empirical findings of this thesis by providing a more comprehensive assessment of the influence of the CCC’s recommendations on government policy over a longer period.

8.7.3. Refining the conditions for (non-)use

As explained in Chapter 7 and Section 8.5.1., *recommendation characteristics* did not fully explain the instrumental use or non-use of recommendations. Indeed, the regression models estimated that between 9 and 19% of the variance in responses to mitigation recommendations, and between 28% and 36% of the variance in responses to adaptation recommendations, were accounted for by the characteristics included in the models. Future research could therefore include a greater number of endogenous conditions in regression analysis to provide a fuller account of the importance of *recommendation characteristics* for instrumental use and non-use, acknowledging that exogenous conditions are also important (see Chapter 7). For example, the media coverage of the CCC and its recommendations during the study period could be included in regression analysis. Although this variable was not a significant predictor of government responses to recommendations from parliamentary committees in the regression analysis of (Russell and Benton, 2011), it was identified as such by Monk (2009, p. 30), specifically that:

“...it was possible [for parliamentary committees] to use the media to push the government into accepting recommendations in a report, but the media coverage had to be intense, such as being on the front page of as many newspapers as possible.”

Another suggested area of future research would be to refine this thesis' approach to evaluating and coding each recommendation's *level of challenge to the policy status quo*. As introduced in Chapter 3, this characteristic was coded by three people²⁹. A limitation of this approach was that the second round of coding was performed by two coders who each coded half of the dataset due to time and resource constraints. Consequently, Cohen's kappa (κ) values revealed notable intercoder disagreement between the first and 'second' coders (Bryman, 2016). This was not due to "wholesale disagreement with the codebook", but rather because of discrepancies in each coder's "varied interpretation of just a few codes", as also reported in a multi-coder content analysis by Church et al., (2019, p. 10). Future research could therefore seek to address this limitation by building upon and further refining the codebook (see Appendix 5), for example by coding an additional 1013 recommendations, as recommended in

²⁹ Namely the author and her PhD supervisors, Professors Andy Jordan and Irene Lorenzoni.

Section 8.7.2., or double coding the total corpus of recommendations to iteratively “modify poorly performing codes” (O’Connor and Joffe, 2020, p. 9).

Finally, future research could explore relationships between the conditions presented in Figure 8.2, including which – if any – need to occur at the same time for recommendations to be used in a particular mode. For example, Chapter 7 revealed that the instrumental use of the AC’s longstanding recommendation to reduce the risk of overheating in buildings was facilitated by extreme weather events in the *prevailing policy context*, and it was also of conceptual use due to *repetition*, and of symbolic-political use due to *government inertia*. Future research could therefore aim to extend the contributions of this thesis set out in Section 8.5.6. and attempt to order the occurrence of modes and conditions, such as through a detailed chronological process tracing of relevant documents including those published by the CCC, government, and media reports to identify the precise chronology of each condition.

8.7.4. From national to local policy influence

This thesis focused on the recommendations the CCC provided to the UK Parliament; however, the CCC was also mandated to provide recommendations to the devolved administrations on request under the CCA. The same analytical and conceptual frameworks could therefore be applied to study the influence of the CCC’s recommendations at different geographical scales. For example, the UK Government’s review of the CCC in 2014 suggested that the AC’s adaptation recommendations were “particularly relevant for local authorities” but noted that it was “difficult to know if the CCC’s advice is influential beyond [the] UK Government” (HM Government, 2014, p. 55). Future research could therefore address this gap by extending the methods of this thesis by interviewing people who worked for local councils or the devolved governments to understand the local influence of the CCC’s recommendations.

Future research could also present a comparative analysis of the (non-)use of mitigation and adaptation recommendations and their associated conditions. This would extend the mixed methods findings presented in Chapter 7 that suggested the influence of recommendations was different in both policy areas and driven by a different set of conditions. Future research could therefore extend the insights of this thesis by analysing local planning documents and undertaking interviews with local officials to understand whether, how, and which of the CCC’s adaptation or mitigation

recommendations were used at the local level, following a similar approach by Lorenz et al., (2017) and Nordgren et al., (2016).

8.7.5. Towards a system-wide view of (non-)use

The CCC exists within a “competitive” policy advisory system wherein governments receive recommendations from many – often competing – sources (Crowley and Head, 2017, p. 2; see also Bressers et al., 2017). Future research could therefore investigate how – if at all – the government was influenced by think tanks, parliamentary committees, and academics over the same period as the author’s analysis (see Chapter 1). This would respond to Owens’ (2015, p. 126) point about “think[ing] in terms of networks rather than linear connections of cause and effect”. A promising empirical focus in this regard could be the government’s acceptance of the CCC’s recommendation for Electricity Market Reform (EMR). As noted by many interviewees and reported in Chapter 7, although *stakeholder support* was a necessary condition for acceptance in this case, it simultaneously made it difficult to isolate and delineate the influence of the CCC because the recommendation was also put forward by other groups. Future research, such as a network analysis, could more fully explore this to understand the role of the CCC, relative to other stakeholders.

References

Abbasi, M.H. *et al.* (2021) 'Heat transition in the European building sector: Overview of the heat decarbonisation practices through heat pump technology', *Sustainable Energy Technologies and Assessments*, 48, p. 101630. Available at: <https://doi.org/10.1016/j.seta.2021.101630>.

Abraham-Dukuma, M.C. *et al.* (2020) 'Multidisciplinary composition of climate change commissions: Transnational trends and expert perspectives', *Sustainability (Switzerland)*, 12(24), pp. 1–23. Available at: <https://doi.org/10.3390/su122410280>.

AC (2010) *How well prepared is the UK for climate change? Adaptation Sub-Committee Progress Report 2010*. Available at: <https://www.theccc.org.uk/publication/how-well-prepared-is-the-uk-for-climate-change/> (Accessed: 13 December 2023).

AC (2011) *Adapting to climate change in the UK: Measuring progress. Adaptation Sub-Committee Progress Report 2011*. Available at: <https://www.theccc.org.uk/publication/adapting-to-climate-change-in-the-uk-measuring-progress-2nd-progress-report-2011/> (Accessed: 13 December 2023).

AC (2013) *Managing the land in a changing climate: Adaptation Sub-Committee Progress Report 2013*. Available at: <https://www.theccc.org.uk/publication/managing-the-land-in-a-changing-climate/> (Accessed: 13 December 2023).

AC (2014) *Managing climate risks to wellbeing and the economy: Adaptation Sub-Committee Progress Report 2014*. Available at: <https://www.theccc.org.uk/publication/managing-climate-risks-to-well-being-and-the-economy-asc-progress-report-2014/> (Accessed: 13 December 2023).

AC (2015) *Progress in preparing for climate change - 2015 Report to Parliament*. Available at: https://www.theccc.org.uk/wp-content/uploads/2015/06/6.736_CCC_ASC_Adaptation-Progress-Report_2015_FINAL_WEB_070715_RFS.pdf (Accessed: 19 October 2023).

AC (2017) *Progress in preparing for climate change: 2017 Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/2017-report-to-parliament-progress-in-preparing-for-climate-change/> (Accessed: 19 October 2023).

AC (2019) *Progress in preparing for climate change: 2019 Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/progress-in-preparing-for-climate-change-2019-progress-report-to-parliament/> (Accessed: 13 December 2023).

AC (2021) *Progress in adapting to climate change 2021 Report to Parliament*. Available at: <https://www.theccc.org.uk/wp-content/uploads/2021/06/Progress-in-adapting-to-climate-change-2021-Report-to-Parliament.pdf> (Accessed: 27 November 2023).

AC (2023) *Progress in adapting to climate change - 2023 Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/progress-in-adapting-to-climate-change-2023-report-to-parliament/> (Accessed: 27 November 2023).

Alkin, M.C. and King, J.A. (2017) 'Definitions of Evaluation Use and Misuse, Evaluation Influence, and Factors Affecting Use', *American Journal of Evaluation*, 38(3), pp. 434–450. Available at: <https://doi.org/10.1177/1098214017717015>.

Altschuld, J.W., Yoon, J.S. and Cullen, C. (1993) 'The utilization of needs assessment results', *Evaluation and Program Planning*, 16(4), pp. 279–285. Available at: [https://doi.org/10.1016/0149-7189\(93\)90040-f](https://doi.org/10.1016/0149-7189(93)90040-f).

Amara, N., Ouimet, M. and Landry, R. (2004) 'New Evidence on Instrumental, Conceptual, and Symbolic Utilization of University Research in Government Agencies.', *Science Communication*, 26(1), pp. 75–106. Available at: <https://doi.org/10.1177/1075547004267491>.

Anderson, K., Broderick, J.F. and Stoddard, I. (2020) 'A factor of two: how the mitigation plans of "climate progressive" nations fall far short of Paris-compliant pathways', *Climate Policy*, 20(10), pp. 1290–1304. Available at: <https://doi.org/10.1080/14693062.2020.1728209>.

Andresen, S. *et al.* (2018) 'What Can Be Learned from Experience with Scientific Advisory Committees in the Field of International Environmental Politics?', *Global Challenges*, 2(9), p. 1800055. Available at: <https://doi.org/10.1002/gch2.201800055>.

Averchenkova, A., Fankhauser, S. and Finnegan, J.J. (2020) 'The impact of strategic climate legislation: evidence from expert interviews on the UK Climate Change Act', *Climate Policy*, pp. 1–13. Available at: <https://doi.org/10.1080/14693062.2020.1819190>.

Averchenkova, A., Fankhauser, S. and Finnegan, J.J. (2021) 'The influence of climate change advisory bodies on political debates: evidence from the UK Committee on Climate Change', *Climate Policy*, 21(1), pp. 1–16. Available at: <https://doi.org/10.1080/14693062.2021.1878008>.

Averchenkova, A. and Lázaro, L. (2020) *The design of an independent expert advisory mechanism under the European Climate Law: What are the options?* Available at: <https://www.lse.ac.uk/granthaminstiute/publication/the-design-of-an-independent-expert-advisory-mechanism-under-the-european-climate-law/> (Accessed: 19 October 2023).

Azar, K.M.J. *et al.* (2013) 'Mobile Applications for Weight Management: Theory-Based Content Analysis', *American Journal of Preventive Medicine*, 45(5), pp. 583–589. Available at: <https://doi.org/10.1016/j.amepre.2013.07.005>.

Baldwin, C. and Ross, H. (2020) 'Beyond a tragic fire season: a window of opportunity to address climate change?', *Australasian Journal of Environmental Management*, 27(1), pp. 1–5. Available at: <https://doi.org/10.1080/14486563.2020.1730572>.

Bandola-Gill, J., Flinders, M. and Anderson, A. (2021) ‘Co-option, control and criticality: the politics of relevance regimes for the future of political science’, *European Political Science*, 20(1), pp. 218–236. Available at: <https://doi.org/10.1057/S41304-021-00314-0>.

Bates, S.J.N. (1985) ‘Select Committees in the House of Lords.’, in G. Drewry (ed.) *The New Select Committees: A study of the 1979 reforms*. Oxford: Clarendon Press, pp. 37–57.

Belfiore, E. (2022) ‘Is it really about the evidence? Argument, persuasion, and the power of ideas in cultural policy.’, *Cultural Trends*, 31(4), pp. 293–310. Available at: <https://doi.org/10.1080/09548963.2021.1991230>.

Benton, M. and Russell, M. (2013) ‘Assessing the Impact of Parliamentary Oversight Committees: The Select Committees in the British House of Commons’, *Parliamentary Affairs*, 66(4), pp. 772–797. Available at: <https://doi.org/10.1093/pa/gss009>.

Berry, P.M. *et al.* (2015) ‘Cross-sectoral interactions of adaptation and mitigation measures’, *Climatic Change*, 128(3–4), pp. 381–393. Available at: <https://doi.org/10.1007/s10584-014-1214-0>.

Birkeland, S., Murphy-Graham, E. and Weiss, C. (2005) ‘Good reasons for ignoring good evaluation: The case of the drug abuse resistance education (D.A.R.E.) program’, *Evaluation and Program Planning*, 28(3), pp. 247–256. Available at: <https://doi.org/10.1016/j.evalprogplan.2005.04.001>.

Birkmann, J. *et al.* (2010) ‘Extreme events and disasters: A window of opportunity for change? Analysis of organizational, institutional and political changes, formal and informal responses after mega-disasters’, *Natural Hazards*, 55(3), pp. 637–655. Available at: <https://doi.org/10.1007/s11069-008-9319-2>.

Boaz, A. and Oliver, K. (2023) ‘How well do the UK government’s “areas of research interest” work as boundary objects to facilitate the use of research in policymaking?’, *Policy & Politics*, 51(2), pp. 314–333. Available at: <https://doi.org/10.1332/030557321X16748269360624>.

Bober, C.F. and Bartlett, K.R. (2004) ‘The utilization of training program evaluation in corporate universities’, *Human Resource Development Quarterly*, 15(4), pp. 363–383. Available at: <https://doi.org/10.1002/hrdq.1111>.

Bogner, A., Littig, B. and Menz, W. (2018) ‘Generating Qualitative Data with Experts and Elites’, in U. Flick (ed.) *The SAGE Handbook of Qualitative Data Collection*. London: SAGE Publications Ltd, pp. 652–665. Available at: <https://doi.org/10.4135/9781526416070>.

Boswell, C. (2008) ‘The political functions of expert knowledge: knowledge and legitimization in European Union immigration policy’, *Journal of European Public Policy*, 15(4), pp. 471–488. Available at: <https://doi.org/10.1080/13501760801996634>.

Boswell, C. (2009) *The Political Uses of Expert Knowledge: Immigration Policy and Social Research*. 1st edn. Cambridge: Cambridge University Press.

Bowen, K.J., Ebi, K. and Friel, S. (2014) 'Climate change adaptation and mitigation: next steps for cross-sectoral action to protect global health', *Mitigation and Adaptation Strategies for Global Change*, 19(7), pp. 1033–1040. Available at: <https://doi.org/10.1007/s11027-013-9458-y>.

Brans, M., Timmermans, A. and Gouglas, A. (2022) 'A theoretical perspective on the roles of political scientists in policy advisory systems.', in M. Brans and A. Timmermans (eds) *The advisory roles of political scientists in Europe: Comparing engagements in policy advisory systems*. Palgrave Macmillan, pp. 15–41. Available at: <https://library.oapen.org/bitstream/handle/20.500.12657/52831/1/978-3-030-86005-9.pdf#page=42> (Accessed: 22 September 2023).

Bremer, S. *et al.* (2019) 'Toward a multi-faceted conception of co-production of climate services.', *Climate Services*, 13, pp. 42–50. Available at: <https://doi.org/10.1016/j.cliser.2019.01.003>.

Bressers, D. *et al.* (2017) 'The contested autonomy of policy advisory bodies: The trade-off between autonomy and control of policy advisory bodies in the Netherlands, the United Kingdom, and Sweden', in *The Palgrave Handbook of Public Administration and Management in Europe*. Palgrave Macmillan, pp. 1189–1211. Available at: https://doi.org/10.1057/978-1-137-55269-3_61/COVER.

Brinkmann, S. and Kvale, S. (2018) *Doing Interviews*. 2nd edn. London: UK: SAGE Publications Ltd. Available at: <https://doi.org/https://doi.org/10.4135/9781529716665>.

British Academy (2008) *Punching our weight: the humanities and social sciences in public policy making* | The British Academy. Available at: <https://www.thebritishacademy.ac.uk/publications/punching-our-weight-humanities-social-sciences-public-policy-making/> (Accessed: 21 September 2023).

Bruno Soares, M. and Dessai, S. (2015) 'Exploring the use of seasonal climate forecasts in Europe through expert elicitation', *Climate Risk Management*, 10, pp. 8–16. Available at: <https://doi.org/10.1016/j.crm.2015.07.001>.

Bryman, A. (2016) *Social Research Methods*. Oxford University Press.

Bulmer, M. (1981) 'Applied Social Research? The Use and Non-Use of Empirical Social Inquiry by British and American Governmental Commissions.', *Journal of Public Policy*, 1(3), pp. 353–380.

Bundi, P. and Trein, P. (2022) 'Evaluation use and learning in public policy', *Policy Sciences*, 55(2), pp. 283–309. Available at: <https://doi.org/10.1007/S11077-022-09462-6>.

Cairney, P. (2016) *The politics of evidence-based policy making*. London: UK: Palgrave Macmillan. Available at: <https://doi.org/10.1057/978-1-137-51781-4>.

