



InfluenceMap

Gridlock in UK Power Markets

How Big Six capture of the regulatory process poses investor risk

October 2017



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Executive Summary

Introduction

- A landmark [recent report by Forum for the Future](#) and senior industry insiders ¹ described the changes sweeping the UK electric power sector in terms of decarbonisation, decentralisation and (3Ds). These are being driven by market forces, technology advances and the policy ambitions of successive UK governments.
- This report summarises the ambition of UK policy makers to drive the changes exemplified by the 3Ds and how these efforts have been diluted in the implementation phase, particularly in the last three years. It analyses in detail how the large incumbent operators (particularly the “Big Six”) remain the dominant stakeholders in the policy influencing process and through their close relationship with Ofgem and BEIS maintain close control over the critical details of regulatory implementation.
- Importantly for investors, through gathering data from numerous freedom of information requests and other publicly available corporate communications, it assesses each of the Big Six and National Grid to determine patterns of behaviour relating to policy and thus provide indicators on each company’s preparation for 3D regulatory and market shifts.

Regulatory capture

- UK electricity experts have warned that regulatory capture leads to dysfunctional energy markets in times of significant technological shifts.² This research documents a systematic process of such capture through influencing the public narrative on the electricity sector, targeted CEO messaging, dominance in official regulatory consultation processes and private meetings with senior policy makers - twice as many as all other electricity market actors combined since 2015. The electricity sector is also notable for the high degree of self-regulation, for example, through holding powerful positions within Ofgem panels which help write grid rules.

¹ Ex-CEOs of RWE, SSE and the National Grid, and former Secretary of State for Energy and Climate Change Ed Davey, Minister of State for Energy Charles Hendry, and Director General for Energy at DTI Joan McNaughton

² [The governance of industry rules and energy system innovation: The case of codes in Great Britain](#), M. Lockwood, Catherine Mitchell, Richard Hogget, Caroine Kuzemko, August 2017

- Utilising this dominance, Big Six companies have, for example, supported reductions of subsidies to small-scale renewable projects, opposed policymakers' ambition on coal capacity phase out, lobbied for continued subsidies for centralised, fossil fuel generation through the Capacity Market Mechanism, and pushed through electricity code changes severely reducing 'embedded benefits' payments available to small-scale, distributed generation. Independent electricity market operators and their representatives such as Community Energy England or the Renewable Energy Association have seemingly struggled to successfully communicate their positions to government.
- In achieving the dilution of the original ambitions of UK policy, incumbent operators deploy two recurring arguments: that power prices will increase; and that the 'lights will go out'. An analysis of Big Six press releases explaining price rises since 2013 shows a clear trend to blame UK climate and environmental policy - with 100% broadly referencing environmental and social policy as a reason for price hikes, 50% of these referencing low carbon policy and 30% blaming specific renewable energy subsidy schemes.

Investor risk

- Investors and other stakeholders should be concerned when incumbent market actors lobby to maintain the status quo - and hinder the pace of regulatory reform - to support their business models, as historically this accumulates the risk of market share loss when policy does change, and innovation and new technologies facilitate radical market shifts. A contemporary example occurred in Germany, where incumbents E.ON and RWE suffered up to an 80% fall in profitability between 2010 and 2015, a large degree of which can be attributed to the misreading of the speed and determination of the implementation of the country's [Energiewende \(Energy Transition\) policies](#) set out in the early 2000s.
- This policy capture by the Big Six also potentially affects the cost of electric power to consumers in the long term through the stifling of innovation and market reform. For example, a 2016 [National Infrastructure Commission](#) report found that increased flexibility in the UK's electricity grid could save consumers up to £8 billion a year by 2030. This research finds that several of the Big Six have lobbied intensively for energy market and capacity market rules to reduce support for small, decentralized generation and storage, whilst continuing to advocate for increased support for large-scale, centralized assets.

- A red flag for investors should also be the high-level of misalignment this report finds between top-level statements of companies and their actual behaviour with regards to market reform-driven energy policy. For example, E.ON’s UK Chief Executive, Michael Lewis, stated in 2017 that E.ON’s core business mirrors ‘global growth of renewables as part of the effort to tackle climate change’. However, the company has been lobbying against policies that will help bring an end to UK coal generation by 2025 and in 2015 advocated that coal is necessary to help ‘ensure the lights stay on’.
- In highly regulated sectors like utilities, assessment of corporate engagement with policy produces an indicator of management thinking regarding the future of the company. Below the Big Six and National Grid are assessed against the initial ambition of the UK government policies relevant to the 3D framework and are scored accordingly. An A grade indicates full support of the policy ambitions associated with each of the 3D trends while an F indicates strong opposing behaviour.

Company	Decarbonisation	Decentralisation	Democratisation
Centrica (British Gas)	D	D	C
E.ON UK	E-	B	B
EDF Energy	D+	F	D
Npower (Innogy/RWE)	D	D	B
Scottish Power (Iberdrola)	B	E	E-
SSE	C+	E-	D
National Grid	B	C+	B+



The UK Electricity Market

Current Structure

The UK electricity market involves the generation, transmission, distribution and supply of electric power to residential, commercial and industrial users. British Gas, EDF Energy, E.ON UK, Npower, Scottish Power and SSE, known collectively as the Big Six suppliers, are, along with their parent and subsidiary companies and the National Grid, dominant in all areas of the market apart from distribution. Fourteen smaller 'Distributed Network Operators' (DNOs), owned by six different companies, operate regional distribution networks.³ Four of these DNOs are subsidiaries of SSE and Scottish Power. The National Grid takes responsibility for operating the transmission network, which is otherwise owned and maintained by regional transmission companies.

Other companies make up 30% and 22% of the generation and retail markets respectively, including companies such as Drax and First Utility. Some market players in this category are exploring business models that aim to anticipate market trends and challenge current incumbents. For example, companies such as Ecotricity and Good Energy have targeted renewable generation and supply.

Company (Parent)	Market Share Estimates				
	Generation ⁴	Transmission		Distribution ⁷	Supply ⁵
		System Operation	Transmission Companies ⁶		
British Gas (Centrica, UK)	8%	-	-	-	22%
EDF Energy (EDF, France)	24%	-	-	-	12%
E.ON UK (E.ON, Germany)	-	-	-	-	14%
Npower (Innogy/RWE, Germany)	16%	-	-	-	9%
Scottish Power (Iberdrola)	4%	-	22%	11%	11%
SSE	7%	-	30%	10%	15%
National Grid	0%	100%	48%	-	-
Others	23% ⁷	-	0%	79%	17%

³ The GB Electricity Distribution network, Ofgem, 2017

⁴ Wholesale electricity generation market shares by company in 2016, Ofgem July 2017

⁵ Electricity supply market shares by company: Domestic, Q1 2017, Ofgem, March 2017

⁶ Data taken from Bloomberg New Energy Finance, November 2016.

⁷ This includes Drax-7%, Uniper-6% and InterGen-5%

Company (Parent)	Fuel Mix for UK Power Generators ⁸				
	Coal %	Gas %	Nuclear %	Renewable%	Other %
British Gas (Centrica, UK)	2	30	34	33	1
EDF Energy (EDF, France)	15	9	64	12	0.3
E.ON UK (E.ON, Germany)	19	32	13	29	7
Npower (Innogy/RWE, Germany)	16	66	1	16	1
Scottish Power (Iberdrola, Spn)	34	36	3	26	1
SSE	25	35	7	29	4
UK Average	17	32	24	24	3

Market Trends - the 3Ds

In August 2017, a group of UK energy experts ⁹ [authored a report](#) detailing fundamental changes occurring in the UK energy system. These changes are outlined in the table below, summarised as the '3Ds'. They are driven primarily by the agendas of policy makers and regulators in the UK but also technology and market driven advances. Whilst the UK energy experts include a separate 'D' for digitisation, this report covers the technological advances captured by digitisation in relation to their enabling impact on other 3Ds.

Trend	Description
Decarbonisation	The electricity generation sector is a key target of the UK government's commitments to reduce the country's greenhouse gas emissions, reflected in a variety of policy measures. This process is aided by advances and reductions in costs of renewable technologies.
Decentralisation	The clear trend towards distributed power generation, covering everything from wind farms down to rooftop solar. This is accompanied by other technological advances, e.g. in energy storage and demand-side response, that is enabling a fully-functional, flexible, decentralised electricity system.

⁸ This is the fuel mix used to generate the electricity supplied annually. UK government [requires](#) companies to disclose the data to customers annually. Data has been collated by Electricity Info; [Fuel Mix of UK Domestic Electricity Suppliers](#).

⁹ Ex-CEOs of RWE, SSE and the National Grid and former Secretary of State for Energy and Climate Change Ed Davey

Democratisation

The rise of decentralised, digitised, and decarbonized power systems is enabling more individuals and communities to own energy assets and play an active role in the energy system.

Regulatory and Market Risks

A general truism of the utilities sector globally is that it is heavily driven, more so than most other sectors, by regulation and policy and indeed in many countries the sector remains in government ownership. [EY's Power and Utilities – Top 10 risks](#), 2013 report notes the top five risks facing the sector globally are mostly related to government policy and regulation. A more recent report from [Forum for the Future](#) that frames the future of the sector in terms of the 3Ds stresses that, policy and regulatory change aside, market and technology trends are also accelerating in the sector in the UK. These trends pose significant business risk to the incumbent operators and their legacy infrastructure.

