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Blowing policy bubbles: rethinking emissions targets and low-carbon energy policies in the U.K.

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ABSTRACT

The issue of proportionality is central to climate policy debates about setting targets for the reduction of greenhouse gas emissions and the development of low-carbon energy. In effect, these debates centre on whether the perceived social costs outweigh the benefits of policies and, if not, whether this may lead to over-investment or 'policy bubbles'. Political attention, agenda setting and policy image are all crucial drivers of ambitious policy formation, as seen in the case of the United Kingdom's (U.K.) Climate Change Act (2008). However, as political salience waned and economic depression dragged on, the cost of long-term climate targets has been reconsidered. Based on documentary analysis and 33 interviews with central political actors, this article presents a detailed account of how economic arguments have been used to reinterpret and challenge policies, using the heuristics of 'over-investment' and 'policy bubbles'. Ultimately, arguments about proportionality hinge on which costs and benefits are considered. In the U.K., economic and technical framings are typically prioritised, but they do not explain contradictory and politically motivated policy decisions. We discuss these dynamics within the context of maturing renewable energy technologies, high energy prices and the U.K.'s cross-party consensus approach to climate politics.

I don't think there are many people, even in that policymaking bubble, who have joined the dots. It is terribly convenient that in that bubble there are people who live in permanent conditions of cognitive overload. (Senior Government Interviewee)

1. Introduction

Reducing greenhouse gas emissions to mitigate climate change demands bold actions from nation states, collectively and individually. It also demands a high degree of reflexivity, managing policies in response to rapidly changing social and material conditions. Many industrialised countries have pledged to make 'nationally determined contributions' and some have developed flagship climate change policies to guide them (Fankhauser, Gennailo, & Collins, 2015). But their realisation and political feasibility is far from assured, especially as action becomes more challenging over time (e.g. full decarbonisation of electricity supply), as public and political interest wanes, as energy prices fluctuate and as national economies struggle in the aftermath of the financial crash of 2008/2009.

We explore these various factors using the United Kingdom (U.K.) as a case study, showing that, despite world-leading legislation, a gap between rhetoric and action has emerged and is in danger of growing. By drawing on ideas of disproportionate policy-making and policy bubbles, we show how perceptions of, and discourses

about, climate change and low-carbon energy have changed, and the impact this has on policy outputs. These concepts provide a particularly appropriate heuristic for exploring the ideas and rationales behind policy recalibration. They are especially pertinent to climate and energy policy, given the predominance of economic framings in policy-making, and also because of their attention to reflexivity in complex long-run policy issues. Adding to existing research on political agenda setting and policy retrenchment, the case study and concepts in this article illustrate the power of economic ideas in reframing strategic policies and justifying the rollback of policy.

1.1. U.K. climate policy: post-innovation problems

In 2008, the U.K. passed the Climate Change Act (CCA). This legislation was heralded as a significant step forward for national level climate policy (Carter & Jacobs, 2014; Hill, 2009; Lockwood, 2013; cf. Pielke, 2009). Following Jordan and Huitema (2014), it can be described as an example of policy innovation because, for the first time, a national government had self-imposed legally binding targets for reducing greenhouse gas emissions. In order to oversee progress towards the flagship target of an 80% reduction in emissions by 2050 (on 1990 baseline levels), a semi-independent Committee on Climate Change (CCC) was established to propose and monitor interim five-yearly targets ('carbon budgets'). Combined with the newly formed Department for Energy and Climate Change (DECC) the institutional architecture supporting the CCA was thus established.

U.K. climate policy has since received a lot of attention in academia and beyond, sometimes raising doubts. For instance, it has been shown that political competition and support for environmental issues from some parts of the incumbent Conservative Party quickly dissipated in the wake of the economic downturn (Carter, 2014). Uncertainty in climate change and low-carbon energy discourses further compounded this loss of momentum (Lockwood, 2013; Lorenzoni & Benson, 2014). In this article, we extend this line of critical enquiry, analysing the way these issues have been expressed in debates about emissions target setting and how they have materialised in the form of policy changes in the low-carbon energy sector.

2. Theory

2.1. Uncertainty during times of rapid change

Theories of the policy process often stress the importance of timing, especially with regard to the arrival of new ideas and significant changes in direction for policy. Phrases such as 'window of opportunity' and 'punctuated equilibrium' are used to describe the conditions in which a certain problem, and solution, command the attention of publics and policy-makers alike (Jones & Baumgartner, 2012; Pralle, 2009; Sabatier & Weible, 2007). Contained within much of this theory are warnings about information processing errors and the possibility of over-reaction to increased activity in previously inert policy areas (Baumgartner, Jones, & Mortensen, 2007). For instance, policy-makers' bounded rationality (i.e. focusing on a small number of highly salient issues) is known to play a role in sudden momentums overcoming entrenched resistance and forcing rapid policy change (Stirling, 2014). When facing cognitive overload and intense pressure, policy-makers may tend towards overconfidence (Maor, 2012). Accordingly, more research into the post-adoption phases of policy innovations has been called for (Jordan & Huitema, 2014), particularly to explore the consequences of over- or under-reactions (Howlett & Kemmerling, in review; Maor, 2012) and to better understand the subjectivity of rapid policy change (Jones & Baumgartner, 2012).

