BEACON Bridging European & Local Climate Action

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THE CLIMATE CHANGE ACT IN THE UNITED KINGDOM

Study

On behalf of:

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

European Climate Initiative EUKI

The Climate Change Act in the United Kingdom
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Abbreviations

ASC	Adaptation Sub-Committee
BEIS	Department for Business, Energy and Industrial Strategy
CCA	Climate Change Act
CCC	Committee on Climate Change
CCS	carbon capture and storage
DECC	Department of Energy and Climate Change
Defra	Department for Environmental and Rural Affairs
EU	European Union
(EU) ETS	(European Union) Emissions Trading System
FoE	Friends of the Earth
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GRI	Grantham Research Institute
IEA	International Energy Agency
NGO	Non-Governmental Organisation
UK	United Kingdom

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1 Summary

The UK's Climate Change Act, adopted in 2008, is one of the first comprehensive climate change laws and is generally seen as a groundbreaking piece of environmental legislation. It established an effective institutional structure and changed the overall political debate on climate policy. The CCA was passed with unprecedented political support from all major political parties, stemming from strong momentum for a comprehensive, long-term and stringent climate change law to be passed. It has since served as a model for national climate change laws in several other countries, including Denmark and Mexico.

The CCA is strictly a climate change law. It establishes a clear framework of emission reduction targets but allows the government to decide which policies to implement. The key target of the CCA is the long-term 2050 target, which establishes a long-term emissions pathway, binding future governments to continued action. The 2050 target is then broken down into five-yearly 'carbon budgets' that set an overall limit on GHG emissions for the UK, each covering a five-year period. The CCA also establishes a Committee on Climate Change (CCC) as an independent advisory body tasked with advising the government on carbon budgets and progress reporting. The CCC is highly regarded by policymakers and stakeholders and considered a key institutional success factor. Furthermore, the government has mandatory planning and reporting obligations, and is required to establish action plans that allow for carbon budgets to be met.

The CCA has led to a change in the political debate about climate change policy in the UK. Climate change now occupies a steady position on the political agenda, elevating it from an ad hoc issue. Furthermore, the long-term goal of the CCA, the independent CCC, as well as the long-time frames for carbon budgets, place the issue of climate change beyond the party-politics of the electoral cycle, giving climate change policy longevity. Despite the political debate about climate policy and the best way to achieve emission reductions, the CCA itself is very rarely a topic of debate. The effect of the CCA on emissions reductions, however, is difficult to determine. As a framework law, it sets the conditions for regulations and other policies to be implemented, which in turn affect emissions. Ultimately, the CCA can be viewed as effective if it leads to the 2050 target being reached.

While Germany and the UK have many similarities in their political and legislative context, there are some potential barriers to transfer. The cross-party consensus and ambition for climate change legislation is currently not comparable in Germany. Furthermore, it is the energy transition that sets the overarching narrative in German climate and energy policy, not climate change mitigation. A key difference is that Germany's planned national climate change law (Klimaschutzgesetz) aims at a time horizon only until 2030, rather than 2050, determining a different structure for target-setting and affecting its potential long-term impact.

However, many of the features of the CCA could be practically and beneficially transferred to the German context. These include the legal approach, long-term targets, carbon budgets, independent advisory committee and the government reporting obligations – although with some adaptations.

Overall, the system of setting carbon budgets has worked well, with flexibility in achieving them. However, an effective climate change framework law still depends on political will and ambition to implement the required policies. A strong legislation, with sufficient safeguards built in, can provide an essential background for the implementation of these policies.

2 Introduction to law

As the centrepiece of the UK's climate policy since 2008, the Climate Change Act (CCA) established a comprehensive framework of institutions, procedures and accountability mechanisms. Its main features are:

- The long-term emission reduction goal of -80% by 2050, compared to 1990
- Legally binding five-yearly carbon budgets
- The establishment of an independent advisory body, the Committee on Climate Change
- Regular reporting obligations
- Planning for adaptation to climate change

The key target of the CCA is to achieve an 80% reduction in GHG emissions by 2050 compared to 1990 (Section 1, CCA). This target establishes a long-term pathway for emission reductions to be achieved.

This target is to be achieved via a series of shorter-term emission limits. These consecutive 'carbon budgets' are adopted by Parliament, each covering a period of five years. The budgets set an overall limit on GHG emissions for the UK. The level of each budget is based on the recommendation of the CCC and is meant to constitute a cost-efficient pathway towards reaching the 2050 goal. After approval of the budget, the government (the responsible Secretary of State) must draft and present before Parliament a detailed policy plan for meeting the emission reduction requirements. This provision is an integral part of the Act's governance framework. Each implementation plan must detail sectoral reductions targets and the policies to achieve them. The policies listed in the carbon plans must ensure that the overall budget is met.

One of the main institutional changes enacted by the CCA is the establishment of the Committee on Climate Change. The CCC is an independent advisory body and is tasked with advising the government, recommending carbon budgets and reporting on the progress made by the government towards meeting those budgets. Before a carbon budget is set, the Secretary of State must consult the CCC and take the advice given by the CCC into account. If the recommendation of the CCC is not followed, an explanation must be published by the Secretary of State.