- Technology advances related to the smart grid;
- Decreasing cost of renewable generation and storage capacity.
- Policy shifts, particularly related to decarbonisation.

Most electricity markets, the UK included, are characterised by a small number of large players who often maintain close relationships with policy makers and regulators. This combination of factors often leads to capture of policy to favour the status quo of the incumbent players. It is critical for investors to understand this influencing and in particular, whether the incumbents' business model relies on assuming the status quo will continue and which players are most vulnerable to the market and policy pressures above.

An example may be seen in Germany when incumbents E.ON and RWE suffered up to an 80% fall in profitability between 2010 and 2015, a large degree of which can be attributed to decisions to push against the implementation of the ambitious [Engiewinde \(Energy Transition\) policies](#) set out in Germany in the early 2000s instead of keeping pace with the change. Clearly the two companies misread this ambition and their ability to control it.

The [Forum for the Future](#) report notes that 'If the UK went the same way as Germany, then billions of pounds of shareholder value would be wiped out from incumbent generators and suppliers and thousands of jobs, often from disadvantaged communities would be lost'.¹⁰

¹⁰ Forum for the Future, August 2017, [Wise Minds - Insights from energy industry and political leaders on the rapidly changing UK energy system](#).

It is noteworthy that, in a manner unlike Germany, UK electricity incumbents have invested heavily in certain types of technologies, such as large-scale renewables and storage whilst experimenting with options like local electricity markets. However, investors should be concerned that the Big Six's lobbying against 3Ds policies is a strong indicator that they may not be ready for the energy transition, and their business models may be reliant on their ability to control regulation, which is not absolute, as evidenced by the recent price caps show.

Incumbent capture of the policy process, further to slowing the transition, can lead to an increasingly dysfunctional energy system. This policy capture also potentially affects the cost of electric power to consumers in the long term through the stifling of innovation and market reform. For example, a 2016 [National Infrastructure Commission](#) report found that increased flexibility in the UK's electricity grid could save consumers up to £8 billion a year by 2030.

The report summarises the ambition of UK policy makers to drive the changes exemplified by the 3Ds and how these efforts have been diluted in the implementation phase, particularly in the last three years. It analyses in detail how the large incumbent operators (particularly the Big Six) remain the dominant stakeholders in the policy influencing process and through their close relationship with Ofgem and BEIS maintain close control over the critical details of regulatory implementation. Importantly for investors, it assesses each of the Big Six and National Grid to determine patterns of behaviour relating to policy and thus provide clues on each company's preparation for 3D regulatory and market shifts.

Electricity Policy in the UK

This section overviews the development of UK policy associated with the major trends identified by the 3Ds framing outlined in the previous chapter.¹¹

Despite an overall shift towards encouraging an increasingly decarbonized, decentralised and democratised electricity system, UK electricity policy has not flowed neatly in one direction. The complexity and politically charged nature of electricity markets presents challenges to policy makers who have to juggle various policy objectives when converting political ambition into reality.

Overview

In 2007, the British government published an [Energy White Paper](#) that set out the UK's policy strategy in response to a number of major long-term energy challenges; the need to reduce greenhouse gas emissions; the need to deliver energy security; and the need to ensure affordable energy prices.¹²

In 2008, the UK Climate Change Act committed the British government to an 80% reduction in GHG emissions by 2050, which has been broken down into five-yearly carbon budgets, including 51% by 2025 and 57% by 2030.¹³ To implement these targets, policy makers have chosen to start with the UK electricity sector on the understanding that other sectors, including heating and transport, will follow.¹⁴ This has resulted in various policy measures encouraging increased renewable and low-carbon electricity generation.

Parallel to a desire for GHG emission reductions, the UK government has recognised that a policy response to the 'major changes to the way we supply and use energy' is required.¹⁵ In practice, this means the transformation of UK electricity grid towards a 'smart system' that uses technology to better manage demand whilst incorporating larger amounts of energy storage and intermittent renewable generation. Whilst related ambition has been communicated by the UK government previously, it has been most clearly set out during the 2017 release of the Smart Systems and Flexibility Plan, which recognises the increased importance of distributed energy whilst committing to aid penetration of demand-side response and energy storage technology to achieve a system transformation.¹⁶ It also covers plans to empower consumers, enable smart homes, promote household battery and smart appliances, and also considers options such as peer to peer energy marketplace.

¹¹ While the term 3Ds is not explicitly used by the UK government, it presents a convenient analysis framework

¹² [Meeting the Energy Challenge; A White Paper on Energy](#), UK HM Government, May 2007

¹³ [Carbon Budgets: how we monitor emissions targets](#), Committee on Climate Change, 2017

¹⁴ [UK Energy Policy 1980-2010](#), The Institution of Engineering and Technology, January 2012

¹⁵ [Smarter Grids: The Opportunity](#), UK Department of Energy & Climate Change, 2009

¹⁶ [Upgrading our energy system: smart systems and flexibility plan](#), Department for Business, Energy & Industrial Strategy, July 2017

The table below details key UK policy developments for the electricity market since the 2007 white paper. It also identifies the major electricity sector trends they correspond to (reflecting the 3D framework).

Year	UK Policy Measure	Relevance to the 3D Framework
2005 & 2007	Energy Review & Energy White Paper	Decarbonisation, Decentralisation, Democratisation
2008	Climate Change Act	Decarbonisation
2008	Energy Act 2008	Decarbonisation, Decentralisation, Democratisation
2009	UK Low Carbon Transition Plan	Decarbonisation, Decentralisation
2013	Electricity Market Reform	Decarbonisation
2014	Community Energy Strategy	Democratisation
2017	Smart systems and flexibility plan	Decentralisation, Democratisation

Emerging Themes: The Rise of the ‘Prosumer’ and Community Energy

Commentators on the electricity industry have noted a paradigm shift, with advances such as household solar and storage, smart meters and demand-side response technology enabling industrial, commercial, residential and community energy consumers to engage in electricity generation and storage. In 2015, CBI, the UK’s largest industry association [highlighted](#) the growing role of on-site generation for UK business and called for further action to support deployment. The most recent government data show that the UK has over 900,000 solar PV installations – up 3,000% from 2010.

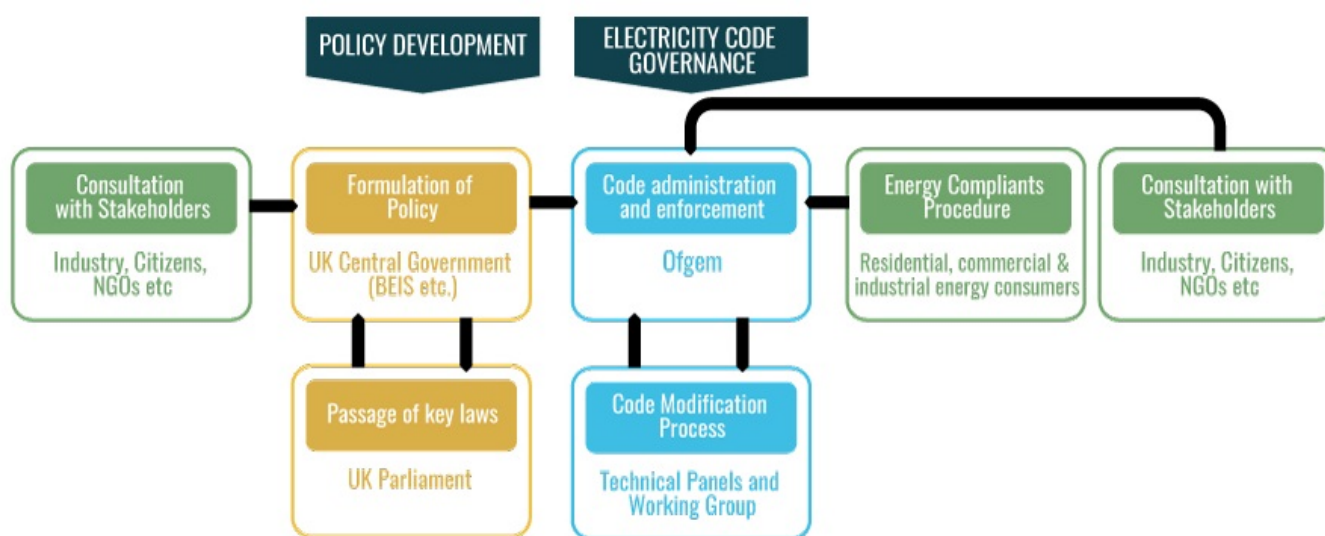
In 2014, the UK Government released its first official [strategy for community energy](#), recognising the ‘huge potential’ specifically in community organised electricity generation and supply.¹⁷ Sector representative, Community Energy England latest [state of the sector](#) report states that there are now 222 different community energy groups in the UK. In August 2017, sector leader [Mongoose Energy](#), [confirmed a deal](#) to finance the largest community energy project yet in the UK, a 14.7MW solar farm near Stratford-upon-Avon.

¹⁷ [Community Energy Strategy](#), Department of Energy & Climate Change, January 2014

Policy Formulation and Implementation

How it works in theory

This report focuses two important processes in the UK that define the policy and regulatory conditions under which the electricity market operates. One of these is high-level policy formulation and the other is formulation and implementation of technical electricity codes¹⁸.