2.2. Discursive framing and agenda setting

Whether a given policy is perceived and described as (dis)proportionate will depend on many things, including the position of the person doing the describing and the point of reference they use to make their claims, for example, climate risks, other nations or particular costs/benefits. The use of speech acts (or discourse) to define the terms of reference or promote a particular perspective can be understood as an epistemological intention to:

Transform information into a meaningful whole by interpreting them through other available social, psychological, and cultural concepts, axioms, and principles. (Fischer, 2003, p. 144)

In practice, this can be a powerful and persuasive tool for those involved in processes of deliberation and political agenda setting (Dryzek & Lo, 2014; Hajer, 1995; Snow, 2004). As such, it is useful for analysing how government actors and other stakeholders seek to emphasise certain characteristics of a problem in order to justify their preferred solution (Blue, 2016; Fischer, 2003). The effects of framing can be seen at the early stages of defining a problem as well as throughout the lifecycle of specific policies, particularly for long-run issues such as climate change and energy transitions.

Climate change has been described as the archetypal 'wicked problem', for which there can be no 'silver bullet' policy solution (Urry, 2016). Countering the tendency towards despondency that such issues sometimes produce requires sensitivity to the short- and long-term changes in public discourses, as well as proactive strategies for keeping climate change high on the political agenda (Capstick, Pidgeon & Henwood, 2015; Pralle, 2009). Building on agenda setting theories, Pralle (2009) stresses the importance of framing solutions to climate change in terms of: avoiding costly impacts, producing economic benefits and its linkages with energy systems.

2.3. Rationalising over-reaction

Significant policy changes are often politically charged and publically scrutinised. Therefore, the way they are perceived and legitimised by various actors is crucial (Hajer, 2010; Jones & Wolfe, 2015; Sabatier & Weible, 2007). The discursive influence and emotional valence of new policy ideas is well theorised in the literature (Cox & Béland, 2013; Schmidt, 2010) and may lead to bold commitments requiring significant levels of (potentially unfeasible) government action (Maor, 2015). In addition to the aforementioned information processing errors, Maor, Tosun, and Jordan (in review) set out four political rationales for such policies that could later come to be seen as the causes of over-reaction:

- To overturn a status quo and redefine the terms of debate in a given policy area
- To seek first-mover advantage for states and sub-national bodies
- To respond to intense public-demand for averting a perceived risk
- To pursue national or sub-national goals as part of tackling a global problem

Accordingly, as conditions change and these rationales are no longer pertinent – because they have been met or otherwise negated – politicians and policy-makers facing difficult circumstances may question the appropriateness of past decisions by invoking new or different framings and evidence.

By defining over-reaction as 'producing an inefficient policy that generates greater social costs than benefits' (Maor, 2012, p. 232), it is possible to consider both objective and subjective evaluations. Given the number of existing positivist arguments about the proportionality of climate change targets vis-à-vis climate science, this article focuses on the perceptions of policy-makers and other stakeholders. These subjective accounts, and the discourses they mobilise, are analysed alongside observable policy outputs to illustrate the extent to which climate and energy policies have been re-interpreted and the way this is borne out in specific decisions.

2.4. The rise of policy bubbles

There are various feedback mechanisms through which innovative, long-run or contentious policies can protect their longevity, for example, creating new vested interests, reallocating resources and producing new information streams (Pierson, 1993). These may be deliberately designed into policies or they may be unintentional (Jordan & Matt, 2014). Either way, it is conceivable that these mechanisms could exacerbate actual, or perceived, costs; thereby creating prolonged over-investment or a 'policy bubble' (Jones, Thomas, & Wolfe, 2014; Maor, 2014). Accordingly, the reflexive capacity of policy-makers to check and balance these policies is crucial. This reflexive capacity is partially determined by institutional factors (Howlett & Kemmerling, in

review; Kuzemko, 2016) but also by individuals' strategic actions, for example, discursive reframing or deliberate inaction (Bauer, Jordan, Green-Pederson, & Héritier, 2012; Howlett, 2014).

There are many types of checks and balances, including target setting, monitoring and evaluation, evidence-based goals and reflexive implementation (Hajer, 2010; Howlett, & Lejano, 2012; Hughes, 2012; Voß, Smith, & Grin, 2009). However, this is not to suggest that policy-making is entirely rational and neatly professionalised. For example, target setting may mobilised for political or ideological reasons in order to impose responsibilities on successor administrations, establish or re-arrange policy areas, strengthen international negotiating positions or give the impression of doing something without actually increasing implementation (Bauer et al., 2012; Hajer, 2010; Howlett, 2014; Rutter & Knighton, 2012). In the U.K., interim targets and annual reports on emissions were intended to maintain salience, ambition and accountability as implementation became more difficult and costly over time (Rutter & Knighton, 2012). Yet the efficacy of these mechanisms has already begun to be questioned, especially with regard to ensuring policy stability and investment in low-carbon energy (Lockwood, 2013). By applying the economic heuristic device of a 'policy bubble' to the U.K. case, we can see whether growing concerns about the costs of meeting emissions targets and over-investment in renewable energy are capable of over-riding the positive feedback mechanisms of climate and energy policies.

