Journal of European Public Policy

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rjpp20

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To cite this article: Andrew J. Jordan & Brendan Moore (2022): The durability–flexibility dialectic: the evolution of decarbonisation policies in the European Union, Journal of European Public Policy, DOI: 10.1080/13501763.2022.2042721

To link to this article: https://doi.org/10.1080/13501763.2022.2042721

JOURNAL OF EUROPEAN PUBLIC POLICY
https://doi.org/10.1080/13501763.2022.2042721

The durability–flexibility dialectic: the evolution of decarbonisation policies in the European Union

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ABSTRACT

Policy makers are under political pressure to adopt policies that achieve net-zero greenhouse gas emissions. Reaching net zero is a demanding challenge requiring durable policies that last; that is, withstand short-term turbulence. However, there is a lack of clarity in the existing literature on both the conceptual meaning of policy durability and its empirical manifestations. This paper distinguishes between three central dimensions of policy durability and uses them to shed new light on the long-term evolution of EU climate policy. It reveals that the EU has addressed the relationship between policy durability and policy flexibility by working iteratively across and between different policy elements (instruments, programmes, goals, etc.). In revealing these patterns, it addresses a greatly neglected feature of policy design processes: the dialectical relationship between durability and flexibility.

KEYWORDS Climate change; policy durability; policy flexibility; decarbonisation; net zero

Introduction

Following the 2015 Paris Agreement, policy makers are under political pressure to adopt policies that deliver net-zero greenhouse gas emissions by mid-century. As noted in the introductory paper in this Special Issue (Boasson & Tatham, 2022), net zero is a demanding policy challenge, more complex even than managing the Covid-19 pandemic. To address it, policies must be sufficiently large in number and stringent in their ambition. However, they should also be durable (Rose, 1990, p. 274). By definition, a policy that is durable endures. A rapidly developing strand of literature identifies durability as an important facilitator of deep and rapid decarbonisation (Edmondson et al., 2019; Rietig & Laing, 2017, p. 576).

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Supplemental data for this article can be accessed at https://doi.org/10.1080/13501763.2022.2042721

Decades of research has underlined the immense difficulty of securing enough political support to adopt any policy (Glazer & Rothenberg, 2001, p. 110; Peters, 2018, p. 7). But ensuring that climate policy endures – that is, has the capacity to ride out the political bumps in the road ahead – is a task that many countries are only now confronting. The history of climate and energy policy is littered with examples of policies that were adopted, but were subsequently revised and/or cut back (Gürtler et al., 2019; Meckling et al., 2017, p. 920). In the past, climate policy dismantling – including the complete removal of existing policies – has occurred (e.g., Meckling et al., 2017, p. 920; Rabe, 2016). Politicians may like to think that they are participating in a race to net zero, but the 'inconvenient truth' is that a surprisingly large number of individual climate policies have not been durable enough thus far (van Renssen, 2018).

In discussing policy durability, it is important first of all to define 'policy'. In Hall's (1993) highly influential view, it has three main sub-elements:

- *Goals* which specify what is to be achieved; these change rarely, for example as a result of radical policy revisions;
- *Instruments* to implement the goals; these tend to change more regularly in the light of everyday experience;
- The calibration *or setting of those instruments;* these change constantly as part of what Hall (1993) termed 'normal' policy making.

These three sub-elements are themselves embedded within a prevailing *policy paradigm* which he defined as a 'framework of ideas and standards that specifies not only the goals of policy and the kind of instruments that can be used to attain them, but also the very nature of the problems they are meant to be addressing' (Hall, 1993, p. 279).

Hall's account is widely regarded as foundational because it drew attention to the tensions between a policy's internal design features and the changing world around it. This paper explores whether these tensions are also pertinent to the conceptual understanding and empirical manifestations of policy durability. We reveal that while policy durability enjoys a strong normative appeal in many policy sectors, including (but not limited to) climate change, there remains a great deal of ambiguity about its conceptual meaning and empirical extent.[1] Conceptually, it is often elided with policy stability (Rietig & Laing, 2017), policy consistency (Biber et al., 2017, p. 628) and policy stickiness (Jordan & Matt, 2014). Empirically, Jenkins and Patashnik (2012, p. 10) usefully defined it as how long a policy persists 'in its original form without significant change'. However, other scholars have stretched the durability concept to include a policy's ability not only to endure, but to become more stringent and eventually generate desirable outcomes over time (Rietig & Laing, 2017).