The government department primarily responsible for formulating policy for the electricity sector is now the [Department of Business, Energy and Industrial Strategy \(BEIS\)](#). It works with elected politicians to formulate high-level policy on the sector. The process typically involves the production of a White Paper that becomes a bill before becoming law passed by the UK Parliament. At all stages in this process, stakeholders may influence the outcome through official consultation processes (see the next section on *Corporate Influence over Policy*).

The day-to-day governance of the UK electricity system is delegated to an independent regulator, Ofgem. Ofgem’s primary objective is ‘to protect the interests of existing and future electricity and gas consumers’.¹⁹ However, its responsibilities include helping develop, deliver and ensure compliance to the UK’s environmental programmes, as specified by policy defined primarily by BEIS²⁰.

¹⁸ There are other significant areas of regulation that apply to the sector as a whole. For example, the set of incentives and penalties that exist under the [RIIO framework](#), a framework to control price setting for network companies. .

¹⁹ [Who we are](#), Ofgem, 2017

²⁰ [Delivering Government Programmes](#), Ofgem, 2017

In practice, Ofgem is responsible for the enforcement of a body of planning rules, network charging arrangements and technical standards known as codes. These codes are needed to translate government policy into action.

Codes changes are made through specified ‘modification’ processes. This works on a principle of ‘double delegation’ where Ofgem delegates significant powers in proposing and deciding on modifications to industry. Each code has a panel and an administrator made up primarily from industry participants to take charge of modification process. Modifications are generally proposed by the private sector, but can also be put forward by other entities with a legitimate interest.²¹

The three main ways to make modifications, with the split of responsibilities between Ofgem and Industry, are set out in the table below. Unless otherwise specified, ‘Industry’ here refers to members of the relevant technical panels and working groups responsible for each code. In theory, these can be representatives from any industry, as well as third-part groups such as NGOs, although in practise these groups are dominated by energy company representatives.

Modification Type ²²	Modification Impact	Proposed by	Developed by	Final decision made by	Implemented by
Fast-track	Minor code change, non-material impact on code parties	Industry	Industry	Industry	Industry (network owner)/code administrator
Ordinary	Significant code change, material consequences for code parties	Industry	Industry	Ofgem	Industry (network owner)/code administrator
Significant Code Review	Major policy change, required for Ofgem to fulfil official duties	Ofgem	Ofgem first then industry	Ofgem	Industry (network owner)/code administrator

²¹ The governance of industry rules and energy system innovation: The case of codes in Great Britain’, M. Lockwood, Catherine Mitchell, Richard Hogget, Caroine Kuzemko, August 2017

²² Source: CMA (2015c: 467). & above

How it has worked in practice

The reality of UK electricity policy and regulatory development has not always reflected the government’s high-level commitments. Within the 3D framework outlined in the previous chapter, the evolution of the various UK government policies in practice is detailed below.

Decarbonisation

In 2016 the UK government set more ambitious GHG reduction targets under the 5th Carbon Budget. Whilst there has been progress on GHG emission reductions in the power sector, for example in relation to switching from coal to gas, a June 2017 survey of energy professionals conducted by the [Energy Institute](#), found that four-fifths of respondents believed that the UK is on track to miss its 2030 carbon reduction targets. The 2016 [Progress Report](#) to Parliament from the Committee on Climate Change noted a widening gap between Britain’s GHG targets and measures needed to implement them.²³

Driving concerns are the need for stronger climate policy. The situation has been worsened between 2013-16 due to a number of policy decisions that have eroded support for renewable generation, whilst potentially embedding a legacy for traditional, fossil-fuel based generation. A summary of some key decisions is given below.

Policy and Date	How the Policy Developed
Capacity Market Mechanisms (2014-current)	First considered as a targeted strategic reserve mechanism to encourage investment in energy security provision, the Capacity Market Mechanism has developed into a highly complex set of market-wide auctions favourable to subsidising fossil fuel plants continued operation. Its design has been criticised for failing to encourage investment in line with UK decarbonisation targets and prolonging the life of increasingly uneconomic coal power plants, whilst side-lining alternative forms methods of achieving energy security like creating flexibility through demand-side response development.
Changes to renewables subsidies (2015-16)	The government made a number of changes to the renewable subsidy regime to reduce support for low-cost renewable energy options, including tariff reductions for renewable energy feed-in-tariffs and the closure of the Renewable Obligation (RO) for new solar installations under 5MW and onshore wind.

²³ Meeting Carbon Budgets – 2016 Progress Report to Parliament, Committee on Climate Change, June 2016

Decentralisation

The UK electricity system was built around centralised energy generation and a transition involves a decentralised system involves a fundamental shift in balance of the market. Certain recent policy decisions, especially in relation to the 2013 Electricity Market Reform, have suggested a lingering interest in promoting larger, more centralised generation.

However, the July 2017 release of the [Smart Systems and Flexibility Plan](#), which, recognising that the energy system is changing, confirmed the increasing importance of distributed, low-carbon generation and committed to promoting emerging technologies, such as electricity storage and demand-side response, to enable a transition to a modern, increasingly decentralised energy system.

Despite this, energy experts have warned that the electricity code governance system is prone to bias towards a traditional energy system and that its inability to adapt to new developments is especially dysfunctional in times of significant technological change.²⁴ This has frustrated policy progress and has threatened to choke off nascent UK markets in new technologies. Recent decisions regarding electricity codes appear contrary to the Smart Systems and Flexibility Plan’s vision. The table below describes recent progress on the three policy areas recognised under government’s smart system’s plan.

Policy and Date	How the Policy Developed
Smart Meters, Tariffs and Energy Codes (2011-current)	The government’s target to roll out of smart meters by 2020 is under pressure of over running . Market arrangements have hindered the full benefit of smart meters being accrued by consumers, especially residential, and there have been knock-on effects for the success of smart technology and service providers. The time-line for the implementation of mandatory half-hour settlement for homes and small businesses, a crucial step towards fully enabling the Smart Markets Programme, was further set back in July 2017.
Distributed Energy - ‘embedded benefits’ in electricity code charging arrangements (2017)	In June 2017, Ofgem has announced changes in electricity codes related to specific grid charging arrangements known as ‘embedded benefits’, radically reducing the ability of distributed generators to access revenue from providing flexibility to the grid during times of high demand. Whilst previous arrangements had caused perverse results in conjunction with the capacity market – incentivising small-scale diesel generation – the policy response appears to have disproportionately disadvantaged all distributed energy generation, including small scale renewables .

²⁴ [The governance of industry rules and energy system innovation: The case of codes in Great Britain](#), M. Lockwood, Catherine Mitchell, Richard Hogget, Caroine Kuzemko, August 2017

Energy storage &
Demand side response
(ongoing)

As highlighted by a House of Commons Energy and Climate Change Committee [report](#) in 2016, electricity storage and demand-side response providers have faced serious barriers when competing in a system designed on premise of large, traditional electricity generation. Whilst some concerns were addressed in the 2017 Smart Systems and Flexibility Plan, change needs to be implemented through network arrangements, and in relation to the Capacity Market. Recent suggested [modifications](#) to capacity market rules concerning the treatment of small-scale storage, such as batteries, appear contrary the plan's ambitions.

Democratisation

The success of new (or 'non-traditional') electricity generation and supply business models, such as community energy companies, as well as 'prosumer' engagement in the electricity system, depends on their ability to take advantage of key technical advances related to decarbonisation, decentralisation of the electricity system. Policy decisions to remove or reduce support for such technologies, such as the reduction in feed-in tariffs for small-scale renewable installations, has had significant effects on participation in the electricity system. For example, [The Solar Trade Association](#) has [recorded](#) a drop of 81% drop in new solar installations, including a 65% drop in solar schemes for hospitals, factories and other large buildings and a six-year low in new home solar installations in 2017.

Policy decisions have also had serious, negative impact on the community energy sector.²⁵ On top of Feed-in tariff changes, in 2015 HM Treasury removed community energy projects from support schemes that encouraged and helped secure community investment in energy generation, including the Social Investment Tax Relief (SITR), the Enterprise Investment Scheme (EIS) or the Seed Enterprise Investment Scheme (SEIS). Following these decisions, the community energy sector [reported](#) an 80% drop in new project start-ups.

²⁵ Community and local energy: Challenges and Opportunities, IPPR, July 2016

How policy might change in the future

The next few months will see several important policy communications that will significantly affect the future electricity market. Whilst there is some expectation of an increased policy focus towards the 3D framework, upcoming decision could also further frustrate change in these areas. The table below summaries key upcoming UK policy announcements.

