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Article (Accepted Version)

Mcgowan, Francis (2020) Policy learning or politics as usual? Explaining the rise and retrenchment of renewable electricity support policies in Europe. *Environmental Politics*, 29 (4). pp. 589-608. ISSN 0964-4016

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Policy learning or politics as usual? Explaining the rise and retrenchment of renewable electricity support policies in Europe

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Abstract

I assess the contribution of policy learning to changes in renewable energy support policies in the European Union (EU), focusing on the evolution of the 'Feed-in Tariff' in Germany and the United Kingdom, considering both 'endogenous' (responses to the effects of existing policy within the country) and 'exogenous' (responses based on external experience of the policy) learning in shaping the design and operation of the mechanism as policy shifted from an expansionary to a retrenchment phase. I evaluate the analytical value of a policy learning approach compared with other explanations for such policy changes, particularly those which draw upon more conventional political drivers such as political parties, interest groups and institutional conditions at the domestic and EU levels. While there are signs in both cases that policy learning has informed changes in the policy in certain respects, the principal drivers of, and constraints upon, change have been political.

Introduction

The 21st Century has seen the rapid development of renewable energy in Europe, with much of the growth focused on electricity: the share of European Union (EU) electricity production sourced from renewables has grown from 15.4% in 2006 to 30.5% in 2017 (European Commission 2019). A number of factors have contributed to this rapid growth, but government policies have played a decisive role. However, the apparent success of such policies in encouraging the expansion of renewable electricity was followed by an increase in

the overall price of electricity paid by consumers. This is because support schemes to encourage renewables generally required their relatively high costs to be passed on as an additional charge on electricity tariffs. As the amount of electricity generated from renewables increased so did the level of this charge. The rising cost of support was increasingly criticised in political debate, leading to an adjustment, if not retrenchment, in the orientation of policy. Over the last decade, the growth of renewable-based power generation has been paralleled by reforms of the policies that contributed to that growth, reining in or rolling back the levels of financial support for renewable projects.

Here, I seek to explain the dynamics of renewable electricity policies in Germany and the UK as they swung from generous levels of aid and guaranteed market access to substantial reductions in support and more operational restrictions. In order to understand why and how policymakers first developed policies to encourage renewables and subsequently scaled them back, I explore two possible explanations. One could view the processes of expansion and retrenchment as examples of policy learning whereby politicians and officials responded to both their own experience and that of other countries in introducing and reforming particular forms of support. However, it is clear that, over the period of policy development, a number of other factors including institutional procedures, coalition politics, industry lobbying and EU interventions also shaped those decisions. The challenge therefore is to disentangle such instances of 'politics as usual' and processes of policy learning and, if possible, identify the more significant driver of policy change.

I examine this relationship, concentrating on the evolution of renewable electricity support policies in Germany and the UK. I focus on the Feed-in Tariff (FiT), a particular mechanism which contributed to the rapid expansion of renewables over the 1990s and 2000s before undergoing revisions and restrictions over the last decade. The two cases provide an instructive contrast in terms of the policy's development: observers regard Germany as a pioneer in developing the policy and applying it for over a quarter of a century; the UK was one of the last European countries to adopt a FiT mechanism (complementing existing support schemes) and operated it for less than a decade. In both countries the policy led to a rapid increase in renewable electricity (in Germany for wind and solar and in the UK mainly for small-scale solar) before governments sought to amend and restrict the mechanism when it proved too successful. I examine how both countries adopted and adapted the FiT in terms

of both the learning processes at work and the broader political pressures and constraints. In terms of policy learning, I consider these policy changes in terms of both a domestic - or 'endogenous' - dynamic (principally reactions to the consequences of earlier policy choices) and an external - or 'exogenous' - component (in the form of policy transfer). In terms of political conditions, I examine the interplay within and between government branches, the lobbying efforts of different protagonists and the EU's influence.

Following a review of 'learning' and 'political' explanations for policy change and an overview of the role of FiTs in Europe, I consider the relative importance of, and interaction between, policy learning and political factors by reviewing the key milestones in the development of FiTs in each country. Drawing on a mix of government and EU documents, specialised media sources and existing academic research, I then explore the potential contribution of learning to changes in their FiTs policies over the periods of expansion and retrenchment before considering how far the developments were also subject to a mix of interest pressures and institutional constraints. Finally, I draw some broader conclusions on the role that policy learning plays in the context of 'politics as usual'.

