Innovation and energy industry codes in Great Britain

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Abstract:

This paper examines the role of industry codes in the governance of the energy system in Great Britain, focusing especially on how codes and code governance affect attempts to transform the system to a more sustainable future .We lay out the nature of codes and why they are important for achieving policy change. We then describe the way in which codes are governed, including reforms in the late 2000s and two more recent reviews. Three challenges for the codes system are then discussed in detail: complexity and fragmentation, and how these act as a barrier to new entrants; the gap between code objectives and high level policy aims; and the self-governance approach in a period of rapid transformation. These challenges point to the need for reform. We argue that the two official review processes currently underway are too narrow in nature and a more thorough-going approach is needed. An alternative agenda is then developed. We propose that code modification be undertaken by a dedicated code management body. This would not be located in the regulator (Ofgem) but in an independent system operator. We also suggest various ways of mitigating risk in such an arrangement. The ultimate aim is to make the process of writing industry codes to support policy innovation simple, transparent and technical.

Keywords: governance, regulation, Ofgem, codes, innovation

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Glossary

BSC	Balancing and Settlement Code
CACoP	Code Administrators Code of Practice
CGR	Code Governance Review (Ofgem 2008)
CMA	Competition and Markets Authority
CUSC	Connection and Use of System Code
DCC	Data Communications Company
D-Code	Distribution Code
DECC	Department of Energy and Climate Change
DCUSA	Distribution Connection and Use of System Agreement
EDF	Electricité de France
GEMA	Gas and Electricity Markets Authority
GHG	Greenhouse gas
ICT	Information and communication technology
IET	Institute of Engineering and Technology
iGT	Independent gas transporter
MRA	Master Registration Agreement
NGET	National Grid Electricity Transmission
SEC	Smart Energy Code
SPAA	Supply Point Administration Agreement
SCR	Significant Code Review
SO	System Operator
SQSS	Security and Quality of Supply Standard
SSE	Scottish and Southern Energy
STC	System Operator/Transmission Code
TSO	Transmission and System Operator
UNC	Uniform Network Code (gas)
VI	vertically integrated

1. Introduction

This paper examines the role of industry codes in the governance of the energy system in Great Britain,[1] focusing especially on how codes and code governance affect attempts to transform the system to a more sustainable future.

Energy industry codes are detailed multilateral agreements that define the terms under which participants can access networks and operate in markets. Ofgem (2015a: 2) defines codes as 'the contractual arrangements that underpin the operation of the electricity and gas industry arrangements' and as such many aspects of codes have commercial implications. Codes and standards set rules for a large range of practices in the energy sector, including: terms of access and connection to networks; charging methodologies; network planning and operation; data reporting and management; requirements, and rewards and penalties in the balancing mechanism. They are a crucial but often overlooked element in the governance of energy.

Codes thus effectively determine the detailed working of the gas and electricity systems and for any aspect of energy policy to function well, industry codes must be sufficiently aligned with that policy. The codes system has its roots in the post-war period and more recently in the immediate post-privatisation phase of energy policy. It was designed for conditions of technological and institutional stability, with a focus on economic efficiency. To provide investors with greater certainty and because it was believed that industry participants had greater technical knowledge, the governance of codes, including modifications to codes, was largely delegated to the energy industry itself.

The challenge for this system is that energy policy is undergoing a period of rapid and fundamental transformation, and the next 10 to 5 years is likely to see major changes in the way energy is produced and used. Support policies have driven the expansion of intermittent renewable electricity generation. It is widely expected that there will be a transformation in the amount of decentralised production of heat and electricity, a much greater role for demand side flexibility and the much wider use of ICTs in energy systems. To avoid becoming a barrier to innovation, industry codes need to change. However, much experience to date suggests that this process is too slow and

[1] Because Northern Ireland has its own regulator and industry codes, the focus here is on Great Britain rather than the UK

problematic. The complexity and fragmentation of codes not only acts as a barrier to new entrants but also makes systematic changes difficult. There is a gap between the direction of high-level policy and the objectives of codes. Most fundamentally, we argue in this paper that as long as the 'self-governance' approach adopted in the 1990s remains in place, codes will remain a barrier to policy change. We develop a set of recommendations for a new governance approach in which policy and codes are more straightforwardly aligned, while still ensuring sufficient investment in generation, networks and retailing.

In the next section, we lay out the nature of industry codes and why they matter for the transformation of the energy system. In section 3 we then give an account of how codes are governed and how that governance system was reformed in the late 2000s. This section also considers two further, on-going reviews of code governance being undertaken by Ofgem and by the Competition and Markets Authority (CMA). Section 4 examines the main problems that arise with codes and code governance, detailing how and why the system is detrimental to innovation. In section 5 we develop an agenda for reform, in three steps. First, we review current proposals for reform from Ofgem and the CMA, which we argue are useful but insufficient. Second, we revisit the arguments underlying the self-governance approach, and critique these in the light of the current challenges facing the industry. Third, based on a set of principles that emerge from this critique, we present our own recommendations for governance reform. We also consider how moving from a system of self-governance to a system based on public governance of codes will affect investor confidence, and how regulatory risk can be mitigated. Section 6 briefly concludes.

2. The importance of industry codes

2.1 Energy industry codes in Great Britain

To obtain a licence to wholesale, transport, distribute or supply gas and to generate, transport or distribute or supply electricity in Great Britain, companies are obliged to maintain, become party to or comply with the relevant industry codes and related technical standards.[2] Codes are incorporated into standard licence conditions by reference rather than being actually included within the licence, which is partly to avoid the need to consult every time a licence condition is modified. *De minimis* exemptions for a generation licence[3] mean that very small actors, for example households with solar PV, do not have to be concerned about codes; however some unlicensed parties may also be subject to some of the codes (Ofgem 2015a). However for distribution and supply licences there are no exemptions.

There are 17 different codes overall for gas and electricity[4] in Great Britain; whilst these are interconnected in terms of the overall system and market, here we are focussing on ten of these - Table 1. Table 2 shows which industry actors are required to sign up to which of these codes through their licence conditions. The Grid Code and the Distribution Code can be considered as 'technical' codes, while the others are primarily commercial. Electricity network operators are also required to use the appropriate technical standards documents for network planning and operation (System Security and Quality of Supply Standard (SQSS) for transmission and Engineering Regulations for distribution). It is possible for companies to depart from what is specified in codes and standards, but to do so, they must seek derogations.

[2] These are in addition to several other legal requirements in the form of Statutory Instruments that industry actors must follow, such as the Electricity Safety, Quality and Continuity Regulations 2002 (http://www.legislation.gov.uk/uksi/2002/2665/contents/made) and the Electricity (Connection Standards of Performance) Regulations 2010 (https://www.ofgem.gov.uk/ofgem-publications/46669/connectionssi1apr2010clean1.pdf)

[3] There is a class exemption for small scale generators producing no more than 10 MWs of electrical power from any one generating station or 50 MWs in the case of a generating station with a declared net capacity of less than 100 MWs.

[4] This includes six codes for renewable energy and the code for independent gas transporters (iGT UNC).

Table 1: Energy industry codes and standards in Great Britain

Area	Title	Description
Electricity distribution	Distribution Code (D-Code)	Technical parameters relating to the planning and use of electricity distribution networks
	Distribution Connection and Use of System Agreement (DCUSA)	Covers commercial aspects of use of electricity distribution network services
Electricity transmission	Connection and Use of System Code (CUSC)	Framework for connection and use of high voltage transmission system and certain balancing services
	Grid Code	Technical aspects relating to connections, operation & use of transmission network
	System Operator/Transmission Code (STC)	Defines the relationships between National Grid as system operator and transmission owners
Electricity balancing	Balancing and Settlement Code (BSC)	Sets out rules for participating in Balancing Mechanism and for settling energy imbalance
Electricity retailing	Master Registration Agreement (MRA)	Rules for retail market processes including electricity registration, change of supplier processes and the Green Deal
Gas transmission and distribution	Unified Network Code (UNC)	Defines the rights and responsibilities for users of the gas transportation systems, and provides for all system users to have equal access to transportation services
Gas retailing	Supply Point Administration Agreement (SPAA)	Sets out the inter-operational arrangements between gas suppliers and transporters in the UK retail market
Gas and electricity smart metering	Smart Energy Code (SEC)	Defines the rights and obligations of energy suppliers, network operators and other relevant parties involved in the end to end management of smart metering in Great Britain.

Source: Licences, Code and Standard documents

Table 2: Code requirements under standard licence conditions, by type of licence

		D-Code	DCUSA	CUSC	Grid Code	STC	BSC	MRA	UNC	SEC	SPAA
Elec.	Transmission					✓	✓				
	Distribution	✓	✓	✓	✓		✓	✓			
	Interconnection	✓		✓	✓		✓				
	Generation	✓	✓	✓	✓		✓				
	Supply	✓	✓	✓			✓	✓			
Gas	Interconnection								✓		
	Shipping								✓		
	Supply							✓	✓		✓
	Transmission								✓		
	Distribution										✓
Both	Smart Meter Communication Licence									✓	

Source: Licence Standard Conditions documents

Industry codes are detailed multilateral agreements that define the terms under which participants can access networks and operate in markets. Ofgem (2015a: 2) defines codes as 'the contractual arrangements that underpin the operation of the electricity and gas industry arrangements' and as such many aspects of codes have commercial implications. According to British Gas (2015b: 3), codes 'provide the standards and govern the processes participants need to interact with each other.' Codes and standards set rules for a large range of practices in the energy sector, including: terms of access and connection to networks; charging methodologies; network planning and operation; data reporting and management; requirements, and rewards and penalties in the balancing mechanism.