Policy announcement and date	How it might affect policy development
Smart Systems and Flexibility Plan (August 2017)	Many renewable and smart energy industry participants have welcomed the announcement of the government’s plans to enable a smart, flexible energy system. However, commentators have pointed out that it “reads like a to do list”, with many decisions to be fully articulated and implemented.
Helm Review (To be released end of October 2017)	The UK Government announced a review of the electricity market in August 2017 to be undertaken by Professor Dieter Helm, who will make recommendations about how to deliver affordable energy during major changes to the UK power system. Concerns have been raised over Professor Helm’s previous criticisms of certain renewable energy technologies and preference for gas, although he has recently communicated positively around the opportunities offered by "digitalisation, electric transport and smart and decentralised systems.”
UK Clean Growth Plan (Autumn 2017)	After a series of delays, the UK Government is expected to announce its plans to meet the GHG emission targets set under the UK’s 5 th carbon budget in Autumn 2017. In September, UK climate change minister Claire Perry stated that a ‘very broad’ strategy which will make ‘historic’ progress in furthering renewable energy.
UK Industrial Strategy White Paper (Autumn 2017)	The UK Industrial Strategy, due early 2018, is likely to have big implications for the future of the electricity sector. The UK government’s January 2017 green paper on the issue covered the need to deliver affordable, clean energy as a major focus, with the delivery of smart grids being a significant aspect of future UK infrastructure upgrades.
Targeted Charing – Ofgem Significant Code Review (2017-onwards)	In August, Ofgem launched a Significant Code Review, to examine how transmission and distribution generation are treated in electricity code charging rules and how this affects the development of the energy system. Whilst ‘ some ’ respondents to an initial consultation asked for a focus on reviewing specific ‘embedded benefits’ for distributed generation, ‘a significant proportion’ asked for a wider, holistic review. Ofgem has left open the opportunity for ‘transformational change’, alongside incremental updates, to adjust to changes in the sector whilst protecting consumers from increasing costs.

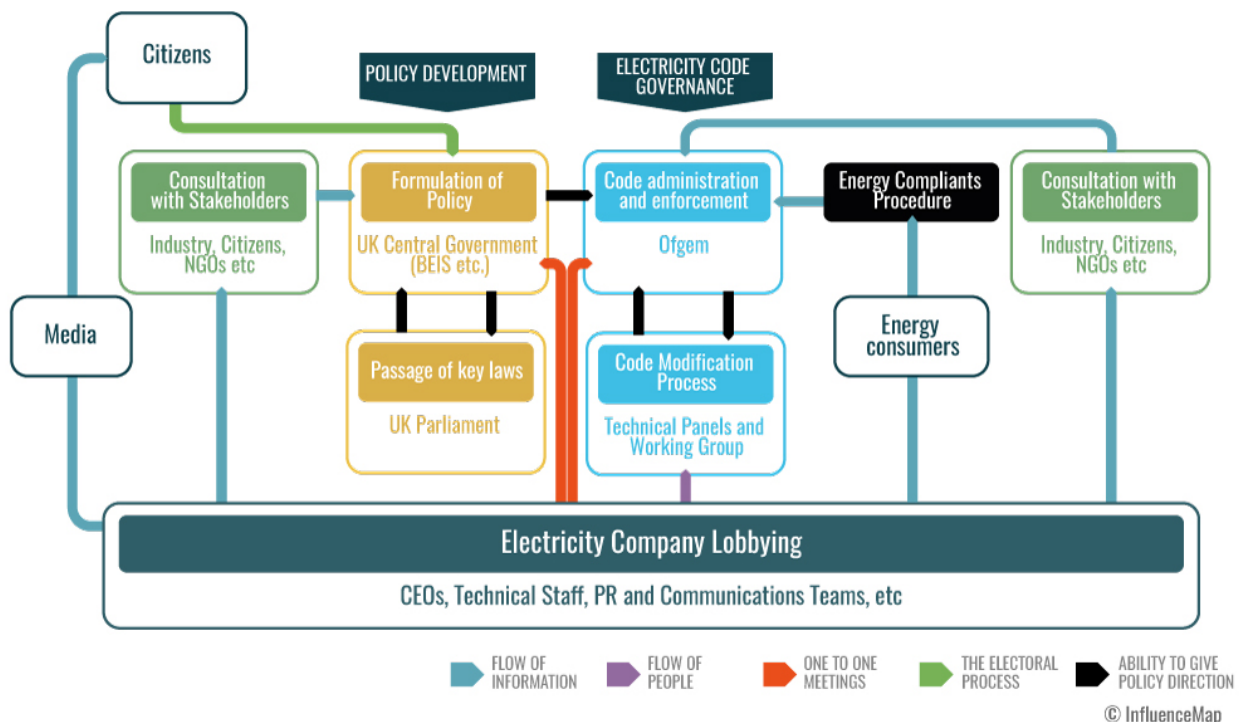
Corporate Influence Over Policy

Corporate influence of policy and regulation is of particular concern to investors and other stakeholders in the UK electricity sector as:

- The sector is heavily driven by policy and regulation.
- The Big Six and the National Grid have an inherent advantage as incumbent operators with substantial resources in a sector with high barriers to entry.
- The sector’s close relationship with Ofgem in formulation of codes and norms is crucial to implementation of high-level policy.

In aiming to achieve the dilution of the original ambitions of UK government policy, some of which were outlined in the previous chapter, the incumbent operators and their representatives deploy two key arguments which tend to permeate all policy influencing methods noted below and when pushing back on regulatory changes which they not desire.

- *The regulatory changes will result in higher energy prices for consumers and industry, resulting in inflation and loss of competitiveness for UK business.*
- *The regulatory changes will result in a threat to ‘keeping the lights on’ - i.e. the potential for power shortages.*



Evidence used to illustrate how the incumbent operators deploy these tactics is archived on the InfluenceMap website and assessed fully in the scoring of the companies outlined in the next chapter.

Capturing of the Public Narrative

A key way the corporate sector influences policy is through crafting the narrative on a particular topic, which is then communicated through the popular, business and specialist media. This is facilitated by significant PR, advertising and research-funding budgets. Some common tactics are noted in the table below and described in the context of the activities of the UK power sector. These tactics are used effectively by the large incumbent operators as they require substantial resources that are unlikely to be able to be matched by other stakeholders.

Tactic	How this is manifest in the UK power sector
PR and Media Messaging	Narratives are communicated through deliberately chosen, receptive public and business media. For example, Centrica, whose carefully considered position on the UK energy mix policy raises concerns around consumer costs and energy security regarding renewables, has had these positions amplified by media sources such as the Telegraph (see February 2016 article <i>Centrica urges policy overhaul as it warns of 'looming gap' in UK</i>) at strategic moments during the policy process associated with the Capacity Market.
Messaging to customers	The Big Six retain 83% of the electricity supply market. Direct interaction with electricity users is a key mechanism for influencing broader public opinion on energy policy. InfluenceMap analysis on Big Six press releases explaining energy price rises since 2013 shows a clear trend to blame UK energy and environmental policy – 100% broadly referencing governmental environmental and social policy as a reason for price hikes, with 50% of these referencing low carbon policies and 30% referencing specific renewable energy subsidy schemes. ²⁶
CEO Messaging	The voice of the top management is deployed strategically to convey the narrative. It is particularly effective as it is covered by the media and heard by policy makers. In the case of the UK electricity sector, CEOs have also been vocal on various specific policy issues. For example, SSE CEO Alistair Davies has stressed concerns around power shortages to encourage continued government support for large natural gas projects. EDF CEO Vincent de Rivas has repeatedly messaged between 2015 and 2017 to suggest that decentralized generation gets a 'free ride' on the grid and in 2015 wrote directly to Dermot Nolan, Chief Executive of Ofgem, stressing the impact renewable energy policies were having on energy prices.

²⁶ A summary of this analysis can be found in Appendix D.

The Stakeholder Engagement Process

Policy and regulation changes in the US, Europe and many other regions are accompanied by a process whereby the responsible public entities are obliged to solicit and consider opinions from any interested stakeholders. These consist of consultations processes (with the various submissions [made public](#)), reviews, public hearings and ‘town hall’ meetings. For UK electricity policy, stakeholders are invited to engage in two main ways; through consultation with UK central government during the formulation of key policies and through being party to the technical panels and working groups, administrated by Ofgem, that shape UK electricity codes.

The Central Markets Authority (CMA) investigation into the UK energy market found that the complexity and scale of consultation engagement for UK electricity policy restricts effective engagement to companies with adequate resources. InfluenceMap analysis on sample of consultation responses on key policy developments between 2015 and 2017 shows that Big Six energy companies and National Grid have replied, on average, to around 80% of consultations covering key electricity policy issues. However, a similar analysis of a sample of other companies from across the UK electricity sector including companies like OVO Energy, Ecotricity, Drax, Dong Energy, showed a lower reply rate of, on average, about 40%.²⁷

Self-Regulation via Electricity Code Governance

The power sector allows a certain degree of self-regulation by those being regulated through the modification of codes outlined in the Chapter *Policy Formulation and Implementation*. While the processes of code modification are nominally open to all industry and stakeholders, in practise the highly technical and time limited nature of intervention opportunities, as well as the formal structure of the governance arrangements, means that they are restrictive to smaller market players.

The primary responsibility in making code modifications for industry participants lies with the members to the panels and bodies set up to administrate on the different codes. Access to these panels generally involves election from current members. Whilst small market players may only have the resources to have one employee to cover all relevant electricity codes, large companies may employ one person per code - giving them a greater opportunity to respond to, or raise, changes and influence the market. Some panels representatives are formally required to practise their duties independently, rather than in interests of their companies, however, the extent to which this is achieved has been challenged by energy sector commentators. Beyond the panels, the work groups

²⁷ We analysed responses to 11 consultations between 2015 and 2017 covering a range of issues. More details can be found in *Appendix D, Corporate Influence Data*

and sub-committee's setup to consult on code changes are also dominated by incumbents, this time due to resource constraints and the ability for smaller companies to access expertise and time.²⁸

To give a specific example of how incumbent influence can be exerted through code governance, from the 14 members of the Connection and Use of System Code (CUSC) panel recently responsible for administrating over code modifications submitted by Scottish Power and EDF Energy to significantly reduce the level of payments to distributed generators, 9 come from the National Grid, the Big Six and trade association Energy UK.²⁹ Remaining members include other large, transmission connected asset owners Drax and First Hydro. Whilst holistic reform of network charging arrangements is generally seen as necessary across the industry, the focus and severity of the cuts to distributed energy generation has been criticised by Renewable Energy Association Chief Executive Nina Skorupska for **endangering** the deployment of small scale generation and energy storage plants, whilst Tim Rotheray, director of the Association for Decentralised Energy, **argued** that the decision did not reflect the position of the industry at large.