The CCA also details several mandatory **planning and reporting obligations** aimed at increased transparency and accountability of government action on climate change (Client Earth, 2016). This framework includes the requirement for government to implement plans that allow for carbon budgets to be met and to release annual statements of emissions (CCA, section 16). Progress is also being monitored by the CCC. Annual reports by the CCC to Parliament assess the progress made towards meeting carbon budgets and the 2050 target, further progress that is needed, and whether those budgets are likely to be met given current government policies.

Overall the CCA serves as an example of a stringent climate policy framework law that has been able to withstand political turbulences for ten years. However, significant challenges for the further implementation of its legal provisions remain, as is detailed in section 5.4.

3 National context

3.1 Legislative and political context

The United Kingdom is a parliamentary constitutional monarchy with a bicameral legislative branch. The main parliamentary chamber is the House of Commons, and Parliament's lower chamber is the House of Lords. The Prime Minister is the head of government. After the 2017 general election, the ruling Conservative Party formed a minority government under Prime Minister Theresa May based on a 'confidence and supply' agreement with the Democratic Unionist Party. The current political debate is dominated by the pending exit of the UK from the EU. Historically, governments have mostly been based on a single-party majority, with coalition governments being the exception. While the UK has a comparably centralised governmental structure the Devolved Administrations of Scotland, Wales and Northern Ireland each have national legislatures and extensive competencies. These competencies include health and social care, education, the environment, agriculture and local government and housing. The role of these devolved administrations is recognised by the CCA and play an important role in its implementation through their own climate policies, with Scotland and Wales even adopting their own climate change legislation.

The legislative process is initiated by the proposal of a new law by the government, usually the responsible cabinet minister. While suggestions for a new legislative act can come from public inquiries, civil servants or interest groups, they need to be brought forward by a minister (UK Parliament, 2018a). Before being debated in Parliament, the proposal is debated in cabinet committees and after approval by the cabinet, must be approved by the Legislation Committee. The proposal is then translated into a draft bill by the parliamentary counsel, made up of specialised lawyers, and subsequently debated in both parliamentary chambers in a series of stages. In the first and second reading, members of Parliament debate the bill before specialised committees examine the bill in detail and potentially make amendments. Afterwards, the bill is reported to and reviewed by the House before a final debate and vote takes place. For a law to be passed it must be approved by both Houses of Parliament. Lastly, the bill is turned into law by Royal assent, the formal approval by the Monarch.

3.2 Sectoral overview and national climate policy

The UK has been a global front-runner in climate policy and an early adopter of climate mitigation policies since the early 2000s. Overall, the UK has successfully decreased GHG emissions since 1990. In 2016, emissions were 41% below the level of 1990 and 5% below that of the previous year (BEIS, 2018b). With the energy sector exhibiting a comparatively low-carbon intensity, the transport sector has become the largest emitting sector of CO_2eq in the UK, with a share of 26% of emissions according to latest statistics (BEIS, 2018b).

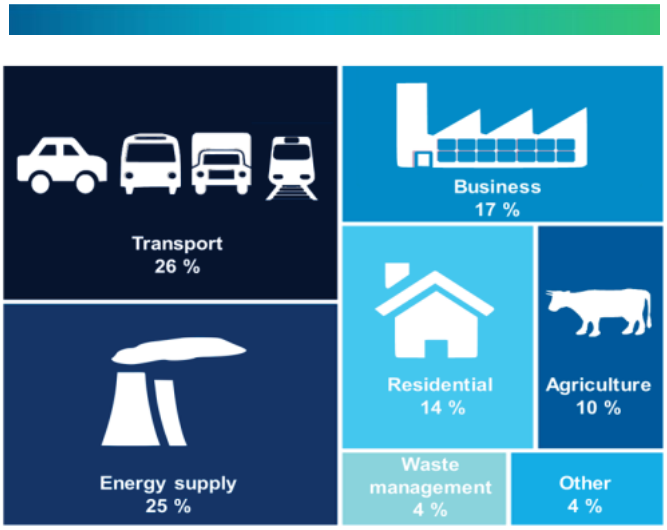

Figure 1: Sectoral shares of greenhouse gas emission in 2016.
Source: BEIS, 2018b, 5

The UK's energy mix has seen a marked shift away from coal-based power towards gas and, more recently, renewable energy. Between 1990 and 2016, coal use in energy generation decreased by 86% (BEIS, 2018b). Due to this development, energy production is no longer the largest emitting sector in the UK. The sector with the largest share of final energy consumption is the transport sector, with the domestic and industry sectors ranked second and third (DUKE, 2018). Regarding electricity production, the share of renewable energy sources has tripled since 2010 and is now at almost 30% (DUKE, 2018).