2.2. Why codes matter for innovation

Codes thus effectively determine the detailed working of the gas and electricity systems and for any aspect of energy policy to function well industry codes must be sufficiently aligned with that policy (CMA 2015c). However, most commercial codes were established in the 1990s following privatisation,[5] while the technical codes have their origins in the pre-privatisation post-War period.[6] Industry codes were originally designed for a limited range of types of technologies, scales and institutional arrangements. As one supplier put it recently, the content of codes 'was created at the dawning of the energy market when big power stations and big companies dominated. Little of it anticipated a world where decentralised technologies such as wind and solar would be producing 24% of the UK's electricity.'[7]

As this quote implies, the challenge for the codes system is that energy policy has begun to change all of these aspects of the system, and the next 10 to 5 years is likely to see further major changes in the way energy is produced and used. Support policies have driven the expansion of intermittent renewable electricity generation. It is widely expected that there will be a transformation in the amount of decentralised production of

[5] For example, DCUSA was established in 2006, replacing a number of bilateral contracts – see http://www.dcusa.co.uk/Public/DCUSADocuments.aspx?s=c.
[6] The Security and Quality of Supply Standard (SQSS) was created in 1997, but originates in Central Electricity Generating Board planning and operating standards developed in the 1960s and 1970s. The equivalent for electricity distribution, Engineering Recommendation P2, also shares the same origins (see Kay 2012).
[7] Julia Davenport quoted in Good Energy Press release on the CMA inquiry, 7 July 2015 (http://www.goodenergy.co.uk/press/releases/2015/07/01/ceo-statement-on-cma-investigation-into-the-energy-market-findings-due-7-july)

heat and electricity, a much greater role for demand side flexibility and the much wider use of ICTs in energy systems.

By contrast, transmission codes and technical standards have been developed to serve the needs of large-scale, despatchable technologies (i.e. fossil fuel, hydro and nuclear) rather than intermittent renewables. Distribution codes have been designed to facilitate the meeting of load, rather than distributed generation, demand response and local balancing. All of this also applies to the Balancing and Settlement Code. All the codes have also been developed with the background assumption that generators, network operators and suppliers are relatively large commercial companies; at present they would not be practicable for the range of new actors that are starting to enter the energy sector, including community groups, municipalities, cooperatives, aggregators and providers of automated home systems (IET 2014).

The most fundamental issue facing codes in Great Britain currently is their effects on the ability of new actors to enter the energy system, to compete and to innovate. There are problems at two levels.

First, the *content* of codes themselves has been a barrier to new practices and technologies and, on occasions, newer smaller actors. For example, the roll out of smart meters to all users of gas and electricity is due to be completed by the early 2020s. In principle, smart meters will make it possible for households and small businesses to participate in demand side response for electricity, especially if technologies such as heat pumps and electric vehicles are taken up in any number.[8] However, to have a well-functioning market for demand side response and to handle externalities that will arise in that market between the system operator, suppliers and network companies, changes to a number of codes will be required, including the charging methodologies in the DCUSA, locational charging arrangements in the D-Code and DCUSA, amendment to Engineering Regulations P2/6 (and probably a wider review), and additional changes to the BSC and the CUSC (Lockwood 2014). Under current code arrangements no one is responsible for addressing such a cross code matter.

[8] If just 2% of smart meters were involved in controlling the charging of electric vehicles based on time-of-use tariffs, movement from a high-price half hour with no vehicles charging to a low-price half hour with all vehicles charging would involve a step change in demand of 4GW, which is 'significantly beyond the capability of today's power system and would endanger national security.' (IET 2015: 3).

A second issue is the system of *code governance*. As described below in greater detail, codes are 'living documents' and can be changed. However, there are multiple problems with code governance, including a high level of complexity, dominance by larger actors, and a lack of fit with wider policy objectives, all of which means that codes act as a barrier to new entrants and that changing codes to facilitate innovation in the energy system is often difficult. An example can be seen in the situation that arose in the 2000s with the rapid growth of wind power. The expansion of renewable energy was a high-level policy objective for the UK. However, existing regulatory arrangements for connection to the transmission network specified that connection could not be made until any necessary reinforcement work in the wider network had taken place, an approach known as 'Invest and Connect'. This approach was leading to long delays to new wind power projects being able to connect and start generating, with a queue of up to 12GW of potential projects waiting for connection. A number of changes to the CUSC were proposed to address the situation (Ofgem 2007). In April 2007 a small wind operator proposed a change to the CUSC to give guaranteed connection and priority access to renewable generators (CAP148). The CUSC work group came up with a number of alternatives, all of which watered down the original proposal. Five of these, along with the original proposal, went out to consultation, but in the end all were rejected (Brattle Group/Simmons and Simmons 2008). This was because, while the proposal was intended to support wider government policy on renewables, the panel did not believe it would support the narrower objectives of the CUSC, which focused on economic efficiency. Eventually the government stepped in and undertook a review of transmission access.[9] In 2010, a new approach was brought in by government, in which wind farms were connected ahead of any necessary reinforcement work, with the system operator managing any constraints, i.e. 'Connect and Manage'. In this case, code governance failed to solve the problem and direct government intervention was needed.

[9] Ofgem and BERR *Transmission Access Review: A call for evidence*(2007) https://www.ofgem.gov.uk/sites/default/files/docs/2007/08/070816_ex_tar-call-for-evidence_final_0.pdf

3. The governance of industry codes in Great Britain

3.1 Code governance arrangements

In section 2 we argued that the key question for codes is how they can be adapted to meet the challenges of a changing energy system. The answer to this question will lie in the institutional arrangements for the governance of codes and their modification.

In Britain, while broad energy policy is set by government, details of regulation have historically been delegated to the independent regulator, Ofgem. Ofgem has in turn delegated much of the governance of codes to the energy industry itself. A more detailed account of the origins and implications of this arrangement is given in section 5.2 below.

Each of the industry codes listed in Table 1 above has some form of panel or executive committee which 'owns' the code and is responsible for overseeing the modification or change process. Code panels are thus central to governance arrangements. They are made up of representatives of industry groups (for example, network operators, large generators, suppliers) and, in some codes, of consumers, although rules for selecting or voting panel membership differ between code panels. In some codes there are also members appointed by the Panel chair.. All codes also have an administrator which is a private entity (which may or may not be a party to the code) which maintains the codes and manages the process of changing codes on a day-to-day basis (Table 3).

Table 3: Administrators for some of the GB energy codes

Code	Administrator
Distribution Code	Energy Networks Association
Grid Code	National Grid Electricity Transmission
MRA	MRA Service Company
DCUSA	DCUSA Ltd.
CUSC	National Grid Electricity Transmission
BSC	Elexon
System Operator/Transmission Code	National Grid Electricity Transmission
SEC	Gemserv
UNC	Joint Office of Gas Transporters
SPAA	Electralink

Codes are 'living documents', in the sense that they can be changed, and quite frequently are. In the basic process that was the norm up until 2008, a modification (or 'mod') to a code could usually be raised by any party to the code, and in some cases, certain named outside bodies as well.[10] The assessment of the proposal and recommendations to accept or reject would be managed by the panel, with the administrator providing support. Again, each code has its own specific procedure, although there are some common elements, typically involving referral to specialist work-groups for assessment, especially for complex mod proposals, and industry consultation on options (see Table 4 for details for some of the codes). Along the way, in some codes, alternative proposals or variants can also be raised by other parties. Importantly, panels could not themselves give final approval. Rather, they make recommendations to the regulator, which then makes the final decision to accept or reject.[11] Overall, then, the basic approach to code governance has been one of *self-governance, limited by the veto of the regulator*. The origins and implications of this approach are discussed further in section 6.2 below.

3.2 The Code Governance Review

Up until the late-2000s, this was the basic arrangement for code governance. However, in 2007, Ofgem instituted a Code Governance Review (CGR).[12] The review was prompted by two main concerns (GEMA 2008: 3-4). One was that there were problems amending codes to support the delivery of major reforms in key policy areas (including the Transmission Access Review mentioned above but also more widely the increasing emphasis on environmental objectives in Ofgem's principal objective and duties). A second was that code processes were fragmented and complex, which made it difficult for smaller actors and new entrants (including small suppliers and renewable generators) to participate fairly and effectively. The first phase of the CGR focused on the BSC, the CUSC and the UNC and ran from 2007 to 2010. This established the basic reforms made by Ofgem, and these were then extended to the other codes in a second phase running from 2010 to 2013.