3. Methodology

3.1. Research design

Changes in policy outputs (i.e. strategies, instruments and their settings) provide the basis for the study whilst the discursive activity accompanying them (i.e. their framing by different actors) provides the qualitative, subjective, depth. Underlying this approach is the epistemological assumption that what can be known and expressed about the world (e.g. about U.K. climate policy) is ultimately mediated by the interpreter's particular history and context (Yanow, 2000). This applies to both the expressed views of actors in the texts and interviews we analyse, as well as to the researchers' own representations of these. Thus, we do not claim to be presenting *the* definitive account of climate policy in the U.K. but rather a particular exploration of policy outputs and how various actors have discursively constructed them. The analysis focuses on climate change mitigation in the form of strategies and targets for reducing greenhouse gas emissions. Given the interrelated nature of energy sources and emissions, both materially and discursively, the low-carbon energy policy area (specifically supply-side electricity) was also scrutinised.

3.2. Data collection

Publically available documents were purposely collected and subjected to a critical discourse analysis in order to identify the various framings of policies and to verify the accounts of interviewees by looking for anomalies (Wetherell, 2001). Key texts included policy documents, party manifestos, expert reports and media articles. U.K. media coverage including the keywords 'climate change', 'climate change + general election' and 'renewable energy' was collected using Google Alerts during the 2015 election period. Trends and analysis of frames were crosschecked using data provided by the Media and Climate Change Observatory at the Center for Science and Technology Policy Research, University of Colorado. A single frame was used to code each story, and these were inspired by (and partially adapted) from existing work on climate change media coverage (Boykoff, 2008; O'Neill et al., 2015).

Semi-structured interviews were carried out to complement this with the otherwise undocumented beliefs, values and perceptions of key actors (Beamer, 2002). Interviewees were purposely sampled to include a range of actors who regularly contributed to climate policy between 2006 and 2016, including a mix of retired and currently employed policy-makers and therefore a mix of more and less critical perspectives (see Table 1).

Following a grounded theory approach, these two layers of evidence were collected and analysed iteratively, with emerging themes informing future collection and analysis (Charmaz, 2014). Inevitably, not all policy changes are described in full and the individuals' perspectives included are representative rather than exhaustive

Table 1. Summary of interviewees.

Organisations and roles		Number
Government	MPs, policy-makers, advisers and civil servants	17
Non-governmental organisation (NGO)	Policy analysts, knowledge brokers, consultants and campaigners	7
Media	Mass and specialist journalists	3
Energy sector	Consultants, investors and heads of research & development	3
Academia	Professors of climate change and energy	3
		Total: 33

(Yanow, 2000). This partiality is justified on the grounds that it reflects the overall nature of the climate policy area, in terms of who has the power to shape policy and the communication channels through which they engage with stakeholders and the general public.

4. Case study: changing perspectives and policies

4.1. National climate politics and emissions target setting

4.1.1. The 'dangerous climate change' imperative

Leading up to the passing of the CCA, political discourse from the two main parties took the long view, framing climate change as an inter-generational issue that demanded immediate action. The Labour Prime Minister's speech in 2004 referred to climate change as:

> [A] challenge so far-reaching in its impact and irreversible in its destructive power, that it alters radically human existence. (Blair, 2004)

David Cameron, leader of the opposition Conservative Party, also made it a prominent part of his platform, saying 'the price of inaction gets higher every day' and 'tackling climate change is our social responsibility to the next generation' (BBC, 2006). According to a prominent campaigner, this sense of urgency and cross-party support 'opened a whole load of possibilities that weren't there before' (Rutter et al., 2012, p. 114). Seizing the opportunity campaigners coordinated political support for the 80% emissions reduction target, despite the fact that no other country in the world had such an ambitious target or legal framework (Institute for Government, 2008).

Pressure also came from the civic and private sectors. A public consultation on the Climate Change Bill produced more than 17,000 responses from individuals that were 'overwhelmingly supportive' (HM Government, 2007, p. 10) and the Confederation of British Industry (CBI), stated that 'this bill is a big step forward in combining the two things we really need: long-term clarity on policy direction and flexibility in its delivery' (HM Government, 2007, p. 10). In addition to the business case, climate modelling by the Intergovernmental Panel on Climate Change (IPCC) provided influential scientific evidence, as the Deputy Director of the CBI, told a policy reunion:

> What really did it, in 2004 and early 2005, was the science. I think your average chief exec of a major company had a feeling in their gut [that] the UN scientists were right. (Rutter et al., 2012, p. 114)

The legislation was scrutinised by three separate parliamentary committees and although a minority of sceptical voices were heard (see Parliament, 2007), it passed into law in 2008. In this context, only those willing to be cast as outsiders could outwardly oppose the CCA (5 out of 650 MPs abstained or voted against it). For example, a statement from climate-sceptic Member of Parliament (MP) Peter Lilley laments the persuasiveness of the economic argument in these terms:

