6 The United Kingdom

From market-led policy towards technology steering

*Tim Rayner; Merethe Dotterud Leiren and
Tor Håkon Jackson Inderberg*

Introduction

The policy instrument mix by which the UK government has sought to promote renewable electricity has undergone a remarkable journey of twist and turns. This chapter aims to make sense of 30 years of ongoing change and revision. The energy sector has featured prominently in the UK's quest for market liberalization since the 1980s. Moreover, as a 'first-mover' in liberalizing energy markets, the UK has helped to shape EU energy policy (Padgett 2003). The European Commission (the Commission) endorsed the UK's promotion of market-oriented instruments such as tradeable green certificates, at a time when EU-level policy-makers were seeking to harmonize support schemes in the process leading to the 2001 Renewable Energy Directive (Rowlands 2005; Solorio and Fairbrass 2017). In 2002, the government implemented a system of the green certificate type, the Renewables Obligation (RO). However, a decade later the UK moved to replace this with a 'Contracts for Difference' system. Moreover, it introduced a feed-in tariff to support small-scale renewable electricity generation.

These shifts have been regarded as significant turns away from the hitherto preferred market-led approach (Kern et al. 2014; Stagnaro 2015), in favour of more technology-specific, centralized planning of the electricity sector (Keay 2011). In this chapter we ask: why did the apparent taboo on detailed state steering lift, to the extent that the UK developed a technology-specific support mix featuring 'Contracts for Difference' for large-scale, and a feed-in tariff for small-scale, renewable electricity?

Given that the feed-in tariff has been the most popular support scheme among EU member states, while the Commission (in its 2014 state-aid guidelines) promotes feed-in premium auctions, the question of whether and how the 'European environment' has influenced national policy decisions is a complex one. With few exceptions (e.g. Stagnaro 2015), the literature on UK renewables support has paid little attention to the EU (e.g. Connor 2003; Mitchell and Connor 2004; Toke 2011; Kitzing et al. 2012; Kern et al. 2014). In this chapter, we attempt to do more justice to the European dimension of UK policy. According to the multi-field framework, the European environment can be expected to influence national renewables support most when the EU has significant authority over the issue and

there is strong peer pressure to adopt a given scheme. As EU steering has become more coercive, and many countries have turned towards feed-in premiums combined with auctioning after 2014, we would expect stronger European influence on UK renewables policy over time – but is this what we find?

We also identify how the domestic organizational field plays into policy developments. The multi-field framework assumes that the organizational field will be particularly important under periods of strong segmentation (where one dominant institutional logic and concentration of authority and information prevails). However, the UK is generally considered to be a relatively pluralist system (Leach et al. 2011: 152), with numerous and varied pressure groups that may influence decision-making. As the UK was early in liberalizing its electricity system, we might expect rather loose ties between governmental regulators and industry actors, and a great variety of actors, giving an organizational field characterized by low segmentation and thus rather low policy impact. But perhaps the instability in the British organizational field can help explain the repeated shifts in the UK renewables support policy mix?

Furthermore, the effect of the domestic political field can be expected to be stronger when renewables policy has become politically salient and when formal decision-making power rests with the legislative assembly (Boasson 2021b, this book). As the UK often experiences strong majority governments, we will expect that these conditions are seldom met – but perhaps renewables policy has become sufficiently politicized at key moments to make political steering important nevertheless?

Technology-specific renewables support mix

As of this writing, large-scale renewables projects are offered feed-in premiums, awarded through competitive tenders (Contracts for Difference) whereas small-scale generators receive feed-in tariffs (RES Legal 2019). Contracts for Difference are long-term contracts between government (in the form of the Low Carbon Contracts Company) and large renewable (or nuclear) electricity generators, which provide a top-up payment between the market price and a pre-defined ‘strike price’, over a defined period.

Generators compete for long-term contracts for provision of capacity through auctions (CEER 2018). In these, technologies have been divided into established (‘Pot 1’, including onshore wind and solar) and less established types (‘Pot 2’, including offshore wind, geothermal and tidal), with each pot assigned its own budget. ‘Allocation rounds’ have been held through auctions in 2014 and 2017. In the former, both established and less established technologies were included, but only less established technologies were included in 2017. A third allocation round opened in May 2019 to eligible Pot 2 technologies. Although multiple types may be included in one auction, prices received per MWh and contract lengths vary by technology. Different ‘strike prices’ are determined through the auctioning process but must not exceed an ‘administrative’ strike price. When a strike price is higher than the market price, the Contract for Difference ‘Counterparty’ must pay

the generator the difference between the two. Funding for these contracts is generated from levies on consumers' bills.

From 2010, the small-scale *Feed-in Tariff* required participating licensed suppliers to pay fixed tariffs to small-scale generators for renewable electricity generated and transmitted to the national grid. The scheme has been available to anyone who has installed, or is looking to install, solar, wind, combined heat and power (CHP) below 50 kW, or hydro or anaerobic digestion (biogas production) up to a capacity of 5 MW (or 2 kW for CHP) (RES Legal 2019). However, in 2015 subsidies for household-scale solar were cut by 64%, and support for community-scale projects was removed (ENDS Report 2015). Bandings for size of installation were changed, and the pace of the decrease of support over time was accelerated. As a result, installation rates have fallen significantly across all technologies in this size category.¹

UK renewables support is highly technology-specific for large as well as small-scale projects. To a certain extent, large-scale projects are exposed to fluctuating electricity wholesale prices, but the strike-price feature reduces uncertainties more than in other feed-in premium systems. Whereas small-scale renewables are entitled to feed-in support, only large-scale projects can take advantage of auction allocation rounds for Contracts for Difference. Since 2015, no auction has included the most established renewables technology: onshore wind.

The UK has operated several renewables support schemes over time; we now move on to describe and explain the key developments.

Historical phases: 30 years of testing and revising

Prior to 1999: launch of a tendering system

Historically, British electricity production has benefitted from plentiful domestic coal resources. From the 1950s, nuclear capacity was developed, and gas-fired power stations proliferated in the 1990s. The 1970s saw the status of energy policy elevated, particularly because of the 1973 oil crisis (Pearson and Watson 2012). After a series of industrial disputes that affected energy supplies, in 1979 the Thatcher-led Conservative government was elected. Citing energy security concerns, it planned an expansion of nuclear power. Although an anti-nuclear movement was active in the UK from the 1950s, the issue never reached a high level of political saliency (Cox et al. 2016; Thomas 2016: 426). While many in the anti-nuclear movement were Labour supporters, the party's trade union base has meant that in government, Labour has tended to look favourably on the nuclear sector. Due to a range of technical and economic challenges, it took several decades until the nuclear share peaked at 25% of electricity production, in the early 1990s (Cox et al. 2016: 7, 25; Pearson and Watson 2012).

Informed by free-market principles – government intervention in the economy should be avoided, while privatization and competition would serve the public good – the Thatcher government aimed to transform public sector monopolies into more efficient private enterprises. After a bitter strike, from the mid-1980s

the government prevailed in its goal of closing uneconomic coal mines. The 1989 Electricity Act privatized electricity generation and deregulated the energy sector; the Department for Energy was abolished and its responsibilities transferred to the Department of Trade and Industry (DTI). An independent governmental agency, the Office of the Gas and Electricity Markets (Ofgem), was given responsibility for ensuring fair competition. The formal mandates of the DTI and Ofgem were centred on consumers and competitive markets (Kern et al. 2014).