One of the main problems with the existing literature is that it does not unpack 'policy' into its various sub-elements and empirically examine which are durable and which are not, or relate them to intended policy outcomes. Therefore, the first aim of this paper is to unpack the conceptual relationship between these three dimensions:

1. *Instruments*, as measured by how long they last. Hall (1993) suggested that change at this level is quite regular. But an instrument is unlikely to be durable if it is rapidly weakened and/or completely dismantled;
2. *Goals,* as measured by their stability over time. Hall (1993) claimed that change at this level is less likely to occur over time. Therefore, a policy is unlikely to be durable if its goals are rapidly and/or significantly amended over time;
3. Preferred or actual policy *outcomes*, as measured by how far policies deliver expected benefits over time. Instruments and goals may be stable and long-lasting, but that may not be socially useful if the policy as a whole succumbs to policy drift. While implicit in Hall's (1993) original account, this third dimension of durability hints at the possibility that there may be potential trade-offs between policy longevity and policy effectiveness.

Crucially, these three dimensions highlight the relationship between Hall's two main internal design features (instruments and goals) and the extent to which they generate the outcomes (principally reduced emissions) to ameliorate the problem(s) (namely global climate change) identified by the paradigm.

Comparatively, little empirical work has analysed policy durability in European and, in particular, EU policy settings (but see, e.g., Jordan & Matt, 2014; Skogstad, 2017). Therefore, the second aim of this paper is to investigate how far the three dimensions shed light on the historical evolution and performance of EU climate policy, as outlined in other contributions to this Special Issue. More specifically, we investigate the intriguing – but largely unexplored – possibility that given the complex, inter-temporal nature of climate change, EU policies are likely to incorporate a mix of design features that promote durability while also providing sufficient flexibility to prevent policy drift (Edmondson et al., 2019; Peters, 2018, p. 9; Rabe, 2016, pp. 105–106). The existing literature asserts that durability has been a salient policy design consideration in the past. For example, the EU has repeatedly adopted goals that stretch far into the future, for example, to 2030 and even 2050 (Jordan et al., 2010). However, are there other empirical manifestations? In answering this puzzle, it is important to remember that, *pace* Hall (1993), policy (and thus policy design) has many internal sub-elements (Howlett, 2011). If durability and flexibility have been as important as the existing literature suggests (Mettler & SoRelle, 2014, p. 176), we should expect to find empirical evidence in relation to some or possibly all of them.

The remainder of this paper unfolds as follows. Section 2 unpacks the three dimensions in further detail; as policy durability is in principle the obverse of policy ephemerality, we explore if the dimensions are conceptually relevant to both. It then explores the durability and flexibility devices that policy makers can, in principle, build into policy designs to influence the overall extent of policy ephemerality/durability, drawing on examples from several different policy areas. In Section 3, we focus on the detail of EU climate policy and investigate the extent to which it exhibits these design features, drawing on relevant policy documents as well as our own empirical indicators. Climate change has been a salient political issue in the EU since the late 1970s and an active area of policy development since the early 1990s (Jordan et al., 2010; Moore, Benson, et al., 2021). Therefore we analyse the evolution of EU policy since 1992, thus attaining the gold standard of examining change over at least a decade (Sabatier & Jenkins-Smith, 1999, p. 118). We further explore the analytical potential of the dimensions by subjecting three especially active sub-areas of climate policy to more detailed scrutiny, namely car emissions, emissions trading and biofuel production. In Section 4, we reveal how our main findings advance several salient literatures and identify new directions for both research and policy.

What are policy durability and policy flexibility?

Policy durability

As noted above, policy durability is often promoted as though it were an inherently 'good' thing. But dig a little deeper, and it soon becomes apparent that there is a great deal of conceptual ambiguity about its most relevant dimensions. The first and most basic dimension relates to the *instruments* of policy. Hall's (1993) point about the relatively frequent nature of policy instrument change notwithstanding, the existing literature suggests that a particular policy instrument is unlikely to be durable if it is rapidly changed (Carlson & Fri, 2013, p. 121). Although there is no accepted minimum time threshold that an instrument must pass to be counted as 'durable', it is often assumed to be at least one electoral cycle (Hacker & Pierson, 2014, p. 651; Rabe, 2016, pp. 105–106). The existing literature also identifies certain policy design features – what we characterise as *durability devices* – that designers can employ to render their instruments more durable, such as enforceable standards (for a summary, see Pierson (2000, pp. 480–481), and Glazer and Rothenberg (2001, pp. 84–87)). Other devices include monitoring provisions to highlight defectors (see European Court of Auditors, 2018, pp. 4–5) and other credibility enhancing rules. The wider polity may also play a role in rendering particular instruments durable, e.g., independent oversight agencies (Kydland & Prescott, 1977). Together, these devices aim to

encourage target groups to make a significant 'sunk' investment in the instrument in question, which increases the likelihood that it will be durable. Or they may operate in more subtle ways, for example, by re-directing flows of information to hide the imposition of losses and thus forestall political opposition to them (Jacobs, 2011, p. 246).