> Given the public mood [at the time], the Stern Review was adopted as Gospel truth; by politicians - because it endorsed an apparently vote-winning message; by the media - because the global warming story sold newspapers; and by environmentalists - because it validated their agenda. (2012, p. 8)

It is much harder to imagine this argument for early investment resonating in quite the same way had it been made after the global economic crash of 2008/2009. Certainly from a government Treasury perspective,

austerity should have put the economy ahead of climate on the political agenda (Ares, 2011). Although not a central theme of election campaigns in 2010, climate change was referred to in party manifestos more frequently than in 2005 or 2015 (Figure 1), attesting to the short-lived nature of the competitive consensus.

However, even within this apparent consensus there were significantly different interpretations of the associated costs and most desirable policy pathways. Even among department ministers only a few individuals were keen to make emissions targets a priority, with the rest making up a passive majority described by one senior government colleague as:

> A quite shallow consensus among a small group of people who wanted to be on the right side of history.

Another interviewee who worked with MPs on promoting the climate change agenda across government encountered the same discord, characterising the atmosphere in Parliament as 'one part hostility to nine parts indifference'.

Another telling quote from a civil service policy-maker describes the subsequent ideological incongruence faced by Conservative leaders. Pledging strong action on climate change helped to soften the party's image and strengthened David Cameron's platform (Carter, 2014), but it also left them facing potentially unpopular policy options:

> I think No.10 [the Prime Minister's office] were, and still are, committed to tackling climate change in principle but are unprepared to take the difficult decisions. At the high level they are committed but as soon as you get a level down and face policy decisions involving public expenditure, money on bills or regulation which some people might not like … then they don't like the consequences.

4.1.2. Target setting amidst economic turmoil

The five-yearly interim targets were an innovative and important element of the CCA's longevity. In principle, the carbon budgets were intended to provide an measurable pathway to the 2050 target, thereby helping to neutralise the antagonisms of political attention cycles that so often hinder long-term policy objectives (Anderson, Bows, & Mander, 2008; Giddens, 2009; Hill, 2009; Voß, Smith, & Grin, 2009). The evidence base for these targets follows the IPCC's modelling of global temperature rises, which underpins the United Nation's (UN) international climate change negotiations to which the U.K. is a party. However, this is placed within the national social and political context. As the CCC's budget proposals must also consider, in each sector of the economy 'what can be achieved to reduce emissions at least cost, taking account of available technologies and government policy' (CCC, 2016).

The first three carbon budgets covering five-yearly periods between 2008 and 2022 (23%, 29% and 35% respectively) were legislated simultaneously with the CCA in 2008. The report does not use the term 'proportionate' but synonyms such as 'moderation, 'appropriate', 'feasible' and 'manageable' are present throughout, for example,
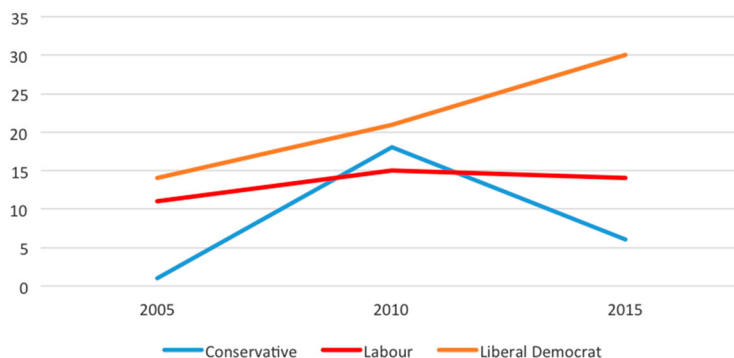

Figure 1. Number of references made to climate change in main political party manifestos.

> The costs of meeting the 80% target are affordable and should be accepted given the consequences and higher costs of not acting. (CCC, 2008, p. 5)

> Realistically achievable emissions reductions are sufficient to meet the required objective. (CCC, 2008, p. 17).

An interim assessment report noted that actual emissions reductions were likely to exceed the targets, partially as a result of the economic downturn (HM Government, 2010). However, it was stated confidently that 'the aim should be to outperform the first budget, and not to use this outperformance to reduce effort in the second budget' (Ares, 2011, p. 2). This warning against the possibility of interpreting over-performance as justification for policy rollback proved to be astute.