Cairney, P. (2018) 'Three habits of successful policy entrepreneurs', *Policy and Politics*, 46(2), pp. 199–215. Available at: <https://doi.org/10.1332/030557318X15230056771696>.

Cairney, P. and Oliver, K. (2018) 'How Should Academics Engage in Policymaking to Achieve Impact?', *Political Studies Review*, 18(2), pp. 228–244. Available at: <https://doi.org/10.1177/1478929918807714>.

Calvert, R.L. (1985) 'The Value of Biased Information: A Rational Choice Model of Political Advice', *The Journal of Politics*, 47(2), pp. 530–555. Available at: <https://doi.org/10.2307/2130895>.

Campbell, J. and Pedersen, O. (2014) *The National Origins of Policy Ideas: Knowledge Regimes in the United States, France, Germany, and Denmark*. Princeton University Press.

Capano, G. *et al.* (2023) 'Dealing with the challenges of legitimacy, values, and politics in policy advice', *Policy and Society*, 42(3), pp. 275–287. Available at: <https://doi.org/10.1093/polsoc/puad026>.

Capano, G. and Malandrino, A. (2022) 'Mapping the use of knowledge in policymaking: barriers and facilitators from a subjectivist perspective (1990–2020)', *Policy Sciences*, 55(3), pp. 399–428. Available at: <https://doi.org/10.1007/S11077-022-09468-0>.

Caplan, N. (1979) 'The Two-Communities Theory and Knowledge Utilization', *American Behavioral Scientist*, 22(3), pp. 459–470. Available at: <https://doi.org/10.1177/000276427902200308>.

Carmichael, J.T., Brulle, R.J. and Huxster, J.K. (2017) 'The great divide: understanding the role of media and other drivers of the partisan divide in public concern over climate change in the USA, 2001–2014', *Climatic Change*, 141(4), pp. 599–612. Available at: <https://doi.org/10.1007/S10584-017-1908-1>.

Carter, N. (2014) 'The politics of climate change in the UK', *Wiley Interdisciplinary Reviews: Climate Change*, 5(3), pp. 423–433. Available at: <https://doi.org/10.1002/wcc.274>.

Carter, N. and Childs, M. (2018) 'Friends of the Earth as a policy entrepreneur: "The Big Ask" campaign for a UK Climate Change Act', *Environmental Politics*, 27(6), pp. 994–1013. Available at: <https://doi.org/10.1080/09644016.2017.1368151>.

Caygill, T. (2019) 'Legislation Under Review: An Assessment of Post-Legislative Scrutiny Recommendations in the UK Parliament', *The Journal for Legislative Studies*, 25(2), pp. 295–313. Available at: <https://doi.org/10.1080/13572334.2019.1603260>.

CCC (2009a) *Committee on Climate Change Corporate Plan 2009 - 2012*. Available at: <https://www.theccc.org.uk/publication/corporate-plan-for-2009-2012/> (Accessed: 18 November 2022).

CCC (2009b) *Meeting Carbon Budgets - the need for a step change: Progress Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/meeting-carbon-budgets-the-need-for-a-step-change-1st-progress-report/> (Accessed: 19 October 2023).

CCC (2010a) *Committee on Climate Change Corporate Plan 2010 - 2013*. Available at: <https://www.theccc.org.uk/publication/corporate-plan-for-2010-2013/> (Accessed: 18 November 2022).

CCC (2010b) *Meeting Carbon Budgets - ensuring a low-carbon recovery. 2nd Progress Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/meeting-carbon-budgets-ensuring-a-low-carbon-recovery-2nd-progress-report/> (Accessed: 13 December 2023).

CCC (2011) *Committee on Climate Change Corporate Plan 2011 - 2014*. Available at: <https://www.theccc.org.uk/publication/corporate-plan-for-2011-2014/> (Accessed: 13 December 2023).

CCC (2012a) *Committee on Climate Change Corporate Plan 2012 - 2015*. Available at: <https://www.theccc.org.uk/publication/corporate-plan-for-2012-2015/> (Accessed: 18 November 2022).

CCC (2012b) *Meeting Carbon Budgets - 2012 Progress Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/meeting-the-carbon-budgets-2012-progress-report-to-parliament/>.

CCC (2013a) *Committee on Climate Change Corporate Plan 2013 - 2016*. Available at: <https://www.theccc.org.uk/publication/corporate-plan-2013-2016/> (Accessed: 18 November 2022).

CCC (2013b) *Meeting Carbon Budgets - 2013 Progress Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/2013-progress-report/> (Accessed: 19 October 2023).

CCC (2014a) *Committee on Climate Change Corporate Plan 2014 - 2017*. Available at: <https://www.theccc.org.uk/publication/corporate-plan-for-2014-2017/> (Accessed: 18 November 2022).

CCC (2014b) *Meeting Carbon Budgets - 2014 Progress Report to Parliament*. Available at: <https://www.theccc.org.uk/publication/meeting-carbon-budgets-2014-progress-report-to-parliament/> (Accessed: 13 December 2023).

CCC (2015a) *Committee on Climate Change Corporate Plan 2015 - 2018*. Available at: <https://www.theccc.org.uk/publication/corporate-plan-for-2015-2018/> (Accessed: 18 November 2022).

CCC (2015b) *Meeting Carbon Budgets - Progress in reducing the UK's emissions: 2015 Report to Parliament*. Available at: https://www.theccc.org.uk/wp-content/uploads/2015/06/6.737_CCC-BOOK_WEB_030715_RFS.pdf (Accessed: 13 December 2023).

CCC (2016a) *Committee on Climate Change Corporate and Business Plan 2016 - 2019*. Available at: <https://www.thecccc.org.uk/publication/corporate-plan-for-2016-2019/> (Accessed: 18 November 2022).

CCC (2016b) *Meeting Carbon Budgets - 2016 Progress Report to Parliament*. Available at: <https://www.thecccc.org.uk/publication/meeting-carbon-budgets-2016-progress-report-to-parliament/> (Accessed: 18 October 2023).

CCC (2016c) *Next Steps for UK Heat Policy - Climate Change Committee*. Available at: <https://www.thecccc.org.uk/publication/next-steps-for-uk-heat-policy/> (Accessed: 25 September 2023).

CCC (2017a) *Committee on Climate Change Corporate and Business Plan 2017 - 2020*. Available at: <https://www.thecccc.org.uk/publication/corporate-plan-for-2017-2020/> (Accessed: 18 November 2022).

CCC (2017b) *Meeting Carbon Budgets: Closing the policy gap. 2017 Report to Parliament*. Available at: <https://www.thecccc.org.uk/publication/2017-report-to-parliament-meeting-carbon-budgets-closing-the-policy-gap/>.

CCC (2018) *Reducing UK emissions: 2018 Progress Report to Parliament*. Available at: <https://www.thecccc.org.uk/publication/reducing-uk-emissions-2018-progress-report-to-parliament/> (Accessed: 18 October 2023).

CCC (2019) *Reducing UK emissions: 2019 Progress Report to Parliament*. Available at: <https://www.thecccc.org.uk/publication/reducing-uk-emissions-2019-progress-report-to-parliament/> (Accessed: 19 October 2023).

CCC (2020a) *CCC Insight Briefing 4 - Advising on the level of the UK's carbon budgets*. Available at: <https://www.thecccc.org.uk/wp-content/uploads/2020/10/CCC-Insights-Briefing-4-Advising-on-the-level-of-the-UKs-carbon-budgets.pdf> (Accessed: 18 November 2022).

CCC (2020b) *CCC Insights Briefing 1 - The UK Climate Change Act*. Available at: <https://www.thecccc.org.uk/wp-content/uploads/2020/10/CCC-Insights-Briefing-1-The-UK-Climate-Change-Act.pdf> (Accessed: 18 November 2022).

CCC (2020c) *CCC Insights Briefing 2 - The Climate Change Committee*. Available at: <https://www.thecccc.org.uk/wp-content/uploads/2020/10/CCC-Insights-Briefing-2-The-Climate-Change-Committee.pdf> (Accessed: 18 November 2022).

CCC (2020d) *Climate Change Committee Corporate and Business Plan 2020 - 2023*. Available at: <https://www.thecccc.org.uk/publication/corporate-plan-for-2020-2023/> (Accessed: 18 November 2022).

CCC (2020e) *Reducing UK emissions: 2020 Progress Report to Parliament*. Available at: <https://www.thecccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/> (Accessed: 19 October 2023).

CCC (2021) *2021 Progress Report to Parliament - Climate Change Committee*. Available at: <https://www.thecccc.org.uk/publication/2021-progress-report-to-parliament/> (Accessed: 9 October 2023).

CCC (2022) *2022 Progress Report to Parliament - Climate Change Committee*. Available at: <https://www.theccc.org.uk/publication/2022-progress-report-to-parliament/> (Accessed: 9 October 2023).

CCC (2023a) *2023 Progress Report to Parliament - Climate Change Committee*. Available at: <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/> (Accessed: 9 October 2023).

CCC (2023b) *Letter: Climate Compatibility of New Oil and Gas Fields - Climate Change Committee*. Available at: <https://www.theccc.org.uk/publication/letter-climate-compatibility-of-new-oil-and-gas-fields/> (Accessed: 9 October 2023).

Chiaramonti, D. (2019) 'Sustainable Aviation Fuels: the challenge of decarbonization', *Energy Procedia*, 158, pp. 1202–1207. Available at: <https://doi.org/10.1016/j.egypro.2019.01.308>.

Chiaramonti, D. *et al.* (2021) 'The challenge of forecasting the role of biofuel in EU transport decarbonisation at 2050: A meta-analysis review of published scenarios', *Renewable and Sustainable Energy Reviews*, 139, p. 110715. Available at: <https://doi.org/10.1016/j.rser.2021.110715>.

Christensen, J. (2021) 'Expert knowledge and policymaking: a multi-disciplinary research agenda', *Policy & Politics*, 49(3), pp. 455–471. Available at: <https://doi.org/10.1332/030557320X15898190680037>.

Christensen, J. and Serrano Velarde, K. (2019) 'The role of advisory bodies in the emergence of cross-cutting policy issues: comparing innovation policy in Norway and Germany', *European Politics and Society*, 20(1), pp. 49–65. Available at: <https://doi.org/10.1080/23745118.2018.1515864>.

Christoff, P. and Eckersley, R. (2021) 'Convergent evolution: framework climate legislation in Australia', *Climate Policy*, 21(9), pp. 1190–1204. Available at: <https://doi.org/10.1080/14693062.2021.1979927>.

Church, S.P., Dunn, M. and Prokopy, L.S. (2019) 'Benefits to Qualitative Data Quality with Multiple Coders: Two Case Studies in Multi-coder Data Analysis.', *Journal of Rural Social Sciences*, 34(1), pp. 1–14. Available at: <https://egrove.olemiss.edu/jrss> (Accessed: 17 November 2023).

Collingridge, D. and Reeve, C. (1986) *Science Speaks to Power: The Role of Experts in Policy Making*. 1st edn. New York: St. Martin's Press, Inc.

Cowell, R. and Lennon, M. (2014) 'The utilisation of environmental knowledge in land-use planning: Drawing lessons for an ecosystem services approach', *Environment and Planning C: Government and Policy*, 32(2), pp. 263–282. Available at: <https://doi.org/10.1068/c12289j>.

Craft, J. and Howlett, M. (2012) 'Policy formulation, governance shifts and policy influence: location and content in policy advisory systems', *Journal of Public Policy*, 32(2), pp. 79–98. Available at: <https://doi.org/10.1017/S0143814X12000049>.

Crowley, K. (2021) ‘Fighting the future: The politics of climate policy failure in Australia (2015–2020).’, *Wiley Interdisciplinary Reviews: Climate Change*, 12(5), pp. 1–11. Available at: <https://doi.org/10.1002/wcc.725>.

Crowley, K. and Head, B.W. (2017) ‘Expert advisory bodies in the policy system’, *Routledge Handbook of Comparative Policy Analysis*, pp. 181–198. Available at: <https://doi.org/10.4324/9781315660561>.

CUREC (2020) *Elite and Expert Interviewing*. Available at: <https://researchsupport.admin.ox.ac.uk/files/bpg03eliteandexpertinterviewingpdf> (Accessed: 28 March 2023).

Dewulf, A., Meijerink, S. and Runhaar, H. (2015) ‘Editorial: The governance of adaptation to climate change as a multi-level, multi-sector and multi-actor challenge: A European comparative perspective’, *Journal of Water and Climate Change*, 6(1), pp. 1–8. Available at: <https://doi.org/10.2166/wcc.2014.000>.

Dilling, L. and Lemos, M.C. (2011) ‘Creating usable science: Opportunities and constraints for climate knowledge use and their implications for science policy’, *Global Environmental Change*, 21(2), pp. 680–689. Available at: <https://doi.org/10.1016/j.gloenvcha.2010.11.006>.

Djordjevic, I. and Stone, D. (2023) ““State captured” policy advice? Think tanks as expert advisors in the Western Balkans”, *Policy and Society*, 42(3), pp. 334–346. Available at: <https://doi.org/10.1093/polsoc/puad021>.

Donnelly, C.A. *et al.* (2018) ‘Four principles to make evidence synthesis more useful for policy’, *Nature*, 558(7710), pp. 361–364. Available at: <https://doi.org/10.1038/d41586-018-05414-4>.

Douglas, H. (2012) ‘Weighing Complex Evidence in a Democratic Society’, *Kennedy Institute of Ethics Journal*, 22(2), pp. 139–162. Available at: <https://doi.org/10.1353/ken.2012.0009>.

Dubash, N.K. *et al.* (2021) ‘National climate institutions complement targets and policies; Institutions can affect coordination, consensus, and strategy.’, *Science*, 374(6568), pp. 690–693. Available at: <https://doi.org/10.1126/science.abm1157>.

Dudley, H., Jordan, A. and Lorenzoni, I. (2021) *Independent expert advisory bodies facilitate ambitious climate policy responses*. Available at: https://sciencebrief.org/uploads/reviews/ScienceBrief_Review_ADVISORY_BODIES_Mar2021.pdf (Accessed: 31 May 2023).

Dudley, H., Jordan, A. and Lorenzoni, I. (2022) ‘Advising national climate policy makers: A longitudinal analysis of the UK Climate Change Committee’, *Global Environmental Change*, 76, p. 102589. Available at: <https://doi.org/10.1016/j.gloenvcha.2022.102589>.

Duncan, R., Robson-Williams, M. and Edwards, S. (2020) ‘A close examination of the role and needed expertise of brokers in bridging and building science policy boundaries in environmental decision making’, *Palgrave Communications*, 6(1), pp. 1–12. Available at: <https://doi.org/10.1057/s41599-020-0448-x>.

Dunlop, C.A. (2014) 'The possible experts: How epistemic communities negotiate barriers to knowledge use in ecosystems services policy', *Environment and Planning C: Government and Policy*, 32(2), pp. 208–228. Available at: <https://doi.org/10.1068/c13192j>.

Dür, A. (2008) 'Measuring Interest Group Influence in the EU: A note on methodology.', *European Union Politics*, 9(4), pp. 559–576. Available at: <https://doi.org/10.1177/1465116508095151>.

EFRA Committee (2007) *Draft Climate Change Bill, Fifth Report of Session 2006-07, Volume 1*. Available at: <https://publications.parliament.uk/pa/cm200607/cmselect/cmenvfru/534/534i.pdf> (Accessed: 25 May 2023).

Elston, T. and Zhang, Y. (2022) 'Implementing Public Accounts Committee Recommendations: Evidence from the UK Government's "Progress Reports" since 2012', *Parliamentary Affairs*, 76(3), pp. 662–693. Available at: <https://doi.org/10.1093/PA/GSAB068>.

Environmental Audit Committee (2007) *HC 460 House of Commons Environmental Audit Committee Beyond Stern: From the Climate Change Programme Review to the Draft Climate Change Bill Seventh Report of Session 2006-07 Report, together with formal minutes, oral and written evidence*. Available at: <https://publications.parliament.uk/pa/cm200607/cmselect/cmenvaud/460/460.pdf> (Accessed: 18 October 2023).

Eschen, R. *et al.* (2021) 'Factors enhancing the level of utilisation of research knowledge on ecosystems', *PLOS ONE*, 16(7), p. e0254752. Available at: <https://doi.org/10.1371/journal.pone.0254752>.

Eskander, S.M.S.U. and Fankhauser, S. (2020) 'Reduction in greenhouse gas emissions from national climate legislation', *Nature Climate Change*, 10(8), pp. 750–756. Available at: <https://doi.org/10.1038/s41558-020-0831-z>.