The second dimension concerns a policy's overarching *goals*, which Hall (1993) expected would be less changeable. Indeed, as noted above, durability devices related to overarching goals may include very long-term targets (e.g., 2050) to create confidence that the policy direction will endure, and regular reporting obligations to ensure that its benefits ('outcomes') are sufficiently visible to (and thus appreciated by) voters and investors. According to some authors, roadmaps and/or long-term foresight strategies, perhaps co-produced with outside groups, are also in the toolbox of devices (Meckling et al., 2017, p. 919), their main purpose being to create a shared vision of the future that persists (Skjærseth, 2018, pp. 511–512). Unlike policy instruments, the existing literature does not, however, specify a minimum time threshold that defines whether a policy's goals are durable or not. However, a policy is unlikely to be durable if its overall goals are significantly and/or regularly weakened (Chattopadhyay, 2015, p. 7; Jenkins & Patashnik, 2012, p. 10; Patashnik, 2003, p. 207), particularly within a single electoral cycle.

Finally, as regards the third dimension (policy *outcomes*), durability devices include independent monitoring and review systems to assess how well a policy is performing (in terms of delivering outcomes and impacts) and to flag if they are heading off course (i.e., drifting from the course recommended by influential scientific bodies such as the Intergovernmental Panel on Climate Change (IPCC)).

Policy flexibility

In the existing literature, one encounters arguments to the effect that the more durable and constraining individual policies can be made, the better it will be for society (for example, Hovi et al., 2009, fn. 1). However, durability is not necessarily an inherently benign design feature in all circumstances and with respect to all policy outcomes; overly locked in policies may be just as problematic as fragile ones, especially if they generate malign policy outcomes and impacts (think of the EU's Common Agricultural Policy for example). From a democratic perspective, highly durable policies may also be judged to be problematic if they fail to adjust to new voter preferences for alternative outcomes and/or impacts (Patashnik & Zelizer, 2013, p. 1083). Crucially, minimising the opportunity to revise policies potentially increases the risk of 'policy drift' (Hacker, 2004). As policies 'drift' from the outcomes desired by society, they become progressively less effective over time (Béland, 2007). For example, social policies drift when they fail to adjust to

rising levels of inflation or changing societal expectations about what the welfare state should support (Hacker, 2004, p. 246). Following the same logic, climate policies may drift if they fail to align with scientific advice from the IPCC and/or the sudden emergence of potentially game-changing technologies (Carlson & Fri, 2013, p. 119).

There are, however, *flexibility devices* that designers can employ to ensure a policy's design changes in an orderly and predictable manner. Hall (1993) helpfully reminded us that some recalibration of a policy's instruments may be necessary (and actually inevitable) if the overall policy is to remain on track to achieve its goals. As regards, the *instruments* of policy, a review clause can be inserted, triggering a policy evaluation to be undertaken at a fixed point in time (European Court of Auditors, 2018, pp. 4–5), which in turn opens up a phase of policy (re)formulation. Other devices (Wilson, 1989, p. 37) may go further still, specifying what should be done by policy designers in the light of particular circumstances, such as a health emergency or a trade dispute. Still, others ('sunset clauses') may automatically re-calibrate (or even terminate) an instrument (e.g., reduce the generosity of a new energy subsidy) over time (Stokes & Breetz, 2018, p. 84).

However, our core argument – that policy and hence policy durability has three main dimensions – also alerts us to the possibility that flexibility devices may target other elements of policy. Creating time-limited *goals* may offer an opportunity (known to all in advance) to revisit them at a pre-determined point in the future (Héritier, 1999, p. 10; Pierson, 2000, p. 486). For example, the EU's long-term emission reduction goals have often been tied to a particular deadline (e.g., to reduce emissions by 20% by 2020), partly to drive the achievement of certain policy outcomes but also to offer an opportunity to take stock in the light of new developments. In other words, time limiting goals may offer designers a way to steer a fine line between policy durability and flexibility.

Finally, as regards the third dimension of our typology ('outcomes'), flexibility devices can be used to define opportunities to readjust a policy if its outcomes are perceived to be insufficient. For example, in the EU, institutions such as the European Commission are regularly empowered to make manual but relatively *ad hoc* changes (e.g., through secondary legislation). Flexibilities can also be pre-programmed into a policy's design to produce certain outcomes, especially via the calibration of instruments ('automatic government') (Weaver, 1988).

The durability and flexibility of EU climate policy

The goals of EU policy

Hall (1993) suggested that the goals of the policy are expressed in relatively sparse terms and can be expected to exhibit less change over time. Since

1992, the EU appears to have addressed demands for durability in at least two different ways. First of all, it has gradually shifted from setting an EU-wide emission stabilisation goal, through to setting a series of increasingly stringent reduction goals that in turn have steered large 'climate and energy' policy programmes (Jordan et al., 2010). These goals have arguably functioned as durability devices. For example, in 2007, the European Council committed the EU to accomplish three headline goals by 2020: a 20% share of renewable energy, a 20% increase in energy efficiency and a 20% reduction in greenhouse gas emissions. Later, the emission reduction goal was tightened to a 40% reduction by 2030, which was amended via a new instrument, the European Climate Law, to a 55% reduction in 2030 and net-zero emissions by 2050.