[10] Codes can also be changed directly as a result of legislation, although this does not happen very frequently. An example would be changes made to the main electricity codes following the 2013 Energy Act, which brought the Electricity Market Reforms into effect.
[11] Formally, this decision is made by the Gas and Electricity Markets Authority (GEMA), which is Ofgem's governing board.
[12] https://www.ofgem.gov.uk/licences-codes-and-standards/codes/industry-codes-work/code-governance-review#block-views-publications-and-updates-block

Table 4: Summary of modification processes for the some of the GB codes

Code	Summary of modification process
Distribution Code	• Can be proposed by any user • Proposals reviewed and voted on by Code Panel • Major proposals put out to public consultation • Final recommendation made to GEMA
DCUSA	• Can be proposed by any party to DCUSA, a consumer body, the TSO, GEMA • Review organised by Panel • Block voting on corporate group basis, except DNOs which each have one vote • Ofgem makes final decision on changes proposed to restricted areas
CUSC	• Proposal can be made by CUSC Party, BSC Party or the consumer representative • Reviewed by CUSC Panel • Consultation with industry • Final recommendation to GEMA
Grid Code	• Proposal can be made by GEMA, any user, any transmission licensee • Panel reviews, votes on, and makes recommendations to GEMA on proposals
BSC	• Proposal can be made by a Party to Code (except Elexon), Citizens Advice/Citizens Advice Scotland, 'interested third parties' designated by GEMA, the Panel (under certain conditions), a CfD counterparty, the capacity market Settlement body • Panel reviews and assesses proposals • Panel produces Modification Report and send to GEMA
UNC	• Proposals can be made by transporters, users, GEMA and in certain areas other parties, including materially affected parties • Modifications circulated to parties • Alternative proposals can be made by any other party • Proposals discussed by Modification Panel and can be sent to workgroup • Consultation phase • Panel votes on recommendations and sends to GEMA
Smart Energy Code (SEC)	• Proposals can be made by any SEC Party, plus Citizens Advice and Citizens Advice Scotland, GEMA (under certain circumstances), the DCC and the Panel • During current transition phase, only urgent modifications can be proposed • Once transition complete, panel will review and if necessary refine proposals • Draft Modification Report prepared and consulted on • Final report goes to Change Board, made up of representation from all SEC Categories, plus consumers and DCC representatives • Change Board sends recommendation to GEMA

Source: Code websites and documents

As part of the initial phase, Ofgem commissioned a critical study of the existing arrangements (Brattle Group/Simmons and Simmons 2008). Confirming the concerns that prompted the review, this critique found that the existing governance processes worked well for commercial issues which involved incremental change, but not for issues that entailed major policy shifts. This was partly because major shifts involve

looking across several codes at once, and also because of the limited considerations that the code governance process could take into account, given code objectives. In particular the study noted the differences between the code objectives (which focus on enabling competitiveness and cost reflexivity – see below section 4.2) and Ofgem's statutory duties, which also involve a wider set of social and environmental goals. The main conclusion of the study is that there was a 'fundamental flaw' in code governance arrangements:

> *They are designed to process incremental changes in a set of complex commercial contracts, and are not well suited for assessing more fundamental changes that are not incremental (in the sense that they may require multiple simultaneous rule changes across various sets of rules) and have significant implications in areas that are not purely, or even mainly, commercial but form part of public policy (e.g., security of supply, environment). (Brattle Group/Simmons and Simmons 2008: 5)*

There were also concerns about the quality of assessment of the impacts of modification proposals, and the burden placed on smaller actors by the fragmentation and complexity of code governance arrangements.

The Code Governance Review process led to Ofgem introducing a number of changes to code governance. The first change was a splitting of the modification process into three tracks (Table 5). One was for minor modifications with 'non-material' impacts, which would be handled entirely by industry on a fast-track self-governance route that did not require Ofgem's final approval. The second track was for modifications that did have more major consequences for parties, which would be handled in the ordinary way as described in section 3.2 above. Code panels themselves would decide whether a mod raised by a party should go down a fast-track self-governance route or the reformed status-quo route, subject to Ofgem's veto on that decision. Finally, for major changes where Ofgem took the view that policy change and the carrying out of its duties required, the regulator itself could instigate a Significant Code Review (SCR) process. In this process Ofgem would prepare the round by carrying out analysis of changes needed and their likely impacts, but it could not raise a mod itself; instead it would have to direct a licensee to raise a mod on its behalf. As with an ordinary mod route, Ofgem would retain final decision powers.

Table 5: Alternative modification processes from the Code Governance Review 2008

Modification procedure	Initiation	Development	Decision	Implementation
Self-governance (fast-track and regular)	Industry	Industry	Industry	Industry (network owner)/ code administrator
Ordinary	Industry	Industry	Ofgem	Industry (network owner†)/ code administrator
SCR	Ofgem	Ofgem first then industry	Ofgem	Industry (network owner)/ code administrator

Source: CMA (2015c: 467)
Note: † The Standard Licence Conditions which incorporate the industry codes into the licences of the network owners require the network owners to prepare and maintain in force the industry codes. Those same SLCs also specify that changes to the industry code can only be made by the network owner.

The second major innovation of the 2008 CGR was reform of code administration. The Review brought in a Code Administration Code of Practice (CACoP),[13] which is a non-binding set of principles and processes that administrators were expected to follow. The objective was to standardise and make more transparent the range of processes across codes. The CACoP also specified that code administrators should act as 'critical friends', meaning that they provide support to all parties, but pay 'particular attention to under-represented parties, small market participants and consumer representatives.'

Further reforms under the Code Governance Review included the introduction of independent chairs for the UNC and the CUSC, and the bringing of network charging methodologies into the code governance process in order to allow network users and consumer representatives to formally propose modifications to those methodologies.

3.3 The CMA Energy Investigation and Ofgem's further review

Despite these changes, many of the issues identified in the 2008 critical study of code governance have not been resolved. The details of the case for further reform are spelled out below in section 4. Here, we simply note that further reform of code governance has come back on the policy agenda in two ways.

One is through the energy market investigation conducted by the Competition and Markets Authority (CMA), opened following a referral from Ofgem in June 2014. High energy prices and concerns about lack of transparency and possible collusion in energy markets had been high on the political agenda over the previous two years. In its initial

[13] https://www.ofgem.gov.uk/sites/default/files/docs/2015/08/proposed_cacop_v.4.0_clean_version_0.pdf

submission Ofgem raised the concern that despite the reforms under the Code Governance Review, industry codes could act as a potential barrier to competition due to the regulatory burden of compliance with and participation in code governance which would be disproportionately heavy for smaller participants (Ofgem 2014a). There was also a concern that because code governance remains largely industry led, there would be no incentive for change in this situation from within the system. These arguments were also made by Elexon and the Energy Policy Group at the University of Exeter.

As a result of these submissions, the CMA published a working paper on codes (CMA 2015a) and an amended issues statement[14] in February 2015 that extended the scope of the investigation into what it called a 'fifth theory of harm' that explicitly included industry codes. The focus for the CMA was on how industry codes affect competition, rather than wider implications for sustainability or innovation *per se*. In July 2015 the Authority published its provisional findings, arguing that code governance gives rise to an adverse effect on competition through limiting innovation and causing energy markets to fail to keep pace with 'regulatory developments and other policy objectives' (CMA 2015c: 472). The Authority then laid out a set of 'possible remedies', i.e. proposed reforms. These are discussed further below in section 6.1, but included making code administration and/or implementation of codes changes a licensable activity, giving Ofgem more powers to project-manage the process of developing and implementing code changes, and appointing an independent code adjudicator to determine which code changes should be adopted in the case of dispute. It has since solicited views on these proposals through a questionnaire to selected groups.

Parallel to the CMA energy markets investigation, Ofgem launched its own further review of code governance in May 2015 (Ofgem 2015a). Despite the changes under the CGR, the regulator still had concerns about difficulties for smaller parties, concerns about quality of industry analysis, coordination of modifications across codes and whether the code governance system sufficiently protected consumers' interests. There were also concerns that the system was not sufficiently flexible and rapid to meet the changes and challenges facing the industry, including the move to smart metering, the introduction of European network codes, the development of decentralised generation

[14] https://assets.digital.cabinet-office.gov.uk/media/54e378a3ed915d0cf7000001/Updated_Issues_Statement.pdf

and the rise of new actors with non-traditional business models. Overarching this was the same problem identified by the CMA:

> *'In addition, we face difficulty driving through change where there may be industry opposition through a lack of incentives for industry to engage in the change process. This can hinder the timely consideration of code modifications, including cross-code issues, and delay the realisation of benefits for consumers.' (Ofgem 2015a: 3).*

Mindful that the CMA was considering the whole codes system, Ofgem's review was focused on incremental changes to the reforms that had already been brought in under the Code Governance Review. These included a backstop power for Ofgem to have a more proactive drafting and management role in Significant Code Reviews, further changes to code administration, and a clearer requirement for modifications to explicitly consider impacts on consumers. These are discussed further in section 6.1 below.

4. The case for further reform

In section 2 above, we argued that energy industry codes play a fundamental role in the working of the energy system in Great Britain, but at the same time that the nature and governance of codes is problematic. In particular there are concerns that the codes system is not well-designed for a period of major structural change in energy, and that *de facto* it works in favour of larger actors and against the effective participation of smaller actors. In section 3 we laid out the evolving history of code governance and efforts to reform it.

In this section we consider in more detail the nature of problems with code governance that remain despite the history of reform, and their implications for innovation and consumers. The discussion is organised into three themes or areas: complexity and fragmentation; the gap between code objectives and wider policy aims, and the self-governance model in a period of change.

4.1 Complexity and fragmentation

The first issue is the complexity and fragmentation of the code system, encompassing both the codes themselves and their governance. Britain's code architecture has Byzantine levels of complexity. According to Good Energy (2015b) the total number of

pages of code and other licence documentation runs to over 10,000 and in hard copy weighs more than 50 kg.[15] The operational BSC alone (excluding subsidiary documents) runs to 891 pages in its current version at the time of writing. The CUSC is 1130 pages long and the DCUSA 1000. Moreover, complexity is increasing over time as more modifications come through; in the view of one independent supplier cited in Kuzemko (2015a) the level of complexity has trebled over the last five years.

There are also questions about the number of codes (which is being added to by the Smart Energy Code) (e.g. British Gas 2015b). The large number of codes adds to costs[16] and duplication, especially where changes cut across multiple codes.[17] The combination of a lack of coordination across codes and major industry changes such as smart metering and demand side response that will require significant cross-code modifications means that this situation is likely to get worse (Ofgem 2014a). At the same time the codes system has proven resistant to rationalisation or consolidation.