Private Meetings

In parallel with official stakeholder consultation processes, companies with vested interests in a policy or regulatory change make concerted efforts to arrange private meetings with key policy makers to make their case. As with public messaging campaigns, due to the costs, organisations with access to significant resources have an advantage in this lobbying activity. Stakeholders representing civil society (e.g. NGOs) or independent companies may not have these resources and find it difficult to break into an entrenched network which often requires specialist knowhow.

Due to the complex nature of electricity codes and regulation, it is especially difficult to resource the expertise to lobby for or make desired policy changes. Whilst companies also aim to influence elected politicians, a particularly close relationship has developed between large UK electricity incumbents, who can resource this expertise, and government employees in charge of writing policy, who rely on industry expertise to successfully implement regulation. Policy makers also rely on experts in specific fields, such as electricity storage, and Ofgem has held separate meetings purely for independent suppliers.

To indicate the influence incumbents can exert through private meetings as compared to smaller companies, InfluenceMap has analysed official records of all meetings, posted on department websites, between officials working for DECC, BEIS and the Treasury between 2015 and September

²⁸ *The governance of industry rules and energy system innovation: The case of codes in Great Britain*, M. Lockwood, Catherine Mitchell, Richard Hogget, Caroine Kuzemko, August 2017

²⁹ We include Energy UK in this group here, and in following analysis, due to its role as primary trade association active in the UK electricity market. All of the Big Six suppliers and the National Grid are represented on Energy UK's board. Whilst Energy UK has seemingly made efforts to support a broader, modernising agenda in recent years, its positions remain broadly aligned with those of the market incumbents. A summary of Energy UK's engagement can be found in *Appendix C, Trade Associations*.

2017 and industry stakeholders in the electricity industry. The records show that the Big Six, National Grid and Energy UK³⁰ met with policy makers over twice as many times as all other companies and industry associations associated with the electricity market in this time. National Grid, Big Six and Energy UK meetings also out-numbered meetings policy makers had with all non-industry stakeholders, including NGOs, consumer groups, trade unions and academics, on energy and climate issues by over 1.5 times. A summary of this analysis can be found in *Appendix D, Corporate Influence Data*.

Trade Associations

The role of trade associations is critical in the pursuing the above policy influencing activities.

- It may allow a company not to be directly associated with a particular activity.
- A trade association stating it has a mandate as representing an entire sector and portion of the economy is often more compelling than a single company conducting the same influencing.

It is often the case that a trade association will state it represents an entire sector but assumes the positions of its most powerful members who may be most exposed to a certain policy area. The key trade association active in the UK electricity markets is [Energy UK](#). Details on several trade associations active in UK policy advocacy are noted, along with their positions on and level of activity in UK electricity market policy in *Appendix C, Trade Associations*.

³⁰ The key trade association active in the UK electricity markets is [Energy UK](#). Its 14-member board includes all of the Big Six and the National Grid.

Company Assessments

Introduction

InfluenceMap's proprietary method of assessing corporate engagement with policy can be viewed as indicators of corporate behaviour. In highly regulated sectors like utilities, they are indicators of management thinking of the direction of the company into the future. InfluenceMap's methodology was adapted to fit with the 3D framework for the utilities sector. It assesses a range of corporate disclosure sources and other evidence points to map out behaviour associated with the influencing activities described in the previous chapter. The companies are assessed against the initial ambition of the UK government policies relevant to the 3D framework (as outlined in the table on page 9 of this report) and are scored accordingly. The methodology, including the policies considered in the analysis to be driving the 3Ds, is detailed in *Appendix A, Methodology*.

Company Scoring

The incumbent players each have differing market exposure so an analysis separating out their positions on each of the 3D themes is useful. Further details on the company assessments are in *Appendix B*. In the table below, an A grade indicates full support of the policy ambitions associated with each of the 3D trends (see Appendix A) while an F indicates strong opposing behaviour.

Company	Decarbonisation	Decentralisation	Democratisation
Centrica (British Gas)	D	D	C
E.ON UK	E-	B	B
EDF Energy	D+	F	D
Npower (Innogy/RWE)	D	D	B
Scottish Power (Iberdrola)	B	E	E-
SSE	C+	E-	D
National Grid	B	C+	B+



Company Performance in the 3D Framework

Key comments, including leaders and laggards on policies and trends driving the 3D framework are noted below. So too are examples of policy engagement, with links to the InfluenceMap platform for further details and evidence provided.

Decarbonisation

Incumbent energy companies have engaged with policy associated with decarbonisation with a range of differing lobbying positions. Whilst general support for some policies such as the Carbon Price Floor and the Contracts for Difference scheme is observed, companies have also supported reduction of subsidies to small-scale renewables, opposed policy maker ambition on coal phase out and have sought to secure continued subsidy for fossil fuel generation through the Capacity Market Mechanism.

The analysis indicates that National Grid, Scottish Power and SSE are generally more positive towards decarbonisation policy, whilst EDF Energy, Npower and Centrica have more mixed engagement. E.ON UK appears the most negatively positioned towards UK decarbonisation policy overall.

- In consultation with government in 2015, [EDF Energy](#) and [Scottish Power](#) supported the removal of support for solar PV through cuts to renewable feed-in tariffs and the early closure of the [Renewables Obligation to solar under 5MW](#). Centrica also [appears](#) to have also supported the reduction in feed-in tariff support. [RWE](#) and [E.ON UK](#) did not support the cuts. [SSE](#), [EDF Energy](#), [Scottish Power](#) have, however, advocated in favour of support mechanisms for other types of renewable generation, in particular, on and offshore wind.
- Of the companies that responded to a BEIS January 2017 consultation on the future of coal capacity, only [Scottish Power](#) supported increased initiatives to ensure the phase out coal by 2025. [EDF Energy](#) and [SSE](#) opposed further policy measures to aid coal phase out in addition to the Carbon Price Floor.
- In the same 2017 BEIS consultation on coal, RWE [opposed](#) 'technology specific measures' proposed and advocated for market measures like the EU ETS to aid coal phase out. In a 2016 [consultation](#) with DECC on the capacity market, RWE appears to have supported early capacity market auctions to help prevent coal power station closures and in 2017 [opposed](#) a carbon emission standard for the capacity market.
- E.ON UK is the only company to have actively opposed the UK Carbon Price Floor. In a [consultation](#) with policy makers in 2016, the company also called a coal ban arbitrary, suggesting

that other measures, such as the EU Industrial Emissions Directive could aid a phase out. In 2015 the company [called on policy makers](#) to preserve coal power generation in the UK's energy mix.

- Companies including [Centrica](#), [EDF Energy](#), [SSE](#) and [Scottish Power](#) have especially advocated the need to support new gas generation through the Capacity Market Mechanism.

Decentralisation

The analysis shows a significant split in lobbying positions on policy related to decentralisation. Oppositional companies have lobbied intensively for changes to energy market and capacity market rules to reduce support for decentralized energy generation and storage, whilst advocating increased support for large-scale, centralized assets.

Whilst E.ON UK appears most supportive of decentralisation policy, Centrica and Npower appear to have more mixed engagement. Scottish Power, EDF Energy and SSE appear to have actively opposed a decentralisation policy agenda in the UK.

- [Centrica](#), [EDF Energy](#), [SSE](#) have strongly advocated for implementation of the Capacity Market Mechanism in a way that ensures continued investment in large-scale, transmission based generation options including natural gas, nuclear. The [National Grid](#) also appears to have actively supported an ongoing role for 'conventional' capacity, including gas and 'thermal generation'.
- Relatedly, companies have also sought to radically reduce network arrangements favourable to small-scale, distributed generation which have [impacted](#) activeness of [large-scale](#) generation projects. For example, in 2017, [Scottish Power](#) and [EDF](#) proposed electricity code changes to reduce 'embedded benefits' that were supported by [SSE](#) and [Centrica](#). [E.ON UK](#), as well as RWE subsidiary [Innogy](#) did not support the changes. However, [RWE Supply and Trading](#), did support the reductions.
- Whilst most companies supported measures to reduce regulatory barriers for storage, [Scottish Power](#) and [SSE](#) appear to have also directly lobbied for capacity market rule changes that would favour large-scale storage assets such as pumped hydro over small-scale distributed assets, such as domestic batteries.
- [EDF CEO Vincent de Rivaz](#) has raised concerns over government timelines for smart meter roll out, whilst [Npower](#) has blamed price hikes on the scheme. In 2016 consultation with Ofgem, [Centrica](#), [EDF Energy](#), [SSE](#), [RWE Npower](#) and [E.ON UK](#) supported delay in the implementation process of half-hour settlements, a key step for the programme.