ESRC (2022) *Framework for research ethics.*, *Economic and Social Research Council*. Available at: <https://www.ukri.org/councils/esrc/guidance-for-applicants/research-ethics-guidance/framework-for-research-ethics/> (Accessed: 10 October 2023).

Feldman, M. (1995) *Strategies for interpreting qualitative data*. Thousand Oaks, California: SAGE Publications.

Fischer, F. (1980) *Politics, values, and public policy*. Colorado: Westview Press.

Fischer, F. (1990) *Technocracy and the politics of expertise*. London: SAGE Publications.

Fischer, F. (2006) *Evaluating public policy*. Ohio: Cengage Learning.

Flick, U. (2018) 'Triangulation in Data Collection', in U. Flick (ed.) *The SAGE Handbook of Qualitative Data Collection*. London: SAGE Publications Ltd, pp. 527–544. Available at: <https://doi.org/10.4135/9781526416070>.

Ford, J.D., Knight, M. and Pearce, T. (2013) 'Assessing the "usability" of climate change research for decision-making: A case study of the Canadian International Polar Year', *Global Environmental Change*, 23(5), pp. 1317–1326. Available at: <https://doi.org/10.1016/j.gloenvcha.2013.06.001>.

Fröhlich, J. and Knieling, J. (2013) 'Conceptualising climate change governance', *Climate Change Management*, pp. 9–26. Available at: https://doi.org/10.1007/978-3-642-29831-8_2.

Gillard, R. (2016) 'Unravelling the United Kingdom's climate policy consensus: The power of ideas, discourse and institutions', *Global Environmental Change*, 40, pp. 26–36. Available at: <https://doi.org/10.1016/j.gloenvcha.2016.06.012>.

Goldstein, H. (2009) 'Translating research into public policy', *Journal of Public Health Policy*, 30, pp. 16–21. Available at: <https://doi.org/10.1057/jphp.2008.49>.

Goldstein, K. (2002) 'Getting in the Door: Sampling and Completing Elite Interviews', *PS: Political Science & Politics*, 35(4), pp. 669–672. Available at: <https://doi.org/10.1017/S1049096502001130>.

Gunn, A. (2017) 'Policy entrepreneurs and policy formulation', in *Handbook of Policy Formulation*. Edward Elgar Publishing Ltd., pp. 265–282. Available at: <https://doi.org/10.4337/9781784719326.00024>.

Hale, T.N. *et al.* (2020) 'Sub- and non-state climate action: a framework to assess progress, implementation and impact', *Climate Policy*, pp. 1–15. Available at: <https://doi.org/10.1080/14693062.2020.1828796>.

Harrabin, R. (2020) 'Heathrow expansion faces threat from climate case - BBC News', *BBC*, 27 February. Available at: <https://www.bbc.co.uk/news/business-51649096> (Accessed: 3 October 2023).

Harvey, W.S. (2011) 'Strategies for conducting elite interviews', *Qualitative Research*, 11(4), pp. 431–441. Available at: <https://doi.org/10.1177/1468794111404329>.

Haug, C. *et al.* (2009) 'Navigating the dilemmas of climate policy in Europe: evidence from policy evaluation studies', *Climatic Change 2009 101:3*, 101(3), pp. 427–445. Available at: <https://doi.org/10.1007/S10584-009-9682-3>.

Haynes, A.S. *et al.* (2011) 'From "our world" to the "real world": Exploring the views and behaviour of policy-influential Australian public health researchers', *Social Science & Medicine*, 72(7), pp. 1047–1055. Available at: <https://doi.org/10.1016/j.socscimed.2011.02.004>.

Head, B.W. (2010) 'Reconsidering evidence-based policy: Key issues and challenges', *Policy and Society*, 29(2), pp. 77–94. Available at: <https://doi.org/10.1016/j.polsoc.2010.03.001>.

Head, B.W. and Alford, J. (2013) 'Wicked Problems: Implications for public policy management.', *Administration & Society*, 47(6), pp. 711–739. Available at: <https://doi.org/10.1177/0095399713481601>.

Heinsch, M., Gray, M. and Sharland, E. (2016) 'Re-conceptualising the link between research and practice in social work: A literature review on knowledge utilisation', *International Journal of Social Welfare*, 25(1), pp. 98–104. Available at: <https://doi.org/10.1111/ijsw.12164>.

Hertin, J. *et al.* (2009) 'Rationalising the Policy Mess? Ex Ante Policy Assessment and the Utilisation of Knowledge in the Policy Process', *Environment and Planning A: Economy and Space*, 41(5), pp. 1185–1200. Available at: <https://doi.org/10.1068/a40266>.

Hindmoor, A., Larkin, P. and Kennon, A. (2009) 'Assessing the Influence of Select Committees in the UK: The Education and Skills Committee, 1997–2005', *The Journal of Legislative Studies*, 15(1), pp. 71–89. Available at: <https://doi.org/10.1080/13572330802666844>.

Hintze, M. and El Emam, K. (2018) 'Comparing the benefits of pseudonymisation and anonymisation under the GDPR', *Journal of Data Protection & Privacy*, 2(2), pp. 145–158. Available at: <https://www.henrystewartpublications.com/sites/default/files/JDPP2.2ComparingthebenefitsofpseudonymisationandanonymisationundertheGDPR.pdf> (Accessed: 13 December 2023).

HM Government (2007a) *Climate Change Bill as introduced to the House of Lords on 15 November 2007*. London. Available at: <https://publications.parliament.uk/pa/ld200708/ldbills/009/2008009.pdf> (Accessed: 25 May 2023).

HM Government (2007b) *Draft Climate Change Bill*. Available at: <https://www.gov.uk/government/publications/draft-climate-change-bill> (Accessed: 18 November 2022).

HM Government (2007c) *Taking Forward the UK Climate Change Bill: The Government Response to Pre-Legislative Scrutiny and Public Consultation*. Available at: <https://www.gov.uk/government/publications/uk-climate-change-bill-the-government-response-to-pre-legislative-scrutiny-and-public-consultation> (Accessed: 18 November 2022).

HM Government (2008) *Climate Change Act 2008*. Available at: <https://www.legislation.gov.uk/ukpga/2008/27/contents> (Accessed: 18 November 2022).

HM Government *et al.* (2010) *Committee on Climate Change Framework Document*. Available at: <https://www.theccc.org.uk/wp-content/uploads/2013/03/CCCFramework-Document.pdf> (Accessed: 18 November 2022).

HM Government (2010a) *Flood and Water Management Act 2010*. Available at: <https://www.legislation.gov.uk/ukpga/2010/29/contents> (Accessed: 23 November 2023).

HM Government (2010b) *Government response to the 2009 annual progress report of the Committee on Climate Change*. TSO. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/243575/9780108508738.pdf (Accessed: 31 May 2023).

HM Government (2012) *Government response to the 2012 annual progress report of the Committee on Climate Change*. TSO. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/65566/6682-gov-response-ccc-fourth-annual-prog-rpt.pdf (Accessed: 31 May 2023).

HM Government (2013) *Government response to the 2013 annual progress report of the Committee on Climate Change*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/249172/CCC5th.pdf (Accessed: 31 May 2023).

HM Government (2014) *Triennial Review of the Committee on Climate Change*. Available at: <https://www.gov.uk/government/publications/triennial-review-of-the-committee-on-climate-change> (Accessed: 18 November 2022).

HM Government (2015) *Government response to the Committee on Climate Change 2015 Report to Parliament - Progress on Preparing for Climate Change*. Available at: https://assets.publishing.service.gov.uk/media/5a806081ed915d74e33fa13b/DECC_CCC_Adaptation.pdf (Accessed: 2 June 2023).

HM Government (2016) *Government response to the Committee on Climate Change: 2016 Progress Report on meeting carbon budgets*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/559954/57204_Unnumbered_Gov_Response_Web_Accessible.pdf (Accessed: 31 May 2023).

HM Government (2017) *Government response to the Committee on Climate Change 2017 Report to Parliament - Progress in preparing for climate change*. Available at: https://assets.publishing.service.gov.uk/media/5a74fce140f0b6399b2afc57/CCS207_CCS0917051660-1_Un_Art_Govt_Response_to_CCC_Report_2017_Accessible.pdf (Accessed: 2 June 2023).

HM Government (2018) *The Committee on Climate Change: Tailored Review Report 2018*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/718709/ccc-tailored-review-2018.pdf (Accessed: 18 November 2022).

HM Government (2019a) *Government response to the Committee on Climate Change 2019 Report to Parliament - Progress in preparing for climate change*. Available at: https://assets.publishing.service.gov.uk/media/5da5c1fe40f0b631e9ba6f8f/CCS207_CCS0919071748-

001_Committee_on_Climate_Change_2019_report_web_accessible.pdf (Accessed: 2 June 2023).

HM Government (2019b) *Leading on Clean Growth: The Government Response to the Committee on Climate Change's 2019 Progress Report to Parliament - Reducing UK emissions*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/839555/CCS0819884374-001_Government_Response_to_the_CCC_Progress_Report_2019_Web_Accessible.pdf (Accessed: 31 May 2023).

HM Government (2021a) *Committee on Climate Change's 2021 progress report: government response*. Available at: <https://www.gov.uk/government/publications/committee-on-climate-changes-2021-progress-report-government-response> (Accessed: 8 November 2023).

HM Government (2021b) *Heat and Buildings Strategy*. Available at: <https://www.gov.uk/government/publications/heat-and-buildings-strategy> (Accessed: 31 August 2023).

HM Government (2023a) *Committee on Climate Change 2023 progress report: government response*. Available at: <https://www.gov.uk/government/publications/committee-on-climate-change-2023-progress-report-government-response> (Accessed: 8 November 2023).

HM Government (2023b) *Government response to the Climate Change Committee 2023 report to Parliament – progress in adapting to climate change*. Available at: <https://www.gov.uk/government/publications/government-response-to-the-climate-change-committee-2023-adaptation-progress-report/government-response-to-the-climate-change-committee-2023-report-to-parliament-progress-in-adapting-to-climate-change> (Accessed: 8 November 2023).

HM Government (2023c) *Responding to the Climate Change Committee's (CCC) Annual Progress Report 2022 Recommendations*. Available at: <https://www.gov.uk/government/publications/committee-on-climate-change-2022-progress-report-government-response> (Accessed: 8 November 2023).

HM Government (no date) *Government responses to the Committee on Climate Change (CCC) annual progress reports - GOV.UK*. Available at: <https://www.gov.uk/government/collections/government-responses-to-the-committee-on-climate-change-ccc-annual-progress-reports> (Accessed: 31 May 2023).

Hoornbeek, J. (2000) 'Information and environmental policy: A tale of two agencies', *Journal of Comparative Policy Analysis*, 2(2), pp. 145–187. Available at: <https://doi.org/10.1023/a:1026540717775>.

Hoppe, R., Wesselink, A. and Cairns, R. (2013) 'Lost in the problem: the role of boundary organisations in the governance of climate change', *Wiley Interdisciplinary Reviews: Climate Change*, 4(4), pp. 283–300. Available at: <https://doi.org/10.1002/wcc.225>.

House of Commons (2008a) ‘Bill as Amended in Public Bill Committee.’, 10 July. Available at: <https://publications.parliament.uk/pa/cm200708/cmbills/129/08129.25-31.html> (Accessed: 23 May 2023).

House of Commons (2008b) ‘Commons 2nd Reading (Part 2).’, 9 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0007.htm> (Accessed: 25 May 2023).

House of Commons (2008c) ‘Commons 2nd Reading (Part 4).’, 9 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0009.htm> (Accessed: 25 May 2023).

House of Commons (2008d) ‘Commons 2nd Reading (Part 12).’, 9 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0017.htm> (Accessed: 25 May 2023).

House of Commons (2008e) ‘Commons Committee Stage: 2nd Sitting (Part 4).’, 25 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s04.htm> (Accessed: 25 May 2023).

House of Commons (2008f) ‘Commons Committee Stage: 2nd Sitting (Part 6).’, 25 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s06.htm> (Accessed: 25 May 2023).

House of Commons (2008g) ‘Commons Committee Stage: 2nd Sitting (Part 7).’, 25 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s07.htm> (Accessed: 25 May 2023).

House of Commons (2008h) ‘Commons Committee Stage: 3rd Sitting (Part 2).’, 27 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/am/80626s02.htm> (Accessed: 25 May 2023).

House of Commons (2008i) ‘Commons Committee Stage: 3rd Sitting (Part 4).’, 27 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/am/80626s04.htm> (Accessed: 25 May 2023).

House of Commons (2008j) ‘Commons Committee Stage: 4th Sitting (Part 3).’, 27 March. Available at: <https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s03.htm> (Accessed: 25 May 2023).

House of Commons (2008k) ‘Commons Committee Stage: 4th Sitting (Part 6).’, 27 June. Available at: <https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s06.htm> (Accessed: 25 May 2023).

House of Commons (2008l) ‘Commons Committee Stage: 5th Sitting (Part 1).’, 2 July. Available at:
<https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s01.htm> (Accessed: 25 May 2023).

House of Commons (2008m) ‘Commons Committee Stage: 10th Sitting (Part 16).’, 9 July. Available at:
<https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s16.htm> (Accessed: 25 May 2023).

House of Commons (2008n) *Public Bill Committee Amendments as at 1 July 2008*. Available at:
<https://publications.parliament.uk/pa/cm200708/cmbills/097/amend/pbc0970107m.136-142.html> (Accessed: 19 May 2023).

House of Lords (2007a) ‘Lords 2nd Reading of the Climate Change Bill (Part 1).’ London: UK Parliament, 27 November. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0002.htm#07112752000002> (Accessed: 25 February 2023).

House of Lords (2007b) ‘Lords 2nd Reading of the Climate Change Bill (Part 2).’ London: UK Parliament, 27 November. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0003.htm> (Accessed: 24 May 2023).

House of Lords (2007c) ‘Lords 2nd Reading of the Climate Change Bill (Part 4).’ London: UK Parliament, 27 November. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0005.htm> (Accessed: 24 May 2023).

House of Lords (2007d) ‘Lords 2nd Reading of the Climate Change Bill (Part 6).’ London: UK Parliament, 27 November. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0007.htm> (Accessed: 24 May 2023).

House of Lords (2007e) ‘Lords 2nd Reading of the Climate Change Bill (Part 8).’ London: UK Parliament, 27 November. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0009.htm> (Accessed: 24 May 2023).

House of Lords (2007f) ‘Lords 2nd Reading of the Climate Change Bill (Part 11).’ London: UK Parliament, 27 November. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0012.htm> (Accessed: 24 May 2023).

House of Lords (2007g) ‘Lords 2nd Reading of the Climate Change Bill (Part 12).’ London: UK Parliament, 27 November. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0013.htm> (Accessed: 24 May 2023).

House of Lords (2007h) 'Lords Committee Stage: 2nd Sitting (Part 2).' London: UK Parliament, 17 December. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71217-0003.htm>
(Accessed: 4 May 2023).

House of Lords (2008a) 'Climate Change Bill as brought from the House of Lords on 1 April 2008.', 2 April. Available at:
<https://publications.parliament.uk/pa/cm200708/cmbills/097/2008097.pdf> (Accessed: 18 May 2023).

House of Lords (2008b) *Fourth Marshalled List of Amendments to be Moved on Report as at 14 March 2008*. Available at:
<https://publications.parliament.uk/pa/ld200708/ldbills/029/amend/ml029-iv.htm>
(Accessed: 17 May 2023).

House of Lords (2008c) 'Lords Committee Stage: 3rd Sitting (Part 6).' London: UK Parliament, 8 January. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80108-0007.htm>
(Accessed: 4 May 2023).

House of Lords (2008d) 'Lords Committee Stage: 3rd Sitting (Part 10).' London: UK Parliament, 8 January. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80108-0011.htm>
(Accessed: 4 May 2023).

House of Lords (2008e) 'Lords Committee Stage: 5th Sitting (Part 1).' London: UK Parliament, 14 January. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0002.htm#08011414000002> (Accessed: 4 May 2023).

House of Lords (2008f) 'Lords Committee Stage: 5th Sitting (Part 2).' London: UK Parliament, 14 January. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0003.htm>
(Accessed: 4 May 2023).

House of Lords (2008g) 'Lords Committee Stage: 5th Sitting (Part 3).' London: UK Parliament, 14 January. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0004.htm>
(Accessed: 4 May 2023).