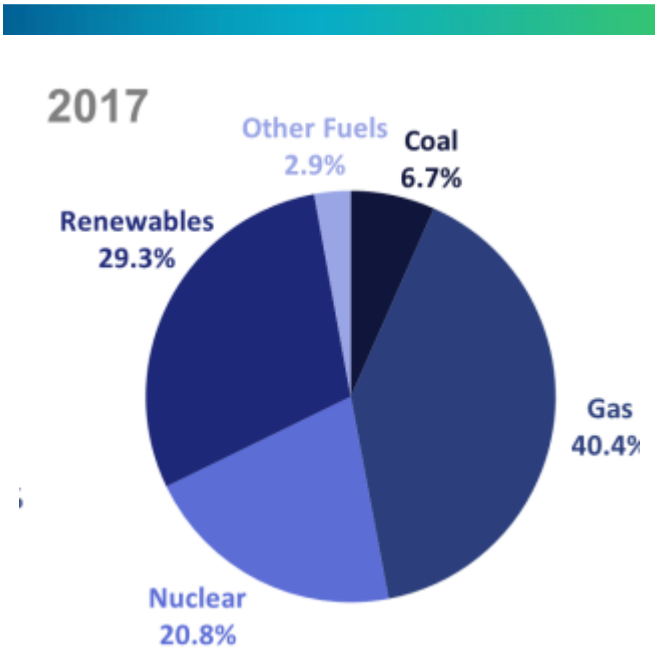

Figure 2: Shares of electricity generation by fuel.
Source: DUKE, 2018

The main responsibility for climate change policy within the British government lies with the Department for Business, Energy and Industrial Strategy (BEIS) and the Department for Environmental and Rural Affairs (Defra). The framework for national climate policy is set by the CCA of 2008, which will be the topic of this analysis.

To support energy generation from renewable sources the Renewables Obligation was enacted in 2002 and has since been reformed several times. It constitutes the main policy instrument for supporting large-scale generation of renewable electricity through economic incentive mechanisms (Grantham Research Institute, 2018). Along with the Energy Act of 2013, which provides the basis for energy market reform and financial support for investments in renewable energy, these build the main policies for a low-carbon energy transition in the UK. On top of these support mechanisms, BEIS has committed to eliminate coal-fired power generators that are not equipped with carbon capture and storage (CCS) technology by 2025 (BEIS, 2018).

To meet the UK emission reduction targets, a carbon price floor was established in 2013 as a response to the low price of emission allowances in the European Union Emissions Trading System (EU ETS). This carbon levy was set at a rate of GBP 16 (EUR 18.23) per tonne when first introduced and is meant to continuously increase to GBP 30 (EUR 34.18) per tonne of carbon in 2020 (GRI, 2015). However, it was later announced that the price will remain at GBP 18 (EUR 20.52) from 2016 until 2020. The carbon levy has played an important role in continuous emission reductions in the British power sector, which is covered by the EU ETS. The British government has announced plans to terminate energy production from coal-fired power plants by 2025 (Reuters, 2015). So far, the main share of the decline of emissions in the UK has resulted from sectors covered by the EU ETS.

Other climate policy instruments include the policies to improve energy efficiency in buildings, a voluntary action plan for the agricultural sector and grants for ultra-low-emission vehicles.

4 General description of the law

4.1 History

The passage of the Climate Change Act in 2008 occurred with overwhelming political support from all major political parties. Several developments led to strong momentum for a comprehensive, long-term and stringent climate change law to be passed.

Strong domestic momentum, initiated by the G8 summit in Gleneagles in 2005 during which then-Prime Minister Tony Blair established climate change on the domestic political agenda, was one of these supporting factors. In addition, environmental NGOs created public demand for a climate change law. A large-scale public campaign was launched by Friends of the Earth (FoE) and collected more than 130,000 signatures calling for legislation on climate change (Fankhauser et al., 2018). This campaign even led to David Cameron, then leader of the opposition Conservative Party, sharing a platform with FoE and calling for climate change legislation to become a political priority (Weeks, 2017).

Arguably one of the most important factors in enabling the adoption of an ambitious climate change law was a supportive opposition. The newly elected leader of the Conservative Party, David Cameron, supported ambitious action on climate change in an attempt to make his party more electable (Fankhauser et al., 2018). This led to a political competition over ownership of the climate change issue with the Labour party which, until this point, had been the main party calling for action on climate change. Such a 'competitive consensus' among major parties (Carter, 2014; in Fankhauser et al.) led to the most important provisions of the CCA not being watered down on its way through Parliament and some of its provisions even being strengthened during the legislative process. This party competition has been described by several observers as one of the main driving forces behind the adoption of the CCA (see for example Gillard, 2016). A further domestic political appointment increased political momentum for the CCA, namely the appointment of a new, ambitious Secretary of State to the role of Environment Secretary. David Milliband used his first senior ministerial role to push for ambitious legislation on climate change. It has been stated by numerous observers that during no other time in the period since 2008 would the adoption of such an ambitious climate law have been possible (Fankhauser et al., 2018).

The process from draft bill to Royal Assent of the CCA lasted from March 2007 (publication of the draft Climate Change Bill) to November 2008. After its publication the bill was subject to a 13-week public consultation period and a review by three Parliamentary Committees (Government of the UK, 2007). Of the approximately 17,000 responses, the overwhelming majority were in support of ambitious legislation on emission reduction and as a result of the pre-legislative scrutiny by the Parliamentary Committees, several changes were made, however, for example, increasing transparency and accountability (Secretary of State for Environment, Food and Rural Affairs, 2007).

4.2 Functioning

The CCA is strictly a climate change law. It does not include provisions of general sustainable development, energy transition or other environmental issues. And while it establishes a clear framework of emission reduction targets, it makes no provision for how these targets are to be achieved. Much leeway therefore remains for the government to decide on the current policies of climate change mitigation.

Long-term **2050 goal:** The key target of the CCA is to achieve an 80% reduction in GHG emissions by 2050 compared to 1990 (Section 1, CCA). This target establishes a long-term pathway for emission reductions. By means of this target, the Act binds future governments to complying with the emissions limits set to contribute to the achievement of this target (carbon budgets) (Lockwood, 2013).