Beyond the codes themselves, there are also concerns about the complexity and fragmentation of code governance. While there are some similarities, each code has separate collateral and credit requirements, process rules, and governance and reporting arrangements. In a recent review of credit and collateral arrangements for codes for DECC, Cornwall Energy (2014) found that no two codes are identical in their rules, and those rules were also subject to continual change through modifications. The amounts involved are also not trivial; the average annual total collateral across 9 codes required over the period 2011-2013 was estimated at over £4bn (with the UNC by far the largest element within this) (ibid: 17) in a market with around £50 billion in annual revenue. As the CMA (2015a: 7) notes, the consequences of being in breach of collateral rules can be significant. Since collateral requirements are related to the perceived risk of default, new (typically smaller) entrants typically have proportionately higher demands for collateral placed on them than do larger well-established companies.

[15] Chris Welby, Good Energy, personal communication

[16] Multiple codes mean higher administrative costs. British Gas (2015b) estimates that the cost of code administration (which is passed through to consumers) across MRA, BSC, DCUSA, UNC, SEC and SPAA will be more than £10m for 2015.

[17] An example would be the introduction of quicker switching, where changes are required across the UNC, the IGT UNC, the SPAA, the MRA and the BSC.

There is a similar issue with the process of developing, drafting and consulting on modifications; each code has these elements but each is different in its details. For example, the BSC panel consults on its initial recommendation to Ofgem on mod proposals, but it is the only panel that does so (Cornwall Energy (2015). In the DCUSA change process there are one or two work group consultations before the change report is accepted by the Panel and then sent for voting, whereas under the CUSC stakeholders are consulted at working group stage and then again after the Panel has accepted the mod report but before it votes on recommendations. DCUSA also stands out as the only code that reaches recommendations on the basis of voting amongst members rather than through a panel.

There are also differences between codes on rules about who can raise modification proposals. While most codes allow multiple parties to raise mods, in the Grid Code only NGET can raise mods currently (although there is a proposal (Mod GC0086) under consultation to change this and move to a more open form of governance). There are differences in how parties can raise alternate modification proposals once a modification has been tabled. For example, the BSC allows only one alternate, whereas some other codes have no limits.[18]

Some codes have standing work groups, while others (for example the SEC, MRA and SPAA) form work groups specifically to work on specific mods. Formats of reports differ, some are easy to read, others much harder. Some panels have independent chairs, while others do not. There are differences in how far codes are using the fast-track self-governance route introduced under the Code Governance Review (see above section 3.3). DCUSA does not include fast track self-governance at all because its governance is based on voting and does not provide for Panel decisions.

In summary, codes have evolved in an uncoordinated way over the years. No single standard of governance has been consistently applied across them. They have become

[18] Views differ on which approach is better. Citizen's Advice argue that an open number of alternates allows parties to use these tactically as a way of complicating and frustrating change, citing the example of UNC Mod 0501 on entry capacity rights at Bacton where a series of alternates to the original proposal presented the panel and Ofgem with a decision 'of almost comic levels of complexity' (Citizen's Advice 2015: 3). However, Cornwall Energy (2015: 2) argues that multiple alternates give Ofgem more flexibility in deciding how to make a final decision on a complex issue, giving the example of the transmission charging SCR in the CUSC where there were 26 alternate mods put forward in addition to the original, and contrasting this with the electricity balancing SCR process in the BSC. They conclude that: 'Under the BSC the working group has *de facto* control of the alternative and this mechanism has been used on many occasions to restrict the nature of the solutions explored' (*ibid*).

increasingly complex. Each code has its own collateral requirements. In addition each code has different arrangements for governance, including the change process.

The main concern about this situation is that lays a heavy burden on energy industry parties, and in particular smaller actors (Kuzemko 2015a). Just complying with codes and other licence conditions is a significant activity – one major supplier maintains a spreadsheet with over 3,000 line-items to ensure compliance. In its review of collateral and credit arrangements, Cornwall Energy (2014) took the view that it was difficult for new entrants accurately to assess the implications of credit arrangements on the costs of entry, and that changes in rules can have distributional impacts that are difficult to quantify.

Beyond mere compliance, active and effective involvement in code panels requires deep knowledge, technical experience and significant resource. In part this is due to the large number of mods raised. For example, there have been 241 proposed modifications to the CUSC since 2001, and 327 to the BSC since 2010. The UNC has been updated 275 times since 2005. Ofgem estimates that there are around 150 panel-type meetings a year, and on average each modification proposal may require around 4 working groups, with more complex changes needing many more (CMA 2015a: 8). But the challenge is compounded by the variety of governance arrangements across codes. The consultancy firm Cornwall Energy, which acts for small companies on some codes, argues that 'These different routes require participants to master multiple processes to understand what stage modifications proposals have reached. They are hard to rationalise for even well-resourced players, and confounding to smaller ones' (Cornwall Energy 2015: 2; see also e.g. British Gas 2015b, SSE 2015).[19]

In its submission to Ofgem's further review, Ecotricity (2015) stated that while a typical Big 6 supplier would have a team of 30 people just to work on compliance, it had a team of just six to cover not only industry codes but also wider wholesale and retail compliance, generation data, renewables analysis, and project implementation. Good Energy (2015) noted that the Smart Energy Code governance system reserves places

[19] SSE (2015) gives the example of DCUSA modification DCP178, which involved changes to the basis for charging suppliers for network services, as an example where despite the big distributional implications, two out of the Big 6 suppliers did not even vote.

for independent suppliers on sub-groups, precisely to try to ensure representation, but these suppliers do not have people with the right expertise to take them up.

The proportionately higher regulatory burden of codes compliance and participation on small actors in turn leads to two concerns. One is that the system is effectively biased in favour of the larger actors, which can resource participation that secures their interests. This point comes through in evidence given by smaller suppliers to the CMA's investigation. Cooperative Energy stated that:

> *'the resource required to engage with the [code change] process was completely disproportionate to challenger businesses. It believed that whether from desire or accident, the process was very biased towards the Six Large Energy Firms as challenger organisations do not realistically have the resources to push things through. Membership of these panels was dominated by the Six Large Energy Firms.' (CMA 2015b: 22)*

Utilita made similar arguments. Small supplier Ecotricity said that 'it had never used the process to change industry codes because of resource constraint. It believed that the modification panel was completely represented by the Six Large Energy Firms' (ibid: 23).

The second underlying concern is that is that the codes system deters potential new entrants altogether, and thereby suppresses competition and innovation. As an example of how small actors are hamstrung, Ecotricity (2015) gives the example of the BSC SCR P305 on electricity balancing reform. In this case the likely effects on small suppliers of the proposed changes (which focused on sharpening the imbalance penalty) were not estimated because the small suppliers in the BSC did not have the resources to carry out the required analysis. As a group they considered appealing Ofgem's decision to accept P305, but the process was too expensive and without analysis and data it would also have been risky.

The challenge faced by small code parties was one of the reasons that the first Code Governance Review was initiated in 2007. The main response to this problem in the review was the introduction of a Code Administrators Code of Practice (CACoP),[20]

[20] https://www.ofgem.gov.uk/sites/default/files/docs/2015/08/proposed_cacop_v.4.0_clean_version_0.pdf

intended to reduce complexity and help smaller participants. CACoP comprised a number of principles for code administrators to follow, including that they should be 'critical friends', meaning that they support all code parties but pay particular attention to 'under-represented parties, small market participants and consumer representatives'.

While there appears to be broad agreement that the CACoP has helped smaller actors to some extent, in practice it has been an unevenly applied and insufficient measure. Good Energy (2015: 2) says it has seen 'little improvement' in access to codes for smaller parties as a result of the CACoP. Some administrators have tried to give support, but the resource gap between large and small suppliers remains large (e.g. Good Energy 2015, Cornwall Energy 2015). At a University of Exeter Energy Policy Group workshop on codes governance in October 2015, an area of consensus was that the critical friend role should be strengthened and improved (IGov 2015). In its submission to the Ofgem further review of code governance, one independent generator who is a signatory to the BSC, CUSC and Grid Code stated that they were not even aware that code administrators were supposed to be acting as 'critical friends', which is in itself an indictment of the CACoP (VPI Immingham 2015). A quite widely noted criticism is that there is unevenness across administrators in how far they have responded to the CACoP, with some doing a lot more than others. EDF (2015) notes that principle 12 of the CACoP, which is essentially about oversight of code administrator performance, needs to be strengthened, with more publishing of results and more accountability.

A more fundamental issue with code administrators is that there has been no consistent approach to their appointment and their accountability. As the CMA (2015c: 465) notes:

> *'…there is no legal requirement that the code administrators be functionally or legally independent from the influence of industry participants and that there is not a uniform process by which code administrators are designated to certain industry codes, such as by means of a competitive tender process. There also does not appear to be a consistent method (as to both who pays and how much) by which the code administrators are remunerated for the services that they provide. Similarly, there is no consistency in relation to working arrangements and corporate purpose (eg not-for-profit vs commercial entities).'*

As a result, for code administrators which are not subject to licence conditions, compliance with the CACoP is not a legal requirement and therefore Ofgem has limited powers to direct them or sanction them for poor performance against the CACoP objectives.