Explaining policy change: 'politics as usual' and policy learning

Explanations of policy change tend to focus on a mix of structural factors, institutional arrangements and interests (Knill and Tosun 2012). Shifts in economic conditions may create the opportunity, or the pressure, for policy change while international commitments may require governments to reform. The election of a new government seeking to deliver manifesto commitments or the activities of interest groups challenging existing policies may also drive policy change. We can label such approaches as 'politics as usual' in their focus on structures, institutions and interests.

An alternative explanation focuses on the role of policy learning. Scholars have developed a variety of approaches to make sense of policy learning and its different manifestations (Dunlop, Radaelli and Trein 2018; Freeman 2006). I focus on a central distinction within the literature between 'endogenous' and 'exogenous' policy learning (Grin and Loeber 2006).

Endogenous policy learning is the process whereby policymakers adopt, adapt or abandon policy in response to its current performance. The concept has similarities to Pierson's 'interpretive' perspective of policy feedback, according to which policy change often builds upon past successes or seeks to learn from past mistakes (Pierson 1993). Endogenous policy learning is more apparent in cases where policymakers become aware of the need to change policy in response to the shortcomings, limitations or failures apparent in the status quo. As Birkland (2016: 345) observes, 'policy failure induces policy change through a learning process'.

Scholars also associated learning with utilising evidence from other countries' policy - *exogenous* policy learning, assessing the different forms such learning can take: Rose's (1993) work on 'lesson drawing', Bennett's (1991) typology of policy convergence and, in particular, Dolowitz and Marsh's (2000) work on policy transfer (exogenous policy learning is broadly equivalent to their concept of 'voluntary' policy transfer).

In practice policy learning may involve both endogenous and exogenous processes where the problems governments experience with existing policies prompt them to adopt apparently successful policies from elsewhere. However, while policy learning may take on both forms in some cases, it is arguable that each form has a different dynamic: endogenous policy learning is driven by attempts to address limitations or overcome shortcomings in existing practices, while exogenous learning focuses on emulating successful policies.

Learning dynamics may also depend on the orientation of policy, specifically whether the policy trajectory is one of 'expansion' (where policymakers are willing to devote additional resources to facilitate the objectives of a policy) or 'retrenchment' (where policymakers seek to scale back the resources available as a consequence of problems with the policy itself and/or constraining conditions such as economic problems or international obligations). The nature and perhaps the significance of policy learning may depend on the trajectory of policy. Just as Pierson (1996) identified that the politics of policy expansion may be different from those of retrenchment, policy learning in a context of expansion may take a different form, or may be treated differently, in a context of retrenchment.

In both contexts, moreover, the extent and impact of learning may be subject to structural, institutional and interest-based factors which affect policy change. Indeed, the fact that learning may be subsumed within a broader process of policy change highlights the challenge

of disentangling policy learning (whether endogenous or exogenous) from other forces which might affect policy change. As Moyson *et al.* (2017) note, identifying policy learning is complicated by the fact that it occurs in a process populated by a variety of actors operating within an institutional framework.

In explaining policy change, how can research distinguish learning from other factors such as government changes, lobbying efforts and institutional conditions at the national and international levels? In exploring the evolution of the FiT in Germany and the UK I identify conduct which indicates the possibility of learning effects while placing them in the context of political developments at the national and EU levels. While not conclusive, the analysis suggests that learning may have contributed to changes in FiT policies in both countries but the extent and nature of that contribution has been subject not only to overall policy conditions (expansion or retrenchment) but also to political circumstances.