Democratisation

The analysis also shows differing company opinions on policy related to Democratisation. Oppositional companies have opposed feed-in tariffs and have not supported charging arrangements favorable to customer on-site generation or market rules encouraging non-traditional business models.

National Grid appears generally most positively positioned on issues around Democratisation whilst Scottish Power is the most negative. Most other companies have made supportive statements in public whilst not supporting Democratisation relevant policies in consultation with policy makers.

- In 2015 consultation on a review of the Feed-in Tarriff scheme, [Centrica](#), [EDF Energy](#) and [Scottish Power](#) supported the reduction in tarriffs. Scottish Power further stated in a 2017 consultation that feed-in tarriffs are not conducive with a 'cost-effective transition to a smarter energy future'. In 2015 consultation, [Centrica](#), however, also advocated for alternative [tax-based](#) incentives to support community generation. [RWE](#) opposed the level of feed-in tariff cuts, whilst [E.ON UK](#) and [SSE](#) specifically called for community energy projects to be exempt from them.
- In the 2017 consultation over the government's plan for a smart, flexible energy ssystem, [Centrica](#) supported measures to encourage on-site generation from customers. [EDF Energy](#), [Scottish Power](#) and [SSE](#), however, do not appear to support on-site generation and have called for it to pay network charging costs, despite a lack of grid connection.
- In response to a 2015 Ofgem consultation on non-traditional business models (NTBMs) (a category that includes community energy projects), companies including [Scottish Power](#), [SSE](#), [Centrica](#) and [EDF Energy](#) opposed a special set of rules to help encourage such non-traditional business models, arguing that it would result in unfair advantages.

Misalignments and Contradictions

Investors are concerned with misalignments between top line statements from a company and its behaviour and messaging elsewhere. This is especially critical in a sector like UK utilities where forward policy changes represent real risk. Key misalignments between company strategy related to a 3D transition and their lobbying behaviour on policy related to the 3Ds are summarised below for each of the Big Six and National Grid.

Company	Misaligned Behaviour
Centrica (British Gas)	Centrica's, CEO, Ian Conn, has been clear about the company's support for a distributed energy system. The company also strongly supports the capacity mechanism. However, in 2017, it supported an effort to make grid code modifications that reduced revenue streams for forms of distributed energy.
E.ON UK	E. ON's UK Chief Executive, Michael Lewis, stated in 2017 that E.ON's core business mirrors " global growth of renewables as part of the effort to tackle climate change ". However, in 2015 it had also been lobbying against policies to bring an end to UK coal generation by 2025, advocating that coal is necessary to help ' ensure the lights stay on '. It also directly opposes the UK carbon price floor, which has been driving the coal phase-out and in 2016 consultation argued that a coal ban would be arbitrary
EDF Energy	EDF is explicit that it intends to become a ' leader in large low-carbon electricity facilities '. However, inconsistent with this, it has opposed increased ambition from policy makers to ensure the phase out of coal by 2025, and in 2015 lobbied for a new coal mine.
Npower (Innogy/RWE)	RWE has supported changes in grid charging arrangements unfavourable to distributed energy, although subsidiary Innogy , opposed the changes. RWE also supports the EU's 2030 GHG emissions reductions targets, but in the UK has in 2017 opposed the extension of the UK carbon price floor and a proposed focus on the power sector's GHG emissions under the 5th Carbon Budget . RWE also appears to have supported early capacity market auctions to help prevent coal power station closures and in 2017 opposed a carbon emission standard for the capacity market.
Scottish Power (Iberdrola)	Despite committing to lead in ' clean and competitive electricity, modernising electricity networks ', Scottish Power has in 2017 supported reductions in the level of subsidy support for small scale renewable energy and has also lobbied for changes that will significantly reduce small scale renewable energy revenue streams. The Company also does not support increased powers for Ofgem and the Government to accelerate grid

	transformations towards smart tariffs.
SSE	SSE is a leader in actively supporting a decarbonisation agenda, including supporting ambitious reforms to the European Emissions trading scheme, GHG emissions targets relating to the UK's 5th Carbon Budget, and lobbying in 2016 for the UK to maintain the Carbon Price Floor until at least 2025. However, its CEO, Alistair Davis repeated emphasis on the need to ' keep the lights on ' to justify new gas power plants, is arguably unhelpful to the broader decarbonisation agenda.
National Grid	National Grid's support for distributed energy remains unclear. Although it has stated that energy is ' clearly moving toward much more distributed production ', in 2017 it has supported reforms to grid codes to reduce payments to distributed generation and its CEO, John Pettigrew, appears sceptical about the rapid increase in decentralised energy technologies and their proliferation.

Appendix A: Assessment Methodology

Using our [proven system](#) for scoring corporate influence and positions on key public policy areas, this research assesses the engagement of the UK's 6 largest integrated utility companies with UK power policy. The areas assessed, reflecting the UK energy experts' analysis of change in the sector, correspond to specific UK policy and regulatory items from the last 3 to 5 years. Our scoring has been benchmarked against the high-level policy communication, set out by the UK government, in various white papers and policies strategy documents list in Chapter 2.

Energy Policy Area	Query	Name	Explanation
Decarbonisation	1	Renewable Energy	Is the organisation supporting renewable energy subsidy schemes (e.g. Feed-in Tariffs, Renewables Obligation, Contracts for Difference)?
	2	Fossil Fuel Phase Out	Is the organisation supporting policy towards the phase out of fossil fuels in the UK power mix?
	3	Climate Change Policy	Is the organisation supporting UK Climate Change Policy? (e.g. 5 th Carbon Budget and the UK Carbon Price Floor)
Decentralisation	4	Distributed Generation	Is the organisation supporting policy and electricity code arrangements favourable to decentralised generation?
	5	Smart Meters and Tariffs	Is the organisation supporting the roll out of smart meters and tariffs?
	6	Demand-Side Response (DSR) and Storage	Is the organisation supporting policy and electricity code arrangements favourable to other technologies key to decentralisation (DSR and Energy Storage)?
Democratisation	7	Community Energy and 'Prosumer' Policy	Is the organisation supporting investment & tax schemes or exemptions from Feed-in Tariff cuts for community energy projects? Is the organisation supporting policy and electricity code arrangements favourable to on-site consumer generation?
	9	Access to Markets for Non-traditional business models	Is the organisation code reform to increase ease of energy market access for small and non-traditional business models?

Company engagement with each item of relevant policy is scored using a general scale of opposition through to support, indicated in the table above. To capture the range of company activities that constitute influence on government policy, this research assesses a range of data sources, a full explanation of which can be found [here](#).

Appendix B: Company Scoring Details

The main points of the company scoring for the Big Six plus National Grid, as outlined in the methodology in Appendix A, are noted below. The companies are assessed against ambitious government policy designed to drive the 3D framework, with the specific policies noted in Appendix A. Hyperlinks to evidence pieces archived and scored on the InfluenceMap online open platform are embedded within the table.

Company	Comments on Behaviour under the 3D Framework
Centrica (British Gas)	<p>Decarbonisation: Whilst Centrica has supported the UK's carbon price floor, it has not supported increased ambition for GHG emission targets, especially those related to the power sector. Centrica supports a move from coal to gas, but has used policy position papers to highlight concerns around energy supply and rising energy prices to advocate support for gas over certain forms of renewable energy generation. In consultations with policy makers between 2015-2017, the company has consistently supported the capacity market mechanism and has lobbied for it be used to support investment in new gas generation.</p> <p>Decentralisation: Despite CEO Ian Conn calling for greater public investment in distributed networks, in 2017, Centrica supported changes to the 'benefits' for embedded generation associated with the grid's charging arrangements - backing industry led reform suggestions to reduce payments to embedded generation, despite also supporting a delayed implementation of the changes. In 2017, Centrica proposed a capacity market modification that would de-rate battery storage in the capacity market, potentially harming its ability to compete. Despite stating support for the smart meter roll-out programme, in consultation with Ofgem in 2017 Centrica did not support the timelines for the implementation of mandatory introduction of Half Hourly Settlements for domestic and small business, suggesting that the costs may outweigh the benefits.</p> <p>Democratisation: Although in 2015, supporting reductions in to tariffs in the FiT scheme, Centrica did advocate in favour of other, tax-based, measures to help support community energy projects. Centrica is also supportive of customer use of on-site generation and in 2016 proposed changes to the capacity market to insure their inclusions. However, Centrica does not appear to support a special set of rules to help encourage such non-traditional business models, arguing that it would result in unfair advantages.</p>
E.ON UK	<p>Decarbonisation: Although E.ON has blamed renewable subsidies on its rising energy prices, over multiple consultations with government in 2015, the company opposed the level of reduction for FiT tariffs as well as the early closure of the Renewables Obligation for solar under 5MW and onshore wind. Despite advocating support for the UK's GHG emission reduction targets, E.ON but has actively opposed the UK carbon price floor and does not appear to support</p>