These EU-wide programmatic goals have largely endured, and all have easily outlasted the standard legislative term in the EU, namely five years. Crucially, none have been completely removed without being replaced by a more stringent target. Nevertheless, policy designers have granted themselves the flexibility to change track to avoid moving too far ahead of other trading partners (and thus experience 'carbon leakage'). Hence, when new long-term EU goals are set by the European Council, a reference is often inserted into the final *communiqué* to review them at a later date in the light of subsequent international events (Jordan et al., 2010), a flexibility device known as a 'revert clause'.

Second, these programmatic policy packages have themselves been tied to a particular end point (e.g., 40% 'by 2030' in the case of the 2030 package) (Kulovesi & Oberthür, 2020). As this endpoint comes into view, it has given the European Commission a political opportunity to review the entire corpus of climate policy against a new reduction goal and/or date. In their eagerness to adopt a leading position in international negotiations or align with the latest scientific advice from the IPCC, Heads of State have on occasions signed up to long-term goals without fully appreciating their implications for specific sub-areas or instruments of policy (Buchan, 2009, p. 137). Part of the EU's approach to balancing durability with flexibility has therefore involved working across different levels of governance (international, EU) as well as between different elements of policy (instruments, policy programmes and goals).

Policy design at one level (international, EU and national) has not, in other words, simply co-evolved but has actively fed off design activities at cognate levels (Oberthür & Pallemaerts, 2010, p. 27). International negotiations have often been used by actors and coalitions favouring deeper decarbonisation as a focal point for engineering internal agreement on new policy design activities. Afterwards, the agreements struck there have been used as a '*force majeure*' (Jordan et al., 2010, p. 205) to drive the rest of the EU towards stronger internal goals, programmatic policy packages and instruments. By constantly

searching for and exploiting windows of political opportunity at multiple levels of governance, the Commission, in particular, has sought to maintain a sense of 'irreversibility' (i.e., expressed in the durability of the EU's goals) with regards to EU policy (Eberlein & Radaelli, 2010, p. 788).

The standard advice from economists is that durability-focused policy designers should begin by adopting long-term rules/goals overseen by independent agencies to instil policy with credibility (Kydland & Prescott, 1977). Then (and only then) should they select the relevant policy instruments (Brunner et al., 2012, p. 256). But others have suggested that durability should be approached from the bottom-up – beginning with incremental re-calibrations of existing instruments and then moving up to programme-wide goals. In other words, slow and steady policy sequencing should be the norm, not 'big bang' policy making (Levin et al., 2012, p. 125). When examined across the full sweep of climate policy, the EU appears to have opted for a hybrid strategy, which has involved setting long-term reduction goals *and* pursuing bottom-up policy sequencing. This hybrid strategy has had the political advantage of being less prone to policy blockages – an ever-present risk in a hyper-consensual system such as the EU (Gravey & Jordan, 2016). By projecting discussions ten or twenty years into the future and then bringing everyone back to the nitty gritty of existing policy instrument designs after goals have been set, the Commission has sought to shape future expectations about what may be possible and desirable over the longer term, including via specific durability devices such as road mapping and policy foresight exercises.

The instruments of EU policy

As one moves down a level to specific policy instruments, the level of empirical complexity rises significantly (as Hall (1993) suggested). Even if the policies addressing adaptation to climate change are set to one side, the boundaries of climate change mitigation policy are not completely clear cut. In addition to the overriding policy problem of how to reduce emissions, EU policies also promote salient activities such as energy efficiency and renewable energy generation. This section, therefore, begins by summarising the changing patterns of instrument adoption across all sub-areas of EU policy that are directly salient to mitigation.

In 1992, our analysis reveals that the EU had only three mitigation-related policy instruments. By 2019, 48 instruments were in force, addressing sectors as varied as industry, energy and transport. Instruments adopted in the 1990s focused *inter alia* on greenhouse gas reductions (such as the Monitoring Mechanism and the voluntary agreement on car emissions), energy efficiency (e.g., the SAVE Programme and the Energy Labelling Framework) and renewable energy (e.g., the ALTENER Programme). The 2000s were an

even more active period of policy making: new instruments included the 2002 Energy Performance of Buildings Directive, the 2005 Ecodesign Directive, the 2009 Renewable Energy Directive, the 2009 Effort Sharing Directive and the 2009 Regulation on CO_2 emissions from new cars (which replaced the 1999 Voluntary Agreement). The EU Emissions Trading System (ETS) was inaugurated in 2003. Some spending instruments were also enacted during the 2000s, including the LIFE Programme's climate-related activities and rural development funding. During the 2010s, there were some new instrument adoptions, but policy making increasingly aimed at updating existing instruments (e.g., the ETS underwent three major reforms during that decade). The scope of policy instruments was also expanded to cover previously unregulated sectors, such as emissions from vans (2011), land-use (2013) and heavy goods vehicles (2019).