The rise and retrenchment of renewable support policies in Europe: the case of the FiT

For many decades European energy policy – at both national and EU levels – has sought to increase the share of renewables in the overall energy balance. Over more than 40 years, authorities introduced a variety of policies to support the deployment of renewable energy, including R&D subsidies, government backed loans, tax breaks and direct aid. To encourage the development of renewable-based electricity, policies have focused on providing incentives to potential suppliers (Kitzing *et al.* 2012) in the form of mechanisms that set a guaranteed purchase price to the supplier for the power they produce, or specify a quota of power to be produced from renewables. Feed-in tariffs (FiT) have been the best-known and most-applied mechanism for price-based systems, while tradeable certificates have been the best known for quantity-based systems (Lauber and Schenner 2011: 509). FiTs guarantee renewable electricity suppliers both a price for the power produced and a commitment to purchase the power, while tradeable certificates are designed to encourage development of the lowest cost sources of power.

Over time, an increasing number of governments in Europe adopted FiT-type mechanisms, their popularity reflecting their effectiveness in encouraging the development of renewable

electricity projects. By 2011, FiTs were in place in 21 of the then 27 members of the EU (Kitzing *et al.* 2012). While FiTs have not been the only mechanism associated with the expansion of renewable-based electricity, in many countries they were a significant factor.

The rise of the FiT was not without problems and critics, however. The latter – particularly incumbent electricity utilities – criticised the mechanism for distorting the electricity market (Eurelectric 2007). The European Commission which, while in favour of renewables, was keen to achieve this in a market-compatible and harmonized way, initially shared this view (European Commission 1997 and 1999; Hildingsson 2010). Over the 1990s the Commission proposed such an approach but its efforts were unsuccessful in the face of member state opposition and in the wake of a European Court judgment that effectively permitted governments to adopt FiTs (Busch and Jorgens 2012). Consequently, the Commission effectively suspended its harmonization efforts, acknowledging the benefits of a diversity of national schemes (European Commission 2005). Indeed, in a subsequent analysis of existing national policies, the Commission found that FiTs were the most effective and efficient mechanism for renewable support (European Commission 2008: 10).

Throughout the first decade of this century, there appeared to be a virtuous circle between the adoption and adaptation of FiTs on the one hand and the deployment of renewable capacity on the other, increasing the share of renewables in power generation. However, as the deployment of renewables accelerated, there were increasing concerns about the broader consequences. The main cause of concern was the mechanism underpinning the FiT. The need to guarantee the price for purchasing power from renewable sources was a function of their higher production costs relative to electricity from established suppliers. In order to cover these costs, utilities levied a surcharge on electricity tariffs to consumers. While such surcharges constituted a very small part of customers' electricity bills initially, their share increased in line with the rise in renewable power production (Frondel *et al.* 2010). This rise in production – and the corresponding increase in the surcharge – was due to dramatic cost reductions, pushing down the prices of these technologies faster than existing policy mechanisms had envisaged (Grau *et al.* 2012). While most countries' FiTs had factored in a reduction of tariffs paid to producers to reflect falling costs (a degression mechanism), such mechanisms were slow to adjust to rapid changes in market conditions. Policymakers faced

accelerating deployment of renewables, fueled by falling costs for specific projects, on a scale that substantially increased the overall costs borne by consumers as a whole.

Concerns about such price increases were particularly acute given the wider context of the financial crisis and the adoption of austerity policies in many European countries. The policies imposed by most European governments led to a scaling-back of government (or government-mandated) support for renewable energy (Geels 2013). More generally, the narrative in the policy debate shifted to concerns about affordability and competitiveness, putting further pressure on policy measures associated with supporting 'clean energy' (Carter and Clements 2015).

This combination of electricity price increases and difficult economic conditions had the effect of turning an apparent policy success into a significant political problem, leaving governments struggling to limit the damage. No country abandoned the commitment to increase the share of renewable energy; even if they had wanted to, governments would have been in breach of their commitments under the EU's 2009 directive (European Union 2009). However, the trajectory of policies informing that commitment shifted from expansion to retrenchment. For much of the last decade, almost every member state reconfigured its renewable policies in ways that cut the amount of support available and imposed tougher conditions on the deployment of the technologies. The changes have included an accelerated reduction in the level of purchase prices, lower targets for additional capacity, moratoria on new investment and, in some cases, retroactive charges and taxes to claw back some of the revenues flowing to beneficiaries of existing schemes (Fouquet and Nysten 2015).