By contrast, the fourth carbon had a much tougher time being legislated in 2011 as concerns over competitiveness with the rest of Europe began to outweigh the scientific case. Statements from senior politicians clearly sought to shift attention to short-term costs ("I don't want UK to be at forefront," 2013), suggesting that the CCA had produced an untenable legacy in the current political economic circumstances:

> It was fine to be talking about spending money on climate change in the good times but when energy bills are going up it doesn't seem like good politics. (Senior Conservative MP quoted in Wright, 2012)

Despite these attempts to reframe long-term climate targets as costly over-reactions, the fourth budget was set in 2011, albeit with the caveat of a review of its proportionality in 2014 (HM Government, 2011). Again, despite sustained arguments from some ministers and lobbying from the energy-intensive industry, the target was retained (CCC, 2013). This open dissent was presented as economic prudence on the part of the Chancellor of the Exchequer, but several government interviewees close to the internal discussions revealed it was largely a political strategy to differentiate himself from 'green Tories' and to stoke a potential rift among their coalition colleagues in the Liberal Democrat party. Some media coverage of the disagreements portrayed it as a fundamental rethink of the U.K.'s leadership position, but according to a government interviewee responsible for assessing the evidence base this was not the case:

> Obviously there is a push from a small part of the Conservatives to use that as an opportunity to get rid of the 4th budget or the Act but that was always more of a media story than a reality. Maybe it seems easy to take that tone afterwards but I was there during it and it just wasn't a big deal.

This example clearly demonstrates how reviews of proportionality may be used not only to keep targets aligned to evidence (i.e. acting as early warning signs for potential policy bubbles), but also employed for political reasons.

4.1.3. The other side of the cross-party coin

Our account and others have highlighted the apparent waning of a once competitive consensus (Carter, 2014), but with a landmark UN climate change conference in Paris following soon after the 2015 U.K. general election there was potential for a resurgence. However, the incoming minister of DECC set the tone by speaking of 'inheriting a department where policy costs on [household energy] bills had spiralled' and explicitly reframed the U.K.'s global contribution as 'providing a compelling example of how to cut carbon while controlling costs' (Rudd, 2015). Although one of our non-governmental interviewees who attended the conference spoke positively of the role senior DECC officials and the minister played, others (media and other areas of government) felt this agenda only resonated with a minority of policy-makers and interest groups. They consistently bemoaned the lack of public or political salience of climate change, particularly where policy details were complex and uninspiring, for example:

> In communications terms it [climate change] was probably one of the most difficult things. It's not tangible, it's not easy to grasp. I have to sell stories; there isn't a bloody story! (Government Communications Official)

Ultimately, climate change and the environment were crowded out of the electoral campaigns in 2015 as attention focused on the economy and immigration and the Liberal Democrats – who continued to prioritise the climate change agenda (Figure 1) – were unequivocally side-lined (Simms, 2015; media interviewees). In the run-up to the 2015 national election, a group of environmental NGOs brokered a joint pledge from the leaders
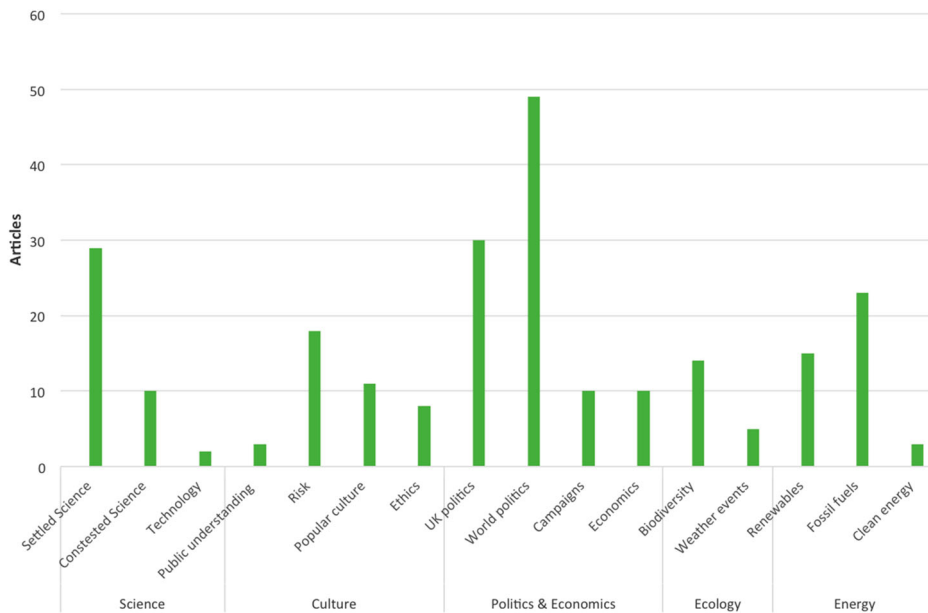
Figure 2. Frame analysis of U.K. national media coverage of climate change 29 March 2015–7 May 2015 (election campaign period).

of the three main political parties to reaffirm their commitment to the climate agenda (Green Alliance, 2015). Although this was intended to strengthen the image of climate policy and to avoid politicisation, some of our interviewees expressed misgivings, for example:

> I do think in a sense it took the heat off – they could all just sign it and they weren't asked to follow it up in a particularly strong way. So in a sense it felt like the pledge existed in its own little reality somewhere separate and had absolutely no useful impingement or relationship with the rest of the election campaign. So I think ultimately it left them off the hook actually. (Opposition Member of Parliament)

Ultimately, the pledge contributed to a lack of public deliberation. Within the election period media coverage we analysed, articles specifically linking U.K. politics and climate change were relatively sparse (30 out of 240), despite significant interest in the UN climate conference ('world politics' frame in Figure 2). There were a similar number of stories focusing on the 'settled/contested science' as on the link between climate change and 'U.K. politics' or election 'campaigns'. Thus, we see evidence of two possible effects of cross-party politics (inducing and neutralising competition in 2008 and 2015, respectively). Interestingly, in both cases, a flagship commitment was adopted and rhetorically lauded, obscuring more detailed disagreements among policy-makers about the potential costs of implementation.