Until privatization, the electricity industry in England and Wales comprised a vertically integrated generation and transmission business: 12 regional boards responsible for local distribution, and the Central Electricity Generating Board (CEGB). With privatization, the CEGB was divided into four (Newbery 1997): two conventional non-nuclear generating companies, PowerGen and National Power, privatized in 1990; one nuclear generating company, Nuclear Electric, which remained in public hands owing to the continuing need for subsidies; and one transmission company and Transmission System Operator, the National Grid Company. The restructuring led to efficiency gains (which translated mostly into greater profits, not lower prices), and increased the market power of fossil generators (Newbery 1997). It also led to a spate of (unforeseen) foreign take-overs, for example by the French EDF (Meek 2012).

The 1989 Electricity Act heralded the UK's first low-carbon generation support instrument: the Non-Fossil Fuel Obligation. Funded by a fossil-fuel levy, this instrument was originally intended to provide subsidies to the UK's nuclear generators (Kettle 1999). When the government applied for EU state-aid clearance one year later, the instrument was described as a 'non-fossil fuel obligation'. This wording, the precise source and motivations of which have remained 'never clarified or widely agreed', allowed renewable energy an unexpected 'foot in the door' (Mitchell 2008: 124).

The Non-Fossil Fuel Obligation introduced a centralized bidding system for generation contracts, which required suppliers to order a certain level of electricity from non-fossil fuel sources. The process involved the government announcing the intention to set an obligation and specifying the technologies, triggering the non-fossil purchasing agency to launch a competition. The electricity suppliers contracted with the cheapest bidders to fulfil their license condition (Kettle 1999). Environmental and climate considerations were at best co-benefits from the energy-sector reforms of the 1980s, although the salience of these issues was growing (Rawcliffe 1998; Rayner and Jordan 2017).

The 'New Labour' government elected in 1997 was committed to more ambitious climate-mitigation targets, and growth in renewable energy as one component. Its manifesto committed to 10% of electricity supplies from renewables by 2010: ambitious compared to levels at the time – less than 3% of total electricity supplies (de Lovinfosse 2008). At the same time, the new government accepted the liberalization agenda, believing that competitive markets would promote efficiency. But it also stressed social objectives like affordability as well as energy security, highlighting worries about supply and diversity of sources of electricity generation and the increasing reliance on imported gas (Pearson and Watson

2012). By the late 1990s, environmental NGOs were questioning the market-based approach and demanding more government action on climate-change mitigation (Kern et al. 2014).

EU influence in this period was only weak; national targets for the share of energy for renewables and instruments for their delivery were essentially the product of domestic politics and administration (de Lovinfosse 2008). The UK was the first country to notify its renewables support scheme, and the Commission swiftly granted approval (Rusche 2015: 82).

Already by the end of the 1990s, the market logic had become the dominant institutional logic in the British organizational field, epitomized by the relegation of energy policy to a subdivision of the Department of Trade and Industry (DTI). Policy in effect became de-politicized: while the DTI maintained the regulatory framework, responsibility for implementation rested with a new, independent regulator. This development enjoyed wide political support. The UK's first renewables support scheme was nicely in line with the emerging market logic.

2000–2004: emergence of the electricity certificate scheme

After a period of inaction in energy policy (Edge 2006) following its election in 1997, the New Labour government launched a major legislative initiative: the Utilities Act 2000, which included a provision to replace the Non-Fossil Fuel Obligation with a new instrument, the Renewables Obligation. This Act, in conjunction with the government's formal adoption of the manifesto commitment to a 10% renewables share by 2010 (as part of its climate policy programme), marked a significant turning point (de Lovinfosse 2008). A lengthy consultation period produced an impressive level of consensus among key industry actors, regulators and NGOs on both the need to replace the Non-Fossil Fuel Obligation and the form of the new instrument. The Non-Fossil Fuel Obligation was widely seen as having failed to deliver sufficient renewables growth – true to its original purpose, it supported the nuclear industry far more handsomely. Moreover, it no longer fit with the New Electricity Trading Arrangements ushered in by the 2000 Act.

With some exceptions (including the Major Electricity Users Group and local environmental groups) most stakeholders, also the large environmental groups, approved of the new instrument (de Lovinfosse 2008: 254). More detailed design issues featured in two additional rounds of consultations in 2000 and 2001. The Association of Electricity Producers (after 2012, Energy UK), individual energy companies and the British Wind Energy Association (later RenewableUK) were the most prominent participants in the process (ibid.: 254). Neither the RO nor the 10% target it was intended to deliver provoked any significant party-political controversy.

As well as increasing the contribution of renewable electricity to meeting GHG emissions reduction targets, the new instrument was aimed at creating a more competitive industry sector (DTI 2000). The Obligation was a tradable electricity certificate system, requiring suppliers to source an increasing proportion of supplied electricity from renewable sources. The responsible government department

(DTI) set the obligation level each year, leaving detailed management to Ofgem (Truman 2016). Suppliers met their obligations by presenting Renewable Obligation Certificates to the regulator (Mitchell 2008). Those without sufficient certificates to cover their obligation were obliged to pay into a 'buy-out' fund. Despite this apparent market-orientation, Conservatives were initially cool in their response (Toke and Nielsen 2015), although this was not a matter for party-political controversy of any note.

The market-led approach continued to dominate UK climate policy (Kern et al. 2014). At the EU level, from 1998 onwards electricity certificate schemes were hailed as superior by the Commission – making state-aid approval of the new instrument unproblematic (C(2001)3267fin) – but were strongly opposed by many EU member states that preferred to adopt feed-in schemes (Boasson 2021a, this book). We have not detected any indications that this controversy was strongly influenced by UK developments.

During this period, the structure of the electricity supply industry was shifting. From 2000, independent energy suppliers, seeking to establish niches for small-scale and often renewable electricity supply, began to proliferate. Such companies represented about 7.5% of the market in 2000 (Cornwall Energy Associates Ltd. 2014). At the same time, the unbundling and privatization of supply, distribution and energy production in gas and electricity markets led to the creation of the 'Big Six' UK utilities (Meek 2012). In 1997 British Gas was established; EDF Energy emerged from a series of mergers in 2003. E.ON UK was formed as a result of the acquisition of Powergen in 2002; nPower arose from RWE's purchase of Innogy in the same year. In 1998, SSE emerged from the merger between two Scottish electricity companies. Kern et al. (2014: 517) highlight 'a particular set of power relations between the non-interfering state and the private sector in energy, whereby dominant market players had a high degree of influence in policy-making circles'. For the coming decade, the Big Six were almost fully in control of the electricity supply market (Ofgem 2019). Energy market regulations incentivized large companies to maximize their profits through cost-cutting, and utilization of existing assets, rather than reinvestment in new capacity (Kern et al. 2014). The large nuclear operator British Energy was not able to make profits in the new market, and in 2003 the government intervened to avoid bankruptcy (Thomas 2016: 422).

Despite this increasing segmentation of the organizational field, the government nevertheless proved itself capable of contemplating bold policy choices concerning the future of energy. The Energy Review undertaken in 2002 by the Prime Minister's Performance and Innovation Unit (PIU) (PIU 2002) represented a significant departure from traditional practices, commissioned as it was outside the established institutional infrastructure of energy policy-making and staffed by a team drawn largely from outside government (Cox et al. 2016). The result was a review that advocated relegation of the role of nuclear, and more decisive promotion of decentralized renewables and energy efficiency. The PIU's findings, including its scepticism towards nuclear, were largely echoed in a 2003 White Paper (DTI 2003; Thomas 2016: 423).

The government also introduced support schemes specifically targeting small-scale generation of electricity from renewables. Inspired by Germany, in 2002 and 2003 the UK introduced two grant-based support schemes for micro-generation (less than 5 MW photovoltaics or windpower mounted on household or SME rooftops). Although this happened in the aftermath of heated discussions in the EU and the adoption of a directive with an indicative UK electricity-specific target (a 10% share by 2020), these EU-level developments apparently attracted little attention in the UK and did not drive decision-making there (de Lovinfosse 2008).