As part of these changes many countries shifted away from mechanisms such as FITs to instruments such as tendering, whereby authorities specify a level of new capacity to be met from renewable sources and hold an auction, with the lowest bidders winning the contract to supply. Governments, the major electricity generation companies and industry experts promoted such mechanisms as being likely to secure new renewable power supplies more cheaply. However, this claim has generated considerable debate, and critics have contested the effectiveness and efficiency of auctions (Toke 2015; Winkler *et al.* 2018). Moreover, critics have attacked the mechanism for changing the nature of the sector, privileging large-scale suppliers at the expense of the smaller-scale operators who pioneered renewable development (Fell 2017). Indeed, in the debate on support mechanisms, large power

generation companies have been amongst the strongest advocates of auctions, making the case at national and European levels (Boasson 2019).

A return to a more assertive promotion of market-based policies at EU level reinforced changes in national policies. While the European Commission maintained its support for the development of renewables (European Commission 2011), it argued for a change in the policies to deliver it. In its 2013 Green Paper on policy after 2020, the Commission stressed that future renewable policy should reflect the ‘consequences of the on-going economic crisis, the budgetary problems of Member States who have difficulty to mobilize funds to deliver the 2020 targets (and the).... concerns of households about the affordability of energy and of businesses with respect to competitiveness’ (Commission 2013a: 2). In guidance on the best practice for reforming support policies, the Commission called for the phasing-out of FiTs for all but the smallest suppliers and to move towards more market-compatible arrangements such as tenders (Commission 2013b: 13). The revision of State Aid rules for energy and environment consolidated these principles (Commission 2014), a change that effectively obliged member states to adapt their future approaches to renewable electricity support (Rusche 2015). However, it is important to note that in most countries the changes were already under way.

What are the factors behind such dramatic changes in renewable support policies? Were the policies of expansion that prevailed in the decades leading up to the financial crisis, and the subsequent policies of retrenchment that have emerged and prevailed in the last decade, examples of policy learning? Or were the policy changes more a function of politics as usual, the interplay of political parties – in and out of government – and economic interests against a backdrop of national and international institutions? The following section seeks an answer by examining the cases of Germany and the UK.

The rise and retrenchment of FiT policies in Germany and the UK

Germany

Germany has been a pioneer in the development of renewable energy, particularly electricity: by 2017 renewables accounted for just over 34% of power production. Much of this growth is due to the central role of the FiT in place in Germany in one form or another for nearly 30 years. Earlier mechanisms, such as a 1979 voluntary arrangement to purchase power from non-utility sources, failed to provide much incentive for the development of renewable electricity (Mendonca 2009: 27). The introduction of the Feed-in Law (Stromeinspeisungsgesetz) in 1990 established many of the principles that were to define the feed-in approach to promoting renewables, notably the obligation for utilities to purchase renewable-sourced electricity at a guaranteed price. The legislation was successful in enhancing the deployment of renewables but was constrained by limits on the size of individual projects and on the overall capacity to be covered by the arrangements (Lauber and Mez 2004; Jacobsson and Lauber 2006), particularly for solar.

The adoption of the 2000 Renewable Energy Sources Act (Erneuerbare Energien Gesetz or EEG) marked a significant improvement in the country's FiT framework. Drawn up by members of the legislature due to differences within the Red-Green coalition government over the policy (Jacobsson and Lauber 2006: 267; Hoppmann *et al.* 2014: 1427), the law set out to build on the experience of the previous framework and overcome some of its limitations. It relaxed the limits on new capacity, provided specific tariffs for different sizes and types of supply, established fixed tariffs for remuneration (subject to a degression mechanism) and introduced a review procedure to inform the future evolution of the policy (Jacobs 2012). Over the course of the decade, policymakers revised the legislation several times, sometimes by limited amendments (in 2003 and 2006), and in other cases by full revisions of the law (in 2004 and 2009).

Following the re-election of the Red-Green coalition in 2002, the Ministry of the Environment acquired responsibility for renewables policy instead of the Ministry of Economics. While changes had to secure the support both of the government as a whole and of the legislature, observers viewed the Environment Ministry – whether held by the Greens (until 2005), the *Sozialdemokratische Partei Deutschlands* (SPD) (as part of the Grand Coalition with the *Christlich Demokratische Union Deutschlands* (CDU) from 2005 to 2009) or the CDU (in coalition with the liberal *Freie Demokratische Partei* (FDP) between 2009 and 2013) – as more supportive of the FiT than the Economics Ministry (Hager 2015: 10). However, by the end of

the decade, concern to contain the impact of the legislation increasingly tempered this support.