Looking across all the sub-areas, in total, 58 instruments were adopted between 1992 and 2019 (see Supplementary Table 1): 26 energy efficiency instruments; 25 greenhouse gas instruments; and seven renewable energy instruments. Between 1993 and 2019, the average lifespan[2] of all policy instruments in force in a given year rose from an average of one year in 1993, to 12 years in 2019. Crucially, amongst the 58 instruments, 48 (81%) instruments were still in force in 2019. Instruments that had a primary focus on greenhouse gas reductions were the most likely to survive; 96% of those adopted were still in force in 2019 (the only exception being the voluntary agreement on car emissions, discussed below). The equivalent figures for energy efficiency and renewable energy instruments were 77% and 57%, respectively. Energy efficiency instruments had the longest average lifespan (13.5 years), followed by greenhouse gas (11.1 years) and renewable energy instruments (8.8 years) (Figure 1).

In general, these adoption patterns lend credence to claims that complete dismantling and removal is a relatively rare phenomenon in EU environmental policy (Gravey & Jordan, 2016). Taking into account the instruments that were removed, greenhouse gas instruments had the longest lifespan (11.7 years), versus 10.6 years for energy efficiency and 7.6 years for renewable energy. Crucially, all but three instruments adopted before 2015 passed the very basic durability threshold outlined in Section 2, that is, they were in force for a time equivalent to the standard EU legislative term of five years.[3]

In order to cut the data in a slightly different way, we now examine the three sub-areas of car emissions, biofuels and emissions trading. Since 1992, nine main instruments have addressed these sub-areas: four supporting biofuel production and consumption; the ETS; and four related to car emissions. Crucially, two of these instruments were removed (the car CO_2 voluntary agreement and the Biofuels Directive), but both were replaced with successor instruments (namely the car CO_2 regulations and the Renewable

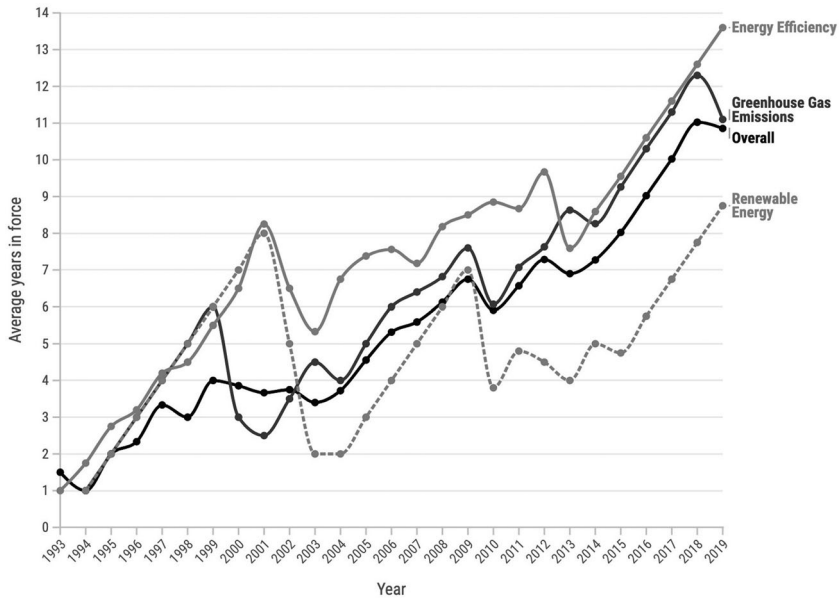

Figure 1. Average lifespan (years) of EU climate policy instruments in force in a given year (1993–2019). Source: own analysis based on Moore, Benson, et al. (2021).

Energy Directives, respectively). In 2019, the average lifespan of car emissions instruments and the ETS both stood at 16 years, but for biofuels, it was 8.3 years (Figure 2). Therefore, by 2019 all had passed the basic 5-year durability threshold.

On closer inspection, individual instruments in the three sub-areas have designs (and in particular incorporate devices) that appear to balance demands for durability and flexibility. Two obvious examples are the legislation that established the ETS and the various instruments that promote the use of biofuel in road transport (Egelund Olsen & Ronne, 2016, p. 181). For example, the 2003 ETS Directive and subsequent amending legislation incorporate detailed monitoring provisions covering the industries that trade in allowances and facilitate progressively more stringent reduction targets for the system as a whole. But as well as rendering the system more durable, Article 10 of the 2003 Directive also established a formal review and revision device, that triggered a process of review and reform that culminated in the adoption of a successor Directive in 2009. Later on, the EU established a Market Stability Reserve to ensure that the supply of allowances responded automatically to changes in demand in the market (Delbeke & Vis, 2015, p. 51).