We may conclude that the government initiated a new, market-oriented renewables support measure for large-scale renewables and a new investment support scheme for small-scale in the absence of significant party-political competition or debate. Mergers reduced the number of utilities and the Big Six emerged, as did a range of new renewables companies. Developments occurred with little reference being made to the major controversies about renewables support at the EU level.

2005–2009: parties attempt to ‘out-green’ each other; nuclear makes a comeback

In this period, growing concerns about rising prices (for oil as well as electricity), insufficient competition, security of supply (with the looming prospect of coal-station closure because of tighter EU air-pollution legislation) and climate change all raised the political saliency of energy policy. Around 2006–2007 came two particularly important developments. First, Labour significantly changed its position on nuclear, indicating a new willingness to invest in expansion (Thomas 2016). As part of this, in 2005 a new energy review process was launched that, in time, would come to influence the renewables support mix. Second, climate change rose to a prominence on the political agenda not seen before. Parties’ attempts at ‘out-greening’ each other (Carter and Jacobs 2014) contributed to maintaining the public profile of climate and energy policy. The Friends of the Earth-led campaign for a legal framework to ensure delivery of significant emissions reductions by 2050 garnered strong cross-party support, prompting the Labour government to introduce the pioneering Climate Change Act (2008). In this political climate, a new renewables support instrument was able to break through.

Interviewees (1, 3, 4, 10) mention one event as being particularly significant. At the March 2007 European Council, Prime Minister Tony Blair departed significantly from the customary UK line by arguing that the EU needed binding national-level targets for renewable energy as part of its global leadership on climate change (Financial Times 2007). At this time, Blair was competing to be the EU’s most climate-progressive head of government, and showing unprecedented prime-ministerial willingness to develop EU-level energy policy (Boasson and Wettestad 2013: 88). In advocating national targets, he over-ruled his Trade and Industry Secretary and defied wider scepticism within the government, including from the powerful Treasury (Interview 1). At the same time, and apparently motivated by both energy security and climate concerns (Pearson and Watson 2012), Blair committed strongly to more nuclear stations. On both EU targets and nuclear

expansion, Blair's knowledge that his tenure in office was shortly to end appears to have boosted his freedom to take political risks (Interview 1).

However, the government's 2007 Energy White Paper (DTI 2007) drew criticism for its apparent complacency in the face of a looming new national target (ENDS Report 2007). While restating the goal (set in 2000) for renewables to supply 10% of UK electricity by 2010, and noting an aspiration to double this by 2020, it neglected the fact that the UK had committed to new, binding targets in the negotiations over a revised EU Renewables Directive. It was clear that the Renewables Obligation, as then formulated, would not be sufficient to reach such targets (DTI 2007; Interview 9; ENDS Report 2008b). At the time, barely 6.7% of electricity in the UK was derived from renewable sources.²

The Renewables Obligation failed to boost deployment rates significantly. Several researchers have argued that this was because it created too much financial risk for renewables investors, in the form of short-term contracts and uncertainty about future payment levels, and failed to take into account differences in risk levels across technologies (Connor 2003; Mitchell and Connor 2004; Wood and Dow 2011). As a result it tended to favour investments by the larger companies and in the cheapest technologies (wind). The National Audit Office and various parliamentary committees voiced similar criticism, leading to a re-design being proposed in the 2007 White Paper. The main innovation was to introduce 'technology banding': differentiated levels of support for five different groups of technologies, taking into account levels of maturity and risk, and overseen by Ofgem.³

The proposal prompted Ofgem, which administered the Renewables Obligation, to express major concerns about the practicalities and costs of reform (Ofgem 2007). It highlighted that rising wholesale electricity prices and the EU Emissions Trading Scheme had improved the prospects for renewable generation, and it suggested long-term, fixed-price renewables contracts as a means to stabilize revenues, reducing the costs to customers if the wholesale price should rise. Ofgem also argued that setting renewable technology bands would conflict with its own role of ensuring energy-market competitiveness. However, representatives of the larger players in the renewables industry, like RenewableUK, welcomed the reform (Interview 8), as did several of the Big Six. A notable exception was EDF, the world's largest nuclear operator, whose position had been strengthened in the UK after its purchase of the nuclear company British Energy (House of Lords 2008; Thomas 2016: 424), and as a result of the prime minister's conversion to the technology. EDF now promoted a revenue stabilization concept broadly similar to what Ofgem had proposed, while also calling for the UK's goal for renewable electricity share to be lowered (with a correspondingly higher target for renewable heat). At its existing level, EDF complained, the renewable electricity target compromised the prospects for new nuclear (ENDS Report 2009).

There were few smaller players in the UK, but those that would profit more by a system of feed-in tariffs became increasingly vocal (under the auspices of the Renewable Energy Association) in their criticisms of the Renewables Obligation. They were supported by environmental organizations and academics (e.g. Mitchell et al. 2006; Toke 2012), who advocated a fixed feed-in tariff as the primary

support mechanism, based on the apparent successes in Germany and Spain. Feed-in tariffs were seen to be much simpler and to allow ‘all plausible projects developed by all types of developer to come to market’ (Toke 2012: 5). The debate was sometimes heated, with established renewables lobbyists defending the RO (Interview 8).

With cross-party competition and politicization over energy and climate issues growing, Conservative Party leader David Cameron’s installation of a roof-top wind turbine at his London home received wide publicity (BBC 2007). A group of Conservative politicians returned from a fact-finding trip to Germany enthusing over feed-in tariffs (Interview 14). Labour ministers were keen not to be out-done, despite the instrument’s potentially regressive effects that disproportionately affected low-income bill payers (Interview 14; Monbiot 2010). Resistant at first, the Labour government eventually agreed to calls from backbench MPs to develop feed-in tariffs – but only for small-scale renewables (ENDS Report 2008a).

From 2008, Blair’s successor Gordon Brown continued to support both renewables and nuclear. One political advisor noted a linkage between the two: ‘If you want to win public support for nuclear you have to do renewables as well’ (Interview 1). In 2008, Brown created the Department for Energy and Climate Change (DECC), to bring greater coherence to energy and climate-change mitigation policies. The Department’s first Secretary of State, Ed Miliband, was keen to implement ‘a move away from the obsession with market mechanisms as being sufficient’; ‘he started talking about the need for small scale feed-in tariff from day one in DECC’ (Interview 10).

The political imperative to develop the instrument over-rode a degree of civil service scepticism. As a representative of the renewable industry argued,

it has been quite clear that feed-in tariffs is not so popular among civil servants . . . It was forced by this major backbench drive. . . . It was a sense of Ed Miliband going, ‘ok, I get the message’, it was passed on to the civil servants: ‘Do something about this!’

(Interview 8)

Further factors driving the decision were that small independent producers constituted a fledging industry that New Labour wanted to encourage, and Miliband’s close relationship with the environmental and other organizations campaigning for the pioneering Climate Change Act (Carter and Jacobs 2014; Interview 8; see also FoE 2011). Lobbying from environmental and renewables organizations clearly contributed to the government incorporating a provision for small-scale feed-in tariff into what became the Energy Act (2008). The design was modelled on feed-in schemes directed at large-scale projects in other European countries, but in the UK it remained targeted towards small-scale investments only (Kitzing et al. 2012; Lockwood 2016).

The 2009 EU Renewables Directive committed the UK to a 15% overall share for renewable energy. To meet it, the government proposed three production

sub-targets: 30% in electricity, 12% in heat and 10% in transport (DECC 2010a). But this was not before a last-ditch attempt to dilute the UK target, undertaken by high-level civil servants who had never quite reconciled themselves to Blair's 2007 renewables gambit. Embarrassingly, this behind-the-scenes action was leaked to the press (Guardian 2007). Ultimately, UK policy-makers found themselves 'trapped by their own climate change leadership discourse' (Solorio and Fairbrass 2017: 111) and forced by public opinion to reaffirm the national commitment to ambitious and binding renewables targets.