In encouraging the development of renewable sources of electricity, the EEG was very effective: between 2000 and 2009 the overall share of renewables in power generation increased from 6.9% to 16.9% (European Commission 2018). The policy also fostered the development of the country's wind and solar industries (Janicke and Lindemann 2010: 132; Hillebrand 2013: 668). While these results were celebrated as demonstrating the success of the *Energiewende*, there was growing concern about the consequences of this increased deployment on the costs of support and ultimately consumers' electricity bills: by 2009 the surcharge paid on electricity bills to cover the costs of the FiT had risen to 1.32 c/kWh from 0.19 c/kWh in 2000 (Federal Ministry for Economic Affairs and Energy 2016: 25).

While the increase in the surcharge was not all due to the increase in renewable production, its main driver was the rapid growth in investment which followed further reductions in the costs of new capacity outpacing the degression factors in existing legislation. The rise in capacity added substantially to the overall levels of remuneration through the surcharge which rose to nearly 3.6c/kWh by 2012 (Federal Ministry for Economic Affairs and Energy 2016: 25). Over this period the CDU-FDP coalition government intensified its efforts to reduce the FiT and limit deployment, ushering in a phase of retrenchment. Having secured agreement on further reductions in the FiT in the 2012 reform of the EEG (Hoppmann *et al.* 2014: 1431), the government intervened again within months in an effort to slow deployment (Federal Republic of Germany 2014: 38). Whereas, hitherto, the rules required reductions in tariffs on a six-monthly basis, the reforms envisaged a monthly degression and set a limit on the total amount of capacity that would be eligible for support. However, the need to find compromises within the government and between it and the legislature moderated the pace of retrenchment (Lauber and Jacobsson 2016: 152).

The return to a grand coalition between the CDU-CSU and the SPD at the end of 2013 not only maintained the trajectory of FiT reform but arguably accelerated its pace. In the face of further rises in the surcharge (to nearly 5.3c/kWh in 2013 and over 6.2c/kWh in 2014), the government introduced another set of changes in 2014 to 'significantly slow and control the momentum of the increase in the overall costs of the expansion of renewable energies' (Federal Republic of Germany 2016: 6). There were also increased efforts to integrate

renewables into the workings of the country's electricity market. The reforms envisaged a move towards a new mechanism of support for new renewable projects: from 2017 renewable development would be managed through a system of auctions (though the FiT was retained for smaller projects). After a series of pilot rounds in 2015 and 2016, the 2017 EEG confirmed the shift towards auctions, with FiTs restricted to projects of 750kw or less (Agora Energiewende 2016).

United Kingdom

After a slow start, the UK has increased the share of renewable in its energy mix, and particularly its electricity supplies (the latter rising to 30% in 2017). As in Germany, the growing contribution of renewables is largely attributable to policy changes. From the early 2000s its main policy instrument was a tradeable certificate system known as the Renewables Obligation (RO). In line with the government's commitment to market-friendly policy instruments, its design was to foster development while minimising the costs to consumers (Toke 2010: 772-3). The scheme nonetheless took a number of years to deliver significant amounts of investment with critics arguing that it was both less effective and more costly than alternatives (Mendonca 2009). Over time, however, government reforms of the policy secured increased investment in renewables (Mitchell *et al.* 2006).

The increase in renewable investment was also due to another policy development: the introduction of a feed-in tariff for smaller renewable projects. Although the government had long been sceptical of the merits of this mechanism (Toke 2010; Department of Trade and Industry 2007: 148), it eventually recognised that a FiT could be effective in encouraging so-called 'micro' renewable projects. In 2008 the then Labour government legislated for a FiT that would cover renewable schemes up to 5MW, retaining the RO for larger investments (ENDS Report 2008). Following consultations on its precise specifications, the tariff entered into force in spring 2010, just months before a general election.