House of Lords (2008h) 'Lords Committee Stage: 5th Sitting (Part 4).' London: UK Parliament, 14 January. Available at:
<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0005.htm>
(Accessed: 4 May 2023).

House of Lords (2008i) 'Lords Committee Stage: 5th sitting (Part 5).', 14 January. Available at: <https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0006.htm> (Accessed: 25 May 2023).

House of Lords (2008j) 'Lords Committee Stage: 5th Sitting (Part 8).' London: UK Parliament, 14 January. Available at:

<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0009.htm>
(Accessed: 4 May 2023).

House of Lords (2008k) ‘Lords Committee Stage: 6th Sitting (Part 6).’ London: UK Parliament, 23 January. Available at:

<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0007.htm>
(Accessed: 4 May 2023).

House of Lords (2008l) ‘Lords Report Stage: 3rd Sitting (Part 6).’ London: UK Parliament, 11 March. Available at:

<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0007.htm>
(Accessed: 4 May 2023).

House of Lords (2008m) ‘Lords Report Stage: 3rd Sitting (Part 7).’ London: UK Parliament, 11 March. Available at:

<https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0008.htm>
(Accessed: 4 May 2023).

House of Lords (2008n) ‘Lords Report Stage: 3rd Sitting (Part 9).’, 11 March. Available at: <https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0010.htm> (Accessed: 25 May 2023).

House of Lords (2008o) ‘Lords Report Stage: 3rd Sitting (Part 10).’, 11 March. Available at: <https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0011.htm> (Accessed: 23 May 2023).

House of Lords (2008p) *Second Marshalled List of Amendments to be Moved on Report*. Available at:

<https://publications.parliament.uk/pa/ld200708/ldbills/029/amend/ml029-ii.htm>
(Accessed: 18 May 2023).

House of Lords (2008q) *Third Marshalled List of Amendments to be Moved in Committee*. Available at:

<https://publications.parliament.uk/pa/ld200708/ldbills/009/amend/ml009-iii.htm>
(Accessed: 2 May 2023).

Howarth, C. *et al.* (2022) ‘The “co” in co-production of climate action: Challenging boundaries within and between science, policy and practice’, *Global Environmental Change*, 72, p. 102445. Available at:
<https://doi.org/10.1016/j.gloenvcha.2021.102445>.

Hunter, A. and Boswell, C. (2015) ‘Comparing the Political Functions of Independent Commissions: The Case of UK Migrant Integration Policy.’, *Journal of Comparative Policy Analysis: Research and Practice*, 17(1), pp. 10–25. Available at:
<https://doi.org/10.1080/13876988.2014.896117>.

Hurst, A. (2023) *Introduction to Qualitative Research Methods*. Oregon State University. Available at: <https://open.oregonstate.edu/qualresearchmethods/>
(Accessed: 15 November 2023).

Husén, T. (1994) ‘Educational research and policy making’, in T. Husen and N. Postlethwaite (eds) *International Encyclopedia of Education*, pp. 1857–1864.

Hustedt, T. (2013) 'Analyzing policy advice: The case of climate policy in Germany', *Central European Journal of Public Policy*, 7(1), pp. 88–111. Available at: <https://doaj.org/article/de88059088004fa996f937a23e1d644d> (Accessed: 13 December 2023).

Iacobuta, G. *et al.* (2018) 'National climate change mitigation legislation, strategy and targets: a global update', *Climate Policy*, 18(9), pp. 1114–1132. Available at: <https://doi.org/10.1080/14693062.2018.1489772>.

Innvær, S. *et al.* (2002) 'Health policymakers' perceptions of their use of evidence: a systematic review', *Journal of Health Services Research and Policy*, 7(4), pp. 239–244. Available at: <https://doi.org/10.1258/135581902320432778>.

IPCC (2022a) *Climate Change 2022: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Available at: https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf (Accessed: 28 June 2023).

IPCC (2022b) *Climate Change 2022: Mitigation of Climate Change. Working Group III contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Available at: https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_FullReport.pdf (Accessed: 8 June 2023).

Jackson, K. and Bazeley, P. (2019) *Qualitative data analysis with NVivo*. 3rd edn. SAGE Publications Ltd.

James, S. *et al.* (2018) 'Evidence-based practice and knowledge utilisation – a study of attitudes and practices among social workers in Germany', *European Journal of Social Work*, 22(5), pp. 763–777. Available at: <https://doi.org/10.1080/13691457.2018.1469475>.

Jamieson, D. (2014) *Reason in a Dark Time: Why the Struggle Against Climate Change Failed -- and What It Means for Our Future, Reason in a Dark Time*. Oxford University Press. Available at: <https://doi.org/10.1093/acprof:oso/9780199337668.003.0001>.

Jasanoff, S. (1990) *The Fifth Branch: Scientific advisers as policymakers*. Cambridge, Massachusetts: Harvard University Press.

Johnson, K. *et al.* (2009) 'Research on Evaluation Use: A Review of the Empirical Literature From 1986 to 2005', *American Journal of Evaluation*, 30(3), pp. 377–410. Available at: <https://doi.org/10.1177/1098214009341660>.

Joint Committee (2007) *Joint Committee on the Draft Climate Change Bill*. Available at: <https://publications.parliament.uk/pa/jt/jtclimate.htm> (Accessed: 18 November 2022).

Jones, L. *et al.* (2017) 'Constraining and enabling factors to using long-term climate information in decision-making', *Climate Policy*, 17(5), pp. 551–572. Available at: <https://doi.org/10.1080/14693062.2016.1191008>.

Jordan, A. and Russel, D. (2014) ‘Embedding the concept of ecosystem services? The utilisation of ecological knowledge in different policy venues’, *Environment and Planning C: Government and Policy*, 32(2), pp. 192–207. Available at: <https://doi.org/10.1068/c3202ed>.

Kaefer, F., Roper, J. and Sinha, P. (2015) ‘A software-assisted qualitative content analysis of news articles: Example and reflections’, *Forum Qualitative Sozialforschung*, 16(2). Available at: <https://doi.org/10.17169/fqs-16.2.2123>.

Keen, S., Lomeli-Rodriguez, M. and Joffe, H. (2022) ‘From Challenge to Opportunity: Virtual Qualitative Research During COVID-19 and Beyond’, *International Journal of Qualitative Methods*, 21. Available at: <https://doi.org/10.1177/16094069221105075>.

Keskitalo, E.C.H. (2022) ‘Open Access and Sensitive Social Sciences Data in Different Legislative Contexts: The Case of Strategic Selection “Elite” Interviewing in Sweden’, *Regular Article International Journal of Qualitative Methods*, 21, pp. 1–10. Available at: <https://doi.org/10.1177/16094069221120747>.

Kingdon, J. (1984) *Agendas, alternatives and public policy*. Boston, MA: Little Brown.

Kirchhoff, C.J., Lemos, M.C. and Engle, N.L. (2013) ‘What influences climate information use in water management? The role of boundary organizations and governance regimes in Brazil and the U.S.’, *Environmental Science & Policy*, 26, pp. 6–18. Available at: <https://doi.org/10.1016/j.envsci.2012.07.001>.

Kirkhart, K.E. (2000) ‘Reconceptualizing evaluation use: An integrated theory of influence’, *New Directions for Evaluation*, 2000(88), pp. 5–23. Available at: <https://doi.org/10.1002/ev.1188>.

Klepac, B. *et al.* (2022) ‘Six Public Policy Recommendations to Increase the Translation and Utilization of Research Evidence in Public Health Practice’, *Public Health Reports*, 138(5), pp. 715–720. Available at: <https://doi.org/10.1177/00333549221129355>.

Knorr, K. (1977) ‘Policymakers’ use of social science knowledge: Symbolic or instrumental?’, in C.H. Weiss (ed.) *Using Social Research in Public Policy Making*. Lexington, MA: Lexington Books, pp. 165–183.

Knutti, R. (2019) ‘Closing the Knowledge-Action Gap in Climate Change’, *One Earth*, 1(1), pp. 21–23. Available at: <https://doi.org/10.1016/j.oneear.2019.09.001>.

Krippendorff, K. (2004) *Content analysis: an introduction to its methodology*. 2nd edn. USA: SAGE Publications Ltd.

Lazarus, R.J. (2009) ‘Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future’, *Cornell Law Review*, 94(5), pp. 1153–1233. Available at: <https://scholarship.law.cornell.edu/clr/vol94/iss5/8> (Accessed: 27 September 2023).

Lemos, M.C. and Rood, R.B. (2010) 'Climate projections and their impact on policy and practice', *Wiley Interdisciplinary Reviews: Climate Change*, 1(5), pp. 670–682. Available at: <https://doi.org/10.1002/wcc.71>.

Lieberman, J.M. (2016) 'Three Streams and Four Policy Entrepreneurs Converge: A Policy Window Opens', *Education and Urban Society*, 34(4), pp. 438–450. Available at: <https://doi.org/10.1177/00124502034004003>.

Lindblom, E. and Cohen, D.K. (1979) *Useable knowledge: social science and social problem solving*. New Haven: Yale University Press.

Lockwood, M. (2013) 'The political sustainability of climate policy: The case of the UK Climate Change Act', *Global Environmental Change*, 23(5), pp. 1339–1348. Available at: <https://doi.org/10.1016/j.gloenvcha.2013.07.001>.

Lockwood, M. (2021a) 'A hard Act to follow? The evolution and performance of UK climate governance', *Environmental Politics*, pp. 1–23. Available at: <https://doi.org/10.1080/09644016.2021.1910434>.

Lockwood, M. (2021b) 'Routes to credible climate commitment: the UK and Denmark compared', *Climate Policy*, pp. 1–14. Available at: <https://doi.org/10.1080/14693062.2020.1868391>.

Lorenz, S. *et al.* (2017) 'Adaptation planning and the use of climate change projections in local government in England and Germany', *Regional Environmental Change*, 17(2), pp. 425–435. Available at: <https://doi.org/10.1007/S10113-016-1030-3>.

Lorenzoni, I. and Benson, D. (2014) 'Radical institutional change in environmental governance: Explaining the origins of the UK Climate Change Act 2008 through discursive and streams perspectives.', *Global Environmental Change*, 29, pp. 10–21. Available at: <https://doi.org/10.1016/j.gloenvcha.2014.07.011>.

Lowrey, J.L., Ray, A.J. and Webb, R.S. (2009) 'Factors influencing the use of climate information by Colorado municipal water managers', *Climate Research*, 40(1), pp. 103–119. Available at: <https://doi.org/10.3354/CR00827>.

Lumivero (2017) *NVivo (Version 12)*. Available at: <https://lumivero.com/products/nvivo/> (Accessed: 15 November 2023).

Lumivero (2023) *NVivo (Version 14)*. Available at: <https://lumivero.com/products/nvivo/> (Accessed: 15 November 2023).

Lynch, P. and Whitaker, R. (2019) 'Select Committees and Brexit: Parliamentary Influence in a Divisive Policy Area', *Parliamentary Affairs*, 72(4), pp. 923–944. Available at: <https://doi.org/10.1093/pa/gsz028>.

Macanovic, A. (2022) 'Text mining for social science – The state and the future of computational text analysis in sociology', *Social Science Research*, 108, p. 102784. Available at: <https://doi.org/10.1016/J.SSRESEARCH.2022.102784>.

Majone, G. (1989) *Evidence, Argument, and Persuasion in the Policy Process*. London: Yale University Press.

Marshall, H. (2002) 'What do we do when we code data?', *Qualitative Research Journal*, 2(1), pp. 56–70.

Martens, M. (2010) 'Voice or Loyalty? The Evolution of the European Environment Agency (EEA)', *JCMS: Journal of Common Market Studies*, 48(4), pp. 881–901. Available at: <https://doi.org/10.1111/j.1468-5965.2010.02078.x>.

Mayring, P. (2000) 'Qualitative Content Analysis.', *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 1(2). Available at: <https://doi.org/10.17169/fqs-1.2.1089>.

McLaren, D.P. (2018) 'Whose climate and whose ethics? Conceptions of justice in solar geoengineering modelling', *Energy Research and Social Science*, 44, pp. 209–221. Available at: <https://doi.org/10.1016/j.erss.2018.05.021>.

Merklová, K. and Ptáčková, K. (2016) 'Policy advisory councils: governmental and departmental advisory bodies.', in A. Veselý, M. Nekola, and E. Hejzlarová (eds) *Policy analysis in the Czech Republic*. Bristol University Press; Policy Press, pp. 157–176.

Mikecz, R. (2012) 'Interviewing Elites: Addressing Methodological Issues', *Qualitative Inquiry*, 18(6), pp. 482–493. Available at: <https://doi.org/10.1177/107780041244281>.

Miljand, M. (2020) 'Using systematic review methods to evaluate environmental public policy: methodological challenges and potential usefulness', *Environmental Science & Policy*, 105, pp. 47–55. Available at: <https://doi.org/10.1016/J.ENVSCI.2019.12.008>.

Miljand, M. and Eckerberg, K. (2022) 'Using systematic reviews to inform environmental policy-making', *Evaluation*, 28(2), pp. 210–230. Available at: <https://doi.org/10.1177/13563890221076540>.

Mintrom, M. (2019) 'So you want to be a policy entrepreneur?', *Policy Design and Practice*, 2(4), pp. 307–323. Available at: <https://doi.org/10.1080/25741292.2019.1675989>.

Monk, D. (2009a) *A statistical analysis of government responses to committee reports: reports tabled between the 2001 and 2004 elections*. Canberra. Available at: https://www.aph.gov.au/-/media/02_Parliamentary_Business/24_Committees/243_Reps_Committees/20thAnniversary/PDF/monk_bg2.pdf?la=en&hash=804ECE97FAC1CD5892CF56D3246F2A555C48DED8 (Accessed: 16 November 2023).

Monk, D. (2009b) *In the eye of the beholder? A framework for testing the effectiveness of parliamentary committees*. Canberra. Available at: <http://www.aph.gov.au/Senate/committee/com-list.htm>.

Monk, D. (2010) 'A framework for evaluating the performance of committees in Westminster parliaments', *The Journal of Legislative Studies*, 16(1), pp. 1–13. Available at: <https://doi.org/10.1080/13572330903541904>.

Monk, D. (2012) 'Committee Inquiries in the Australian Parliament and their Influence on Government: Government Acceptance of Recommendations as a Measure of Parliamentary Performance', *The Journal of Legislative Studies*, 18(2), pp. 137–160. Available at: <https://doi.org/10.1080/13572334.2012.673062>.

Morse, J., Cheek, J. and Clark, L. (2018) 'Data-Related Issues in Qualitatively Driven Mixed-Method Designs: Sampling, Pacing, and Reflexivity.', in U. Flick (ed.) *The SAGE Handbook of Qualitative Data Collection*. London: SAGE Publications Ltd, pp. 564–583. Available at: <https://doi.org/10.4135/9781526416070>.

Muinzer, T.L. (2018) *Climate and energy governance for the UK low carbon transition: The Climate Change Act 2008*. Available at: <https://doi.org/10.1007/978-3-319-94670-2>.

Nascimento, L. *et al.* (2022) 'Twenty years of climate policy: G20 coverage and gaps', *Climate Policy*, 22(2), pp. 158–174. Available at: <https://doi.org/10.1080/14693062.2021.1993776>.

Nash, S.L. and Steurer, R. (2019) 'Taking stock of Climate Change Acts in Europe: living policy processes or symbolic gestures?', *Climate Policy*, 19(8), pp. 1052–1065. Available at: <https://doi.org/10.1080/14693062.2019.1623164>.

Nash, S.L. and Steurer, R. (2021) 'Climate Change Acts in Scotland, Austria, Denmark and Sweden: the role of discourse and deliberation', *Climate Policy*, 21(9), pp. 1120–1131. Available at: <https://doi.org/10.1080/14693062.2021.1962235>.

Nash, S.L., Torney, D. and Matti, S. (2021) 'Climate Change Acts: Origins, Dynamics, and Consequences', *Climate Policy*, 21(9), pp. 1111–1119. Available at: <https://doi.org/10.1080/14693062.2021.1996536>.

Neuendorf, K.A. (2020) *The Content Analysis Guidebook*. 2nd edn. SAGE Publications, Inc. Available at: <https://doi.org/10.4135/9781071802878>.

Noé, P.G. *et al.* (2022) 'Towards a unified assessment framework of speech pseudonymisation', *Computer Speech & Language*, 72, p. 101299. Available at: <https://doi.org/10.1016/j.csl.2021.101299>.