4.2. Low-carbon energy: from clean energy transformation to least cost transition

Broadly corresponding to the U.K.'s Carbon Plan (DECC, 2011a), the low-carbon energy policies concentrated on here relate to supply-side issues only, focusing primarily on renewable sources but also addressing the role of nuclear and shale gas. The only binding target in this policy area was courtesy of the European Renewable Energy Directive (EC, 2009) that required the U.K. to supply 15% of its energy needs (disaggregated into electricity, heat and transport) from renewable sources by 2020.

Regarding electricity, concerted lobbying from NGOs and numerous MPs built on the carbon budgets and the 'U.K. leadership' discourse to argue for a full decarbonisation target (BBC, 2013; Friends of the Earth, 2012). Contrary to advice from the CCC, the Government rejected the target on the grounds that it 'would not be in the best interests of consumers' who would pay for the policies through inflated bills

(LSE, 2013). Many in the private sector saw this as a clear signal that renewables would no longer be prioritised ahead of shale gas or nuclear (private sector interviews; Murray, 2013). A leaked letter from the Chancellor confirmed the Treasury's desire to move away from focusing on renewables to promote a pro-gas narrative due to the public appeal of energy security and cheaper bills ("George Osborne letter to Ed Davey," 2012).

This shift came at a time when rising energy prices for households were becoming a salient issue, prompting energy companies and Conservative politicians to blame the cost of renewable energy subsidies that are levied via consumer bills. The then Prime Minister David Cameron allegedly demanded that policy-makers 'get rid of all the green crap' (referred to by government, NGO and media interviewees). Moreover, the Secretary of State for Energy and Climate Change Amber Rudd reportedly wrote to the energy companies asking them to lower their bills (NGO interviewee). Although the cost of living crisis was (and still is) very real for many, blaming renewables for exacerbating this through high energy prices was misleading, as one energy expert explained:

> If you take a look at the data for consumer expendable incomes, its been the sharpest squeeze for ages. That's why the bills stuff was so toxic and challenging. Even though when you look at the breakdown, energy policy is still such a minor component of the bill.

The chair of the CCC also pointed this out in a recent interview (Hickman, 2015). Here, again, the power of discourse and simplified media coverage in constructing the perceived costs of these policies is apparent.

More generally, economic framing in the decarbonisation debates concentrated attention on the cost-effectiveness of target setting in principle. Whilst not explicitly attacking their levels this implicitly raised concerns about the appropriateness of setting carbon budgets. One senior policy-maker explained that the word 'target' had become 'politically toxic'. A political rationale for this became clear in late 2015 when a leaked letter from the Secretary of State for Energy and Climate Change revealed the Government's own analysis predicted they would miss the 2020 European target for renewable energy. This resulted in accusations from environmental NGOs of misleading rhetoric and increased media coverage of how recent policy changes had hit the renewables sector (Benton, Francis, & Mount, 2016; Tickell, 2015).

4.2.1. Policy goals and strategies

In pursuit of the above emissions and energy source targets, the 2009 U.K. Renewable Energy Strategy (DECC, 2009) presented an optimistic view, justifying costs by referring to the Stern Review's (Stern, 2007) well-rehearsed argument of 'early action costs less in the long run' and also by highlighting multiple benefits such as community energy resilience and fuel poverty reduction (DECC, 2009, pp. 183–187). In 2011, this strategy was replaced by The U.K. Renewable Energy Roadmap (DECC, 2011b, p. 6), which focuses instead on the technologies 'that have the greatest potential to help the U.K. meet the 2020 target in a cost effective and sustainable way'. Eliding many social costs and benefits the new Roadmap emphasises aggregate value for money, repeatedly stressing the superior cost-efficiency virtues of market competition (DECC, 2011b, pp. 10–11).

This neoliberal logic also underpins much of the Government's 2013 Energy Act. Discursively combining three main objectives (emissions reductions, affordability and security) into a 'trilemma', the long-term move towards low-carbon electricity was caveated with short-term concerns about cost and supply. In particular, part of the Energy Act introduced an electricity market reform (EMR) targeting low-carbon supply, based on the premise that increased competition would solve the trilemma most efficiently. As the Government's report on implementing the EMR illustrates:

> Our long-term vision for the electricity market is for a decreasing role for the Government over time, and to transition to a market where low-carbon technologies can compete fairly on price. (DECC, 2014, p. 13)

4.2.2. Policy instruments

Although the overall number of low-carbon energy policy instruments increased between 2006 and 2016, successive governments tried to contain their costs and complexity. In terms of instruments, the pre-existing