While the election led to the formation of a new government, the coalition of Conservatives and Liberal Democrats, it did not lead to a change of policy since the coalition partners had themselves each advocated a FiT while in opposition (Carter and Clements 2015: 205; ENDS

Report 2007). Indeed, in its first year of operation, the government voiced support for the mechanism as a way of encouraging new wind and solar investments.

However, within months of the provision's implementation, both market conditions and the wider policy context changed significantly. Firstly, it became clear that the costs of renewables were lower than had been envisaged when the original tariffs were finalised. While this was a welcome development, it called into question the levels of remuneration set by the original legislation since they offered higher profits than had been expected. Secondly, the coalition government was taking a much tougher line than its predecessor in addressing the knock-on effects of the financial crisis on government spending. This was reflected in the government's 2010 Spending Review (HM Treasury 2010) which imposed a cap on 'levy funded spending' such as the FiT to ensure that such mechanisms were aligned with the government's plans for economic recovery and imposed the minimum burden on consumer bills (HM Treasury 2011; DECC 2011a). The government imposed a 'Levy Control Framework' (LCF) to set a limit on new FiT-supported investments in terms of both the levels of remuneration and the number of new projects (Lockwood 2016).

The coincidence of the austerity-led financial constraints and the rapid take-up of FiT-compatible renewable projects prompted the government to bring forward a review of the scheme in 2011, a year ahead of its original schedule. The review comprised a 'fast track' element to rein in the unanticipated development of larger facilities and a 'comprehensive' review to address overall tariff levels and other operational characteristics of the original framework. Both reviews (DECC 2011b; DECC 2012a, 2012b) imposed significant tariff reductions for new projects and set out additional controls to contain the growth of the sector.

Following their victory in the 2015 general election, the Conservatives launched a further review of the FiT scheme (DECC 2015a). The review was part of a wider reconfiguration of renewable support policies (including the 2014 decision to close the RO mechanism to new projects and the move towards auctions for large-scale projects in 2013 as part of a wider reform of the electricity market). As in its previous review, the Government was concerned about the impact of deployment on consumer bills but it also emphasised the problems presented to the viability of the scheme given overspending in previous years, relative to the LCF. In its consultation document the government raised the possibility of closing the scheme

to new projects from 2016, in advance of the anticipated closure date of 2019, if costs were not contained (DECC 2015a: 14-15). It proposed substantial reductions in FiTs beyond those already in place though these were adjusted, following consultations, to reduce the cuts for smaller projects while retaining the reductions envisaged for larger ones (DECC 2015b).

Although the scheme continued to fund new projects into 2019, it appeared that the government was determined to end its commitment to the FiT. In 2018, the government confirmed that the programme would end in early 2019 (DBEIS 2018). While the government introduced a new mechanism at the start of 2020 (DBEIS 2019), supporters of renewables argue it offers little incentive for new renewable projects.

Policy learning or politics as usual?

Germany

There are certainly aspects of the development of the German FiT which could indicate policy learning. The EEG's regular review process (*'Erfahrungsbericht'*) assesses the impact of the policy in place and considers changes to improve performance. These changes provide the basis for amendments to the legislation (in terms of the tariff levels and any additional changes that are considered to be necessary), which are presented to Parliament for approval (Held *et al.* 2014). In addition to this formal procedure, it is possible to identify more general processes of learning in the periods of both policy expansion and retrenchment. In the former case, the mixed results of the support mechanisms in the 1990s were the pretext for the adoption of a more robust legislative framework in 2000. This was, in turn, refined over the following decade. For example, policymakers adapted the FiT tariffs to facilitate the development of solar energy when it became clear that the original provisions were not effective. Later, however, the rapid decline in prices of solar photovoltaic (PV) units obliged the government to engage in a process of catch-up to contain the growth of the sector and of increases to the surcharge.