Nordgren, J., Stults, M. and Meerow, S. (2016) 'Supporting local climate change adaptation: Where we are and where we need to go', *Environmental Science & Policy*, 66, pp. 344–352. Available at: <https://doi.org/10.1016/j.envsci.2016.05.006>.

Nurdiawati, A. and Urban, F. (2021) 'Towards Deep Decarbonisation of Energy-Intensive Industries: A Review of Current Status, Technologies and Policies', *Energies 2021, Vol. 14, Page 2408*, 14(9), p. 2408. Available at: <https://doi.org/10.3390/en14092408>.

O'Connor, C. and Joffe, H. (2020) 'Intercoder Reliability in Qualitative Research: Debates and Practical Guidelines', *International Journal of Qualitative Methods*, 19. Available at: <https://doi.org/10.1177/1609406919899220>.

OED (no date a) *advice, n.*, *Oxford English Dictionary*. Oxford University Press. Available at: <https://doi.org/10.1093/OED/9726626955>.

OED (no date b) *advisory, adj. & n.*, *Oxford English Dictionary*. Oxford University Press. Available at: <https://doi.org/10.1093/OED/3131903884>.

OED (no date c) *endogenous, adj.*, *Oxford English Dictionary*. Oxford University Press. Available at: <https://doi.org/10.1093/OED/1062342820>.

OED (no date d) *exogenous, adj.*, *Oxford English Dictionary*. Oxford University Press. Available at: <https://doi.org/10.1093/OED/1698384647>.

OED (no date e) *function, n.*, *Oxford English Dictionary*. Oxford University Press. Available at: <https://doi.org/https://doi.org/10.1093/OED/6216337149>.

OED (no date f) *knowledge, n.*, *Oxford English Dictionary*. Oxford University Press. Available at: <https://doi.org/10.1093/OED/6648120396>.

Olazabal, M. *et al.* (2018) 'Emergence of new knowledge for climate change adaptation', *Environmental Science & Policy*, 83, pp. 46–53. Available at: <https://doi.org/10.1016/j.envsci.2018.01.017>.

Oliver, K. *et al.* (2014) 'A systematic review of barriers to and facilitators of the use of evidence by policymakers', *BMC Health Services Research*, 14(1), pp. 1–12. Available at: <https://doi.org/10.1186/1472-6963-14-2>.

Oliver, K. and Cairney, P. (2019) 'The dos and don'ts of influencing policy: a systematic review of advice to academics', *Palgrave Communications 2019 5:1*, 5(1), pp. 1–11. Available at: <https://doi.org/10.1057/s41599-019-0232-y>.

Oliver, K., Lorenc, T. and Innvær, S. (2014) 'New directions in evidence-based policy research: A critical analysis of the literature', *Health Research Policy and Systems*, 12(1), pp. 1–11. Available at: <https://doi.org/10.1186/1478-4505-12-34>.

Orton, L. *et al.* (2011) 'The Use of Research Evidence in Public Health Decision Making Processes: Systematic Review', *PLOS ONE*, 6(7), p. e21704. Available at: <https://doi.org/10.1371/journal.pone.0021704>.

Owens, S. (2005) 'Making a difference? Some perspectives on environmental research and policy', *Transactions of the Institute of British Geographers*, 30(3), pp. 287–292. Available at: <https://doi.org/10.1111/J.1475-5661.2005.00171.X>.

Owens, S. (2011) 'Knowledge, advice and influence: the role of the UK Royal Commission on Environmental Pollution, 1970-2009.', in J. Lentsch and P. Weingart (eds) *The Politics of Scientific Advice: institutional design for quality assurance*. Cambridge: Cambridge University Press, pp. 73–102.

Owens, S. (2012) 'Experts and the Environment--The UK Royal Commission on Environmental Pollution 1970-2011', *Journal of Environmental Law*, 24(1), pp. 1–22. Available at: <https://doi.org/10.1093/jel/eqr031>.

Owens, S. (2015) *Knowledge, policy, and expertise: The UK Royal Commission on Environmental Pollution 1970-2011*. Oxford University Press.

Patton, M. *et al.* (1977) 'In search of impact: An analysis of the utilization of Federal Health Evaluation Research.', in C.H. Weiss (ed.) *Using Social Research in Public Policy Making*. Lexington, MA: Lexington Books, pp. 141–165.

Patton, M. (2015) 'Misuse: The shadow side of use.', in C.A. Christie and A.T. Vo (eds) *Evaluation use and decision making in society: A tribute to Marvin C. Alkin*. Information Age Publishing Inc., pp. 131–149.

Patton, M.Q. and Campbell-Patton, C. (2022) *Utilization-Focused Evaluation*. 5th edn. London: SAGE Publications Inc.

Pelz, D.C. (1978) 'Some Expanded Perspectives on Use of Social Science in Public Policy.', in J.M. Yinger and S.J. Cutler (eds) *Major Social Issues: A Multidisciplinary View*. New York: The Free Press, pp. 346–358.

Pitt, M. (2007) *The Pitt Review*. Available at: https://webarchive.nationalarchives.gov.uk/ukgwa/20100702215619/http://archive.cabinetoffice.gov.uk/pittreview/thepittreview/final_report.html (Accessed: 31 August 2023).

Pye, S. *et al.* (2017) 'Achieving net-zero emissions through the reframing of UK national targets in the post-Paris Agreement era', *Nature Energy*, 2(3), p. 17024. Available at: <https://doi.org/10.1038/nenergy.2017.24>.

Radaelli, C.M. (1995) 'The role of knowledge in the policy process', *Journal of European Public Policy*, 2(2), pp. 159–183. Available at: <https://doi.org/10.1080/13501769508406981>.

Reader, N. (2015) 'Assessing the Policy Impact of Australia's Parliamentary Electoral Matters Committees: A Case Study of the Victorian Electoral Matters Committee and the Introduction of Direct Electoral Enrolment', *Parliamentary Affairs*, 68(3), pp. 494–513. Available at: <https://doi.org/10.1093/pa/gst035>.

Rich, R.F. (1975) 'Selective utilization of social science related information by federal policymakers.', *Inquiry*, 12(3), pp. 239–245.

Rich, R.F. (1977) 'Use of Social Science Information by Federal Bureaucrats: Knowledge for Action versus Knowledge for Understanding.', in C.H. Weiss (ed.) *Using Social Research in Public Policy Making*. Lexington, MA: Lexington Books, pp. 199–213.

Rich, R.F. (1997) 'Measuring knowledge utilization: Processes and outcomes', *Knowledge and Policy*, 10(3), pp. 11–24. Available at: <https://doi.org/10.1007/bf02912504>.

Rockwell, S.K., Dickey, E.C. and Jasa, P.J. (1990) 'The personal factor in evaluation use: A case study of a steering committee's use of a conservation tillage survey', *Evaluation and Program Planning*, 13(4), pp. 389–394. Available at: [https://doi.org/10.1016/0149-7189\(90\)90024-Q](https://doi.org/10.1016/0149-7189(90)90024-Q).

Rona-Tas, A. *et al.* (2019) 'Enlisting Supervised Machine Learning in Mapping Scientific Uncertainty Expressed in Food Risk Analysis', *Sociological Methods and*

Research, 48(3), pp. 608–641. Available at: <https://doi.org/10.1177/0049124117729701>.

Roulston, K. and Choi, M. (2018) ‘Qualitative Interviews.’, in U. Flick (ed.) *The SAGE Handbook of Qualitative Data Collection*. London: SAGE Publications Ltd, pp. 233–249. Available at: <https://doi.org/10.4135/9781526416070>.

Rowlatt, J. (2023) *UK net zero targets ‘harder to achieve’ after PM’s speech - advisers - BBC News, BBC*. Available at: <https://www.bbc.co.uk/news/science-environment-67087411> (Accessed: 17 October 2023).

Russell, M. and Benton, M. (2011) *Selective Influence: The Policy Impact of House of Commons Select Committees*. London: UK. Available at: <https://www.ucl.ac.uk/constitution-unit/sites/constitution-unit/files/153.pdf> (Accessed: 31 October 2020).

Sabatier, P.A. (1986) ‘Top-Down and Bottom-Up Approaches to Implementation Research: A Critical Analysis and Suggested Synthesis’, *Journal of Public Policy*, 6(1), pp. 21–48. Available at: <https://doi.org/10.1017/S0143814X00003846>.

Sabatier, P.A. (1987) ‘Knowledge, policy-oriented learning, and policy change: an advocacy coalition framework.’, *Science Communication*, 8(4), pp. 649–692.

Sabatier, P.A. (1988) ‘An advocacy coalition framework of policy change and the role of policy-oriented learning therein’, *Policy Sciences*, 21(2–3), pp. 129–168. Available at: <https://doi.org/10.1007/bf00136406>.

Sager, F. *et al.* (2020) ‘Utilization-focused scientific policy advice: a six-point checklist’, *Climate Policy*, 20(10), pp. 1336–1343. Available at: <https://doi.org/10.1080/14693062.2020.1757399>.

Salacuse, J. (2018) ‘Advice in government and policymaking.’, in E. MacGeorge and L. Van Swol (eds) *The Oxford Handbook of Advice*. Oxford University Press, pp. 321–342. Available at: <https://doi.org/https://doi.org/10.1093/oxfordhb/9780190630188.013.16>.

Saldana, J. (2013) *The Coding manual for qualitative researchers*. 2nd edn, *The Coding Manual For Qualitative Researchers*. 2nd edn. SAGE Publications Ltd.

Schrefler, L. (2010) ‘The Usage of Scientific Knowledge by Independent Regulatory Agencies’, *Governance*, 23(2), pp. 309–330. Available at: <https://doi.org/10.1111/J.1468-0491.2010.01481.X>.

Schreier, M. (2012) *Qualitative Content Analysis in Practice*. London: UK: SAGE Publications Ltd.

Scotford, E. and Minas, S. (2019) ‘Probing the hidden depths of climate law: Analysing national climate change legislation’, *Review of European, Comparative and International Environmental Law*, 28(1), pp. 67–81. Available at: <https://doi.org/10.1111/reel.12259>.

Scott, R. and Shore, A. (1979) *Why sociology does not apply: A study of the use of sociology in public policy*. Elsevier.

Seely, M. *et al.* (2008) 'Advances in desertification and climate change research: Are they accessible for application to enhance adaptive capacity?', *Global and Planetary Change*, 64(3–4), pp. 236–243. Available at: <https://doi.org/10.1016/j.gloplacha.2008.07.006>.

Self, B. (2021) 'Conducting Interviews During the COVID-19 Pandemic and Beyond.', *Forum: Qualitative Research Methods*, 22(3), pp. 1–18. Available at: <https://www.qualitative-research.net/index.php/fqs/article/view/3741/4765> (Accessed: 15 November 2023).

Seto, K.C. *et al.* (2016) 'Carbon Lock-In: Types, Causes, and Policy Implications', *Annual Review of Environment and Resources*, 41, pp. 425–452. Available at: <https://doi.org/10.1146/annrev-environ-110615-085934>.

Sharmina, M. *et al.* (2021) 'Decarbonising the critical sectors of aviation, shipping, road freight and industry to limit warming to 1.5–2°C', *Climate Policy*, 21(4), pp. 455–474. Available at: <https://doi.org/10.1080/14693062.2020.1831430>.

Silverman, D. (2020) *Interpreting qualitative data*. London: SAGE Publications Ltd.

Stewart, J. and Prosser, S. (2015) 'Expert policy advisory bodies.', in B. Head and Crowley, K. (eds) *Policy Analysis in Australia*. Bristol University Press Digital, pp. 151–166. Available at: <https://doi.org/10.51952/9781447310280.ch010>.

Van Swol, L., Paik, J. and Prahl, A. (2018) 'Advice recipients: The psychology of advice utilization.', in E.L. MacGeorge and L.M. Van Swol (eds) *The Oxford Handbook of Advice*. Oxford University Press, pp. 21–43. Available at: <https://doi.org/10.1093/oxfordhb/9780190630188.001.0001>.

Turnpenny, J., Russel, D. and Jordan, A. (2014) 'The Challenge of Embedding an Ecosystem Services Approach: Patterns of Knowledge Utilisation in Public Policy Appraisal', *Environment and Planning C: Government and Policy*, 32(2), pp. 247–262. Available at: <https://doi.org/10.1068/c1317>.

Turnpenny, J., Russel, D. and Rayner, T. (2013) 'The complexity of evidence for sustainable development policy: analysing the boundary work of the UK Parliamentary Environmental Audit Committee', *Transactions of the Institute of British Geographers*, 38(4), pp. 586–598. Available at: <https://doi.org/10.1111/j.1475-5661.2012.00549.x>.

UK Parliament (2008) *Climate Change Act 2008 publications*. Available at: <https://bills.parliament.uk/bills/195/publications> (Accessed: 20 October 2023).

UNEP (2020) *Emissions Gap Report 2020*. Available at: <https://www.unep.org/emissions-gap-report-2020> (Accessed: 19 October 2023).

UNEP (2021) *The Heat Is On: Emissions Gap Report 2021*. Available at: <https://www.unep.org/resources/emissions-gap-report-2021> (Accessed: 19 October 2023).

UNEP (2022) *Emissions Gap Report 2022 - The Closing Window: Climate crisis calls for rapid transformation of societies*. Available at:

<https://www.unep.org/resources/emissions-gap-report-2022> (Accessed: 31 May 2023).

UREC (2021) *UEA Research Ethics Policy*. Available at: <https://my.uea.ac.uk/documents/20142/9432848/FINAL+University+Research+Ethics+Policy+-+02+11+22.pdf/d809e1e5-0d6d-40c1-1e71-86f40fec03cb?t=1667578196386> (Accessed: 28 March 2023).

Wall, T.U., Meadow, A.M. and Horganic, A. (2017) 'Developing Evaluation Indicators to Improve the Process of Coproducing Usable Climate Science', *Weather, Climate, and Society*, 9(1), pp. 95–107. Available at: <https://doi.org/10.1175/wcas-d-16-0008.1>.

Wang, J. and Yan, Y. (2012) 'Chapter 15 | The Interview Question', in J.F. Gubrium et al. (eds) *The SAGE Handbook of Interview Research: The Complexity of the Craft*. 2nd edn. Thousand Oaks, California: SAGE Publications Inc., pp. 231–242.

Weaver, M. (2006) *Brown pledges to build 'zero carbon' homes | Environment | The Guardian*. Available at: <https://www.theguardian.com/environment/2006/dec/06/politics.greenpolitics> (Accessed: 5 September 2023).

Weaver, S., Lötjönen, S. and Ollikainen, M. (2019) *Overview of National Climate Change Advisory Councils*. Available at: https://helda.helsinki.fi/bitstream/handle/10138/317713/Overview_of_national_CCCs.pdf?sequence=1 (Accessed: 31 May 2023).

Weiss, C.H. (1977) 'Research for Policy's Sake: The Enlightenment Function of Social Research', *Policy Analysis*, 3(4), pp. 531–545. Available at: https://www.jstor.org/stable/pdf/42783234.pdf?refreqid=excelsior%3A256fad27eb016c76899da3569473e444&ab_segments=&origin=&initiator=&acceptTC=1 (Accessed: 22 September 2023).

Weiss, C.H. (1979) 'The Many Meanings of Research Utilization', *Public Administration Review*, 39(5), p. 426. Available at: <https://doi.org/10.2307/3109916>.

Weiss, C.H. (1980) 'Knowledge Creep and Decision Accretion', *Knowledge*, 1(3), pp. 381–404. Available at: <https://doi.org/10.1177/107554708000100303>.

Weiss, C.H. (1986) 'Research and policymaking: a limited partnership.', in F. Heller (ed.) *The use and abuse of social science*. London: UK: Sage Publications Ltd., pp. 214–235.

Weiss, C.H. (1991) 'Policy research: data, ideas, or arguments?', in P. Wagner et al. (eds) *Social Sciences and Modern States: National Experiences and Theoretical Crossroads*. 1st edn. Cambridge: Cambridge University Press, pp. 307–333.

Weiss, C.H. (1992) *Organisations for policy analysis: Helping government think*. 1st edn. Edited by C.H. Weiss. SAGE Publications Ltd.

Weiss, C.H. and Bucuvalas, M.J. (1977) 'The challenge of social research to decision making.', in C.H. Weiss (ed.) *Using Social Research in Public Policy Making*. Lexington, MA: Lexington Books, pp. 213–235.