4.2 Code objectives vs. policy objectives

We argued in section 2.2 above that the main challenge for the code governance system is that it needs to be fit for the purpose of adapting codes to major changes that have already begun in the energy system. A major issue here is that the codes have a set of objectives against which changes to codes are formally judged, but which differ from the policy objectives of government and the objectives of Ofgem. There is also a concern, voiced especially by consumer representatives, that the lack of an explicit consumer welfare objective means that panels can make recommendations without proper consideration of potential impacts of mods on consumers.

Ofgem's principal objective is to protect the interests of existing and future consumers (Utilities Act 2000). The Energy Act 2010 amended this to clarify that the interests of consumers included their interests in the reduction of greenhouse gases and ensuring security of supply. In the 2004 Energy Act Ofgem was given a secondary duty to contribute to sustainable development, and this was promoted to a primary duty in the 2008 Energy Act. So since the CGR, sustainable development and GHG emission reduction has become a stronger part of Ofgem's remit.

By contrast, code governance objectives still focus solely on the post-privatisation goals of ensuring effective competition through non-discrimination, cost-reflexivity and consistency with European regulation (Table 6). The sole exception is the new Smart Energy Code, which does have an explicit objective to facilitate innovation for a secure and sustainable energy system.

Table 6: Code Objectives

Title	Code objectives
Distribution Code	• Economical, secure and safe planning of network, • Facilitate use of network and specify standard of supply; • Establish technical conditions for entry to and exit from the network; • Formalise exchange of planning data; • Provide information to users of the network
DCUSA	• Efficient, coordinated and economical Distribution System • Facilitate competition in generation and supply • Compliance with European regulation
CUSC	• Facilitate effective competition in generation and supply • Compliance with European regulation
Grid Code	• Efficient, coordinated and economical system for transmission • Facilitate competition in generation and supply • Promote security and efficiency of transmission, distribution and generation • Compliance with European regulation
BSC	• Efficient, coordinated and economical operation of the GB transmission system • Promote effective competition in generation and supply • Promote efficiency in implementation of balancing and settlement arrangements • Compliance with European regulation
UNC	• Efficient and economic operation of the pipe-line system. • Coordinated, efficient and economic operation of (i) the combined pipe-line system, and/ or (ii) the pipe-line system of one or more other relevant gas transporters. • Efficient discharge of the licensee's obligations. • Securing of effective competition: (i) between relevant shippers; (ii) between relevant suppliers; and/or (iii) between DN operators (who have entered into transportation arrangements with other relevant gas transporters) and relevant shipper • Provision of reasonable economic incentives for relevant suppliers to secure that the domestic customer supply security standards are satisfied as respects the availability of gas to their domestic customers • Promotion of efficiency in the implementation and administration of the Code
SEC	• Efficient provision, installation, operation and interoperability of smart metering systems at energy consumers' premises • Enable the Data Communications Company[21] (DCC) to comply at all times with the objectives of the DCC and to discharge the other obligations imposed upon it by the DCC License • Facilitate energy consumers' management of their use of electricity and gas through the provision of appropriate information via smart metering systems; • Facilitate effective competition between suppliers • Facilitate innovation in the design and operation of energy networks to contribute to the delivery of a secure and sustainable supply of energy • Ensure the protection of data and the security of data and systems

Source: Code documents

[21] The DCC is a company set up by government to 'establish and manage the data and communications network to connect smart meters to the business systems of energy suppliers, network operators and other authorised service users of the network.'(https://www.smartdcc.co.uk/about-dcc/)

This situation leads to the concern that the assessment of code modifications by work groups and panels has neglected the interest of consumers[22] and sustainability, and that it is effectively impossible to get mods passed for the *direct* purpose of furthering those interests.[23] While changes to codes that improve the sustainability of the energy system might be made, this would be as a side-effect, because such changes can only be recommended if they also promote competition and improve the economic efficiency of the system. A case based on sustainability alone will not be successful.

The CUSC modification CAP148 aimed at guaranteed connection and priority rights for renewables discussed in section 2.2 above is an example. Davenport (2008) gives two similar examples aimed at facilitating microgeneration (BSC P213 and BSC P218) both of which were rejected because a majority of the mod panel took the view that they would not further BSC objectives c. (promoting competition) and d. (promoting efficiency). Likewise, if a mod recommended on the basis of efficiency or improved competition had harmful effects on sustainability, this latter aspect would not be relevant. Again, Davenport (2008) cites BSC modification P194 which improved economic efficiency but at the expense of renewable generators and smaller suppliers.

The gap between code objectives and higher policy objectives means that 'the assessment of proposals takes place against one set of criteria while the decisions are made against a different set of criteria' (Brattle Group/Simmons and Simmons 2008: 4). Ofgem does take its principal objectives into account when deciding whether to reject or accept recommendations on mods, but this is very late in the process, and is both an ineffective and inefficient way of fitting code governance to these objectives.

[22] Citizen's Advice (2015: 5) gives the example of UNC Mod 0535 where the proposal was to insert an extra 2 days into the switching time frame once a year, but where there was no consideration of the effects on or costs for consumers.

[23] In practice, the existing code objectives may work for or against innovation and a transition to a more sustainable energy system. For example, in the case of network charging, the objective of cost-reflexivity has meant that half-hourly metered customers on electricity transmission and distribution networks have received clear signals about peak network costs, and this has helped mitigate peak demand. However, cost-reflexivity may also penalise innovation. With long asset lives and network effects, energy networks have a strongly path-dependent nature. The cost of new connections for generation depends in large part on location in relation to the existing network, but this latter factor in turn reflects the history of the network. This is especially relevant for new types of generation, including wind and distribution-connected solar, that are in the 'wrong' place from the point of view of the existing network. Cost-reflexivity as a principle (as opposed to the socialisation of costs) effectively makes new customers bear all the costs of transition from the past to the future. The partial socialisation of connection costs for distributed generation has been imposed on the British codes system from outside, in part by European regulation. Another example is the requirement for network codes to aim for non-discrimination. In markets with increasing returns (which characterises most energy markets), then non-discrimination will actually favour larger more established incumbents, and tend to work against encouraging new entrants and innovation.

One response to this issue in the 2008 Code Governance Review was the introduction of the Significant Code Review (see above section 3.3), through which Ofgem could initiate modifications where it saw a need for major changes which would not be produced from within the normal code change process. So far there have been four SCRs, covering gas security of supply, electricity balancing arrangements, electricity transmission charging and faster switching. There appears to be a widespread view that SCRs have been a positive innovation. However, the experience with SCRs to date has shown that the mechanism also has a number of flaws.

One is that SCRs are taking much longer to undertake than was originally envisaged (CMA 2015c, Ofgem 2015a). The original expectation was that the whole process from inception of SCR to adoption of modifications would be under 20 months, but Project TransmiT on transmission charging took 36 months, while the electricity balancing SCR took 32 months and the gas security of supply SCR took 44 months (Ofgem 2015a: 7). Citizen's Advice (2015: 2) state that: 'While the SCR process appears to have been intended to allow the regulator to grab important issues by the scruff of the neck and drag them forward, its practical effect has been the opposite with these project conspicuously lacking momentum and making very slow progress.

One reason for this is that while Ofgem can do preparatory analysis, it has to instruct other code parties to actually raise and draft a SCR mod, and then take it through a further process of assessment and potential redrafting. This approach runs the risk of duplication in the Ofgem and industry-led phases (Elexon (to CMA), British Gas (2015a). However, more seriously there is no incentive for parties to raise or identify problems early on, which means they will then arose late in the process. This in turns leads to situations where Ofgem ends up rejecting proposals that it instigated itself - Citizen's Advice (2015) cite the example of BSC P304 and P314 on incentives for balancing where there were two years of 'intensive analysis and engagement' but core recommendations were overturned at the code implementation phase. Cornwall Energy argues that, given the potential for this kind of dysfunctional process, Ofgem needs to specify more clearly what it wants in an SCR (citing CUSC CMP213 on transmission charging as an insufficiently tightly specified example).

The other point about SCRs as a mechanism to ensure that codes keep up with policy change is that Ofgem cannot impose a modification (CMA 2015c: 468). It could possibly choose to impose mandatory timetables for the development of modification proposals within licence conditions but has chosen not to do so.

A second measure introduced as a result of the Code Governance Review was a requirement in BSC, CUSC and UNC licence conditions for panels to make an assessment of the carbon impact of a proposed modification where appropriate.[24] The impact of a proposed mod on GHG emissions is then entered into the cost-benefit analysis, which in principle has an influence on the final recommendations and decision. Again, however, there are a number of ways in which this requirement has had less effect in practice than may be thought. It is left to panels themselves, rather than Ofgem, to decide whether or not it is appropriate to conduct an impact assessment on GHG emissions in each case. No particular methodology for calculations of emission savings, time period and discount rate is specified, and different codes use different approaches. In cases where it is difficult to estimate the emissions impact of a mod, then this is not done.

4.3 Self-governance in a period of change

A final set of challenges for code governance is related to the principle of self-governance of codes as the industry goes through a period of rapid changes. As discussed in section 2.2 above, the key challenge for the code governance system is whether it is sufficiently flexible to adapt codes to be fit for these changes. Code governance has deliberately been placed in the hands of industry in order to provide stability for investment, since it means that the companies have a degree of control over rules that can affect their commercial interests, while at the same time they hold the necessary information for effective code management (see section 6.2 above). However, this arrangement has other consequences.

[24] https://www.ofgem.gov.uk/ofgem-publications/61741/ghgguidancejuly2010updatefinal080710.pdf

One is that the modification process can be very slow, not least because of deadlocks produced by the distributional effects of change.[25] Another is that the process of self-governance is open to capture by the more powerful interests in the industry. One area of contention in relation to capture is the degree to which code bodies are dominated by large powerful incumbents at the expense of new entrants.