For the most part, it appears that such learning was a response to internal conditions. Exogenous learning was rather more limited, perhaps reflecting Germany's position as a relative pioneer of the mechanism. However, advocates of the FiT drew upon the Danish example in their original design of the mechanism while, in the mid-2000s, officials took account of the Spanish experience in changing the FiT to encourage the development of solar power (Jacobs 2014: 763-6). Consultancy reports and discussions in international workshops informed government learning as it adapted policy instruments (Jacobs 2012). An important element of this international learning was the 2005 formation of the 'International Feed-in Cooperation' by the German and Spanish governments. While the initiative was part of a wider diplomatic effort to resist European Commission plans for harmonising renewable support, the founders hoped that it would promote the exchange of experiences between countries using the FiT, including the sharing of best practice on the design and operation of the system (Held and Ragwitz 2006; Klein *et al.* 2008). By contrast, during the retrenchment phase it appears that there was very little policy borrowing from abroad given the focus on addressing the internal dynamics of the policy and its impact on deployment.

However, while it is possible to identify processes of learning in both the rise and retrenchment of the FiT, whether they constituted the principal driver of change is less clear. The period of expansion was one in which the political context for renewable support changed dramatically with the coming to power of the Red-Green Coalition (Hillebrand 2013: 668-9). While the context was not entirely favourable, given that initial responsibility for the policy rested with the Economics Ministry (regarded as sceptical towards renewables and close to the major utilities), political momentum within Parliament secured new legislation in 2000 and prospects for the framework were enhanced in the coalition's second term when responsibility for renewables shifted to the (Greens-led) Environment Ministry. The underlying support for the policy helped to secure its status during the subsequent grand coalition of 2005.

While the changed circumstances by the end of the decade would have necessitated some kind of policy retrenchment, the formation of a new coalition with the renewable-sceptic FDP made significant reductions in support inevitable. However, the pace of retrenchment was at least initially slowed by institutional constraints in the shape of compromises between the

coalition partners on the extent of the reform and, subsequently, the Bundesrat's ability to secure changes to the government's proposals when they were brought to the legislature.

Informing the political debate within government and between the executive and legislature were the lobbying efforts of the principal stakeholders – the renewables sector and the major electricity utilities. The renewables sector, comprising not only the manufacturers of equipment but the investors who developed renewables projects, initially worked closely with politicians favouring the FiT during the period of expansion and was sufficiently well-entrenched to slow the subsequent process of retrenchment. By contrast, having failed to grasp the significance of the FiT when it was introduced, the major utilities mobilised to contain its impact and over time were able to work more effectively with allies in government (particularly the Ministry of Economy) to secure restrictions on the FiT and, later, a shift to their preferred auction system (Lauber and Jacobsson 2016).

One target for the utilities' lobbying against the FiT was the European Commission. These efforts were fairly ineffective in the period of renewables expansion given that the Commission chose not to intervene following a Court of Justice ruling favouring the FiT (a decision which may have been reinforced by the German government's strong defence of the FiT in the 2000s). However, later the Commission's determination to make renewables support compatible with the Single Market and state aid rules does appear to have influenced the shift in policy. Over the course of 2013 and 2014, the Commission and German government clashed over the legality of the country's FiT programme and the dispute fed into the domestic debate on policy reform. However, it remains open to debate whether or not this pressure was convenient for a government seeking to reform in any case (Boasson 2019).

United Kingdom

As in the German case, there are certainly elements of the British FiT experience which are amenable to a policy learning explanation. This is arguably most notable during the pre-history of the FiT. The government continuously adapted its quota-based system of support in response to poor performance (Woodman and Mitchell 2011) and its failure to encourage smaller renewable projects prompted the government to adopt the FiT. One can see the government's lateness in accepting the FiT as an example of reluctant acceptance of the

option after many years of resisting arguments and studies favouring its adoption (Toke 2007). Officials' focus on market-friendly mechanisms had effectively excluded consideration of the FiT when they reformed renewable support at the end of the 1990s (Toke 2010: 772-4). This resistance to adopting a FiT persisted into the new century despite reports for the government highlighting its effectiveness in other countries (Stenzel *et al.* 2003). Arguably, other countries' achievements were significant in persuading the then Labour government to legislate in 2008 (even though the 2007 Energy White Paper dismissed such evidence as inconclusive (Department of Business 2007)).