Carbon budgets:

The CCA outlines a clear procedure for breaking down the 2050 emission reduction target into more short-term goals. A series of 'carbon budgets' are adopted by Parliament, each covering a period of five years. These budgets set an overall limit on GHG emissions for the UK. The level of each budget is based on the recommendation of the CCC and is meant to constitute a cost-efficient pathway towards reaching the 2050 goal. Each budget is decided 12 years before coming into effect, with the exception of the 1st budget. The CCA lists a number of considerations that must be taken into account by government when making a decision regarding carbon budgets, including scientific knowledge about climate change, economic, fiscal and social circumstances, and the estimated amount of UK emissions from international aviation and shipping (Section 10, CCA). The Act also includes mechanisms for meeting the carbon budgets. After approval of the budget, the government (the responsible Secretary of State) must draft and present before Parliament a detailed policy plan for meeting the emission reduction requirements. This provision is an integral part of the Act's governance framework.

Each implementation plan must detail sectoral reductions targets and the policies to achieve them. The policies listed in the carbon plans must ensure that the overall budget is met. The first three carbon budgets, covering the period from 2008 to 2022, were enacted in May 2009 at the levels recommended by the CCC. The first strategy for meeting these emission reduction targets was published by the Department for Energy and Climate Change in July 2009, titled the 'Low-Carbon Transition Plan' (DECC, 2009a). The CCA allows for 'banking' and 'borrowing' of emissions between budget periods. Borrowing is limited to a maximum of 1% of the next budget. Again, the CCC's advice must be asked and considered before any banking or borrowing can be realised. Banking, meaning the transfer of over-delivery from one carbon budget to the next budget period, is regulated by the Act in that it can only be implemented after the advice of the CCC on the matter has been considered (Fankhauser et al., 2018). Within government, the department led by the responsible Secretary of State, is charged with the responsibility of compliance with the CCA's provisions. Until July 2016, this was the Department of Energy and Climate Change (DECC) but following the appointment of current Prime Minister Theresa May, DECC became part of the newly-founded Department for Business, Energy and Industrial Strategy (BEIS) (DECC, 2018).

Table 1: UK Carbon Budgets[1]

Budget	Carbon budget level	Reduction below 1990 levels
1st carbon budget (2008–2012)	3,018 $MtCO_2e$	25%
2nd carbon budget (2013–2017)	2,782 $MtCO_2e$	31%
3rd carbon budget (2018–2022)	2,544 $MtCO_2e$	37% by 2020

[1] Table adapted from CCC 2018c

Budget	Carbon budget level	Reduction below 1990 levels
4th carbon budget (2023–2027)	1,950 $MtCO_2e$	51% by 2025
5th carbon budget (2028–2032)	1,725 $MtCO_2e$	57% by 2030

The **Committee on Climate Change** (CCC) is an independent advisory body established under the CCA. It is tasked with advising the government, recommending carbon budgets and reporting on the progress made by the government towards meeting those budgets. When giving this advice the CCC must consider the same matters government has to take into account when deciding on a carbon budget (see previous paragraph). In addition to advice on the level of each carbon budget, the CCC also has reporting obligations which are detailed below. The CCC consists of a chair, eight permanent members and has at its disposal a 30-person secretariat. Before a carbon budget is set, the Secretary of State must consult the CCC and take into account the advice given by the CCC. If the recommendation of the CCC is not followed, an explanation must be published by the Secretary of State (CCA, Section 9). While the CCC has extensive consultation and reporting authority, it has no decision-making power. This power remains with the government and with Parliament (which must approve key decisions). The CCC is also not required to give advice on policies implemented for meeting the carbon budgets (Weeks, 2017). The members and staff of the CCC bring together expertise from different backgrounds including politics, engineering, behavioural science, and economics (CCC, 2018d). To be able to advise the government on the 1st carbon budget only a few weeks after adoption of the CCA, the Committee operated in shadow-form since March 2008 (Secretary of State, 2007).

The government must comply with several mandatory **planning and reporting obligations** aimed at increased transparency and accountability of government action on climate change (Client Earth, 2016). This framework includes the requirement for government to implement plans that allow for carbon budgets to be met and to release annual statements of emissions (CCA, section 16). Progress is also being monitored by the CCC. Annual reports by the CCC to Parliament assess the progress made towards meeting carbon budgets and the 2050 target, further progress that is needed and whether those budgets are likely to be met given current government policies. These progress reports are debated in Parliament and the government is obligated to respond to the CCC's assessment (Fankhauser et al., 2018). In addition, the government must publish annual reports of the UK's GHG emissions. After each carbon budget is set, government must present its proposals and policies for meeting the existing carbon budgets. Notably, this publication of a policy plan is the only planning or reporting obligation included in the CCA that does not come with a statutory timeframe. At the end of each budgetary period, the government is required report final emission figures. If a carbon budget is exceeded, the government is required to report to Parliament the proposals and policies implemented to compensate for the excess emissions during future budgetary periods (CCA, section 20). At the same time, the CCC releases a detailed review of policy performance throughout the budget period (Fankhauser et al., 2018). These obligations, together with the work of the Committee on Climate Change, make up the governance framework of the CCA and ensure transparency and accountability of government.

In addition to climate change mitigation, the CCA also provides for obligations regarding **adaptation** to climate change. The Adaptation Sub-Committee (ASC), which forms part of the CCC, is responsible for regular climate change risk assessments for the UK which must be published every five years. The CCC's annual progress reports

must also include an assessment of progress regarding the government's adaptation programme (Weeks, 2017). Government is also required under the CCA to report on adaptation issues to Parliament.