Processes for determining the membership of code panels vary across codes, but generally involve a mix of elections from amongst industry parties (sometimes structured by type of company i.e. networks, suppliers, large and small generators etc.) and appointments of independents and consumer representatives. The view of some small suppliers is that working groups and to some extent code panels are dominated by incumbents. The CMA (2015b: 22) cites the case of Utilita, which:

> *'believed that the modification panels largely consisted of network operators and the Six Large Energy Firms, The composition of the panels had affected the rate of change over the last 20 years. Utilita believed that there was no desire for change with those that sat on the panels.'*

In its submission to Ofgem's further review of code governance, Cooperative Energy (2015: 2) argued that:

> *'The governance of industry code bodies are dominated by entrenched interests. Information and objectives of the drivers for specific changes are often very narrow or opaque. Only the large suppliers and transporters are able to resource and attend all code workstreams, and thereby largely control code development. Consequently regulators are inclined to seek and accord with the views of larger industry partners when framing policy or regulatory changes.'*

However, in its provisional findings, the CMA (2015c: 464) disagrees:

> *'the composition of industry panels does not show a fundamental bias towards the Six Large Energy Firms which would allow those firms to dominate code governance processes. Our current view is that the current representation of industry participants on code panels, in the light of the nature of each code, achieves a fair balance.'*

[25] Citizens Advice (2015) cite the example of a UNC modification (UNC Mod 0552) aimed at replacing fax by email as the valid form of formal communication between parties, which despite its trivial nature has involved over a year of consideration through 8 work group meetings. This mod was presented in August 2014, and went out for consultation only in September 2015.

Some submissions to Ofgem's further review and the CMA investigation also dispute that panels are unfairly dominated by Big 6 vertically integrated firms (e.g. SSE 2015).

The issue of incumbent dominance in the codes governance process has several dimensions and possible interpretations. First there is the simple issue of who is on the bodies governing the codes. Table 7 shows make up of main governing body of each code (in some cases this is known as the Panel, in others as a Board or Executive Committee). It shows that between 8% and 50% of these bodies are made up of members who work for the Big 6 energy firms that are vertically integrated in electricity. However, if the major regulated network companies, including National Grid, are also counted as incumbents then this group has a clear majority of members on all codes except the BSC and the SEC. These network companies are of course incumbents in a special sense, as they are not exposed to competition in the normal way. Nevertheless, it is arguable that they have a vested interest in the maintenance of the current situation. In addition, some of the panels have independent chairs, while others do not. Secondly, as discussed at length in section 4.1, beyond simple representation, effective participation in code panels is arguably harder for smaller actors due to the complexity of the codes themselves and of the code governance system.

Beyond the bodies at the apex of the code governance system there are also work groups and sub-committees where much of the detailed analysis is done, and the basis laid for decisions. In these bodies incumbents tend to predominate more clearly because resource constraints mean that smaller actors often do not have the expertise needed (CMA 2015b, DCRP 2015). Members of work groups are typically supposed to sit as industry experts rather than company representatives, but according to Good Energy (2015b: 6) this is rarely the case in practice. In the DCUSA, which works on a voting system, only suppliers and distribution network operators can vote within work groups (see Powercon 2015).

There is also a particular question about potential conflicts of interest from the fact that National Grid is at one and the same time an industry actor with interests in electricity transmission and gas transmission and distribution, and administrator of the CUSC, as well as the BSC via Elexon (which is owned by National Grid) (npower 2015).

Table 7: Code Panels/Boards - Number of members by category October 2015

	MRA	BSC	DCUSA	CUSC	D Code	Grid code	SPAA	UNC	SEC
VI supplier-generator	2	1	2	4	3	3	4	2	2
Network company	1	2	3	2[b]	6	10	2	5	2
Other Code rep.	1	0	0	0	0	2[c]	0	0	0
Other supplier	0	0	0	0	0	0	1	3	2
Other generator	0	1	1	2	1	3	0	0	0
Other network	0	0	0	0	1	0	1	0	0
Independent	0	8[a]	0	2[a]	3[a]	2	0	1	4
Consumer rep.	0	2	0	1	1	0	0	1	1[d]
Total	4	12	6	11	15	20	8	12	11
% VI	50%	8%	33%	36%	20%	15%	50%	17%	18%
% VI + network	75%	25%	83%	55%	60%	65%	75%	58%	36%
Independent chair?		Yes				No			

Source: Code websites, SSE (2015)
Notes:
Excludes secretaries and GEMA members
a Includes one independent working for Energy UK
b Only one network rep. is allowed to vote on a given issue
c Includes Irish SO rep.
d Currently vacant

Aside from the issue of how *interests* are represented in code governance, there is also the question of the representation of *ideas*. Most members of code panels and work groups have worked in the energy industry for many years. For example, the BSC stands out from other codes as having an unusually large number of independent members, and is seen by some as having a good level of discussion.[26] However, even here, three of these independents have spent long periods in their careers in Big 6 firms or regulated network companies. The risk is that code governance tends to reflect conventional wisdom.

In addition to arguing that code panels are dominated by larger energy firms, some independents have put forward a number of examples of mod processes that they argue show the working of entrenched interests and a bias to incumbents in processes. Some of these examples seem to show such bias in a straightforward way. Cooperative Energy (2015) cites DCUSA mod DCP 178, in which some DNOs sought to recover deferred revenue owed from 2013 from suppliers based on their current market share,

[26] Chris Alexander, Citizens Advice, personal communication

as opposed to market share in 2013. Since the market share of smaller suppliers has grown since 2013, this decision 'perversely subsidises' the large incumbents at the expense of independents. Ecotricity (2015) cited BSC mod P305, aimed at sharpening imbalance penalties, as an example of smaller players being marginalised. Another example might be BSC P272 on mandatory settlement for half-hourly metered consumers raised by Smartest Energy, which was rejected by the panel (although subsequently revived by Ofgem).

However, in other cases the outcomes of processes are more ambiguous. Citizens Advice cites BSC mod P315 aimed at getting more transparent data on market shares for different kinds of customer and including embedded generation, and thereby aiding competition. Some of the large incumbents pushed back, arguing that more information was not necessary for competition and that smaller companies would be advantaged.[27] However, despite this resistance, an even stronger alternative version of P315, additionally requiring publication of historical data, was recommended by the BSC panel and has now been approved by Ofgem.[28] Davenport (2008) gives the example of BSC mod P194 raised by National Grid aimed at making imbalance prices in the balancing mechanism sharper, arguing that this modification would penalise renewable generators and smaller suppliers who find it harder to remain in balance. However, in the event the BSC Panel recommended *not* adopting P194, partly on grounds that it might affect smaller companies unfairly. In this case, it was Ofgem that decided that P194 would be adopted, against the Panel's recommendation.

One way of interpreting the current situation is that incumbents control the codes governance process and that they have an interest in shaping codes, which are a form of regulation, so as deter entry by potential competitors as argued originally by Stigler (1971: 3), i.e. '…as a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit'.[29] Adding to complexity could be part of this process; once firms have invested in the collateral, credit lines, IT systems and personnel needed for participating in codes and code governance, there is no incentive for them to act to dismantle or reduce these requirements. There is also an ambiguity about who

[27] E.g. https://www.elexon.co.uk/wp-content/uploads/2014/09/P315-Impact-Assessment-Responses1.0.pdf - E.On
[28] https://www.elexon.co.uk/mod-proposal/p315/
[29] Although this would apply more to the Big 6 firms than to network companies, who are effectively protected from new entry anyway.

individuals on code panels and work groups are actually representing. In some codes they are supposed to be independent and not to further the interests of the companies they work for, but it is unclear how this is policed. In a workshop on code governance held by the University of Exeter Energy Policy Group in October 2015, some participants took the view that, in practice, Panel members play a dual role, one involving collective responsibility for efficient and effective working of the Code, and the other keeping an eye on how modifications will affect the commercial interests of their own companies (see IGov 2015).

However, some amongst the larger companies deny any Machiavellian motivations, and the concern about the non-participation of smaller actors and its implications for the lack of legitimacy of code governance seem fairly widespread.[30] On this interpretation the marginalisation of smaller actors under self-governance is more of an unintended consequence of the complexity and fragmentation of the system described in section 4.1 above. The mixed evidence on the fate of mods raised by smaller actors discussed above might be closer to this interpretation. It also appears to be the case that many even in the large incumbent actors struggle with the complexity and burden of codes, and there is a view that the process is in practice dominated by a few highly skilled individuals who have developed in-depth knowledge of codes and governance processes over many years, surpassing that even of code administrators, let alone that of the regulator or government. On this view panels are dominated by a small self-selected group with a vested interest in the *status quo* and who are in their own world.[31] Ecotricity (2015) states that mods are typically raised by individuals with extensive knowledge using highly technical language. Cornwall Energy (2015: 1) argues that:
'There is …a tendency for those that oppose a change to delay and to talk up costs and business impacts, and code administrators can struggle to challenge these sorts of contribution.'