Given the high profile of the issue, in developing a renewable energy strategy to deliver on EU-level commitments (HM Government 2009a), staff from the Prime Minister's Office were in effect making decisions alongside DECC (Interview 1). Foreshadowing the instrument introduced by the subsequent government, the strategy expressed support for a 'contracts for difference' scheme to prevent generators from receiving excess profits when electricity prices were high, but envisaged it operating alongside, rather than replacing, the Renewables Obligation (HM Government 2009a).

To summarize, during this period, renewables support became politicized in an unprecedented way. The organizational field was now somewhat less unified in its preferences, with small-scale actors successfully calling for a feed-in scheme, whereas most large utilities were happy with the Renewables Obligation. Ofgem called for reform to rein in costs through fixing long-term renewables contracts that could reduce the costs to customers if wholesale prices rose, an idea favoured by the increasingly powerful EDF. In addition, the establishment of the Department of Energy and Climate Change (DECC) brought the promise of a more coherent climate and energy policy. The global financial crisis that started in 2008 did not immediately influence the debate greatly. As explained next, however, this changed after 2010.

2010–2016: technology-specific electricity market reform – and uncertainty

By 2010, it was clear that huge investments would be required to deliver on renewables targets and replace around a quarter of the existing capacity (mainly coal and nuclear) expected to close by 2020, primarily due to old age (Leiren et al. 2019: 4). The constraints imposed by the financial crisis increased the emphasis on meeting the targets at acceptable cost to consumers.

During the 2010 election campaign, both Labour and Conservatives championed a mix of renewables, nuclear and 'clean coal' (using carbon capture and storage), while the Liberal Democrats opposed new nuclear. The election resulted in the Conservatives and Liberal Democrats creating the UK's first coalition government since 1945. The two parties agreed to establish 'a full system of feed-in tariffs in electricity' and to 'reform energy markets to deliver security of supply and investment in low carbon energy, and ensure fair competition' (HM Government 2010). To ease tensions over nuclear, it was agreed that there would be no public subsidy for new plants but that, subject to parliamentary ratification, a new

National Planning Statement could in principle allow aging stations to be replaced (BBC 2010; HM Government 2010: 17).

In December 2010, the new government initiated public consultations on a new Electricity Market Reform (EMR). Since DECC had already reviewed a range of support schemes under Ed Miliband, the process could begin quickly, but time pressure was high and the government lacked staff with relevant expertise (Interviews 9 and 10; NAO 2009). In a controversial move, mistrusted by many stakeholders, staff numbers working on EMR were boosted by various secondees from the Big Six energy companies (The Guardian 2012).

The initial consultation document presented Contracts for Difference as the favoured option, broadly in line with what Ofgem (and EDF) had proposed earlier, but highlighted feed-in premium tariffs (which it defined as a static payment to generators in addition to their revenues from selling electricity in the wholesale market) as an alternative (DECC 2010b). Several factors led government (DECC and the Treasury) to favour Contracts for Difference, rather than a mere add-on to the electricity price. These included the expectation that investments, and decarbonization, would be delivered faster, at lower cost (since electricity providers would pay the government back when the market price exceeded the contracted strike price) and with greater certainty (DECC 2010b). The consultation notes positive experience with the instrument in Denmark and the Netherlands. Contracts for Difference were also considered as ‘fitting’ better with a carbon tax, which would push up wholesale electricity prices, reducing the need for subsidies. But significantly, government also wanted an instrument that would in principle be suitable for nuclear (and indeed, CCS) as well as renewables.

The global recession contributed to renewed interest in industrial policy – also within DECC, which saw particular potential in offshore wind (HM Government 2009b; Watson et al. 2010). While DECC led on policy development, in order to contain the aggregated cost of low-carbon subsidies, the Treasury established a ceiling for public levies, the Levy Control Framework (Lockwood 2016). Critics worried that a short-term outlook among Treasury officials, reflected in modelling practices and discount rates applied to evaluate policy, would lead to less effective renewables policies (see e.g. Mitchell 2012; Green Alliance 2014). Many civil servants had an ‘instinctive lack of sympathy with anything that doesn’t provide baseload power’ (Interview 3). The fact that the Chancellor (the Minister of Finance) was a Conservative with little commitment to fighting climate change (Rayner and Jordan 2017) compounded DECC’s difficulties. In numerous meetings at official and ministerial levels, Treasury officials required DECC to demonstrate how the Contracts for Difference instrument was the cheapest way to deliver the investments required (Interview 9).

A wide range of interest groups contributed to the consultation. For some groups in the renewables sector, the consultation’s suggestion of entirely replacing the Renewables Obligation with Contracts for Difference came as an unwelcome surprise (Interview 8). Some renewable-energy trade interests favoured the feed-in premiums concept as it was applied elsewhere (Toke 2012: 15), while others feared the Contracts for Difference would prove less generous for smaller

projects (Toke 2011), or that the process would not provide adequate 'routes to market' for less resourced, non-vertically integrated players. Certain renewables sector organizations found, at least initially, that the doors were closed to them (Interview 8). Although they were subsequently more able to engage, 'there was always a sense that [government] did not quite trust what we were telling them' (Interviews 4 and 8). Most environmentalists expressed mixed opinions about the move away from RO, but the Green Alliance and consumer organizations, for example, welcomed it (Interview 15).

Opinion varied among the Big Six. In general, companies with substantial amounts of nuclear in their portfolios, such as EDF, or that planned to build new nuclear, such as E.ON, favoured Contracts for Difference (ECC 2011: para 129). Those with more renewables or fossil-fuel generation and less nuclear were more sceptical. For example, SSE, the UK's second-largest supplier of electricity and gas and its largest generator of renewable energy, saw Contracts for Difference as a ruse primarily intended to support nuclear (ECC 2011: para 93) without directly contradicting the Conservative-Liberal Democrat Coalition Agreement not to provide direct subsidies.

Unlike renewables-sector interests, some interviewees (7, 9, 10) saw the Big Six as having been quite influential. Civil servants indicated that the big utilities' ability to be heard was related to their competence and ability to provide useful market information (Interviews 9 and 10). One Big Six representative suggested that their competence in modelling complex, interconnected energy systems was especially important (Interview 7), reassuring policy-makers of the workability of their own proposals.

In Parliament, the Select Committee on Energy and Climate Change, set up to monitor the work of DECC, was more open to inputs from independent, non-vertically integrated generators than DECC. Concerns about routes to market problems for non-vertically integrated players received a hearing. The Committee expressed misgivings that, while contracts for difference were undoubtedly the best option for nuclear, the concept was less well suited to other types of low-carbon generation. The government 'should not distort the market merely to save political face about the precise meaning of the Coalition Agreement' (ECC 2011, para 132). A further actor in the debate was the independent advisory body established under the Climate Change Act 2008, the Committee on Climate Change, which supported introduction of a scheme incentivizing the nuclear technology that, at the time, was considered (wrongly) to be the most economical (Committee on Climate Change 2011).

Once legislation was passed (in the 2013 Energy Act), state-aid clearance was needed before the first contracts allocation round. This was duly granted in June 2014 – hardly surprising, given the close contacts between DECC and Commission staff during the policy-making process, covering the content of soon-to-be-adopted revised state-aid guidelines (DECC 2014: 12). Contacts led to 'material effects on the design of various instruments' (Interview 9). In time, the Commission welcomed Contracts for Difference as a 'fine example of how to promote the decarbonisation of the economy with market-based support mechanisms, at the lowest possible cost for consumers' (Commission 2014).