With regards to biofuels, EU instruments have facilitated greater durability by setting targets for the percentage of road transport fuel that should derive

from biofuel. For example, Article 22 of the 2009 Renewable Energy Directive obliged Member States to report every two years to the Commission on the production of advanced biofuels, on biodiversity impacts and on net greenhouse gas emission savings. But at the same time, the 2003 Biofuels and 2009 Renewable Energy Directives also included flexibility devices that pre-committed the Commission to produce new proposals for revised instruments by a given deadline.

The outcomes of EU policy

The third dimension of policy durability draws attention to the relationship between a policy's design and the *outcomes* it is expected to produce. Again, it is fruitful (*pace* Hall, 1993) to examine how this relationship has played out across the various sub-elements of policy. At a broad level, the EU is steadily decarbonising; its emissions are in long-term decline. The EU easily fulfilled its Kyoto 2012 reduction target (one of very few parties to do so) as well as its 2020 target. On the face of it, instruments, goals and outcomes appear to have been in balance, although arguably partly because the intended outcomes sought were not nearly as ambitious as they could have been.

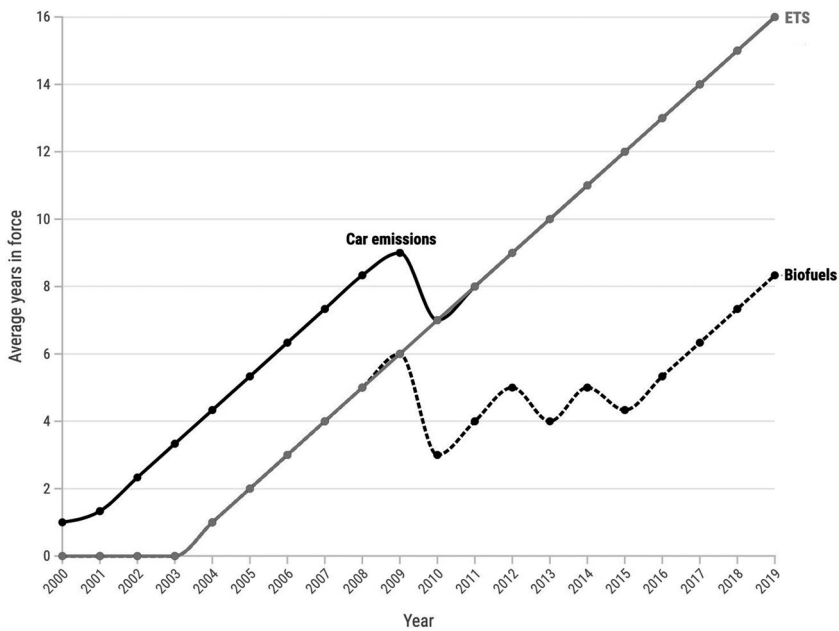

Figure 2. Average lifespan (years) of EU biofuels, car emissions, and emissions trading policy instruments in force in a given year (2000–2019). Source: Own analysis based on data modified from Moore, Benson, et al. (2021).

In the past, the challenge of designing instruments and goals to forestall policy drift has arguably been even more apparent with respect to specific policy instruments than EU-wide goals. For example, the long promised integrated internal market in biofuel remains highly fragmented, and the headline 10% target will be very challenging to fulfil, in spite of the immense political effort invested in policy design. In 2017, Eurostat (2017) declared that the EU had only achieved a 6.7% share of transport fuels in 2015. Too much biofuel is 'first generation', that is, derived from food crops. Some of the large incumbent players such as the oil and gas producers are beginning to invest in cleaner 'third-generation' alternatives (Raval, 2019), but the long promised 'breakthrough' (European Commission 2015, p.16) to achieve substantially 'clean' biofuels is still a very long way off and may never be fully achieved if the sector embraces battery technologies. Meanwhile, although the ETS has undoubtedly achieved some emission reductions, outcomes (and impacts) have not been as great as originally hoped (ECA, 2020). Allowance prices were too low for too long to drive deep decarbonisation, although they have been consistently higher since the most recent policy reforms in 2018. In spite of the modest outcomes generated, and ongoing attempts to extend trading to new areas such as maritime shipping and international aviation, the system as a whole remains firmly in place – seemingly politically too big to dismantle, but for most of its existence too ineffective to set the EU firmly on a path to net zero by 2050 (Moore & Jordan, 2020). Finally, in the car sector, fleet average CO_2 emissions have fallen, but several manufacturers may struggle to fulfil even their near-term obligations, which could result in some incurring substantial fines after 2021 (Campbell, 2017). Moreover, there remains a significant risk of policy drift across the whole subsector – that is, the emission reductions that have been achieved are at serious risk of being eaten up by increases in the ownership of larger vehicles and/or overall distances travelled (EEA, 2015, p. 24).