The possibility of capture is closely related to some other concerns about the inability of the code governance to guarantee that industry codes will keep pace with market developments and wider policy objectives CMA (2015a, Ofgem 2015). One is that the current code governance framework supports incremental improvement but not well-suited to delivering strategic or transformational change (IET 2015). As British Gas

[30] Chris Harris, RWE npower, personal communication
[31] Chris Welby, Good Energy, Personal communication

(2015b: 6) puts it: *'Code change is not, and has never been intended as the means for conceiving visionary/ transformational cross-market redesigns which, to qualify for that description, will always cut across a number of industry codes.'*

Another is that as the energy system - and particularly the electricity system – develops, many new bodies and groups will become actively involved which at present have marginal or even no representation and participation in the codes governance system. Good Energy (2015) argues that codes were designed for era in which there were a few large industry parties, but that this is now changing. The Institute of Engineering and Technology has in particular highlighted the current exclusion of many relevant groups from the technical electricity codes (Grid Code and Distribution Code), including overseas system operators, manufacturers (for example of meters, electric vehicles and charging equipment), the ICT sector, the home and building automation industry, aggregators, end users (as both consumers and producers) and community energy groups (IET 2015). It is already the case that possible changes to codes that have consequences for domestic consumers with micro-generation are being discussed, without effective representation of those consumers.[32]

Concerns about a lack of incentive for actors organised under self-governance to make the changes to codes needed in an industry facing radical transformation are not new; they were voiced by Ofgem's governing body at the time of the first Code Governance Review (GEMA 2008). The response at the time was the innovation of the Significant Code Review. At the time, this move away from the self-governance principle (still limited in that Ofgem could not itself raise and draft a mod) was rejected outright by some large industry actors and accepted by others only with a number of caveats. Now, SCRs are accepted as part of the landscape, but it is clear for reasons discussed in section 4.2 above that there are still many problems with the SCR process.

[32] Citizen's Advice (2015: 4) cite the example of a draft of the European Emergency and Restoration Code that would have given TSOs powers to impose compliance obligations on domestic consumers with self-generation above a certain threshold and/or who were party to a demand side response arrangement.

5. A reform agenda

British energy codes and the codes governance system are clearly in need of reform. The new world requires a system that is open to new actors, does not require them having to read thousands of code documentation and understand large amounts of technical language to participate effectively, while at the same time still functioning as a system that delivers effective contractual arrangements between actors. Change will not come from within the current system, for all the reasons discussed at length in sections 4.2 and 4.3 above.

In this section we develop a reform agenda for the codes system. First, we consider what principles should be followed in rethinking codes governance, taking into account the ways in which existing governance arrangements have reflected the institutions, ideas and interests in the energy sector to date. Second, we review some of the proposals for reform being put forward by Ofgem, the CMA and various industry actors, and assess them against these principles. Finally, we develop a set of recommendations for reform of the code governance process and architecture.

5.1 Current proposals for reform

As discussed in section 3.4 above, code governance is currently being reviewed under two formal processes: (i) as part of the energy market investigation by the Competition and Markets Authority (CMA) and (ii) a further review of code governance by Ofgem. The CMA has reached a provisional conclusion that despite reforms under the CGR, code governance arrangements can lead to 'inconsistent or delayed outcomes' for code change and creates 'material burdens' on industry actors, especially smaller ones, all of which are creating an adverse effect on competition (CMA 2015c). The Authority (CMA 2015d) is proposing three possible 'remedies'[33], all relating to the relationships between bodies within the code governance set-up:

- Making code administration and/or implementation of codes changes a licensable activity. This reform is intended to allow Ofgem to monitor performance, give directions, and impose sanctions, with the aim of producing more consistency across codes and accelerating code changes, especially cross-code changes. This may lead to reduction in the number of meetings, and the streamlining of procedures and collateral arrangements, although the CMA does not expect the savings from the

[33] Possible Remedies 18a, 18b and 18c

latter would be substantial. The CMA explicitly rules out a consolidation of codes CMA (2015c: 460).

- Granting Ofgem more powers to project-manage and/or control timetable of the process of developing and/or implementing code changes. This reform would complement existing SCR powers and is aimed at enabling Ofgem to ensure that mod proposals that further consumer interests are implemented in a timely and efficient way.
- Appointment of an independent code adjudicator to determine which code changes should be adopted in the case of dispute. This reform is aimed at resolving disagreements more quickly. Such a body would need to take on Ofgem's powers to approve or refuse mod proposals in these cases.

Ofgem's further review of code governance takes account of the CMA process, and is aimed explicitly at incremental improvements to the reforms introduced through the earlier CGR. Launched in May 2015, the review published Initial Proposals in October 2015 for changes in four areas (Ofgem 2015b):

- Significant Code Reviews: a new power for Ofgem itself to lead the process of major code revisions from start to end, including the power to raise modifications itself.[34] Where Ofgem directs an industry code member to raise an SCR mod, then it can set a timetable for it to progress to a recommendation. This proposal clearly overlaps closely with the second of the CMA reform ideas.
- Self-governance: a shift to having to make the case why proposals should *not* be self-governance (rather than the other way round as at present). There should also be explicit criteria, ideally common across all codes, for deciding when a change should be handled under self-governance or not.
- Code administration: a number of changes strengthening expectations of code administrators and panels, including the requirement that all codes panels should have an independent chair, and that every code change proposal form should have a section on consumer impacts. Some of these proposed changes may overlap with the first of the CMA possible remedies.
- Charging methodologies: More developed informal pre-modification process, and a forward workplan for 'priority' charging areas.

Both reviews therefore accept the need for further reform of code governance, despite the changes already introduced under the original CGR. However, both of these reviews are also limited in scope. The CMA review is limited by the terms of reference of the wider energy market investigation, with a relatively narrow focus on competition and harm to current consumers. The Ofgem 2015 review explicitly considers only

[34] Under the UNC Ofgem already has powers under specific circumstances to raise mods and direct timetables, but this is not the case for other codes

incremental changes to the framework set up by the earlier 2008 Code Governance Review. Neither is based on a systematic set of principles for governance appropriate during a period of rapid change. Crucially, both of these official reviews do not consider potential changes to code governance within the context of reform to the governance of the wider energy system.[35] They do not raise the question of whether it is appropriate for Ofgem to be the body overseeing code governance, and whether Ofgem has the resources and expertise to undertake this task efficiently and effectively. They do not investigate whether the deeper function that codes fulfil, i.e. the governance of contractual relationships in the energy sector, is better served through the current approach of the detailed rulebooks that codes represent or through the approach seen in some other countries in which a brief set of principles sits on top of a series of bilateral contracts. The current reviews also do not question the fundamental principle of industry self-governance.[36]

For all these reasons we argue that a more systematic approach to reform is needed, and the rest of this paper attempts to develop such an approach. We develop our approach in a number of steps. First, in this section we consider and critique the principle of self-governance that underlies the existing arrangements for code governance. Second, we lay out wider principles for good governance of the energy system during a period of change. Third, based on those principles, we develop a set of recommendations for code governance based on those principles.

5.2 A critique of self-governance

Code governance in the modern British energy system was established in an era when, as Kuzemko (2015b) notes, the intention was to move energy out of the public policy sphere into the market. In the words of Nigel Lawson's much quoted 1982 speech:

> *'I do not see the government's task as being to try to plan the future shape of energy production and consumption….Our task is rather to set a framework which will ensure that the market operates in the energy sector with a minimum of distortion and energy is produced and consumed efficiently.'*

[35] The limited scope of these reviews also draws attention to the absence in the debate of the one actor that could and should take an overview of code governance within the wider context, i.e. government in the form of DECC.

[36] Although the proposal to allow Ofgem to raise mods itself under the SCR route moves away from this principle

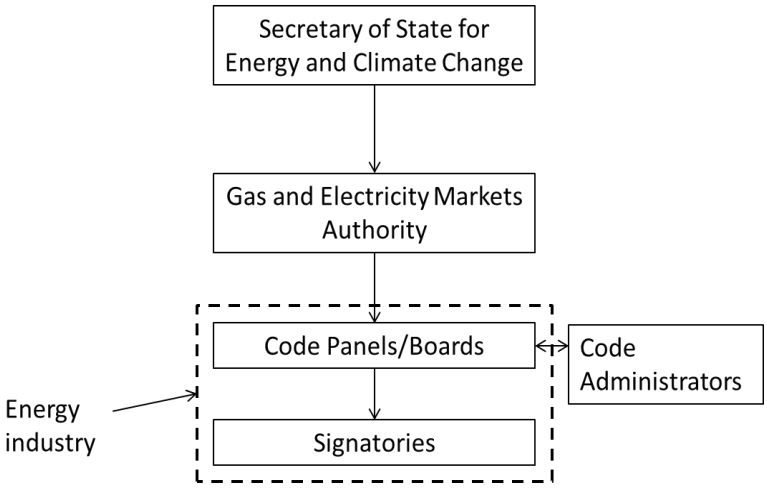
In this context, code governance was explicitly not designed to relate to energy policy, since energy policy itself was to wither away. Rather, codes were intended to be about providing rules that would make markets work. In this sense, the arrangements of code governance represented both a particular type of depoliticisation, i.e. from the public to the private sphere (Hay 2007, Flinders 2008).

Institutionally this was achieved through delegation, an approach to governance that has become widely established in the British state over the last three decades (Flinders 2008). While the regulator has an ultimate veto power, the process of administering and, most importantly, changing most codes lies mainly in the hands of industry participants. Code governance thus represents a case of *double* delegation, once from government to Ofgem and second from Ofgem to the industry itself (see Figure 1 – arrows denote line of delegation). The Competition and Markets Authority characterises this arrangement as 'a domain of limited industry self-regulation within the wider regulatory framework.' (CMA 2015c: 457).