Seven large renewables projects were offered early contracts in May 2014; the first formal auctioning round began in the autumn. Implementation coincided with the beginning of a wider energy policy ‘reset’, in which scaling back small-scale feed-in tariffs featured prominently. In 2013, reports (never denied) that David Cameron had ordered aides to ‘get rid of all the green crap’ in order to reduce energy bills (The Guardian 2013) exposed a long-simmering coalition quarrel over support for renewables. At the time, the feed-in mechanism had already had huge impacts on the numbers of micro-generators (including households), which reached a cumulative total of roughly 650,000 individuals by 2015 (Inderberg et al. 2016).⁴ A boom in companies assisting and selling installation services followed, creating a new interest group. There was a clear trend of new, independent company formation, including producers such as Ecotricity as well as stand-alone suppliers. While the established Big Six remained largely fossil fuel- and nuclear-based, a considerable share of the smaller newcomers’ portfolio was based on renewables. In 2014 the Big Six were still dominant, with about 92.4% of the UK gas and electricity market, but that share was down from 99.8% in 2009 (Cornwall Energy Associates 2014).

Winning a surprise majority in the 2015 General Election, the Conservatives found they could create a government alone. Their election manifesto, otherwise vague on energy policy commitments, promised to ‘halt the spread of onshore windfarms’ and put an end to subsidies (Brown 2016). The party was also strongly committed to increased nuclear production, with a significant element at best ‘lukewarm’ towards the climate issue and visceral in its opposition to wind turbines (PIRC 2011, Lockwood 2013; Cox et al. 2016: 5). Supported by a largely right-wing tabloid press, this element now seized its opportunity.

In November, the new DECC Secretary announced a ‘reset’ of energy policy, ostensibly to control costs for bill payers, with the implication that onshore wind (except on Scottish islands) would not be included in future auctions (Brown 2016). Thus, while the architecture of the British renewables support mix remained unchanged, the new government applied what had been meant as an instrument to deliver cost-effective investments in a way that excluded the cheapest technology – onshore wind. Legislation for Contracts for Difference allowed the government great flexibility to determine, at very short notice and without parliamentary approval or statutory consultation, the technologies eligible for support in a given auction.

In addition, the government cut small-scale feed-in subsidies by 64% for household-scale solar, and community projects lost investment support (ENDS Report 2015). Feed-in tariffs for microgeneration were cut significantly across all technologies, bandings for size of installation changed, the degression mechanism accelerated and quarterly caps were introduced.

This renewables reset prompted a wide-ranging set of actors to voice concern, with large corporations such as Ikea and Panasonic joining investors, industry bodies like Energy UK and RenewableUK, the National Farmers’ Union, the Trades Union Congress and green and community groups (Business Reporter 2015). Nearly 90% of respondents to the public consultation on the reset argued

that the proposed tariffs were too low to bring forward new generation (DECC 2015), and early indications showed a significant downtrend in installations of new small solar panels (Inderberg et al. 2016).

Although the need for generous support for technologies such as photovoltaics had passed, thanks to the marked decrease in technology costs (ENDS 2015), the overall weakening of the policy framework led to an eventual admission from DECC that the 2015 reforms put delivery of the UK's 15% renewables target for 2020 further out of reach (ENDS Report 2015). Two years later, in 2017, investment in renewable energy was reported to be down by 56% (The Guardian 2018).

In sum, the period after 2010 saw significant developments: the shift towards the technology-specific Contracts for Difference scheme came as the result of intense negotiations involving organizational field actors, but it was ultimately restricted in its application (exclusion of onshore wind) by decisions made in the political field. Increased steering efforts by the EU do not appear to have been especially influential. In the remainder of this chapter, we turn to a fuller, multi-field assessment of UK policy developments over all time-periods examined.

Discussions and conclusions

The historical phases outlined in preceding sections highlight that the UK has experienced several re-orientations of its renewable support mix. By 2016, it had a policy portfolio – including a technology-specific scheme for large-scale renewables, and also a technology-specific feed-in tariff for small-scale generation – that would probably have surprised a time-travelling policy analyst from the year 2000. While the radical cuts in support and more selective (politically motivated) application of auctioning after 2015 reduced the number of technologies that profited from the system, the schemes were no less technology-specific in nature.

As EU steering has gradually become more coercive, and many countries have turned towards systems based on feed-in premium combined with auctioning after 2014, we expected the *European environment* to influence British renewables policy the most after 2010. That is not what we have found, however; the UK would have adopted Contracts for Difference regardless. Interestingly, however, the experience of the Netherlands and Denmark with similar systems was referred to favourably in the government's 2010 consultation, suggesting an element of horizontal learning.

In the first of our periods, leading up to 2000, the EU had hardly any specific rules covering the design of support schemes. Nor were any clear trends evident among member states. Hence, it is not surprising that we do not detect European environment influence in this period. Later, the Commission was to hail the Renewables Obligation as a good design, though the instrument's failure to spur much renewables production somewhat undermines this view (see Boasson 2021a, this book).

In the 2000–2004 period, the UK shifted to an electricity certificate scheme: the Renewables Obligation. Evidence does not indicate that this choice was heavily

influenced by the prospect of new, indicative national targets in the 2001 Renewables Directive (de Lovinfosse 2008). Bucking the trend towards feed-in tariffs in this period, the UK headed further down the path of technology-neutrality and fluctuating support levels than it had with its first scheme. While this fit well with the preferences of the Commission, we do not find that such conformity was something that UK policy-makers actively pursued.

In the third phase, more specifically in 2007, the British Prime Minister supported ambitious, nationally binding targets to be set at the EU level. This would ultimately require the introduction of a more state-led renewables-support effort. Bound up with British efforts to be seen as a climate leader, significant pressure was placed on succeeding UK politicians and civil servants to develop new measures capable of delivering the 15% renewables target. Making the Renewables Obligation more technology-specific was the first response to this pressure. The extent to which the target drove adoption of feed-in tariffs for small-scale renewables is debatable, but figures included in the 2009 Renewable Energy Strategy show how small-scale technologies, of the kind supported by feed-in tariffs, were expected to deliver 2% of the projected required electricity demand (HM Government 2009a).

In addition, in this period UK actors were influenced by the sweeping, EU-wide trend towards feed-in tariffs. The increased influence of the European environment between 2005 and 2009 is broadly in line with our expectation, with the intriguing twist that the increased EU steering resulted partly from UK political inputs: in 2007, the UK first pushed through more ambitious renewables objectives at the EU level, which in turn underpinned changes in British support schemes.

The British shift towards a more technology-specific regime after 2010 contrasts with the Commission's increased pressure towards technology-neutrality, but the UK was an early mover among EU member states in adopting a feed-in premium scheme combined with auctioning. The Commission may have influenced some of the details of the Contracts for Difference scheme, but the instrument seems much more inspired by the British organizational field, where actors (primarily Ofgem) had suggested core features of the new scheme significantly before the Commission became involved. While the UK after 2010 inspired others to shift to feed-in premiums, it had itself been inspired *by* others to adopt fixed feed-in tariffs for small-scale only a few years earlier.

Like Solorio and Fairbrass (2017), we conclude that developments after 2005 cannot be fully understood without reference to Europeanization, but we also detect some interdependencies. First, the UK was crucial for the EU's adoption of binding renewables targets in 2009; second, the British Contracts for Difference scheme influenced the drafting of the 2014 EU state-aid guidelines (Boasson 2021a, this book). Hence, in effect the UK repeatedly enabled the EU to increase its authority over national renewables support.