Renewables Obligation (RO), which mandated energy providers to source an increasing percentage of their supply from renewable sources, was joined by two new instruments for subsidising small-scale and non-electric forms of renewable energy: feed-in tariffs (FiT) and the Renewable Heat Incentive, respectively. Part of the rationale behind the Energy Act in 2013 was to simplify this policy landscape, so the RO (which had gone through many revisions) was replaced by an auctioning system called Contracts for Difference (CfD). Under the RO, which closes in 2017, government determined the relative value of different sources of renewable energy through a banded certificates scheme. Whereas the CfD are specifically designed to create competition between low-carbon sources of electricity, awarding subsidies to the lowest bidders in an auction and eventually fading out technology specific auctions to create a 'free market'. Two government officials responsible for designing and implementing the new policy offered further justifications for this change:

> The renewable energy industry is ready to be weaned off guaranteed subsidies and can stand to lose a few projects.

> There are so many projects in the pipeline that developers will bid low just to get them off their books.

Either way, the prevailing view within government was that the previous policy trajectory would result in consumers paying more than they needed to through subsidy levies on household bills, especially as the renewables sector became more established. In other words, it was seen as a growing policy bubble that needed to be checked.

This issue became highly politicised by regular price increases and energy companies being accused of profiteering by then Labour leader Ed Miliband, who promised a 20-month price freeze and stricter regulations. The impact of renewables subsidies was amplified by traditionally climate-sceptic media outlets using headlines such as 'Green taxes will hike up energy bills by almost £300 by 2020' (Ingham, 2013) and 'Family energy bills to be £70 higher than ministers claimed … despite millions lavished of green energy schemes' (McTague & Spencer, 2014).

4.2.3. Instrument settings and scope

Reducing cost over the long-term has been built into the design of renewable energy subsidies, ostensibly to reflect changes in production costs and profitability as technology improves, that is, to halt perceived over-investment or policy bubbles. However, as we have seen, this type of reflexive policy alteration can also be used for political reasons. In 2009, a banding system was introduced into the RO to incentivise the development of emerging (e.g. tidal) rather than more established (e.g. on-shore wind) technologies. Similar steps were taken to reduce the generosity of the new FiT instrument, e.g. introducing a gradual depreciation timeline for overly successful solar PV (DECC, 2012a, 2012b; Parkes, 2012), as well as some immediate tariff reductions and a cap on overall spending (DECC, 2015a). The case of solar PV is particularly illustrative of the risk of over-investment. Due to rapid deployment and improvements in efficiency, more electricity was being produced (and purchased through the FiT) than anticipated. Combined with a low wholesale electricity price this meant that subsidy rates were disproportionately high, benefiting the solar PV industry and small-scale panel owners, but inflating the cost to consumers over the long term (DECC, 2015a).

Whilst the discourse of curbing costs was easily made during a time of high retail energy prices and stagnant wages, it also foreclosed public discussion of the net benefits these investments bring about, misconstrued the way subsidies are linked to wholesale electricity prices and masked a set of political motivations for cutting policies (according to central government, private sector and academic interviewees). Whenever over-investment is suspected and policies are changed, there will always be winners and losers with differing perspectives of what constitutes an appropriate level of cost. The political nature of these changes complicates things for policy experts. As one government official responsible for consulting with stakeholders put it:

> The problem is trying to differentiate what is just moaning by people who are losing some of their rents, compared to genuine complaints from people who are concerned about us not reaching our targets.

Changes in the calibration of policy instruments also altered their targeting of technologies, some of which directly contradict Government claims about cost. The first of these is a bespoke CfD awarded to a new nuclear

project without any competition, on the grounds that it is low-carbon (if not renewable) and necessary for security of supply (DECC, 2012b). Putting arguments about the political desirability of nuclear contra renewables to one side (for a full account see, Sovacool & Watts, 2009; Stirling, 2014), the cost per megawatt hour (£92.50) of the nuclear CfD was more than the average onshore wind (£82) and solar PV (£68) around the same time and was locked-in for an unprecedented 35-year lifespan (DECC, 2015b).

At the same time, a more overtly political decision was taken by the incoming Conservative government in 2015 to halt the construction of any new onshore wind farms, despite it being one of the most cost-efficient sources of renewable energy. From a low-carbon investment perspective, the Treasury's decision in 2015 to apply a carbon tax to renewable energy suppliers' electricity consumption also seems somewhat counter-intuitive. This decision was predicted to shift at least £450 million from renewable industry pockets to Government coffers annually, and was likened to 'making apple juice pay an alcohol tax' (Cameron, 2015) illustrating, as one environmental NGO interviewee put it:

> … just how much value the Treasury and George Osborne [Chancellor] put on carbon, which is effectively zero.