However, in contrast to Germany and other countries, the story of the UK FiT reflects a relatively short period of 'expansion' followed by nearly a decade of retrenchment, with implications for the significance of policy learning. Here, the UK's experience is quite similar to Germany's insofar as policy appears to have been driven by an endogenous process of trying to adapt the regulatory framework to market conditions of falling costs and increased deployment. In the UK, this entailed an acceleration of review procedures and consultations, supplemented by impact assessments and other forms of evidence-based research. Arguably, one can view such a process as a form of endogenous learning as the government formulated its initial proposals for change and then adapted them in the light of subsequent debate. The circumstances within the UK renewable sector almost entirely defined the terms of this process, and there is no indication that the experiences of other countries were taken into account.

In any case, it could be argued that both the rapidity with which the UK government embraced the FiT programme after many years of resistance and the alacrity with which it subsequently rolled it back might cast doubt on the depth of learning and its significance in explaining the country's policy. The sudden adoption of the FiT followed the restructuring of government departments to create a Department of Energy and Climate Change led by a minister keen to associate himself with action on climate change (Carter and Jacobs 2014). The government's shift followed a sustained campaign by environmental groups and parts of the renewables industry culminating in moves by the opposition parties to support the mechanism (Rootes and Carter 2010: 993).

Similarly, it is possible to see the political context to the retrenchment of renewable support policies as more important in shaping that change than any learning dynamic. In this case the

emergence of a Conservative-led coalition government committed to economic austerity to address the country's fiscal problems, reinforced by Treasury orthodoxies, was the fundamental driver of rapid and severe reductions in supports for green policies in general and renewables policies in particular. These considerations prevailed not only over whatever learning was taking place but also over the coalition of FiT supporters which had been successful in originally promoting the mechanism. That said, the efforts of stakeholders as well as legal challenges and splits within the government (particularly between the more sympathetic DECC led by a Liberal Democrat minister and the Conservative-led Treasury) limited the extent and pace of retrenchment. However, such factors only underline the extent to which institutions and actors, rather than learning, set the parameters of policy change.

Conclusion

This contribution has sought to demonstrate that while policy learning can contribute to policy change, both the nature and extent of its contribution are dependent not only on whether the policy itself is expanding or retrenching but also on the political conditions. The experience of the German and UK adoption and reform of the FiT suggests that such learning effects are secondary to the way in which political actors respond to the trajectory of policy and that such political factors are the principal drivers of, and constraints upon, policy change. Notwithstanding the very different timings of the adoption of the instrument, there are some similarities in the way in which learning shaped policies in both countries. Exogenous learning was primarily manifested before and during the adoption of the FiT where officials and politicians in both countries drew upon examples from elsewhere in selecting the instrument (though the repertoire of experiences was much broader for the UK than Germany). External lessons also informed the development of the policy in Germany through the engagement of policymakers and advisers with their equivalents in international forums such as International Feed-in Cooperation and more informally over nearly two decades. Endogenous learning was again more developed in Germany given the longer duration of expansion though it could be argued that the failure of existing mechanisms to foster small-scale renewables was an important catalyst for the UK's selection of the FiT. During the retrenchment phase of FiT

policy that has defined the last decade, it appears that officials were mainly adapting to circumstances within their own energy systems and were less inclined to draw upon the experience of how other countries were seeking to contain or reverse the rapid take-up of renewables, perhaps indicating that policymakers are more likely to draw upon 'successful' examples from elsewhere when the trajectory of policy is one of expansion than retrenchment.

However, whether exogenously or endogenously driven and whether policy is defined by expansion or retrenchment, the two cases highlight that learning occurs in a context where political considerations are to the fore. The cases illustrate how interparty competition, coalition differences, inter-departmental rivalries, industry and NGO advocacy and lobbying activities have been the principal drivers of, and constraints upon, changes in FiT policies. In addition to these largely domestic factors, it is clear that the EU has become an increasingly important influence on national renewables policies (primarily in Germany). While, in the period of policy expansion, in the 1990s and 2000s, member states largely resisted European Commission efforts to shape their choice of support mechanism; by the 2010s, they largely acquiesced in the Commission's reassertion of market principles that effectively excluded FiTs from playing a significant future role in supporting renewable electricity. While the precise politics of the interplay between national and European authorities is debateable, it is clear that this aspect of the process was a largely political one rather than a manifestation of collective policy learning.

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