How and to what extent did the *domestic organizational field* affect developments? As the UK liberalized its electricity system early on, we expected to find a rather pluralist field with many criss-crossing conflicts, and thus low policy impact. However, the evidence does not support this.

Introduction of the first support scheme coincided with the liberalization of the energy sector, so it is not surprising that the Non-Fossil Fuel Obligation fits this context. However, the precise motives for including renewables within the scope of an instrument primarily intended to support nuclear introduction remain obscure. Since both could co-exist, however, it was acceptable to the big utilities of the day.

While liberalization led to consolidation around the Big Six and thus a state of near segmentation in the 2000–2004 period, company policy positions were by no means unified, reflecting their differing generation portfolios. The shift to a green certificate scheme (the Renewables Obligation) was more closely aligned to the market logic than the preceding scheme had been; technology-neutral and with a fluctuating support level, set by market forces. The new scheme did not cover nuclear but was still broadly supported by most large utilities. That is in line with our expectations, and the increasing degree of segmentation in the organizational field can largely explain this development. The field remained rather segmented in the 2005–2009 period, making the adoption of a feed-in tariff for small-scale generation – supported only by the still very marginal renewables actors and a few academics – counter to what we expected.

The prevailing market logic was increasingly questioned after 2010, as conditions made necessary investments in new electricity production (nuclear in particular) unprofitable. Ofgem (and the nuclear corporation EDF) championed a shift to a more technology-specific support scheme for both renewables and nuclear, which eventually crystallized in the form of the Contracts for Difference scheme. Secondments to DECC from the Big Six highlight that the relationship between the utilities and key decision-makers was strong (based on the policy-makers' need for certain kinds of industry knowledge). Hence, the field was still structurally unified. However, the cultural-institutional character of the field had shifted towards a logic of technology development; it was now recognized that a greater degree of longer-term state planning was necessary to meet specific objectives – most obviously, maintaining a nuclear programme. Hence, cultural-institutional change within the field can largely explain the shift to Contracts for Difference.

Lowering of support levels for small-scale renewables after 2015 can to some extent also be understood as a result of organizational field developments. After all, the Big Six had no interest in supporting competition from smaller players. On the other hand, that a broad coalition mobilized against the policy reset shows how the organizational field had become more diverse. Thus, this perspective cannot fully explain the shift.

Our finding here is in line with Catherine Mitchell's (2012) argument that the UK government, compared to its German counterpart, for example, is in general more favourably disposed to more established technologies, and that of Kern et al. (2014), who highlight the ability of larger companies to steer policy in the context of a 'non-interfering' state. Other interest groups, such as those representing renewables, did not have this level of access to the policy development process.

In sum, the promotion of small-scale feed-in tariffs and their subsequent retrenchment are hard to explain from an organizational field perspective. Can the

domestic political field shed more light? According to the multi-field framework, this field will be most influential when renewables policy has become of high political salience, and formal decision-making power rests with the legislative assembly. Does this apply also to the British political system, which is dominated by two strong parties and often has very powerful governments?

The political salience of renewable energy policy has fluctuated over time. Initially, renewables policy was not particularly politicized. The focus was on privatizing the electricity sector, which the incoming New Labour government of 1997 largely accepted. In the second phase, responding to EU legislation and other dynamics, the Labour government gradually became more active on renewable energy issues, but the design of the scheme was not the subject of much political controversy.

In contrast, renewable energy policy became rather politicized after 2005. The biggest parties competed to ‘out-green’ each other (Carter and Jacobs 2014), and this clearly influenced the development of the support-scheme mix. First, Blair’s 2007 commitment to binding, ambitious renewables targets in the European Council went against the advice of his civil servants and later contributed to introduction of more technology-specific aspects in the Renewables Obligation, without which, it was feared, the UK’s target would not be reached. Second, while the civil service was never fond of feed-in tariffs, in response to a groundswell of parliamentary support, the new Secretary of State commanded his civil servants to present a proposal. On such occasions, despite running up against ‘the departmental view’ (Barker and Wilson 1997), government politicians have proven themselves able to set ambitious goals and push new means of delivering them that go against established orthodoxies. Despite the great symbolic importance, politicians do not appear to have paid much attention to the details of the new support scheme.

In the fourth phase, some degree of party competition over climate change was still evident, but the growing political profile of the consumer-costs issue complicated the picture. From 2010, tensions within the incoming Conservative-Liberal Democrat coalition over nuclear affected the development of renewables support, but a support scheme encompassing all low-carbon energy sources served to de-fuse the conflict. The ‘green crap’ controversy showed that the competition for green credibility related to supporting decentralized renewables was over: neither climate issues nor renewable energy had become enduring salient issues in British electoral politics (Lockwood 2013: 1342). The UK’s first-past-the-post electoral system has a tendency to lead to strong majority governments, shifting between Labour and Conservative, with heavy influence on policy direction and limited need for parliamentary support. The exception was the Conservative-Liberal Democrat coalition, which experienced a greater need for parliamentary support – but, as this coincided with a de-politicizing of renewables, it did not increase the weight of the political field: the Contracts for Difference resulted primarily from organizational field developments instead. However, a necessary condition was an explicit political decision in favour of nuclear.

Following the 2015 election and the return of the Conservative Party with a full majority, the situation in the UK could be best labelled *ministerial governing*. With a clear majority, the Conservatives could largely do as they pleased; and, since electricity costs were the high-salience issue (and not renewables support per se), a ‘reset’ of policy looked attractive. Increasingly vocal opposition towards onshore wind within the Conservative Party also played an important role. As the new government generally agreed with sentiments of the dominant actors in the organizational field, it is hard to distinguish clearly between the importance of the two domestic fields here.

Still, our findings indicate that in a Westminster-type system, where the ruling party usually also has the parliamentary majority, the multi-field framework expectation that the importance of political field will be strongest when the legislators have the authority to adopt decisions and the issue in question is politicized does *not* accurately reflect how this political system works. While we see that the political field has clearly been more influential when renewables policy was subject to political competition, we do not find that variance in the formal authority of the Parliament strengthens the importance of the political field.

Tracing the many shifts in British policy for renewable electricity generation, we find that developments in the European environment, organizational and political fields have all played important roles at different times, and are interrelated in complex ways. Briefly put, we find that prior to 1999, developments in the organizational field were the most decisive. Likewise, for the 2000–2004 period, the shift to the Renewables Obligation certificate scheme was primarily influenced by the organizational field and its market logic. Between 2005 and 2009, a combination of developments in the European environment and factors in the political field, with interdependencies between developments in the two spheres, contributed to spur change. From 2010 to 2015, organizational field-level developments, supported by and interrelated to European environment developments, account for the shift towards Contracts for Difference. However, the evidence suggests that such an instrument would most probably have appeared even without European Commission involvement. Our findings highlight the difficulty, long recognized by scholars of multi-level governance, of disentangling the European environment from domestic discussions.