	<p>policy measure to ensure the removal of coal in the energy mix. In 2015, it called on policy makers to preserve a place for coal power generation in the UK's energy mix and, in consultation with government in 2016, the company opposed a coal ban as 'arbitrary', suggesting instead that a coal phase out could be managed by strengthening environmental standards such as the EU Industrial Emissions Directive.</p> <p>Decentralisation: E.ON appears to be generally supportive of policy supporting distributed generation and opposed the severity of proposed reductions in 'embedded benefits' through in consultation with Ofgem. The company has also messaged in favour of better treatment for technologies such as DSR and storage under the UK grid charring system. E.ON has supported the extension of government powers to ensure smart meter roll out but has raised concerns over the proposed time frame for the scheme.</p> <p>Democratisation: E.ON has supported exceptions for community energy from the cuts to tariffs under the feed-in tariff scheme. In 2017, the company has called on the Government to commit to a level playing field to enable community energy projects can compete in the market, although former CEO Tony Cocker appears not to have supported special license agreements for small energy suppliers to aid access to the energy market.</p>
EDF Energy	<p>Decarbonisation: EDF Energy has supported UK carbon targets and the carbon price floor but has lobbied against other measures to decarbonise the UK electricity sector. For example, in consultation with government in 2015, the company supported the reduction of renewable energy feed-in tariffs e, as well as the early closure of the Renewables Obligation for solar under 5MW. In the same year, EDF Energy CEO Vincent De Rivaz wrote directly to Dermot Nolan, Chief Executive of Ofgem, stressing the impact of the Renewables Obligation and Feed-in tariffs were having on energy prices. EDF Energy has, however, supported subsidies for other renewables and in 2015 wrote to DECC arguing against the removal of support to onshore wind under the Renewables Obligation. In 2017, EDF Energy stated support for the Contracts for Difference Scheme, along with a carbon price, as the best way to 'bring forward low-carbon generation'. However, the company has opposed extra measures to ensure a swift phase out of coal in consultation with BEIS in 2017, advocating instead that it be phased out gradually. In 2015, EDF energy directly lobbied Northumberland County Council to support a new coal mine arguing that it 'will remain important as we transition to a lower carbon economy'. The company has also lobbied in favour of a technology-neutral and market wide capacity market, suggesting that it does not support exclusions for high carbon emitting generation.</p> <p>Decentralisation: EDF has lobbied negatively on policy around decentralisation. In various consultations between 2016 and 2017, EDF Energy has repeatedly called for reform of network charging arrangements to reduce payments to embedded generation that also take part in the capacity market to 'level the playing field'. In 2016 consultation on the capacity market and transitional arrangements, the company opposed the inclusion of DSR providers utilising customer onsite generation assets. Whilst stating support for the removal of regulatory barriers to support storage technologies, EDF Energy has argued to government that it should not directly</p>

	<p>subsidies any particular technology and in 2017 submitted a capacity market modification proposal that would de-rate battery storage in the capacity market, potentially harming its ability to compete. EDF Energy, including CEO Vincent De Rivaz, has stressed the impact of the smart metering programmes on energy prices and appear to have pushed for a delay in the timelines for smart meter roll out. EDF Energy has also called on Ofgem not to ‘rush the change process’ to mandatory Half-Hourly Settlement and has not supported an extended role for in aiding the roll out of smart meters and tariffs, advocating that the later be left to market participants.</p> <p>Democratisation: EDF energy commented positively on the need for community energy projects in the 2017 consultation with Ofgem on a smart, flexible energy system, however, also stressed the continued importance of a centralised transmission system. Previously EDF Energy has not supported separated market arrangements to support non-traditional business models. The company also appears to have supported 2015 reductions in feed-in tariffs and has repeatedly stressed the costs of the programme. EDF Energy generally appears to not support policy encouraging customer on-site generation and stressed the need for such generation to pay network charges, despite its lack of grid connection, in the 2017 consultation with Ofgem on a smart, flexible energy system.</p>
<p>Npower (RWE)</p>	<p>Decarbonisation: RWE has generally supported renewable energy policies and has called specifically for increased support for technologies such as onshore wind. In consultation with the Government in 2015, RWE Npower opposed the level of feed-in tariff cuts, as well as the early closure of the Renewables Obligation to solar under 5MW and onshore wind. However, RWE Npower appears to have opposed other measures to help decarbonize the electricity sector. For example, the company did not support increased measures to aid the phase out of coal by 2025 in consultation with policy makers in 2017, arguing that this should be left to market mechanisms such as the EU ETS. Despite not supporting the setting up of the capacity market originally in 2011, in a 2016 consultation supported early capacity auctions for 2017/2018 delivery to help prevent power station closures ‘due to worsening economic circumstances faced especially by coal fired plants’. In 2017, the company has also opposed a proposed capacity market modification to apply carbon emission standards. Further evidence also suggests that the company does not support the continuation of the Carbon Price Floor, and has, in the past, has advocated against the power sector being the primary focus on emission cuts under the 5th carbon budget.</p> <p>Decentralisation: Npower appears to have a mixed position on decentralisation policy. Although parent company Innogy opposed changes to charring arrangements to reduce payments to distributed generation, ultimate parent RWE, supported the changes. RWE Npower appears to be opposed to a policy focus on small-scale electricity storage and, in consultation with Ofgem over government plans for a smart, flexible energy system, opposed measures that may support storage such as ‘queue jumping’ proposals and network costs exemptions, arguing against “ unjustified discriminatory treatment of storage facilities.” However RWE Npower has communicated positively about the role of the capacity market in supporting demand-side</p>

	<p>response technology. Despite appearing to message positively on smart meter on their website, Npower has also publicly blamed government initiatives to roll out smart meters on their energy price rises.</p> <p>Democratisation: RWE Npower appears to have been broadly supportive of democratisation policy. In 2015 it supported measures to increase market access to non-traditional business models, although not at the expense of traditional business models. The company also stated its opposition to the level of subsidy cuts for small scale renewable projects through the FIT scheme and advocated the re-introduction of pre-accreditation for applicable renewable projects. In 2016, RWE Npower supported the use of customer on-site generation by demand-side response aggregators who want to compete in the capacity market and transitional arrangement.</p>
Scottish Power (Iberdrola)	<p>Decarbonisation: Scottish Power supported strengthening of the UK carbon price floor, In 2017 it has also supported policy maker initiative to ensure the phase out of coal from the energy mix by 2025. The company has lobbied positively on support for certain types of renewable generation. For example, the CEO of its subsidiary, Scottish Power Renewables, Keith Anderson has strongly promoted government policy on wind generation, particularly onshore. However, the company appears actively opposed to support for small-scale renewable generation, arguing in 2017 consultation against such support because “decentralised small-scale generation is generally less cost effective than large-scale generation”. In 2015, the company appears to have supported reductions in feed-in tariffs and the closure of the Renewables Obligation for solar under 5MW. The company also appears to advocate continued support for fossil fuel capacity. In 2016 the Scottish Power supported early capacity auctions for 2017/2018 delivery to ensure against power plant closures and Keith Anderson has publicly advocated for more support for gas through the UK capacity market to 'keep the lights on'.</p> <p>Decentralisation: Scottish Power appears to have actively opposed policy encouraging greater decentralisation. The company has directly advocated to policy makers against decentralised generation and has tabled grid change modifications to reduce the payments available to embedded generation through network charging arrangements. The company also does not to support policy aiding small-scale storage, has lobbied against what it sees as ‘hidden subsidies’ for domestic storage technology and has proposed changes to the capacity market that would de-rate battery storage in the capacity market, potentially harming its ability to compete, whilst favouring pumped hydro storage. Despite this, Scottish Power does appear to have been generally supportive of the government’s efforts to roll out smart energy meters.</p> <p>Democratisation: Scottish Power has also opposed policy related to democratisation. The company supported cuts to feed-in tariffs in 2015 and has since continued to oppose the scheme in consultation with policy makers, arguing that small-scale generation is less efficient than large-scale generation. In a 2015 consultation with Ofgem, Scottish Power did not support a special set of rules to help encourage such non-traditional business models, arguing that it would result in unfair advantages. The company also does not appear supportive of on-site generation and, in consultation with Ofgem over the government’s plans for a smart flexible energy system in 2017</p>

	<p>drew attention to what it considered the ‘wider problem’ of ‘behind the meter’ generation leading to market distortions and advocated for Ofgem to ‘tackle behind the meter technologies’.</p>
SSE	<p>Decarbonisation: SSE is broadly supportive of UK decarbonisation policy although with some exceptions. Whilst SSE, including through CEO Alistair Davies, has repeatedly blamed renewable energy policies for increasing energy prices, it has also advocated in favour of moving the cost of the schemes away from energy bills and into general tax policy. The company called for better planning policies to enable onshore wind but also supports the removal of subsidies for such projects, generally appearing to support a ‘stable UK carbon price’ to help transition mature technologies away from subsidies. CEO Alistair Davies has communicated positively on the 2013 Energy Market Review framework of a carbon tax, contracts for difference scheme and capacity market to encourage a move away from coal towards gas and wind generation. However, in 2017 consultation with BEIS, SSE did not support further initiatives to ensure phase out of coal generation by 2025.</p> <p>Decentralisation: SSE is not supportive of decentralisation policy. The company has been active in supporting reforms of grid charging arrangements to radically reduce payments to embedded generation, believing the reforms necessary to encourage investment through the capacity market mechanism into large scale gas generation instead. SSE is also supportive of large scale energy storage and has advocated against policy or charging arrangements that favours smaller, distributed storage technologies. SSE has stated support for the smart meter implementation but does not support increased powers for Ofgem to implement the changes.</p> <p>Democratisation: SSE appears to have a mixed engagement with democratisation policy. Whilst the company has communicated positively on policy measures to help community energy, it does not appear support ‘two-tiered’ policy where non-traditional energy models, such as community energy projects, are given special licenses to aid energy market access. However, in consultation with government in 2015, SSE messaged positively around community energy and asked for special considerations for such projects in relation to feed-in tariff cuts. However, SSE does not appear to support on-site customer generation and has called for changes to ensure it pays network charges, despite its lack of grid connection.</p>

National Grid

Decarbonisation: The National Grid has raised awareness over the UK's progress towards 2020 renewable energy goals in the past, encouraging greater policy action to help meet these targets, in particular on wind generation. However, the company has also communicated to policy makers the need for a broad generation mix, including 'gas' as well as 'thermal generation'.