Legal implementation:

The Climate Change Act has transposes an emission reduction target for the year 2050 into primary legislation[2]. The other key legislative element of the Act is the system of carbon budgets that the government is obligated to establish (Client Earth, 2009). Other aspects of the CCA are implemented via secondary legislation. Secondary legislation means a law created by order of a minister under powers given to him by an Act of Parliament and subject to the affirmative resolution procedure, meaning that both Houses of Parliament must give their approval by simple majority before the law can come into effect (UK Parliament, 2018b). The carbon budget system established under the Act is implemented via individual carbon budgets, each put into effect via secondary legislation (DECC, 2009b). These sector-specific targets defined in the implementation plans are not legally binding.

While the CCA applies to the whole of the UK, the Devolved Administrations of Scotland, Wales and Northern Ireland are endowed with certain responsibilities and powers. These include, for example, the right to request advice from the CCC and the obligation of the Secretary of State to consult with the devolved administrations on the level of a carbon budget (Client Earth, 2009).

The CCA theoretically provides the basis for a legal appeal to the courts should emission reduction targets not be met. However, in practice, enforcement of the Act through legal review would confront many restrictions. The CCA does not contain a legal enforcement mechanism and the British legal system provides limited opportunities for enforcing legislation through court action (Client Earth, 2009). Another potential obstacle regarding enforceability of the CCA by the courts is the fact that, even if the government is found to be in breach of the duties imposed by the Act, this would not go beyond a declaration by the court. Nevertheless, the option of such a judicial review exercises a certain pressure on the government and has been cited as an influential factor in the government's decision-making, especially regarding the decision to accept the 4th carbon budget. Given the possibility of an undesirable judicial review which could prove difficult to win, the government decided to accept the carbon budget (Kennedy, 2011).

4.3 Interlinkages with other policy instruments

While the CCA is a strictly domestic law, the UK's membership in the EU means that EU directives and climate policy play a major part in the UK's CC policy. The EU's flagship climate policy instrument, the Emissions Trading System (EU ETS), also covers the British power sector and a large proportion of industrial installations. Currently, the part of the UK carbon budget that is covered by the EU ETS is determined by the UK share of the ETS's overall cap instead of actual emissions in the UK since emission allowances can be bought and sold (CCC, 2016b). This interlinkage can be argued to increase UK ambition in emission reductions, given the fact that the UK is a net supplier of emission certificates. Consequently, the UK industry and power sector are encouraged to over-deliver on the UK cap in order to sell certificates in the EU market. At this date it is unclear whether the UK will continue to participate in the EU ETS after leaving the EU.

[2] Section 1(1) of the Act states 'It is the duty of the Secretary of State to ensure that the net UK carbon account for the year 2050 is at least 80% lower than the 1990 baseline.'

Another important instrument located at EU level is the Renewable Energy Directive, obligating Member States to reach specific targets for renewable energy generation. Under the Renewable Energy Directive, the UK has a target of 15% of energy production from renewable sources by 2020. The CCA and this directive can be seen as mutually reinforcing laws. On the other hand, the Renewable Energy Directive dictates in part how the UK is to achieve its GHG reduction targets imposed by the CCA. Further interactions are occurring with the EU's Energy Efficiency Directive which mandates binding measures to reach the EU's overall energy efficiency target. In the UK, primary energy consumption has decreased significantly since 2005 and in 2017 was at 199.9 mtoe (DUKES, 2018). This obviously contributed to the UK's lower emission trend and facilitates compliance with the CCA's carbon budgets.

The devolved administrations of Wales, Scotland and Northern Ireland occupy an important role in the implementation of the CCA. Each devolved administration implements their own climate change policies, with Scotland and Wales even adopting their own climate change laws. Since the adoption of the Paris Agreement there have been calls for the long-term objective of the CCA to be aligned with the goal of 'well below 2 degrees Celsius'. The CCA's target was based on the global objective of realising a 50:50 chance of keeping global mean temperature rise below 2 degrees (CCC, 2008, in Fankhauser et al.). A recommendation has been given by the CCC to delay a review of the UK's long-term emission reduction target until more information is made available regarding global emission trajectories to a 1.5-degree temperature rise (CCC, 2016a).

5 Impacts of the law

5.1 Effectiveness

The Climate Change Act and the framework it established have driven significant political action on climate change mitigation. All procedural and primary obligations have been complied with to date. The first two carbon budgets have been met and the UK is projected to meet the 3rd carbon budget. It has also successfully anchored climate change politically and institutionally in the political process. In addition, the wider impact of the CCA has led to courts recognising the Act's relevance in making policy decisions by government. The High Court demanded that the Act is to be taken into consideration regarding the policy decision constructing a third runway at Heathrow airport (Weeks, 2017). This ruling provides an important example of the Act's effectiveness. The Act's main impact is providing a continuous pathway for reducing emissions. This is evidenced by the fact that even in the political turmoil surrounding the Brexit referendum in 2016, the government confirmed in June of that year that the 5th carbon budget would be set at a level compliant with this long-term goal (Client Earth, 2016).