5. Discussion

Direct attempts by politicians to re-interpret the CCA, or its existing carbon budgets, as an over-reaction were uncommon. This is potentially surprising given that the various political rationales for pursuing highly ambitious policy commitments – such as redefining the terms of debate, seeking first-mover advantage, responding to intense public-demand and achieving national or sub-national goals by responding to a global problem (Maor et al., in review) – had all been negated to a greater or lesser extent. However, our analysis showed that new policies, such as the fourth carbon budget and an electricity decarbonisation target, were attacked precisely on (their lack of) these grounds. More generally, the amount of political attention given to climate change decreased within government (evidenced in interviews and manifestos), and also in national press coverage (Capstick et al., 2015).

At first glance, the U.K.'s low-carbon energy policy area appears to have expanded to accommodate the complexity and evolution of the sector. New strategies have been published, along with new instruments, to support renewable energy development. However, on closer inspection, significant steps have been taken to scale back the generosity of subsidies. Policy-makers and media reports have described them as a poor deal for consumers, or in other words as a growing policy bubble that needed to be checked. These changes appear to have been driven by a short-term cost cutting agenda – linked to the political salience of high consumer bills at a time of low real-terms wages – rather than by reforming their long-term efficacy (Parkes, 2012; Wood & Dow, 2011; Woodman & Mitchell, 2011). Tellingly, the discursive framing moved away from an ambitious renewables-led transformation towards a 'needs must' mix of options including nuclear and shale gas (Corner et al., 2011). Such pragmatic sounding arguments for a flexible portfolio of cost-effective options sound economically rational, but they also mask the political nature of 'picking winners', for example, Conservatives appealing to their core constituencies and business allies by blocking on-shore wind development and investing in new nuclear (Stirling, 2014).

Returning to concerns about weak institutionalisation and the battle between vested/new interests (Lockwood, 2013; Pierson, 1993), our findings confirm the suspicion that the U.K.'s current policy feedback mechanisms may be insufficient. For example, the positive effects of using energy and economic framings (outlined by Pralle, 2009) were turned on their head. Interim emissions targets and a political consensus on the need to respond to warnings from climate scientists (two other recommended strategies) also struggled to prevent the salience of climate change from waning. Further research is needed to explore why climate policy-makers in general, and the renewables sector in particular, may struggle to resist rollback. For instance, why was so little made of the political nature of policy (re-)calibration (Howlett & Kemmerling, in review); and to what extent is the influence of economic ideas such as 'over-investment' and 'policy bubbles' exaggerated by austerity and ideological commitments to market-based governance (Maor, 2014; Schmidt, 2010).

Furthermore, our findings revealed a degree of hesitancy among senior decision-makers to prioritise climate change (noted elsewhere by Howlett, 2014; Rickards, Wiseman, & Kashima, 2014), and also highlighted the

inconsistency of policy decisions regarding low-carbon energy (e.g. bespoke deals for nuclear and shale gas at a time when incentives for renewables were being cut). Although the climate policy community lamented these details, wider media and political discourses presented a broad-brush picture of sustained climate leadership at the international level coupled with economic prudence in the national energy sector. Thus, cross-party consensus strategies and climate leadership framings may be vital for early policy development and providing strategic direction, but they need to be accompanied by close scrutiny of on-the-ground actions. Recent developments in the U.K. suggest a continuation of this tension, as the fifth carbon budget has been passed, but DECC has been disbanded and subsumed into a new department with a much greater emphasis on energy and industrial strategy.

6. Conclusion

Beginning from a position of high salience, government innovation and self-identified leadership in 2006, U.K. climate and low-carbon energy policy in 2016 appears to be faltering. Prolonged economic depression and a shift in political power both played a part. During this period, the costs associated with climate and low-carbon energy policies were magnified, leading to doubts about whether scientifically justifiable targets are economically and politically viable. In particular, the low-carbon energy policy area has changed to reflect this, with policy-makers turning to non-renewable sources and repeatedly cutting subsidy levels for certain technologies. The official justification was to avoid over-investment in renewables, and whilst there is some economic merit to this argument it only tells part of the story, especially if considered in the context of other policy decisions e.g. new nuclear costs, the on-shore wind ban and an oxymoronic carbon tax for renewable energy. Although national level targets appear to be being met, and set, into the future (despite the increasingly difficult nature of the policies and social changes they imply), there is a danger that this will lead to a widening gap between rhetoric and action.

Beyond the U.K. case, our findings challenge many of the assumptions about an incremental, technical and managerial approach to tackling long-term problems such as climate change through national policy-making. Recognising the possibility of (deliberate or unintentional) over-reactions to salient agendas encourages us to look at policy feedback mechanisms in a more critical light. When politicians talk about the dangers of 'over-investment' – or political scientists of 'policy bubbles' – to discuss policy rollback, it implies that policy-making is a purely rational, and reflexive, evidence-based process. However, as our analysis has shown, this is not strictly true. It matters a great deal who is framing a policy, and against what reference point, for whether it is perceived and presented as proportionate. Therefore, these concepts can be seen as useful heuristics for discussing politically motivated attempts to reinterpret policy, as much as for examining the official economic justifications for decisions. Ultimately, this article has offered an important reminder, and case study illustration, of the way flagship policies can begin to rapidly transform sectors of society, but how they can also be pegged back by a shift in priorities from efficacy to (economic) efficiency.

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