Weiss, C.H. and Bucuvalas, M.J. (1980) 'Truth Tests and Utility Tests: Decision-Makers' Frames of Reference for Social Science Research.', *American Sociological Review*, 45(2), pp. 302–313.

Weiss, C.H., Murphy-Graham, E. and Birkeland, S. (2005) 'An alternate route to policy influence: How evaluations affect D.A.R.E', *American Journal of Evaluation*, 26(1), pp. 12–30. Available at: <https://doi.org/10.1177/1098214004273337>.

Wellstead, A., Cairney, P. and Oliver, K. (2018) 'Reducing ambiguity to close the science-policy gap', *Policy Design and Practice*, 1(2), pp. 115–125. Available at: <https://doi.org/10.1080/25741292.2018.1458397>.

Whitty, C.J.M. (2015) 'What makes an academic paper useful for health policy?', *BMC Medicine*, 13(1), pp. 1–5. Available at: <https://doi.org/10.1186/S12916-015-0544-8>.

Willis, R. (2020) *Too hot to handle? The democratic challenge of climate change*. Bristol University Press.

Zhao, J. and Zhu, X. (2023) 'Spreading expertise: Think tanks as digital advocates in the social media era.', *Policy and Society*, 42(3), pp. 359–377. Available at: <https://doi.org/10.1093/polsoc/ruad025>.

Appendix 1: List of collected documents

A total of 365 documents were collected for this thesis, of which 241 (66%) were analysed (see Chapter 3). Collected documents are detailed below, in chronological order, according to the relevant Research Question.

Appendix 1 Table 1: Documents collected and analysed for Research Question 1

331 documents were collected of which 124 (37%) were excluded using the search criteria described in Chapter 3.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
1	Draft Climate Change Bill Consultation Document	UK Government	2007	23/02/23	Yes	Draft Climate Change Bill Cm 7040 (publishing.service.gov.uk)
2	Environment, Food and Rural Affairs Committee Report on the Draft Climate Change Bill	UK Parliament (Select Committee)	2007	23/02/23	Yes	Microsoft Word - HC 534-I CCB Volume I report final version.doc (parliament.uk)
3	Environmental Audit Committee report on the Draft Climate Change Bill	UK Parliament (Select Committee)	2007	23/02/23	Yes	Microsoft Word - CRC - seventh Report - Beyond Stern.doc (parliament.uk)
4	Joint Committee Report on the Draft Climate Change Bill	UK Parliament (Select Committee)	2007	23/02/23	Yes	Microsoft Word - Draft Climate Change Bill Final Report.doc (parliament.uk)

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
5	The Government Response to the Pre-Legislative Scrutiny and Public Consultation	UK Government	2007	23/02/23	Yes	Taking Forward the UK Climate Change Bill: The Government Response to Pre-Legislative Scrutiny and Public Consultation October 2007 Cm 7225 (publishing.service.gov.uk)
6	Lords 1 st Reading – pt 1	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/l200708/ldhansrd/text/7114-0002.htm#07111435000003
7	Lords 1 st Reading – pt2	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/l200708/ldhansrd/text/7114-0002.htm
8	Lords 1 st Reading – pt3	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/l200708/ldhansrd/text/7114-0003.htm
9	Lords 1 st Reading – pt4	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/l200708/ldhansrd/text/7114-0004.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
10	Lords 1 st Reading – pt5	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/lld200708/ldhansrd/text/71114-0005.htm
11	Lords 1 st Reading – pt6	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/lld200708/ldhansrd/text/71114-0006.htm
12	Lords 1 st Reading – pt7	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/lld200708/ldhansrd/text/71114-0007.htm
13	Lords 1 st Reading – pt8	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/lld200708/ldhansrd/text/71114-0008.htm
14	Lords 1 st Reading – pt9	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/lld200708/ldhansrd/text/71114-0009.htm
15	Lords 1 st Reading – pt10	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/lld200708/ldhansrd/text/71114-0010.htm
16	Lords 1 st Reading – pt11	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/lld200708/ldhansrd/text/71114-0011.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
17	Lords 1 st Reading – pt12	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/7114-0012.htm
18	Lords 1 st Reading – pt13	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/7114-0013.htm
19	Lords 1 st Reading – pt14	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/7114-0014.htm
20	Lords 1 st Reading – pt15	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/7114-0015.htm
21	Bill as introduced to the House of Lords as at 15 November 2007	UK Parliament (House of Lords)	2007	24/02/23	Yes	Climate Change Bill [HL] (parliament.uk)
22	Lords 2 nd Reading – pt 1	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0002.htm#07112752000002
23	Lords 2 nd Reading – pt2	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0003.htm
24	Lords 2 nd Reading – pt3	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0004.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
25	Lords 2 nd Reading – pt4	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0005.htm
26	Lords 2 nd Reading – pt5	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0006.htm
27	Lords 2 nd Reading – pt6	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0007.htm
28	Lords 2 nd Reading – pt7	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0008.htm
29	Lords 2 nd Reading – pt8	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0009.htm
30	Lords 2 nd Reading – pt9	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0010.htm
31	Lords 2 nd Reading – pt10	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0011.htm
32	Lords 2 nd Reading – pt11	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71127-0012.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
33	Lords 2 nd Reading – pt12	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0013.htm
34	Lords 2 nd Reading – pt13	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71127-0014.htm
35	Amendments to be moved in Committee on 29 November 2007.	UK Parliament (House of Lords)	2007	22/05/23	No	https://publications.parliament.uk/pa/ld200708/ldbills/009/amend/am009-a.htm
36	Amendments to be moved in Committee on 30 November 2007.	UK Parliament (House of Lords)	2007	22/05/23	No	https://publications.parliament.uk/pa/ld200708/ldbills/009/amend/am009-a.htm
37	Amendments to be moved in Committee on 4 December 2007.	UK Parliament (House of Lords)	2007	22/05/23	No	https://publications.parliament.uk/pa/ld200708/ldbills/009/amend/am009-b.htm
38	Amendments to be moved in Committee on 5 December 2007.	UK Parliament (House of Lords)	2007	22/05/23	No	https://publications.parliament.uk/pa/ld200708/ldbills/009/amend/am009-c.htm
39	Amendments to be moved in Committee on 6 December 2007.	UK Parliament (House of Lords)	2007	22/05/23	No	https://publications.parliament.uk/pa/ld200708/ldbills/009/amend/am009-e.htm
40	Amendments to be moved in Committee on 7 December 2007.	UK Parliament (House of Lords)	2007	22/05/23	No	https://publications.parliament.uk/pa/ld200708/ldbills/009/amend/am009-f.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
41	Marshalled List of Amendments to be Moved in Committee as at 7th December.	UK Parliament (House of Lords)	2007	18/05/23	Yes	Amendment text (10 December 2007) (parliament.uk)
42	Revised Marshalled List of Amendments to be moved in Committee as at 10 th December 2007.	UK Parliament (House of Lords)	2007	18/05/23	No	Amendment text (11 December 2007) (parliament.uk)
43	Committee stage 1 st sitting – pt1	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71211-0002.htm#07121139000002
44	Committee stage 1 st sitting – pt2	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71211-0003.htm
45	Committee stage 1 st sitting – pt3	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71211-0004.htm
46	Second Marshalled List of Amendments to be moved in Committee as at 13 December 2007.	UK Parliament (House of Lords)	2007	18/05/23	No	Amendment text (14 December 2007) (parliament.uk)
47	Committee stage 2 nd sitting – pt1	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/71217-0002.htm#0712172000002

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
48	Committee stage 2 nd sitting – pt2	UK Parliament (House of Lords)	2007	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71217-0003.htm
49	Committee stage 2 nd sitting – pt3	UK Parliament (House of Lords)	2007	24/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/71217-0004.htm
50	Third Marshalled List of Amendments to be Moved in Committee as at 4 January 2008.	UK Parliament (House of Lords)	2008	02/05/23	Yes	Amendment text (7 January 2008) (parliament.uk)
51	Committee stage 3 rd sitting – pt1	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0002.htm#8010865000002
52	Committee stage 3 rd sitting – pt2	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0003.htm
53	Committee stage 3 rd sitting – pt3	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0004.htm
54	Committee stage 3 rd sitting – pt4	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0005.htm
55	Committee stage 3 rd sitting -pt5	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0006.htm
56	Committee stage 3 rd sitting – pt6	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0007.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
57	Committee stage 3 rd sitting – pt7	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0008.htm
58	Committee stage 3 rd sitting – pt8	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0009.htm
59	Committee stage 3 rd sitting – pt9	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0010.htm
60	Committee stage 3 rd sitting – pt10	UK Parliament (House of Lords)	2008	24/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80108-0011.htm
61	Fourth Marshalled List of Amendments to be moved in Committee as at 9 January 2008.	UK Parliament (House of Lords)	2008	18/05/23	No	Amendment text (9 January 2008) (parliament.uk)
62	Fifth Marshalled List of Amendments to be Moved in Committee as at 10 January 2008.	UK Parliament (House of Lords)	2008	02/05/23	Yes	Amendment text (11 January 2008) (parliament.uk)
63	Committee stage 4 th sitting – pt1	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80109-0002.htm#801097600002
64	Committee stage 4 th sitting – pt2	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80109-0003.htm
65	Committee stage 4 th sitting – pt3	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80109-0004.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
66	Committee stage 4 th sitting – pt4	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80109-0005.htm
67	Committee stage 4 th sitting – pt5	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80109-0006.htm
68	Committee stage 4 th sitting – pt6	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80109-0007.htm
69	Committee stage 4 th sitting – pt7	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80109-0008.htm
70	Committee stage 5 th sitting – pt1	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80114-0002.htm#8011414000002
71	Committee stage 5 th sitting – pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80114-0003.htm
72	Committee stage 5 th sitting – pt3	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80114-0004.htm
73	Committee stage 5 th sitting – pt4	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80114-0005.htm
74	Committee stage 5 th sitting – pt5	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80114-0006.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
75	Committee stage 5 th sitting – pt6	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0007.htm
76	Committee stage 5 th sitting – pt7	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0008.htm
77	Committee stage 5 th sitting – pt8	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0009.htm
78	Committee stage 5 th sitting – pt9	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0010.htm
79	Committee stage 5 th sitting – pt10	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80114-0011.htm
80	Sixth Marshalled List of Amendments to be Moved in Committee as at 21 January 2008.	UK Parliament (House of Lords)	2008	17/05/23	Yes	Amendment text (22 January 2008) (parliament.uk)
81	Committee stage 6 th sitting – pt1	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0002.htm#08012362000002
82	Committee stage 6 th sitting – pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0003.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
83	Committee stage 6 th sitting – pt3	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0004.htm
84	Committee stage 6 th sitting – pt4	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0005.htm
85	Committee stage 6 th sitting – pt5	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0006.htm
86	Committee stage 6 th sitting – pt6	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0007.htm
87	Committee stage 6 th sitting – pt7	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0008.htm
88	Committee stage 6 th sitting – pt8	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0009.htm
89	Committee stage 6 th sitting – pt9	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0010.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
90	Committee stage 6 th sitting – pt10	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80123-0011.htm
91	Seventh Marshalled List of Amendments to be moved in Committee as at 28 January 2008.	UK Parliament (House of Lords)	2008	02/05/23	No	Amendment text (29 January 2008) (parliament.uk)
92	Committee stage 7 th sitting – pt1	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80130-0007.htm#08013075000004
93	Committee stage 7 th sitting – pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80130-0008.htm
94	Committee stage 7 th sitting – pt3	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80130-0009.htm
95	Committee stage 7 th sitting – pt4	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80130-0010.htm
96	Committee stage 7 th sitting – pt5	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80130-0011.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
97	Committee stage 7 th sitting – pt6	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0012.htm
98	Committee stage 7 th sitting – pt7	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0013.htm
99	Committee stage 7 th sitting – pt8	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0014.htm
100	Committee stage 7th sitting – pt9	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0015.htm
101	Committee stage 7th sitting – pt10	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0016.htm
102	Committee stage 7th sitting – pt11	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0017.htm
103	Committee stage 7th sitting – pt12	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0018.htm
104	Committee stage 7th sitting – pt13	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80130-0019.htm
105	Eighth Marshalled List of Amendments to be moved in Committee as at 31 January 2008.	UK Parliament (House of Lords)	2008	02/05/23	No	Amendment text (1 February 2008) (parliament.uk)

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
106	Committee stage 8th sitting – pt1	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80204-0011.htm#08020432000003
107	Committee stage 8th sitting – pt2	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80204-0012.htm
108	Bill as introduced to the House of Lords as at 5 February 2008	UK Parliament (House of Lords)	2008	27/02/23	Yes	newbook.book(parliament.uk)
109	Marshalled List of Amendments to be moved on Report as at 21 February 2008.	UK Parliament (House of Lords)	2008	22/05/23	No	Amendment text (22 February 2008) (parliament.uk)
110	Report stage 1 – pt1	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0003.htm#0802253000008
111	Report stage 1- pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0004.htm
112	Report stage 1 - pt3	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0005.htm
113	Report stage 1 – pt4	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0006.htm
114	Report stage 1 – pt5	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0007.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
115	Report stage 1 – pt6	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0008.htm
116	Report stage 1 – pt7	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0009.htm
117	Report stage 1 – pt8	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80225-0010.htm
118	Second Marshalled List of Amendments to be Moved on Report as at 29 February 2008.	UK Parliament (House of Lords)	2008	18/05/23	Yes	Amendment text (3 March 2008) (parliament.uk)
119	Amendment to be moved on Report (Supplementary to the Second Marshalled List) as at 4 March 2008.	UK Parliament (House of Lords)	2008	02/05/23	No	Amendment text (5 March 2008) (parliament.uk)
120	Report stage 2 – pt1	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80304-0002.htm#08030459000007
121	Report stage 2 – pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80304-0003.htm
122	Report stage 2 – pt3	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80304-0004.htm
123	Report stage 2 – pt4	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80304-0005.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
124	Report stage 2 – pt5	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80304-0006.htm
125	Report stage 2 – pt6	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80304-0007.htm
126	Report stage 2 – pt7	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80304-0008.htm
127	Supplementary to the Second Marshalled List of Amendments to be moved on Report as at 6 th March 2008.	UK Parliament (House of Lords)	2008	02/05/23	No	Amendment text (7 March 2008) (parliament.uk)
128	Third Marshalled List of Amendments to be moved on Report as at 7 March 2008.	UK Parliament (House of Lords)	2008	02/05/23	No	Amendment text (10 March 2008) (parliament.uk)
129	Report stage 3 – pt1	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0002.htm#080311102000006
130	Report stage 3 – pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0003.htm
131	Report stage 3 – pt3	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0004.htm
132	Report stage 3 – pt4	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80311-0005.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
133	Report stage 3 – pt5	UK Parliament (House of Lords)	2008	27/02/2023	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80311-0006.htm
134	Report stage 3 – pt6	UK Parliament (House of Lords)	2008	27/02/2023	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80311-0007.htm
135	Report stage 3 – pt7	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80311-0008.htm
136	Report stage 3 – pt8	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80311-0009.htm
137	Report stage 3 – pt9	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80311-0010.htm
138	Report stage 3 – pt10	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80311-0011.htm
139	Report stage 3 – pt11	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80311-0012.htm
140	Supplementary to the Third Marshalled List of Amendments to be moved on Report as at 13 March 2008.	UK Parliament (House of Lords)	2008	18/05/23	No	Amendment text (14 March 2008) (parliament.uk)
141	Fourth Marshalled List of Amendments to be Moved on Report as at 14 March 2008.	UK Parliament (House of Lords)	2008	18/05/23	Yes	Amendment text (17 March 2008) (parliament.uk)