Ultimately, the Climate Change Act can be viewed as effective if its provisions lead to the emission reductions required to reach the target for 2050. The UK has achieved significant emission reductions since adoption of the CCA. Over the same period, GDP has grown continuously. While significant emission reductions were achieved after adoption of the CCA, emission developments were already following a downward trend before the CCA. Factors contributing to this development were for example the structural shift away from heavy industry towards a service-based economy and the impact of the financial crisis (Bowen and Rydge, 2011).

A disproportionate contribution to the decrease in overall emission stems from only one sector, the power sector. Between 2008 and 2016, the share of electricity generated from low-carbon sources (mainly gas, with the share in renewable energy also increasing in recent years) has increased from 20% to 45% and the sector's emission intensity has fallen from over 500 grams per kilowatt-hour (g/kWh) of electricity generated to below 300 g/kWh (CCC, 2017). In a series of stakeholder interviews conducted by Fankhauser et al. (2018), all respondents agreed that the CCA played a major role in the transformation of this sector. Other regulations exercising influence on this development are the EU Renewable Energy Directive and the Carbon Price Support, implemented in 2013 as a response to the low price of emission allowances in the EU ETS. The argument can be made that this meaningful measure was taken to comply with the emission limits set under the CCA.

In contrast, limited progress has been made in other economic sectors including transport, buildings or agricultural sectors. In all economic sectors outside the power sector, GHG emissions have decreased by less than 1% annually since 2012 (compared to an average of 4.5% in the power sector) (CCC, 2016c). Yet it should be noted that decarbonising these sectors outside the power sector is much more difficult and many other countries are encountering similar difficulties.

The emission reductions necessary to reach the targets set by the first three carbon budgets have been comparatively easy to realise. The role of the Act is difficult to determine with certainty given the relevance of other contributing factors such as economic developments and regulation at the level of the EU (Fankhauser et al., 2018). Yet the UK has been much more ambitious than the EU as a whole regarding emission reductions, especially in the power sector. However, the role of the Act in securing the stringent levels of the 4th and 5th

carbon budget can be seen as particularly important (Lockwood, 2013). In general, it can be argued that UK climate policy would be less ambitious to date in the absence of the CCA.

5.2 Cost efficiency

One of the arguments brought forward by supporters of a comprehensive and ambitious climate change law in the UK was the fact that it provides long-term certainty to economic actors regarding the direction of travel of climate policy. Given the fact that investment in climate change mitigation often has a long lead time and investment decisions must be made for a long-term timeframe, this certainty is essential for successful low-carbon development. The constraints imposed on political decision makers regarding the direction of future policies are meant to provide certainty to investors regarding investment decision in low-carbon technologies and infrastructure (Lockwood, 2013). If functioning the way envisioned, the CCA can be seen as minimising the overall cost and maximising the economic opportunities of climate change mitigation. This intended effect, however, has been undermined by a number sudden policy changes by successive governments. These include alterations regarding solar subsidies and commercialisation of CCS. Sudden policy changes, along with intense political conflict over the level of the 4th carbon budget mean that investments appear much less certain than should be the case. The Act's emission targets are as credible as is possible for a legal target (Client Earth, 2016).

An important constraint regarding the possible certainty for investors provided by the Act lies in the fact that its provisions and carbon budgets do not include sector-specific emission reduction targets, thereby reducing the investment signal given to investors. It is important to distinguish between long-term legal targets, and the respective policy plans developed to comply with each carbon budget and the individual policies implemented. On these policies, the CCA provides much less certainty. Yet it is these individual policies that mainly change investment incentives for private actors.

5.3 Co-benefits and side-effects

As it was mentioned at the beginning of this chapter, the main effects of the CCA have been a change in the institutional and political landscape of climate policy. Even more so than the emission reduction effects, where it is difficult to determine the exact impact of the CCA, these can be regarded as the central impacts of such a comprehensive framework law.

There is widespread agreement that the CCA has led to a **change in the political debate** about climate change policy in the UK (see for example Lockwood, 2013). It has facilitated a continuous exchange and the regular reporting obligations by the government mean that climate change occupies a steady position on the political agenda, elevating it from an ad hoc issue. The procedures of the CCA also enable stakeholders to anticipate windows of opportunity for interventions and can tailor them to the processes established (Fankhauser et al., 2018). The amplified visibility and salience of climate change as a political issue exercises pressure on the government to take meaningful action.

Another important effect of the CCA is that other policy decisions must take their impact on climate change into account. Given the stringency of the emission reduction targets, this becomes a relevant consideration in many other policy decisions. The legal basis provided by the CCA also has wider implications beyond the direct enforceability of the Act itself in that the duties imposed by the Act can be used to interpret other legislation or the legality of government action (Macrory, 2014; in Weeks 2017).

The CCA's **key institutional success** is the establishment of the Committee on Climate Change which is highly regarded by stakeholders and decision makers and its analyses are seen as a critical contribution to the success of the Act (Client Earth, 2016). The political standing of the CCC is represented by its current high-ranking chair, Lord Deben who is a member of the House of Lords and was Secretary of State for the Environment form 1993-1997 (CCC, 2018d). There is nearly unanimous agreement that the CCC is a highly credible institution and source of information and expertise (see for example DECC, 2014). Its analyses are a crucial source of information for opposition politicians and civil society stakeholders (Fankhauser et al., 2018). Even though the CCC's formal responsibilities do not include advice on policies implemented to reach the required emission reductions, its reporting obligations and advice on carbon budgets (including recommendations regarding contributions from different sectors) mean that the CCC also comments on policy measures (Weeks, 2017). For example, the CCC published a response to the government's Clean Growth Strategy, the latest policy plan outlining the government's plan for meeting the 4th and 5th carbon budgets. This response is a critical analysis and assessment of the government's policy plan and includes clear criticism and a call for urgent action (CCC, 2018a).