Finally, far bigger challenges lie ahead if policy instruments and goals are to deliver the considerably more ambitious outcome of net-zero emissions by mid-century. In recent years, the EU's main environmental data provider – the EEA – has regularly reported that policy efforts are lagging well behind that goal (EEA, 2019). In effect, for many years, it has warned that a whole array of interlinked policy problems are at grave risk of 'drifting' ahead of current policy efforts.

Discussion and conclusions

Although policy durability enjoys a strong normative appeal, there remains a great deal of ambiguity about its conceptual meaning, as well as whether and how it manifests itself empirically. In this paper, we have adopted a novel *long durée* perspective which explores how the EU has responded to demands for policies that incorporate some design features that render them more

durable, but others that provide a degree of flexibility to cope with changing economic, technological and political circumstances (Peters, 2018, p. 136). For the first time, we have revealed that it is useful to distinguish between the durability (or otherwise) of different dimensions of policy, namely instruments, goals and outcomes. In attempting to reduce policy ephemerality, policy designers have found themselves under pressure to strike an acceptable balance between greater policy durability and greater policy flexibility. In fact, in analytical terms, it is useful to conceive of the relationship between the two as being essentially dialectical.

Thus far, the EU's response to those dialectical tensions – via amending individual instruments and/or long-term goals – have been relatively durable. Even though climate policy is an area of relatively active policy development, the vast majority of policy instruments have lasted considerably longer than five years. Although there is no widely accepted minimum empirical threshold for assessing the durability of policy goals, all have lasted at least five years, and none have been weakened. We have also noted that the EU's overall design strategy has been neither top-down nor bottom-up (cf. Levin et al., 2012, p. 125). Rather it has relied upon a hybrid strategy of active durability – of constantly (re)combining different policy elements (goals, instruments, instrument settings) in such a way that the overall policy programmatic *package* (rather than any individual policy element) is 'sufficiently robust to sustain [a] degree of modification and still accomplish its desired goals' (Peters, 1999, p. 86). Peters' reference to 'desired goals' is important as it draws much-needed attention to the importance of policy outcomes, which were implicit in Hall's (1993) policy typology, but even today is often forgotten by analysts studying the internal design features of policies. Thus far, the EU's existing package of instruments and goals appears insufficient even to fulfil the relatively undemanding targets for 2030, let alone achieve the far more difficult goal of net-zero emissions by 2050. As the EU endeavours to achieve deeper cuts, we expect the challenge of managing the dialectical tensions between durability and flexibility to become more, not less pronounced. In the 2020s, we expect its search for active durability to be tested like never before.

Amidst the significant problems experienced with some instruments (the ETS, for example) and the political heat generated by the negotiation of specific long-term goals (e.g., net zero in the European Climate Law), what has been striking about the evolution of EU decarbonisation policy has been the relative stability and robustness of the overarching paradigm of decarbonisation. In fact, when durability and flexibility are accomplished through myriad interconnecting devices rather than one single 'big bang' goal or instrument (a role, incidentally, often ascribed to the ETS), the broader policy paradigm has appeared more robust overall. The capacity to ensure policy flexibility has certainly been seized upon by the Commission to address problems within

individual instrument sequences (e.g., the Dieselgate scandal that rocked car emission reduction policy, and the large pressure group campaign that targeted the 'dirtiest' biofuels), while at the same time preserving the durability of the policy paradigm. As the EU attempts to ramp up its policy efforts (via, *inter alia*, the European Green Deal), the robustness of the current policy paradigm will encounter new challenges. In that sense, the EU's policies will only be fully durable when they nurture a set of society-wide beliefs and expectations that deep and rapid decarbonisation has not only begun but will persist right through to the end of the twenty-first century.

Our empirical findings contribute to a number of important debates within public policy analysis. First of all, they directly inform the debate about policy instruments, which is currently enjoying a welcome renaissance (Howlett & del Rio, 2015, pp. 1234–1235). We have shown that the tension between flexibility and durability is multi-dimensional and can be addressed by employing an array of instrument-level devices, many of which go unreported in the existing literature. For example, Salamon (1989) does not include durability–flexibility amongst his essential instrument design dimensions. Moreover, packaging together different goals and instruments can facilitate greater policy durability.

Second, our findings inform the live debate about the active governance of socio-technical transformations (Hess, 2014; Moore, Verfuerth, et al., 2021; Roberts et al., 2018; Schmidt & Sewerin, 2019; Seto et al., 2016, p. 435), where policy mixes are regarded as performing a particularly pivotal role (Hess, 2014, p. 279). However, we have shown that designing policy to achieve net zero goes well beyond mixing specific instruments to promote new technologies in specific niches. Rather, the EU's preferred approach to design – what we have dubbed active durability – has arguably involved a more expansive interpretation of policy that encompasses goals and programmes, within the context of changing perceptions of desirable outcomes. A key analytical challenge in the future is to explore if the EU's experience of packaging together these dimensions generates insights for other policy systems and policy problems.