Interviewees

- 1 Special advisor to Labour politician, 28 April 2016, London
- 2 Academic, consultant to environmental NGO, 23 May 2016, telephone interview
- 3 Conservative MP (now retired), 24 May 2016, London
- 4 Energy specialist, formerly with the Green Alliance, 7 June 2016, telephone
- 5 Former Liberal Democrat politician, 16 June 2016, London
- 6 Climate and energy policy lobbyist, formerly WWF, 16 June 2016, London
- 7 Large energy utility representative, 17 June 2016, telephone interview

- 8 Renewable industry representative, RenewableUK, 27 June 2016, London
- 9 Former civil servant, Department of Energy and Climate Change (DECC), 27 June 2016, London
- 10 Special advisor to Labour politician, 28 June 2016, London
- 11 Civil servant in HM Treasury, 7 July 2016, telephone interview
- 12 Environmental NGO state-aid specialist, 21 March 2017, telephone interview
- 13 Consultant for regulatory assistance project, 28 March 2017, telephone interview
- 14 Former civil servant, DECC, 2017, 30 March 2017, Norwich
- 15 Former civil servant, DECC, 23 August 2018, telephone interview
- 16 Two consumer-interests representatives, Citizens Advice, 10 March 2017, telephone interview

Notes

- 1 The scheme was closed to new applicants on 31 March 2019, leaving the future support for small-scale generation uncertain.
- 2 The proportion for the 2006–2007 Renewables Obligation period (Ofgem 2008).
- 3 The Utilities Act 2000 had made provision for this eventuality.
- 4 The UK distinguishes between microgenerators, with installed peak capacity below 50 kW, and small-scale generators, which have installed peak capacity between 50 kW and 5 MW (Wood and Dow 2011: 2232).

References

- Barker, A. & G.K. Wilson (1997) 'Whitehall's disobedient servants? Senior officials' potential resistance to Ministers in British Government Departments', *British Journal of Political Science* 27(2): 223–246.
- BBC (2007) 'Cameron forced to remove turbine', 29 March. Retrieved from http://news.bbc.co.uk/1/hi/uk_politics/6505807.stm, 10 March 2018.
- BBC (2010) 'Huhne outlines coalition deal over nuclear power plants', 13 May. Retrieved from http://news.bbc.co.uk/1/hi/uk_politics/8679827.stm, 3 March 2018.
- Boasson, E.L. (2021a) 'Europeanization of renewables support', pp. 58–72 in E.L. Boasson, M.D. Leiren & J. Wettestad (eds), (this book) *Comparing Renewables Policy: The Role of Political, Organizational and European Fields*. London: Routledge.
- Boasson, E.L. (2021b) 'A dynamic multi-field approach', pp. 32–57 in E.L. Boasson, M.D. Leiren & J. Wettestad (eds), (this book) *Comparing Renewables Policy: The Role of Political, Organizational and European Fields*. London: Routledge.
- Boasson, E.L. & J. Wettestad (2013) *EU Climate Policy: Industry, Policy Interaction and External Environment*. Aldershot: Ashgate.
- Brown, A. (2016) 'UK renewable Contracts for Difference – now only for offshore wind?' Retrieved from www.lexology.com/library/detail.aspx?g=a020e230-09d8-4b51-9dca-a0d92adcc198, 10 March 2018.
- Business Reporter* (2015) 'Businesses and unions warn against major cuts to solar power subsidies', 17 September. Retrieved from www.business-reporter.co.uk/2015/09/17/businesses-and-unions-warn-against-major-cuts-to-solar-power-subsidies/#gsc.tab=0, 10 March 2018.

- Carter, N. & M. Jacobs (2014) 'Explaining radical policy change: The case of climate change and energy policy under the British Labour government 2006–10', *Public Administration* 92(1): 125–141.
- CEER (2018) *Tendering Procedures for RES in Europe: State of Play and First Lessons Learnt*. Council of European Energy Regulators. C17-SD-60–03. CEER: Brussels.
- Commission (2014) *State Aid: Commission Authorises UK Aid Package for Renewable Electricity Production*, 23 July 2014. Brussels: Commission.
- Committee on Climate Change (2011) *The Renewable Energy Review*. London: Committee on Climate Change.
- Connor, P.M. (2003) 'UK renewable energy policy: A review', *Renewable and Sustainable Energy Reviews* 7(1): 65–82.
- Cornwall Energy Associates Ltd (2014) *Cornwall Energy Information note*. Cornwall: Cornwall Energy Associates.
- Cox, E., P. Johnstone & A. Stirling (2016) *Understanding the Intensity of UK Policy Commitments to Nuclear Power*. SPRU Working Paper Series 2016–16. University of Sussex.
- DECC (2010a) *National Renewable Energy Action Plan for the United Kingdom*. Article 4 of the Renewable Energy Directive 2009/28/EC. Retrieved from https://ec.europa.eu/energy/sites/ener/files/documents/dir_2009_0028_action_plan_united_kingdom.zip 15 April 2018.
- DECC (2010b) *Electricity Market Reform. Consultation Document. Cm 7983*. London: The Stationery Office.
- DECC (2014) 'Electricity market reform: Allocation of contracts for difference. A government response on competitive allocation', Retrieved from www.gov.uk/government/uploads/system/uploads/attachment_data/file/310272/competitive_allocation_government_response.pdf, 1 March 2017.
- DECC (2015) 'Review of the feed-in tariffs scheme. Government response', 17 December. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/487300/FITs_Review_Govt_response_Final.pdf, 15 February 2018.
- de Lovinfosse, I. (2008) *How and Why Do Policies Change? A Comparison of Renewable Electricity Policies in Belgium, Denmark, Germany, the Netherlands and the UK*. Bern: Peter Lang.
- DTI (2000) 'New and renewable energy. Prospects for the 21st century. The renewables obligation. Preliminary consultation', Retrieved from <http://webarchive.nationalarchives.gov.uk/+http://www.berr.gov.uk/files/file21097.pdf>, 12 March 2018.
- DTI (2003) *Our Energy Future: Creating a Low Carbon Economy*. London: DTI Publications.
- DTI (2007) *Meeting the Energy Challenge. A White Paper on Energy*. London: The Stationery Office.
- ECC Select Committee (House of Commons Select Committee on Energy and Climate Change) (2011) *Electricity Market Reform. Fourth Report of Session 2010–12. HC 742*. London: The Stationery Office.
- Edge, G. (2006) 'A harsh environment: The non-fossil fuel obligation and the UK renewables industry', pp. 163–184 in K. Mallon (ed), *Renewable Energy Policy and Politics: A Handbook for Decision-making*. London: Earthscan.
- ENDS Report (2007) 'White Paper leaves 2020 CO2 target in doubt', 26 June.
- ENDS Report (2008a) 'Labour revolt fails to secure feed-in tariffs', 23 May.
- ENDS Report (2008b) 'Renewables target to be extended to at least 35%', 24 July.