Decentralisation: The National grid has advocated in favour of a capacity market mechanism that supports a 'sensible', decarbonisation transition that balances conventional and non-conventional generation technologies. In consultations, the company has supported changes to reduce charging payment arrangements to distributed energy - despite CEO John Pettigrew suggesting he supported 'holistic' reform of electricity market regulation rather than a focus on individual. In November 2016, John Pettigrew disclosed he does not talk to 'number 10' about rapid increases in decentralised energy technologies such as storage and solar because he doesn't believe they will happen. National Grid has, however, advocated in support of policy, including a review of the capacity market mechanism, to encourage greater participation of demand-side response technology on the grid, whilst also advocating directly to policy makers supporting regulatory arrangements facilitating energy storage.

Democratisation: National Grid appears to have generally supported code charging arrangements to encourage NTBS and in a 2017 consultation on a smart energy system with Ofgem, National Grid the supported the use of FiT policy to help facilitate renewable generation.

Appendix C: Trade Associations

Trade Association	Description, Key Members and Policy Activity
Energy UK	<p>Energy UK is the largest trade association for the energy industry in the UK, representing 90+ suppliers and generators of electricity with a 14-member board, which includes all of the Big Six and the National Grid. In 2016, it appeared to shift positions in favour of a decarbonising agenda, supporting the coal phase out, the Carbon Price Floor, and criticising sharp cuts in support for small-scale renewable generation. However, in a 2017 consultation it also advocated against any further action to phase out coal. It is unclear whether it supports distributed energy, in 2016 and 2017 supporting grid reform charges that increased costs and reduced benefits for embedded generators to remove market distortions. It claims to support community energy, although in 2013 also opposed support mechanisms for community projects.</p>
The Confederation of British Industry (CBI)	<p>The CBI is a confederation of 148 trade associations and the primary business association in the UK, advocating on behalf of 190,000 businesses from all sectors. CBI engagements with the specifics of energy policy is limited, however, it supports a decarbonisation agenda including the 5th carbon budget and the carbon price floor. It has also supported decentralisation through a 2015 report advocating ‘on-site’ energy generation as a means of businesses meeting climate goals. In 2016 it argued that any ‘embedded benefits’ rule changes needed to remain ‘fair and proportionate’ to avoid damaging certain types of distributed generation. The CBI also advocates for BEIS and Ofgem to do more to support ‘smart flexible energy system’ to support energy storage and demand side response.</p>
Renewable Energy Association (REA)	<p>The REA represents the UK’s renewable energy industry. It strongly supports the decarbonisation of energy, a carbon price in line with the Committee on Climate Change’s proposal, the early phase out of fossil fuel capacity, and has strongly opposed the removal of renewable energy support mechanisms in 2015. It is also supportive of distributed generation, and in 2017 opposed Ofgem decisions to reduce ‘embedded benefits’ for distributed generators. Its advocacy also supports the Democratisation of energy, including for new technologies and market arrangements that would support competition from non-traditional business sources. In 2015, REA also publicly highlighted the negative impacts that changes to feed-in tariffs had on small generation operations, including those in the community energy sector.</p>

<p>The Association for Decentralized Energy (ADE)</p>	<p>The ADE has a varied membership of just over 100 local authorities, NGOs, small companies and major corporations. The ADE opposed short-term changes to reduce payments to embedded generation in 2017, arguing that the code modification process does not adequately reflect the breadth of policy opinions from industry. It has campaigned around the treatment of DSR and storage in the electricity and capacity market, promoting a greater role for both. Whilst the ADE has not strongly lobbied on renewable support programmes, it has advocated against a capacity market that favours centralised fossil fuels assets such as coal. The ADE appears to support a role for small-scale fossil fuel assets, such as diesel and gas. It has also supported a move towards increasing low-carbon options whilst phasing out the prominence of diesel generators in the capacity market.</p>
<p>Community Energy England</p>	<p>Community Energy England represents the community energy sector and has 125 members. Community Energy England has opposed policy changes that have challenged the viability of the community energy sector, including reductions in feed-in tariffs, the removal of feed-in tariff pre-accreditation, as well as the removal of tax-relief and investment schemes. It then advocated for the reintroduction of these various support mechanisms. The group lobbied for changes to wind turbine planning rules, whilst supporting community energy projects as a way of fulfilling the UK climate commitments.</p>

Appendix D: Corporate Influence Data

The table below summarises an analysis of meetings records disclosed by the UK government departments responsible for implementing UK climate and energy policy between 2015 and 2017. It shows number of meetings with those departments by stakeholder type. All data taken from government departments websites are linked in table. The analysis is limited to meetings that are recorded by that department to be relevant to climate, energy, and electricity issue. A single meeting containing multiple stakeholders from same group is counted as one meeting for that group. Data for Ofgem meetings is not made publicly available.

Group	Department and Date			
	DECC (2015-2016)	BEIS (2016-2017)	Treasury (2015-2017)	Total
National Grid, Big Six and Energy UK	117	35	14	166
All other companies active in the electricity market and relevant trade associations	55	12	7	74
All non-industry stakeholders (Non-profits, Consumer Groups, Trade Unions, and Academics)	55	49	11	104

The table below summaries an analysis of the membership of the panels and boards that administrate changes to key UK electricity codes. It shows the % membership held by UK electricity market incumbents and the primary trade association, Energy UK, in comparison to other key stake holders in the electricity market.

Group	Electricity Code Panels / Boards							Average
	MRA	BSC	DCUSA	CUSC	D Code	Grid code	SEC	
National Grid, Big Six and Energy UK	-	14%	50%	64%	22%	52%	27%	38%
All other electricity generators, suppliers and for-profit service providers (excludes network operators)	-	21%	20%	14%	0%	24%	36%	19%
All other network operators	-	7%	30%	7%	78%	5%	0%	21%
Consumer Representatives & Non-profits	-	14%	0%	7%	0%	0%	18%	7%
Others (Ofgem officials, consultancies, code companies)	-	43%	0%	0%	19%	19%	18%	15%

The table below summarises an analysis of Big Six press releases that gave detail on their decisions to raise their energy prices between 2013 and 2017, showing the reasons given for price increases that were relevant to government policy. Although other reasons are also given by companies, it can be seen that every press release referenced government environmental and social policy in some way. Further to this, around 50% referenced low-carbon energy policies as a reason for energy price hikes, while around 30% specifically referenced renewable energy support schemes.

Company	Price Hike Press Release Date	Government policy type referenced when explaining price hike		
		Renewable energy policies	Low-carbon energy policies	Environmental & social policy
Centrica (British Gas)	01/08/2017			
	17/10/2013			
EDF Energy	12/04/2017			
	12/11/2013			
E.ON UK	07/03/2017			
	06/12/2013			
RWE Npower	03/03/2017			
	21/10/2013			
Scottish Power	10/02/2017			
	24/10/2013			
SSE	10/03/2017			
	10/10/2013			

The table below shows a sample of key consultations between 2015-2017 each of the UK electricity market incumbents have replied to as compared to a sample of other players in the electricity market. It shows that the National Grid and the Big Six energy companies have responded, on average to around 80% of key consultations, where as other companies responded on average to much less, around 40%. Data analysed was taken from the websites of the authority responsible – Ofgem, The Climate Change Committee and the House of Commons Energy and Climate Change Committee. Consultation response data to DECC and BEIS consultations relevant to the electricity sector is not made publicly available and, despite being requested through an FOI request, was not made available by time of publishing.

Company	Authority responsible, consultation name and date											% answered
	Ofgem					The Climate Change Committee	The House of Commons Energy and Climate Change Committee					
	Non-traditional business models (Feb 2015)*	Consultation on mandatory half-hourly settlement (Nov 2016)	Smart, Flexible Energy System - a call for evidence (Nov 2016)	Open letter on charging arrangements for embedded generation (December 2016)	Embedded Benefits: Consultation minded to decision (March 2017)	The fifth carbon budget -call for evidence (December 2015)	Investor confidence in the UK energy sector (March 2016)	Setting the fifth carbon budget (April 2016)	Pre-legislative scrutiny of the Government's draft legislation on energy (May 2016)	Low carbon network infrastructure (June 2016)	The energy revolution and future challenges for UK energy and climate change policy (October 2016)	
Centrica												73
EDF Energy												100
E.ON UK												73
RWE Npower (& Innogy)												100
SSE												73
Scottish Power												81
National Grid												73
Co-operative Energy												9
First Utility												18
OVO Energy												27
Good Energy Ltd												64
Ecotricity												36
Inter-gen												9
Dong Energy												54
Drax												64
UK Power Reserve												27
UK Power Networks												54
Northern Power Grid												64
Western Power Distribution												36
Western Power Distribution												36

*Each consultation title is linked to the consultation webpage.