Third, the overriding challenge in climate policy is widely perceived to be concerned with breaking down 'carbon lock-in' (Unruh, 2000). In addition, our findings usefully reveal that 'unlocking' carbon lock-in is only one part of a broader deep decarbonisation puzzle; equally important is finding ways to wind down carbon-promoting policies that are locked in and replace them with equally durable alternatives that are more environmentally sustainable (e.g., Downie, 2017; Rosenbloom & Rinscheid, 2020). In terms of the three dimensions of durability outlined above, multiple (possibly unprecedented) changes in policy, as well as governance, are likely to be required to achieve such a transformational change, without precluding opportunities to change along the way (i.e., be flexible).

Future work on the policy durability vs. policy flexibility dialectic could inform these debates in two main ways. First of all, it could sample across a range of other policy (sub) areas to investigate how the durability–flexibility dialectic has (or has not) been addressed. One striking finding to emerge from our examination of EU mitigation policy instruments is the tendency for individual instruments to be quite durable (but not entirely fixed – in part because of the use of flexibility devices), but for particular instrument sequences to exhibit a good deal of change. An instrument sequence is characterised by feedback loops that connect a number of instruments in a causal sequence. In the three sub-areas of climate policy that we selected for closer examination, the sequences relating to emissions trading and car emissions were especially noteworthy (Jordan & Moore, 2020). In future, policy feedback theory could be utilised to explore and explain the relative presence and/or absence of such causal sequences, and the role of durability/flexibility devices therein. After all, this goes to the heart of the debate about what it is to steer or govern society. Such work could eventually inform and be informed by broader accounts of policy change (for a fuller discussion, see Boasson & Tatham, 2022), which largely overlook the specificities of policy design (including policy flexibility and durability devices).

Second, in this paper, we have generally concentrated on describing and measuring broad patterns of change; because of space constraints, we opted to set aside the question of human agency. Yet a fundamental question, which is not directly addressed in the existing literatures, remains: to what extent is policy durability intentionally sought by policy designers? To put it slightly differently, just because a particular policy (element) is durable, does that imply that it was actively and consciously designed as such? This is an immensely policy-relevant question given the growing political desire for policy durability to be intentionally nurtured. At present, some scholars assume that intentional design is and/or should be commonplace, whereas others disagree, yet neither camp offers convincing empirical evidence to support its claims (Edmondson et al., 2019; Leipprand et al., 2020; Roberts et al., 2018, p. 305), or relates them to the durability and/or ephemerality of policy.

Table 1 provides a basic typology that could be used to derive and test more specific hypotheses to inform new comparative work. To give an example, in Section 1, we noted that designers are under mounting political pressure to adopt durable policy designs to deliver net-zero emissions. If this is done in a fully intentional manner, we would expect it to blend a number of durability and flexibility devices (hence 'durable by design'). Our empirical analysis of climate policy since 1992 certainly infers that this has been the case; this would be a promising topic for further analysis, perhaps involving elite interviews and participant observation. However, we know from existing studies of cognate areas such as agricultural support that policy can also

Table 1. Policy durability: a typology. Source**:** own composition.

		Degree of intentionality	
		Unintentional	*Intentional*
Degree of durability	*Ephemeral*	'Ephemeral by default' • Fewer flexibility devices • Fewer durability devices	'Ephemeral by design' • More flexibility devices • Fewer durability devices
	Durable	'Durable by default' • Fewer flexibility devices • More durability devices	'Durable by design' • More flexibility devices • More durability devices

become unintentionally 'locked in' through a sequence of incremental decisions. Are such areas marked by the relative absence of durability and flexibility devices (hence 'durable by default')? Table 1 suggests that in addition to these two scenarios, two others are in theory also conceivable – 'ephemeral by default' and 'ephemeral by design'. There is certainly ample scope to conduct new research which examines if and how different actors, including, but not limited to, politicians interact with the intention of delivering deeper and more rapid decarbonisation in different policy (sub) sectors, and illuminating the political power dynamics at play.

Notes

1. Although flexibilities may be introduced during the policy implementation process, we limit our analysis to the policy making process.
2. We follow the existing literature by defining lifespan as the length of time between the year of adoption of the instrument's underlying legislation noted in the Official Journal of the EU and the year in which it was no longer in force (or 2019 for instruments that were still in force at the end of that year).
3. With the exception of the voluntary agreements on energy efficiency of dishwashers (4 years), televisions (4 years) and water heaters (3 years).

Acknowledgements

The authors thank three anonymous reviewers and the special issue editors for their very helpful comments on earlier drafts.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The work was supported by UK the Economic and Social Research Council (via the Centre for Climate Change and Social Transformations (CAST) grant ES/S012257/1) and the European Research Council (via the DeepDCarb Advanced Grant 882601).

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