Another essential benefit of the CCA is its **longevity** and the long-term time horizon it establishes for climate policy. Despite continuous political debate about climate policy and the best way to achieve emission reductions, the CCA itself is very rarely a topic of debate and still enjoys cross-party support. This long-term agreement has helped safeguard against political backsliding on climate action (Fankhauser et al., 2018).

The CCA has also helped solidify the **UK's role as an international leader** in climate policy. Widely considered a landmark piece of climate change legislation, the CCA has served as a model for national climate change laws in several other countries, including Denmark and Mexico (Weeks, 2017).

5.4 Success factors and challenges

The first major challenge for the CCA was an intensive political debate about the setting of the 4th carbon budget. Some government departments, mainly the Treasury, were critical of the budget recommended by the CCC, stating that it would have an adverse impact on the UK economy (Kennedy, 2011). The carbon budget was accepted but with the qualification that it would be reviewed in 2014. In July 2014, it was ultimately announced that the budget would remain unchanged (Davey, 2014). This open political conflict demonstrates that the CCA itself does not mean a continuous political commitment to its provisions. To an extent, it remains dependent on the decision and action of government officials to implement its objectives with critics stating that the high-level political statements in support of the CCA have not been followed up by the will to implement strong climate policy measures (Gillard, 2016).

Several sources have warned that there is a lack of political commitment to meet the 4th carbon budget (see for example CCC 2017, Client Earth, 2016). This has resulted in what has been phrased a 'policy gap' with the policies implemented and planned by the government not resulting in sufficient GHG emission reductions to keep the UK on a cost-efficient path to the 2050 target. The implementation of the CCA is becoming increasingly challenging as further emission reductions are proving more difficult and costly.

Several policy decisions have been taken in recent years that make compliance with the carbon budgets more difficult. These include decisions to cut subsidies for solar panels and support for CCS technologies. Many of these decisions have been taken in isolation by individual government departments and fail to propose how the required emission reductions can be achieved instead (Client Earth, 2016). However, it can be noted that the challenges encountered since passage of the CCA are less with the Act itself but with a failure to sufficiently

implement the governance framework it established. The ultimate measure of success for the CCA will be the achievement of the 2050 target.

Despite these challenges the legal anchoring of the CCA and its institutional structure have so far prevented a clear deviation from the targets established under its framework. The strict reporting obligations and oversight by the CCC have been crucial factors for this success.

6 Transferability

6.1 General comparability of the context

Germany and the UK exhibit many similarities in their political and legislative context. Both countries have two chambers of Parliament through which a proposed law must pass to go into effect. Both countries have experienced steady economic growth over the last decade and are internationally regarded as leading actors in climate change mitigation. However, while the UK has until now complied with or exceeded its emission reduction goals, the same cannot be said for Germany given the projected failure to reach a 40% emission reduction by 2020 compared to 1990 and expectations that Germany may even significantly miss its 2020 EU Effort Sharing target.

The cross-party consensus and ambition for meaningful legislation on climate change that enabled the adoption of the CCA is currently not present to a comparable extent in Germany. Other than at the time of adoption of the Climate Change Act in the UK, which was supported by a large societal and political consensus, more recent political developments in Germany have led to declining ambition amongst political parties with regards to climate change. A non-marginal share of voters in Germany now supports a political party that denies climate change as a problem and opposes climate policy. In addition, other matters such as economic growth, phaseout of nuclear power and preservation of jobs often take precedent over climate policy even amongst 'climate-friendly' political actors. This situation depicts a different starting point and less political support. Ambitious climate change legislation requires cross-party support and strong political leadership, as highlighted by the UK's experience (Weeks, 2017). Another difference is that the German energy transition builds the overarching narrative in German energy policy, not climate change mitigation. Since no equivalent narrative exists in the UK, energy policy is more climate-focused.

An important factor for implementation of national climate policy legislation is Germany's federal structure. If a climate change law is designed as a purely national legislation that is implemented at the national level, for example with national climate policy plans, many of the CCA's design features can be directly transferable. Given the role of the devolved administrations in the UK (Wales, Scotland, and Northern Ireland) which implement their own climate policy plans and exercise significant influence over the overall effect and execution of the CCA in their respective territories, this political structure can be regarded as another similarity to the German federal structure.

A key difference is the fact that Germany's planned national climate change law aims at a time horizon until 2030 (CDU, CSU and SPD, 2018). This means a very different structure regarding target-setting and long-term impact. The fact that carbon budgets are decided 12 years before coming into effect introduces a time-lag between political decision-making and the implementation of those decisions, which can have a favourable impact on decision makers willingness to commit to an ambitious reduction target that is outside the short-term considerations and electoral cycles. Such an effect will not be possible in the German context.

Other than the UK, the German power sector still produces a significant share of energy in coal-fired power plants. The decarbonisation of this sector in the UK is mainly based on a shift to gas, while in Germany renewable energy sources play a much more important role. This difference in context, however, does not have a crucial influence on the transferability of the CCA's example. While the CCA has yet to prove its effectiveness in

significantly lowering emissions in other economic sectors its structural and political framework lay the basis for effective emission reductions in all sectors.