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
142	Report stage 4 – pt1	UK Parliament (House of Lords)	2008	18/05/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0003.htm
143	Report stage 4 – pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0004.htm
144	Report stage 4 – pt3	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0005.htm
145	Report stage 4 – pt4	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0006.htm
146	Report stage 4 – pt5	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0007.htm
147	Report stage 4 – pt6	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0008.htm
148	Report stage 4 - pt7	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0009.htm
149	Report stage 4 – pt8	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0010.htm
150	Report stage 4 – pt9	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0011.htm
151	Report stage 4 – pt10	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/1dhansrd/text/80318-0012.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
152	Marshalled List of Amendments to be Moved on Third Reading as at 28 March 2008.	UK Parliament (House of Lords)	2008	22/05/23	No	Amendment text (31 March 2008) (parliament.uk)
153	Lords 3 rd Reading	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/80331-0005.htm#0803317000002
154	Bill as brought from the Lords on 1 April	UK Government	2008	27/02/23	Yes	Climate Change Bill [HL] (parliament.uk)
155	Commons 2 nd Reading – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0006.htm#0806094000001
156	Commons 2 nd Reading – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0007.htm
157	Commons 2 nd Reading – pt3	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0008.htm
158	Commons 2 nd Reading – pt4	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0009.htm
159	Commons 2 nd Reading – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0010.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
160	Commons 2 nd Reading – pt6	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0011.htm
161	Commons 2 nd Reading – pt7	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0012.htm
162	Commons 2 nd Reading – pt8	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0013.htm
163	Commons 2 nd Reading – pt9	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0014.htm
164	Commons 2 nd Reading – pt10	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0015.htm
165	Commons 2 nd Reading – pt11	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0016.htm
166	Commons 2 nd Reading – pt12	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0017.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
167	Commons 2 nd Reading – pt13	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0018.htm
168	Commons 2 nd Reading – pt14	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0019.htm
169	Commons 2 nd Reading – pt15	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0020.htm
170	Commons 2 nd Reading – pt16	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm080609/debtext/80609-0021.htm
171	Public Bill Committee Amendments as at 24 June 2008.	UK Parliament (House of Commons)	2008	22/05/23	Yes	House of Commons Amendments (parliament.uk)
172	Committee: 1 st sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s01.htm
173	Committee: 1 st sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s02.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
174	Committee: 1 st sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s03.htm
175	Committee: 1 st sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s04.htm
176	Committee: 1 st sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s05.htm
177	Committee: 1 st sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s06.htm
178	Committee: 1 st sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s07.htm
179	Committee: 1 st sitting – pt8	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/am/80624s08.htm
180	Committee: 2 nd sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s01.htm
181	Committee: 2 nd sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s02.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
182	Committee: 2 nd sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s03.htm
183	Committee: 2 nd sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s04.htm
184	Committee: 2 nd sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s05.htm
185	Committee: 2 nd sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s06.htm
186	Committee: 2 nd sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s07.htm
187	Committee: 2 nd sitting – pt8	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080624/pm/80624s08.htm
188	Public Bill Committee Amendments as at 26 June 2008.	UK Parliament (House of Commons)	2008	22/05/23	No	House of Commons Amendments (parliament.uk)
189	Committee: 3 rd sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/am/80626s01.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
190	Committee: 3 rd sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/am/80626s02.htm
191	Committee: 3 rd sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/am/80626s03.htm
192	Committee: 3 rd sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/am/80626s04.htm
193	Committee: 3 rd sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/am/80626s05.htm
194	Committee: 4 th sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s01.htm
195	Committee: 4 th sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s02.htm
196	Committee: 4 th sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s03.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
197	Committee: 4 th sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s04.htm
198	Committee: 4 th sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s05.htm
199	Committee: 4 th sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s06.htm
200	Committee: 4 th sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s07.htm
201	Committee: 4 th sitting – pt8	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s08.htm
202	Committee: 4 th sitting – pt9	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080626/pm/80626s09.htm
203	Public Bill Committee Amendments as at 1 July 2008.	UK Parliament (House of Commons)	2008	19/05/23	Yes	House of Commons Amendments (parliament.uk)

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
204	Committee: 5 th sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s01.htm
205	Committee: 5 th sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s02.htm
206	Committee: 5 th sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s03.htm
207	Committee: 5 th sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s04.htm
208	Committee: 5 th sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s05.htm
209	Committee: 5 th sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s06.htm
210	Committee: 5 th sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/am/80701s07.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
211	Committee: 6 th sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s01.htm
212	Committee: 6 th sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s02.htm
213	Committee: 6 th sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s03.htm
214	Committee: 6 th sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s04.htm
215	Committee: 6 th sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s05.htm
216	Committee: 6 th sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s06.htm
217	Committee: 6 th sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s07.htm
218	Committee: 6 th sitting – pt8	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s08.htm

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Appendix 1 Table 1: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
219	Committee: 6 th sitting – pt9	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s09.htm
220	Committee: 6 th sitting – pt10	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s10.htm
221	Committee: 6 th sitting – pt11	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s11.htm
222	Committee: 6 th sitting – pt12	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s12.htm
223	Committee: 6 th sitting – pt13	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s13.htm
224	Committee: 6 th sitting – pt14	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080701/pm/80701s14.htm
225	Public Bill Committee Amendments as at 3 July 2008.	UK Parliament (House of Commons)	2008	22/05/23	No	House of Commons Amendments (parliament.uk)
226	Committee: 7 th sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/am/80703s01.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
227	Committee: 7 th sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/am/80703s02.htm
228	Committee: 7 th sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/am/80703s03.htm
229	Committee: 7 th sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/am/80703s04.htm
230	Committee: 7 th sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/am/80703s05.htm
231	Committee: 8 th sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s01.htm
232	Committee: 8 th sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s02.htm
233	Committee: 8 th sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s03.htm
234	Committee: 8 th sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s04.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
235	Committee: 8 th sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s05.htm
236	Committee: 8 th sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s06.htm
237	Committee: 8 th sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s07.htm
238	Committee: 8 th sitting – pt8	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s08.htm
239	Committee: 8 th sitting – pt9	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s09.htm
240	Committee: 8 th sitting – pt10	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080703/pm/80703s10.htm
241	Public Bill Committee Amendments as at 8 July 2008.	UK Parliament (House of Commons)	2008	22/05/23	No	House of Commons Amendments (parliament.uk)
242	Committee: 9 th sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s01.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
243	Committee: 9 th sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s02.htm
244	Committee: 9 th sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s03.htm
245	Committee: 9 th sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s04.htm
246	Committee: 9 th sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s05.htm
247	Committee: 9 th sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s06.htm
248	Committee: 9 th sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s07.htm
249	Committee: 9 th sitting – pt8	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s08.htm
250	Committee: 9 th sitting - pt9	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/am/80708s09.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
251	Committee: 10 th sitting – pt1	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s01.htm
252	Committee: 10 th sitting – pt2	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s02.htm
253	Committee: 10 th sitting – pt3	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s03.htm
254	Committee: 10 th sitting – pt4	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s04.htm
255	Committee: 10 th sitting – pt5	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s05.htm
256	Committee: 10 th sitting – pt6	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s06.htm
257	Committee: 10 th sitting – pt7	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s07.htm
258	Committee: 10 th sitting – pt8	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s08.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
259	Committee: 10 th sitting – pt9	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s08.htm
260	Committee: 10 th sitting – pt10	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s10.htm
261	Committee: 10 th sitting – pt11	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s11.htm
262	Committee: 10 th sitting – pt12	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s12.htm
263	Committee: 10 th sitting – pt13	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s13.htm
264	Committee: 10 th sitting – pt14	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s14.htm
265	Committee: 10 th sitting – pt15	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s15.htm
266	Committee: 10 th sitting – pt16	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s16.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
267	Committee: 10 th sitting – pt17	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s17.htm
268	Committee: 10 th sitting – pt18	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s18.htm
269	Committee: 10 th sitting – pt19	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmpublic/climate/080708/pm/80708s19.htm
270	Public Bill Committee Amendments as at 10 July 2008.	UK Parliament (House of Commons)	2008	22/05/23	No	House of Commons Amendments (parliament.uk)
271	Bill as amended in Public Bill Committee on 10 July 2008.	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmbills/129/2008129.pdf
272	Commons report stage – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0004.htm
273	Commons report stage – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0005.htm
274	Commons report stage – pt3	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0006.htm
275	Commons report stage – pt4	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0007.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
276	Commons report stage – pt5	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0008.htm
277	Commons report stage – pt6	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0009.htm
278	Commons report stage – pt7	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0010.htm
279	Commons report stage – pt8	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0011.htm
280	Commons report stage – pt9	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0012.htm
281	Commons report stage – pt10	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0013.htm
282	Commons report stage – pt11	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0014.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
283	Commons report stage – pt12	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0015.htm
284	Commons report stage – pt13	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0016.htm
285	Commons report stage – pt14	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0017.htm
286	Commons report stage – pt15	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0018.htm
287	Commons report stage – pt16	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0019.htm
288	Commons report stage – pt17	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0020.htm
289	Commons report stage – pt18	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028/debtext/81028-0021.htm

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
290	Consideration of Bill as at 28 October 2008.	UK Parliament (House of Commons)	2008	22/05/23	No	House of Commons Amendments (parliament.uk)
291	Commons 3 rd Reading – pt1	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028-debtext/81028-0022.htm#08102914000002
292	Commons 3 rd Reading – pt2	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028-debtext/81028-0023.htm
293	Commons 3 rd Reading – pt3	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028-debtext/81028-0024.htm
294	Commons 3 rd Reading – pt4	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081028-debtext/81028-0024.htm
295	Commons Amendments as at 30 October 2008.	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/1dbills/087/2008087.pdf
296	Marshalled List for Consideration of Commons Amendments as at 14 November 2008.	UK Parliament (House of Commons)	2008	17/05/23	No	House of Commons Amendments (parliament.uk)
297	Lords Amendments in lieu of, or to, Commons Amendments as at 18 November 2008.	UK Parliament (House of Commons)	2008	27/02/23	Yes	HCB 169.fm (parliament.uk)

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
298	Ping pong – pt1	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/17-0006.htm#0811175000007
299	Ping pong – pt2	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/17-0007.htm
300	Ping pong – pt3	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/17-0008.htm
301	Ping pong – pt4	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/17-0009.htm
302	Ping pong – pt5	UK Parliament (House of Lords)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/ld200708/17-0010.htm
303	Ping pong – pt6	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/17-0011.htm
304	Ping pong – pt7	UK Parliament (House of Lords)	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/17-0012.htm
305	Programme motion & ping pong 1 – pt1	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081118/debtext/81118-0013.htm#0811189300001

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
306	Programme motion – pt2	UK Parliament (House of Commons)	2008	27/02/23	Yes	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081118/debtext/8118-0014.htm
307	Programme motion -pt3	UK Parliament (House of Commons)	2008	27/02/23	No	https://publications.parliament.uk/pa/cm200708/cmhansrd/cm081118/debtext/8118-0015.htm
308	Royal Assent	UK Government	2008	27/02/23	No	https://publications.parliament.uk/pa/ld200708/ldhansrd/text/81126-0006.htm#08112648000004
309	Climate Change Act 2008	UK Government	2008	23/02/23	Yes	Climate Change Act 2008 (legislation.gov.uk)
310	Corporate Plan 2009-12	CCC	2009	27/02/23	Yes	Corporate plan for 2009-2012 - Climate Change Committee (theccc.org.uk)
311	Corporate plan 2010-2013	CCC	2010	27/02/23	Yes	Corporate plan for 2010-2013 - Climate Change Committee (theccc.org.uk)
312	Committee on Climate Change Framework Document	UK Government	2010	23/02/23	Yes	CCCFramework -Document.pdf (theccc.org.uk)
313	Corporate plan 2011-2014	CCC	2011	27/02/23	Yes	Corporate plan for 2011-2014 - Climate Change Committee (theccc.org.uk)
314	Corporate plan 2012-2015	CCC	2012	27/02/23	Yes	Corporate plan for 2012-2015 - Climate Change Committee (theccc.org.uk)

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
315	Corporate plan 2013-2016	CCC	2013	27/02/23	Yes	Corporate plan for 2013-2016 - Climate Change Committee (theccc.org.uk)
316	Triennial Review of the Committee on Climate Change	UK Government	2014	23/02/23	Yes	committee climate change triennial review 2013.pdf (publishing.service.gov.uk)
317	Corporate plan 2014-2017	CCC	2014	27/02/23	Yes	Corporate plan for 2014-2017 - Climate Change Committee (theccc.org.uk)
318	Infrastructure Act 2015	UK Government	2015	23/02/23	Yes	Infrastructure Act 2015 (legislation.gov.uk)
319	Corporate plan 2015-2018	CCC	2015	27/02/23	Yes	Corporate plan for 2015-2018 - Climate Change Committee (theccc.org.uk)
320	Corporate plan 2016-2019	CCC	2016	27/02/23	Yes	Corporate plan for 2016-2019 - Climate Change Committee (theccc.org.uk)
321	Corporate plan 2017-2020	CCC	2017	27/02/23	Yes	Corporate plan for 2017-2020 - Climate Change Committee (theccc.org.uk)
322	Triennial Review of the Committee on Climate Change	UK Government	2018	23/02/23	Yes	Committee on Climate Change: Tailored Review report 2018 (publishing.service.gov.uk)
323	Corporate plan 2020-2023	CCC	2020	27/02/23	Yes	Corporate plan for 2020-2023 - Climate Change Committee (theccc.org.uk)

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
324	CCC Insight Briefing 1: The UK Climate Change Act	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-1-The-UK-Climate-Change-Act.pdf (theccc.org.uk)
325	CCC Insight Briefing 2: The Climate Change Committee	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-2-The-Climate-Change-Committee.pdf (theccc.org.uk)
326	CCC Insight Briefing 3: The UK's Net Zero Target	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-3-The-UKs-Net-Zero-target.pdf (theccc.org.uk)
327	CCC Insight Briefing 4: Advising on the level of the UK's carbon budgets	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-4-Advising-on-the-level-of-the-Uks-carbon-budgets.pdf (theccc.org.uk)
328	CCC Insight Briefing 5: Monitoring progress in reducing the UK's greenhouse emissions	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-5-Monitoring-progress-in-reducing-the-Uks-greenHouse-gas-emissions.pdf (theccc.org.uk)
329	CCC Insight Briefing 6: Undertaking a climate change risk assessment	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-6-Undertaking-a-climate-change-risk-assessment.pdf (theccc.org.uk)

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No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
330	CCC Insight Briefing 7: Assessing progress in preparing for climate change in the UK	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-7-Assessing-progress-preparing-for-climate-change.pdf (theccc.org.uk)
331	CCC Insight Briefing 8: Past Climate Change Committee reports	CCC	2020	27/02/23	Yes	CCC-Insights-Briefing-8-Past-Climate-Change-Committee-reports.pdf (theccc.org.uk)

Appendix 1 Table 2: Documents collected and analysed for Research Question 2

As stated in Chapter 3, 19 of the CCC's annual progress reports were collected for analysis for the second research question.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
1	Meeting carbon budgets – the need for a step change.	CCC	2009	09/12/19	Yes	https://www.theccc.org.uk/publication/meeting-carbon-budgets-the-need-for-a-step-change-1st-progress-report/
2	Meeting carbon budgets – ensuring a low-carbon recovery.	CCC	2010	09/12/19	Yes	https://www.theccc.org.uk/publication/meeting-carbon-budgets-ensuring-a-low-carbon-recovery-2nd-progress-report/
3	How well prepared is the UK for climate change?	AC	2010	09/12/19	Yes	https://www.theccc.org.uk/publication/how-well-prepared-is-the-uk-for-climate-change/

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Appendix 1 Table 2: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
4	Meeting carbon budgets – 3 rd progress report to Parliament.	CCC	2011	09/12/19	Yes	https://www.theccc.org.uk/publication/meeting-carbon-budgets-3rd-progress-report-to-parliament/
5	Adapting to climate change in the UK – Measuring progress.	AC	2011	09/12/19	Yes	https://www.theccc.org.uk/publication/adapting-to-climate-change-in-the-uk-measuring-progress-2nd-progress-report-2011/
6	Meeting carbon budgets – 2012 progress report to Parliament.	CCC	2012	09/12/19	Yes	https://www.theccc.org.uk/publication/meeting-the-carbon-budgets-2012-progress-report-to-parliament/
7	Meeting carbon budgets – 2013 progress report to Parliament.	CCC	2013	09/12/19	Yes	https://www.theccc.org.uk/publication/2013-progress-report/
8	Managing the land in a changing climate – Adaptation Sub-Committee progress report 2013.	AC	2013	09/12/19	Yes	https://www.theccc.org.uk/publication/managing-the-land-in-a-changing-climate/
9	Managing climate risks to well-being and the economy: AC progress report 2014.	AC	2014	09/12/19	Yes	https://www.theccc.org.uk/publication/managing-climate-risks-to-well-being-and-the-economy-ac-progress-report-2014/
10	Meeting carbon budgets – 2014 progress report to Parliament.	CCC	2014	09/12/19	Yes	https://www.theccc.org.uk/publication/meeting-carbon-budgets-2014-progress-report-to-parliament/