- ENDS Report (2009) 'EDF calls for lower renewables target', 30 March.
- ENDS Report (2015) 'DECC confirms significant cuts to feed-in tariffs', 17 December. Retrieved from www.endsreport.com/article/51043/decc-confirms-significant-cuts-to-feed-in-tariffs, 1 March 2017.
- Financial Times (2007) 'Blair backs EU renewable energy targets', 28 February. Retrieved from www.ft.com/content/21c402d0-c752-11db-8078-000b5df10621, 25 March 2019.
- FoE (2011) *Feed in Tariffs and the Renewable Heat Incentive. Your Questions Answered*. London: Friends of the Earth. Retrieved from www.foe.co.uk/sites/default/files/downloads/feed_in_tariffs.pdf, 28 February 2017.
- Green Alliance (2014) *Green Liberalism, Reforming the Treasury for Long Term Policy*. London: Green Alliance.
- The Guardian (2007) 'Revealed: Cover-up plan on energy target', 13 August.
- The Guardian (2010) 'A great green rip off', 1 March. Retrieved from www.monbiot.com/2010/03/01/a-great-green-rip-off/, 15 March 2017.
- The Guardian (2012) 'Energy company staff working at climate ministry', 30 December. Retrieved from www.theguardian.com/environment/2012/dec/30/energy-companies-climate-ministry-decc, 24 May 2018.
- The Guardian (2013) 'David Cameron at centre of 'get rid of all the green crap' storm', 21 November. Retrieved from www.theguardian.com/environment/2013/nov/21/david-cameron-green-crap-comments-storm, 28 February 2017.
- The Guardian (2018) 'UK green energy investment halves after policy changes', 16 January. Retrieved from www.theguardian.com/business/2018/jan/16/uk-green-energy-investment-plunges-after-policy-changes, 1 January 2019.
- HM Government (2009a) *The UK Renewable Energy Strategy. Cm 7686*. London: The Stationery Office.
- HM Government (2009b) 'Low carbon industrial strategy: A vision. Department for business, enterprise and regulatory reform and department of energy and climate change', Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/243628/978777714698X.pdf, 03 April 2018.
- HM Government (2010) 'The coalition: Our programme for government', Retrieved from www.gov.uk/government/publications/the-coalition-our-programme-for-government, 24 May 2017.
- House of Lords European Union Committee (2008) *The EU's Target for Renewable Energy: 20% by 2020. 27th Report of Session 2007–08. Volume II: Evidence. HL Paper 175 – II*. London: The Stationery Office.
- Inderberg, T.H.J., K. Tews & B. Rutner (2016) Power from the People: Comparing prosuming conditions for Germany, the UK and Norway. *FNI Report 5/2016*. Lysaker: Fridtjof Nansen Institute.
- Keay, M. (2011) *The Return of the P-Word: The Government's Electricity White Paper*. Oxford: Oxford Institute for Energy Studies.
- Kern, F., C. Kuzemko & C. Mitchell (2014) 'Measuring and explaining policy paradigm change: The case of UK energy policy', *Policy & Politics* 42(4): 513–530.
- Kettle, R. (1999) *Promoting Renewable Energy: Experience with the NFFO*. Paper presented at the OECD Experts Group Meeting, Paris, 16 September.
- Kitzing, L., C. Mitchell & P.E. Morthorst (2012) 'Renewable energy policies in Europe: Converging or diverging?' *Energy Policy* 51: 192–201.
- Leach, R., B. Coxall & L. Robins (2011) *British Politics*, 2nd ed. New York: Palgrave Macmillan.

- Leiren, M.D., K. Szulecki, T. Rayner & C. Banet (2019) 'Energy security concerns versus market harmony: The Europeanisation of capacity mechanisms', *Politics and Governance* 7(1): 92–104.
- Lockwood, M. (2013) 'The political sustainability of climate policy: The case of the UK climate change act', *Global Environmental Change* 23: 1339–1348.
- Lockwood, M. (2016) 'The UK's levy control framework for renewable electricity support: Effects and significance', *Energy Policy* 97: 193–201.
- Meek, J. (2012) 'How we happened to sell off our electricity', *London Review of Books* 34(17): 3–12.
- Mitchell, C. (2008) *The Political Economy of Sustainable Energy*. London: Palgrave Macmillan.
- Mitchell, C. (2012) 'Who is in charge of Britain's energy policy?' *The Guardian*, 28 February. Retrieved from www.theguardian.com/environment/2012/feb/28/britain-energy-politics, 1 March 2017.
- Mitchell, C., D. Bauknecht & P.M. Connor (2006) 'Effectiveness through risk reduction: A comparison of the renewable obligation in England and Wales and the feed-in system in Germany', *Energy Policy* 34(3): 297–305.
- Mitchell, C. & P.M. Connor (2004) 'Renewable energy policy in the UK 1990–2003', *Energy Policy* 32(17): 1935–1947.
- NAO (2009) *Performance of the Department of Energy and Climate Change, 2008–09*. Briefing for the House of Commons Energy and Climate Change Committee, October.
- Newbery, D.M. (1997) 'Privatisation and liberalisation of network utilities', *European Economic Review* 41(3): 357–383.
- Ofgem (2007) 'Reform of the Renewables Obligation 2006: Ofgem's Response. Ref: 11/07', Retrieved from www.ofgem.gov.uk/ofgemnpubs/publications/57957/16669-rores-pjan-pdf, 27 May 2017.
- Ofgem (2008) 'Renewables Obligation: Annual Report 2006–2007. Ref: 21/08', Retrieved from https://archive.uea.ac.uk/~e680/energy/energy_links/renewables_Obligation/reports/Annual%20report%202006-07.pdf, 1 June 2019.
- Ofgem (2019) 'Electricity supply market shares by company: Domestic (GB)', Retrieved from www.ofgem.gov.uk/data-portal/electricity-supply-market-shares-company-domestic-gb, 22 March 2019.
- Padgett, S. (2003) 'Between synthesis and emulation: EU policy transfer in the power sector', *Journal of European Public Policy* 10(2): 227–245.
- Pearson, P. & J. Watson (2012) 'UK energy policy 1980–2010. A history and lessons to be learnt', Retrieved from <http://sro.sussex.ac.uk/38852/1/uk-energy-policy.pdf>, 12 February 2018.
- PIRC (2011) 'Variable Outlook: The portrayal of renewable energy in the media', Retrieved from <https://publicinterest.org.uk/variable-outlook-the-portrayal-of-renewable-energy-in-the-media/>, 25 March 2019.
- PIU (2002) *The Energy Review: A Performance and Innovation Unit Report*. London: Cabinet Office.
- Rawcliffe, P. (1998) *Environmental Pressure Groups in Transition*. Manchester: Manchester University Press.
- Rayner, T. & A. Jordan (2017) 'The United Kingdom: A record of leadership under threat', pp. 173–188 in R. Wurzel, J. Connelly & D. Liefferink (eds), *The European Union in International Climate Change Politics. Still Taking a Lead?* London: Routledge.
- RES Legal (2019) 'United Kingdom: Summary' [Updated 7 January 2019]. Retrieved from www.res-legal.eu/search-by-country/united-kingdom/summary/c/united-kingdom/s/res-e/sum/204/lpid/203/, 8 March 2019.

- Rowlands, I.H. (2005) 'The European directive on renewable electricity: Conflicts and compromises', *Energy Policy* 33(8): 965–974.
- Rusche, T.M. (2015) *EU Renewable Electricity Law and Policy*. Cambridge: Cambridge University Press.
- Solorio, I. & J. Fairbrass (2017) 'The UK and EU renewable energy policy: The relentless British policy-shaper', pp. 104–120 in I. Solorio & H. Jörgens (eds), *A Guide to EU Renewable Energy Policy. Comparing Europeanization and Domestic Policy Change in EU Member States*. Cheltenham: Edward Elgar.
- Stagnaro, C. (2015) *Power Cut? How the EU Is Pulling the Plug on Electricity Markets*. London: Publishing Partnership.
- Thomas, S. (2016) 'The Hinkley Point decision: An analysis of the policy process', *Energy Policy* 96: 421–431.
- Toke, D. (2011) 'UK electricity market reform – revolution or much ado about nothing?' *Energy Policy* 39(12): 7609–7611.
- Toke, D. (2012) 'A proven solution. How to grow renewables with a Fixed Feed-in Tariff. Report for friends of the earth', Retrieved from www.foe.co.uk/sites/default/files/downloads/david_toke_fits.pdf, 24 May 2017.
- Toke, D. & H. Nielsen (2015) 'Policy consultation and political styles: Renewable energy consultations in the UK and Denmark', *British Politics* 10(4): 454–474.
- Truman, V. (2016) 'Renewables obligation 2017/18 target confirmed', *Utilitywise*, October. Retrieved from www.utilitywise.com/2016/10/07/renewables-obligation-target/, 25 May 2018.
- Watson, J., I. Scrase & L. Stapleton (2010) *Transforming the UK's Energy System Policies for the 2020 Renewables Target and Beyond*. A report for Friends of the Earth. University of Sussex and Friends of the Earth.
- Wood, G. & S. Dow (2011) 'What lessons have been learned in reforming the Renewables Obligation? An analysis of internal and external failures in UK renewable energy policy', *Energy Policy* 39(5): 2228–2244.