6.2 Properties of the instrument

An important governance aspect is the interaction between national and sub-national climate laws. While the CCA sets the national framework for climate policy and binding targets at this level, further climate laws were passed in Scotland and Wales which are consistent with the CCA's overall framework but specify its regional implementation. Similarly, individual federal states ('Länder') in Germany have passed their own climate laws. These need to be consistent with any law adopted at national level. The institutional structure of the CCA allows for the dynamic interaction between a national framework and laws at sub-national level.

The experience with five-yearly carbon budgets instead of more short-term annual targets can also be regarded as widely positive. They enable a balance between policy certainty, sufficient planning-time for policymakers and businesses while allowing for flexibility regarding how their targets should be achieved and leaving room for short-term fluctuations in emissions. This balance between predictability and flexibility is an important characteristic of the CCA which should be considered for transfer to the German context. Removing the decision on the level of each carbon budget from the influence of short-term political considerations by placing a twelve–year lead time between when the decision is made and when it takes effect appears to be a recommendable strategy.

A key factor for the CCA's high regard is the establishment of the Committee on Climate Change.

While it can be considered whether such an independent advisory body should be more involved in the final decision-making, there are several reasons why this might be questionable. Firstly, decisions made by an unelected technocratic body would lack democratic legitimacy. A factor potentially undermining the full independence of the CCC is its financial dependence on funding allocated by the same government from which it is meant to function independently. Should a similar body be institutionalised in Germany, its budgetary independence should be guaranteed. The review and reporting procedures under the CCA ensure that climate change occupies a regular slot on the political agenda. They also improve accountability and transparency and should therefore be seen as a key feature worth transferring to the German context. Including clear legal criteria and remedies for a judicial review would make such a process more predictable (Fankhauser et al., 2018).

However, more stringent safeguards could be warranted regarding the implementation of sectoral policies necessary to achieve the emission reduction targets stipulated by the CCA's framework. The Climate Change Act makes no detailed provision for the timeframe within which such policy plans need to be presented or for their detailed content. As it has been discussed, this has led to an apparent 'policy gap' in the case of the UK.

Another potential area for improvement would be the incorporation of clear provisions for legal review and sanctions should the government not comply with the law. While the incorporation of such a legislative provision would most likely encounter political resistance, it would significantly increase credibility of the goals written down in the law and increase certainty amongst investors in low-carbon technologies and infrastructure.

6.3 Potential impacts

It is important to mention that an effective climate change framework law still depends on political will and ambition to implement the required policies for achieving climate change mitigation. A law like the CCA provides an effective and credible framework. While specific policies implemented within this framework realise the necessary emission reductions, strong legislation can provide an essential background for the implementation of these policies. It is questionable whether voluntary emission reduction targets can ever exceed a similar pressure for political action.

Detailed reporting obligations such as those included in the CCA can play an important role in increasing the visibility of climate change policy in Germany and firmly establishing it on the political agenda. Changing the debate and underscoring the relevance of climate change could make a significant contribution to mobilising support for climate change policy and thereby increasing political pressure, supporting the longer term political commitment to meaningful action on climate change.

These procedures would also enable the assessment of government action against defined targets, thereby increasing accountability of government. The opportunity to hold the government to account against self-imposed legal obligations can serve as a safeguard against backsliding of political willingness to address climate change.

However, given the much shorter timeframe of the planned climate change law in Germany, the governance structure based on five-year budgetary periods appears less suitable.

Using this approach, it would be necessary to already draw up specific measures to be implemented in the near future to achieve the 2030 emission reduction target.

6.4 Conclusion

The Climate Change Act is a comprehensive, long-term climate policy framework law that establishes an effective process for guiding emission reduction efforts in the UK. It has proven itself in practice and was so far able to withstand political pressures and led to consecutive carbon budgets being set in line with the long-term emission trajectory set out by the CCA. Its institutional framework provides clear guidance for policymakers, has successfully changed the political debate around climate change and has, through establishment of the CCC, led to evidence-based policy-making with significant independent oversight mechanisms.

A clear recommendation can be given for a climate change law in Germany that follows the example of the CCA. Mainly based on its political and institutional impacts, a transfer of this model for climate change legislation can be recommended for Germany. A climate law with similar provisions would exhibit many benefits for climate policy. Enshrining German emission reduction targets into a similar framework would give legal and political certainty, especially if clear provisions for legal consequences in the case of non-compliance are already included. This would mean an additional step towards legally enshrining climate targets. Adding legal safeguards and clearly outlining sanctions provide further certainty regarding the implications for the government should this framework not be followed up by the necessary policies and measures. In addition to its institutional stringency, the Climate Change Act allows for sufficient flexibility to tailor its framework to the German context. Nonetheless, it should be noted that the suitability of carbon budgets that are decided with a long-time lag is in doubt when considering the much shorter time horizon for the German climate law until 2030. The concept of

carbon budgets itself, however, still offers transferability. An extension of the legislation's timeframe would enable a similar procedure which can remove climate change from daily policy-making to more stability.

Overall, the Climate Change Act provides a more than suitable example for climate legislation in Germany. Compared to other climate legislation in France or Sweden, it appears to be more stringent and effective in guiding policy decisions even beyond immediate climate policy while mainstreaming considerations of effects on emissions in all political sectors.

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