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Appendix 1 Table 2: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
11	Reducing emissions and preparing for climate change: 2015 progress report to Parliament.	CCC	2015	09/12/19	Yes	https://www.thecccc.org.uk/publication/reducing-emissions-and-preparing-for-climate-change-2015-progress-report-to-parliament/
12	Progress in preparing for climate change – 2015 report to Parliament.	AC	2015	09/12/19	Yes	Committee on Climate Change - Progress in preparing for climate change - 2015 Report to Parliament (thecccc.org.uk)
13	Progress report 2016: meeting carbon budgets.	CCC	2016	09/12/19	Yes	https://www.thecccc.org.uk/publication/meeting-carbon-budgets-2016-progress-report-to-parliament/
14	2017 report to Parliament – meeting carbon budgets: Closing the policy gap.	CCC	2017	09/12/19	Yes	https://www.thecccc.org.uk/publication/2017-report-to-parliament-meeting-carbon-budgets-closing-the-policy-gap/
15	2017 report to parliament – progress in preparing for climate change.	AC	2017	09/12/19	Yes	https://www.thecccc.org.uk/publication/2017-report-to-parliament-progress-in-preparing-for-climate-change/

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Appendix 1 Table 2: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
16	Reducing UK emissions – 2018 progress report to Parliament.	CCC	2018	09/12/19	Yes	https://www.thecccc.org.uk/publication/reducing-uk-emissions-2018-progress-report-to-parliament/
17	Progress in preparing for climate change – 2019 progress report to Parliament.	AC	2019	09/12/19	Yes	https://www.thecccc.org.uk/publication/progress-in-preparing-for-climate-change-2019-progress-report-to-parliament/
18	Reducing UK emissions – 2019 progress report to Parliament.	CCC	2019	09/12/19	Yes	https://www.thecccc.org.uk/publication/reducing-uk-emissions-2019-progress-report-to-parliament/
19	Reducing UK emissions: 2020 progress report to Parliament.	CCC & AC	2020	09/12/19	Yes	https://www.thecccc.org.uk/publication/reducing-uk-emissions-2020-progress-report-to-parliament/

Appendix 1 Table 3: Documents collected and analysed for Research Question 3

In addition to the 19 documents set out in Table 2 above, a further 15 documents were collected for analysis for the third research question.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
1	Government response to the first annual progress report of the Committee on Climate Change	UK Government	2010	08/01/20	Yes	Government Response to the first annual Progress Report of the Committee on Climate Change (publishing.service.gov.uk)
2	Government response to second annual progress report of the Committee on Climate Change	UK Government	2010	08/01/20	Yes	Government Response to the Second Annual Progress Report of the Committee on Climate Change (publishing.service.gov.uk)
3	Government response to the third annual progress report of the Committee on Climate Change	UK Government	2011	08/01/20	Yes	Government Response to the Third Annual Progress Report of the Committee on Climate Change (publishing.service.gov.uk)

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Appendix 1 Table 3: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
4	Government response to the fourth annual progress report of the Committee on Climate Change	UK Government	2012	08/01/20	Yes	Government Response to the Fourth Annual Progress Report of the Committee on Climate Change: Meeting the Carbon Budgets - 2012 Progress Report to Parliament (publishing.service.gov.uk)
5	Government response to the fifth annual progress report of the Committee on Climate Change	UK Government	2013	08/01/20	Yes	Government Response to the Fifth Annual Progress Report of the Committee on Climate Change: Meeting the Carbon Budgets - 2013 Progress Report to Parliament (publishing.service.gov.uk)
6	Government response to the sixth annual progress report of the Committee on Climate Change	UK Government	2014	08/01/20	Yes	Meeting Carbon Budgets - 2014 Progress Report to Parliament (publishing.service.gov.uk)
7	Government response to the Committee on Climate Change: Progress on meeting carbon budgets	UK Government	2015	08/01/20	Yes	Meeting Carbon Budgets - 2015 Progress Report to Parliament (publishing.service.gov.uk)

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Appendix 1 Table 3: continued.

No.	Document					
	Title	Author	Year	Collected	Analysed?	Link
8	Government response to the Committee on Climate Change Progress on Preparing for Climate Change	UK Government	2015	08/01/20	Yes	Government response to the Committee on Climate Change - Progress on Preparing for Climate Change (publishing.service.gov.uk)
9	Government response to the Committee on Climate Change: Progress on meeting carbon budgets	UK Government	2016	08/01/20	Yes	Government response to the Committee on Climate Change – Progress on meeting carbon budgets – October 2016 (publishing.service.gov.uk)
10	Government response to the committee on climate change: 2017 report to parliament – meeting carbon budgets	UK Government	2017	08/01/20	Yes	20171005 - Progress report_response.pdf (publishing.service.gov.uk)
11	Government response to the Committee on Climate Change 2017 Report to Parliament – Progress in preparing for climate change	UK Government	2017	08/01/20	Yes	Government response to the Committee on Climate Change (publishing.service.gov.uk)

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Appendix 1 Table 3: continued.

No.	Document					
	Title	Author	Title	Collected	Title	Link
12	Delivering Clean Growth Progress Against Meeting Our Carbon Budgets – The Government Response to the Committee on Climate Change	UK Government	2018	08/01/20	Yes	Delivering Clean Growth: progress against meeting our carbon budgets - the government response to the Committee on Climate Change (publishing.service.gov.uk)
13	Leading on Clean Growth The Government Response to the Committee on Climate Change's 2019 Progress Report to Parliament – Reducing UK emissions	UK Government	2019	08/01/20	Yes	Leading on Clean Growth – The Government Response to the Committee on Climate Change's 2019 Progress Report to Parliament – Reducing UK emissions – October 2019 (publishing.service.gov.uk)
14	Government response to the Committee on Climate Change 2019 Report to Parliament – Progress in preparing for climate change	UK Government	2019	08/01/20	Yes	Government response to the Committee on Climate Change - October 2019 (publishing.service.gov.uk)
15	The Government Response to the Committee on Climate Change's 2020 Progress Report to Parliament Reducing UK emission	UK Government	2020	08/01/20	Yes	The Government Response to the Committee on Climate Change's 2020 Progress Report to Parliament (publishing.service.gov.uk)

Appendix 2: List of interviewees

This appendix lists the 36 interviewees in two groups according to the consent form signed by each interviewee. The first group lists interviewees that consented to have their names listed (N=14). The second group lists interviewees that consented to be pseudonymized are listed (N=15). Anonymous interviewees are not listed. Named interviewees are listed in alphabetical order by surname.

Name	Organisation	Role between 2009 and 2020	Type of interview	Interviewee number
Barrett, Jo	CCC	Head of Communications 2015-2022	Microsoft Teams	3
Bell, Matthew	CCC	CCC CEO 2014-2017	Microsoft Teams	25
Boyd, Ian	UK Government	DEFRA Chief Scientific Adviser 2012-2019	Microsoft Teams	18
Brown, Baroness	CCC	CCC Committee Member 2008-2021 & AC Chair 2017-present	Microsoft Teams	26
Church, Colin	UK Government	DECC Director of National Climate Change 2009-2011 and DEFRA Director of Environmental Quality 2012-2016	Microsoft Teams	28
Deben, Lord	CCC	CCC Chairman 2012 - 2023	Microsoft Teams	16
Fankhauser, Sam	CCC	CCC Member (2008-2016) and AC Member (2009-2015)	Microsoft Teams	2
Hall, Jim	CCC	AC Member 2009-2019	Microsoft Teams	9
Hoskins, Brian	CCC	CCC Member 2009-2018	Microsoft Teams	6
Joffe, David	CCC	CCC Secretariat 2009 – present	Microsoft Teams	23
Le Quéré, Corinne	CCC	CCC Member 2016-present	Microsoft Teams	12
Newey, Guy	UK Government	DECC special adviser 2015-2016 and BEIS policy adviser 2016-2022	Microsoft Teams	34
Thompson, Mike	CCC	CCC Secretariat 2009-2020	Microsoft Teams	11
Virley, Simon	UK Government	DECC Director of Energy Markets and Infrastructure 2009-2015	Microsoft Teams	33

Appendix 2: continued.

The following table lists pseudonymized interviewees who requested that their names be withheld.

Organisation	Count of pseudonymized interviewees	Type of interview	Interviewee numbers
CCC Secretariat	4	Microsoft Teams (4)	5, 10, 14, 19
CCC Committee Member	4	Microsoft Teams (2); phone (2)	4, 7, 8, 21
UK Government	7	Microsoft Teams (7)	15, 17, 20, 29, 30, 35, 36

Appendix 3: Semi-structured interview schedule

All interviewees were asked the questions listed in the interview schedule below. Government interviewees were additionally asked three questions (listed at the bottom of this schedule). As explained in Chapter 3, the questions were derived from the conceptual framework in Chapter 2 and the findings from regression analyses to address RQ3.

1. What was your role in the CCC/UK Government between 2009 and 2020?
2. What involvement did you have with the CCC's recommendations during that period?
3. Please can you reflect on what influence you think the CCC's recommendations had on government policy, particularly between 2009 and 2020?
4. Can you think of any examples of recommendations that had a notable influence on government policy? Why was this?
5. Were there any sectors/policy areas where the CCC's recommendations had little or no influence? Why was this?
6. The UK Government is mandated to provide a formal written response to the CCC's recommendations. In recent analysis I found that the government often provided a non-committal or rejection response rather than accepting recommendations outright, why do you think this is?
7. Please can you reflect on the conditions that contribute to the government accepting the CCC's recommendations?
 - a. My analysis showed that mitigation recommendations were less likely to be accepted if they included targets (% emissions reduction or a timeline for delivery), why do you think this is?
 - b. The analysis also showed that if mitigation recommendations were focused on the buildings sector, they were less likely to be accepted and more likely to receive a non-committal response. What do you think the barriers are for the acceptance of these recommendations?
 - c. Moreover, mitigation recommendations focused on the waste sector were two-times more likely to be rejected than those that were cross-sectoral or focused on another sector, why do you think this is?
 - d. For adaptation, recommendations that focused on the water sector (covering water supply, demand, and flood risk management) were

twice as likely to be rejected than recommendations for other sectors. Why do you think this is?

- e. The analysis also showed that if mitigation recommendations were addressed to a department that was not a sponsor of the CCC then they were less likely to be accepted and more likely to be rejected than if they were addressed to a sponsor department, what do you think could explain this?
- f. Further, recommendations that pertained to the implementation of existing policies (i.e., they supported the policy status quo) were less likely to be rejected than recommendations for the introduction of new policies (i.e., they challenged the policy status quo). Why do you think this is?
- g. The highest acceptance rates were for cross-sectoral mitigation and adaptation recommendations. Why do you think this is?
- h. Finally, if a recommendation was a repetition, then it was more likely to be accepted than if it was provided for the first time. Why do you think this is?

8. Beyond the acceptance of recommendations by the government, please can you reflect on whether some of the CCC's recommendations instead had a slow and indirect influence on government policy by slowly changing thinking in an area over many years?
9. Please can you recommend anyone else that I should speak to on this topic including anyone that is currently at the CCC, has now left the CCC or anyone in the government that received or responded to the CCC's recommendations between 2009 and 2020?

Additional questions for government interviewees only:

10. In your experience what effect, if any, would the occurrence of extreme weather events have on the government's response to the CCC's recommendations?
11. During your time in government did you observe that it could take several years for the CCC to slowly change the thinking of civil servants or ministers on a particular issue before a recommendation would be accepted? Why was this?
12. During your time in government did you observe the political use of the CCC's recommendations? e.g., to signal leadership on a particular issue, internal use within civil service negotiations, use by the opposition etc.

Appendix 4: Codebook for the content analysis of the CCC's statutory advisory functions

This table summarises the codebook that was used to analyse the documents listed in Appendix 1 Table 1 to address RQ1.

Adult code	Child code	Exemplar text
Formulations of the CCC's functions	Does not introduce or change policy	“The [CCC] should not be a policymaking or delivery body” (EFRA Committee, 2007, p. 28)
	Does introduce or change policy	“It should not just be an advisory committee, the committee itself should actually manipulate the instruments, the instruments it will be given by Government...” (EFRA, 2007, p. 27)
	Recommendations are mandatory	“...to establish the independence of the [CCC], the Secretary of State should be required to accept its recommendations without further debate” (EFRA Committee, 2007, p. 28)
	Provides recommendations on mitigation and adaptation	“...in many ways all that [the CCC] does under the Bill is to advise on carbon budgets and now, we hope, on adaptation as well” (House of Lords, 2008, cols 1462–1463)
Considerations when formulating the CCC's functions	Balance of power with the government	“...it is so important that we get the balance of power between the different institutions exactly right. [...] ...between the Government, the committee and Parliament” (House of Lords, 2008f, col. 1069)
	Accountability for decision making	“Ultimately, such decisions are for the Government of the day, who are accountable to Parliament and ultimately to the people of this country” (House of Lords, 2008f, cols. 1069–1070)
	(De-)politicisation	“...if the [CCC] starts making major policy recommendations to government [...] it would not depoliticise the decisions but would utterly politicise the [CCC]” (House of Lords, 2008q, cols 802–803)
	(De-)democratisation	“...any attempt to depoliticise decisions about policies by delegating them to the committee, [...] would also [...] de-democratise them” (House of Lords, 2008f, col. 1071)
	Independence	“It is imperative that the staff and information resources available to the [CCC] are completely independent of Government” (EFRA Committee, 2007, p. 32)
Expectations for the government	Respond to recommendations	“...respond explaining, where necessary, why the advice of the [CCC] had not been adopted” (HM Government, 2007b, p. 52).
	Accept recommendations without debate	“...to establish the independence of the [CCC], the Secretary of State should be required to accept its recommendations without further debate” (EFRA Committee, 2007, p. 28)
	Make policy decisions	“The role of the [CCC] is to provide expert advice and the role of the Secretary of State is to make decisions taking proper account of that advice” (HM Government, 2007c, p. 72).

Appendix 5: Codebook for the content analysis of the characteristics of the CCC's recommendations

This table summarises the codebook that was used to code the documents listed in Appendix 1 Table 2 to address RQ2.

Adult code	Exemplar child code(s)	Exemplar recommendation ³⁰
Addressee	Central government	“By the end of 2014, set carbon targets for <u>central government</u> beyond 2015.” (CCC, 2014b, p. 154)
Sectoral focus	Aviation	“A plan to limit UK <u>aviation</u> emissions...” (CCC, 2016b, p. 17)
Target	A quantitative target	“...we continue to recommend that the aim [...] should be to outperform the first budget (e.g. by up to 75 MtCO ₂ , around 6%)...” (CCC, 2010b, p. 12)
	A timescale	“Cross-government working is required to develop [...] these plans. (Departmental owners - Defra, FCO, DIT, DfID, Home Office. <u>Timescale – by 2021</u> .)” (AC, 2019, p. 16)
Recommended action	Legislate	“ <u>Legislate</u> (in England via the Environment Bill) for and <u>implement</u> a ban on landfilling of municipal & non-municipal biodegradable wastes from 2025.” (CCC, 2020e, p. 34)
Level of challenge to the policy status quo (derived from Fischer 1980, 1990, 2006)	Level 1 – support of the policy status quo	“...greenhouse gas (GHG) emissions <u>were falling</u> at less than 1% annually. <u>They need now to fall</u> at 2% annually” (CCC, 2009b, p. 10)
	Level 2 – support of the policy status quo	“The Government should <u>strengthen</u> the policy framework to enable <u>further</u> restoration effort across the uplands.” (CCC, 2019, p. 15)
	Level 3 – challenge to the policy status quo	“The UK should strongly support measures which would <u>increase</u> EU ambition to 2020 [...], strengthening incentives in the UK and putting the EU on a more <u>cost-effective</u> path to achieving its 2050 target.” (CCC, 2012b, p. 22)
	Level 4 – challenge to the policy status quo	“Ensure costs <u>fairly</u> distributed and a <u>just</u> transition” (CCC, 2019, p. 15)
Repetition	Verbatim	“...plan to limit UK aviation emissions to around 2005 levels by 2050, implying around a 60% potential increase in demand” (CCC, 2016b, p. 17, 2017b, p. 18, 2018, p. 22)
	Partial	“...the aim should be to <u>outperform budgets</u> [...] and <u>not to bank</u> outperformance through to the second budget.” (CCC, 2010b, p. 12) “... <u>outperformance of the current budget</u> due to the recession <u>should not be banked</u> .” (CCC, 2012b, p. 52)

³⁰ The part of the recommendation that is underlined is indicative of the child code.