Delegation always presents some form of principal-agent problem; in the case of code governance Ofgem is the principal seeking to get industry (as the agent) to manage codes, with the original objectives of promoting competition and ensuring efficiency. As Flinders notes in his study of delegated governance in the UK:

> *'Principal-agent theory …suggests that the decision to delegate will be based on a rational assumption about the anticipated benefits of delegation…However, whether these benefits are delivered in practice depends on a number of factors as well as an acceptance that delegation may well entail certain costs, or at the very least trade-offs.' (Flinders 2008: 50, emphasis in the original)*

Figure 1: Double delegation of code governance



In this case there were two anticipated benefits. The firstly was that self-governance helped provide *greater stability and certainty for companies and their investors*, since it prevented the regulator from enforcing arbitrary changes to codes, thereby making capital available at a lower cost. As Newbery (1999) notes, licences give licence holders greater protection of their property rights than legislation would do, since the latter can be changed by subsequent governments whereas licences are legally enforceable contracts that can be upheld by courts.[37] However, licences can be revoked if licence conditions are not met. Licence conditions, of which codes make up a crucial part, therefore determine the terms on which property rights are secured and the basis on which companies can do business and make profits. Codes have commercially important consequences, so the argument has been that the governance of codes and especially the way that codes are changed should be subject to the control of industry actors in order to ensure sufficient certainty. Since the greatest fear was of interventions driven ultimately by political factors, the limiting of powers even of an independent regulator can be seen as a particularly strong form of de-politicisation.[38]

A second rationale for industry code self-governance was *informational efficiency*; because market and network actors have a detailed knowledge of the industry and are more sensitive to market circumstances than the regulator, they will be speedier and

[37] Licences continue unless the Secretary of State gives 25 years notice, which he or she can do only 10 years after the licence has been granted.
[38] Flinders (2008: 236) argues that: 'Depoliticization has…formed a, if not *the*, central element within the logic of delegation in recent years.'

more flexible in setting and changing rules and such rules would be more practicable and more effectively policed (e.g. Gunningham and Rees 1997).

Given the governance regime established for codes in the 1990s on these principles, there are two questions that may be asked about those principles now. One is whether circumstances have changed in such a way that they are no longer relevant or complete. The other is whether they worked in the real-world as they were intended to in theory. In Flinders' terms, were the anticipated benefits of the particular approach to principal-agent delegation realised in the event?

It is clear from the extended discussion of recent debates above that the principles underlying the original construction of code governance are no longer sufficient for a period of rapid technological and institutional change. The energy policy paradigm in which efficient market operation was the sole objective has been left behind (Helm 2005, Kern et al 2014). As a result, in the words of Newbery (1999: 59), there is a need to reconcile 'the required durability and stability of regulation, on the one hand, with flexibility and adaptability on the other.'

The lack of responsiveness of code governance to changing circumstances and government policy objectives was, of course, the 'fundamental flaw' identified in the original code governance review critique (Brattle Group/Simmons and Simmons 2008). The main response was the creation of the Significant Code Review. Ofgem is now seeking to further shift the balance between self-regulation and intervention by taking on the power to raise and draft mods itself. However, below we argue that even this approach is not appropriate to the challenge.

In relation to the second question of how code governance worked in practice, the experience discussed at length above suggests that despite objectives of promoting competition, there is considerable evidence that codes and code governance act as a *de facto* barrier to new entrants, dampen competition and do not effectively protect consumer interests. Gunningham and Rees (1997) argue that a central challenge to self-regulation is that companies will act opportunistically, pursuing their own interests. Another way of seeing this problem is that, whereas the principal-agent approach assumes a singular relationship with one principal per agent (Flinders 2008), in practice staff and managers in energy corporations also have boards and shareholders as

principals, who incentivise them to pursue the interests of those corporations (e.g. Mayer 2013), in addition to the regulator.

At the same time, it is clear that while industry participants may have the expert knowledge and information requires for good rule-making, the assumption that this would in fact be the case could only be tested if the regulator had sufficient knowledge itself to make an informed judgement (Flinders 2008, Baldwin et al 2012). This point is particularly important for code governance, since for all mods except for the self-governance fast track, Ofgem must make a final decision. The fact that even some of the Big 6 code panel members feel excluded from the finer details of arguments about modifications conducted by a small number of highly knowledgeable code 'experts' implies that the regulator may sometimes struggle to assess whether a recommended code change is desirable or not.

5.3 An alternative approach

In the previous section we argued that the overall the self-governance approach within codes is based on a principle that is no longer sufficient as the industry faces a period of major change. It also rests on one assumption about the promotion of competition that has not been borne out by experience and on another assumption about informational efficiency that arguably has not been properly assessed. The basis for code governance needs to be rethought, on a wider set of governance principles. In this section we first lay out these principles, and then go on to suggest ways of realising these principles in a set of specific recommendations for reform.

5.3.1 Principles for code governance reform

There is fairly wide agreement on principles for governance in the regulatory sphere. In a recent comprehensive overview volume, Baldwin et al (2012: 26) identify five criteria for 'good' regulation based on 'arguments that have general currency when regulatory arrangements and performance are discussed in the public domain':

A. Is the action or regime supported by legislative authority?
B. Is there an appropriate scheme of accountability?
C. Are procedures fair, accessible and open?
D. Is the regulator acting with sufficient expertise?
E. Is the action or regime efficient?

In the specific arena of energy governance, Mitchell (2014) argues in a similar vein for inclusive rather than exclusive governance (i.e. rules and incentives that are open to all), clarity of who or what is in control and clear accountability on major issues, and an energy governance system that tracks change and is flexible to changing situations.

Judged against such criteria, the current codes governance arrangements look particularly weak on accountability and clarity of the line of decision-making, inclusivity and openness, regulator expertise and efficiency. The code governance regime is clearly backed by legislative authority, albeit indirectly via Ofgem. However, in relation to accountability, which in this context is about how far the regime can be made to respond to the policy and regulatory agenda set by representative bodies, there are clearly problems, as discussed in the previous section. Similarly, the complex and arcane nature of the code modification process cannot be described as fair, accessible and open.

There are also questions about efficiency. There are two interpretations of the claim for efficiency in regulatory governance (Baldwin et al 2012). One is that regulation leads to results that are judged as efficient, for example in terms of allocation of resources. Here, since efficiency is one of the key objectives common across codes, the existing governance system should perform well, although as Baldwin et al (2012) also argue, it is in practice rarely possible to improve efficiency without distributional effects. The other interpretation of efficiency is that the mandate is being implemented at lowest possible level of costs. Here the evidence on the fragmentation of code processes and administrative approaches discussed in section 4 above suggests that there is room for improvement.

Our approach to code governance reform is therefore based on four principles:

- Improving accountability and clarity of decision-making,
- Making code governance more inclusive, fairer, and open,
- Strengthening the expertise on codes in the appropriate regulatory body, and
- Improving operational efficiency

5.3.2 Reform proposals

Improving accountability and clarity of decision-making

Under current arrangements, the code governance regime has a distant and indirect route of accountability back to Parliament, via Ofgem and the Secretary of State. It is not well-integrated into the wider policy and regulatory regime, with different objectives from Ofgem's primary duties, which successive governments have in turn sought to clarify, with limited success.

The response to this problem has been the introduction of the Significant Code Review (SCR). However, the SCR has proven to be unsatisfactory for a number of reasons as discussed above in section 4. Because Ofgem cannot raise and draft mods itself it has to rely on a licensee to do this, and can only re-engage with the process at the point of final sign off. There is a duplication of effort on analysis. The overall process is very slow. Ofgem is now proposing that it acquire the right to raise and draft mods itself, which would give a clearer line of decision making and accountability, and address some of these problems. However, as indicated by some comments from industry actors, the question is whether Ofgem has the capacity and expertise to undertake this process effectively and efficiently. A further question relating to wider energy governance is whether overseeing the governance of commercial and technical codes is an appropriate role for what was originally supposed to be an economic regulator.

Our proposed approach is to retain the idea that the changes that need to be made to codes to facilitate policy change should be made by a body in the public domain, thus moving away from self-governance. However, we consider that this should not be done by Ofgem, which we argue elsewhere should be scaled back to focus more narrowly on its original remit of economic regulation (Mitchell et al 2015). Instead, **we would propose the creation of a dedicated code management body**.[39] This body would have a clear mandate from government (i.e. currently the Secretary of State for DECC) to ensure that codes are facilitating policy change in the energy sector, as well ensuring

[39] Interestingly the CMA's provisional findings suggests that locating code management elsewhere than in Ofgem is under consideration: '…Ofgem has opened discussions with DECC concerning whether Ofgem should receive further executive powers to direct changes to the industry codes in order to implement specific policy objectives. Ofgem has also posed to us that it may be necessary for there to be a single entity (either Ofgem, *or a newly created statutory body*) which is responsible for the development and implementation of modification proposals that are beneficial to consumers.' (CMA 2015c: 466, emphasis added)

sufficient investment and protecting the interests of consumers.[40] In other words, modification of codes to reflect policy change should be purely a technical process. In this sense, the dominant mode of change to codes would become akin to that which happens as a result of legislation, as with recent code changes following from the Electricity Market Reform encapsulated in the 2013 Energy Act.

The code management body would also be required to maximise simplicity and access for smaller actors. The baseline standard would be current best practice amongst code administrators. There are various options for where such a body should sit, but we consider that there is a good case for locating it within a not-for-profit, independent integrated (i.e. covering electricity, gas and heat) system operator (IISO) – see Figure 2. This is the approach that has been taken in Denmark, for example. Such an IISO body would have the technical knowledge and system oversight to be an effective adviser to government (possibly alongside some form of energy agency with the role of developing strategy), while still independent from commercial interests, and once policy is agreed at a political level would be responsible for implementation (a task that in many areas is currently undertaken by Ofgem, wrongly in our view).

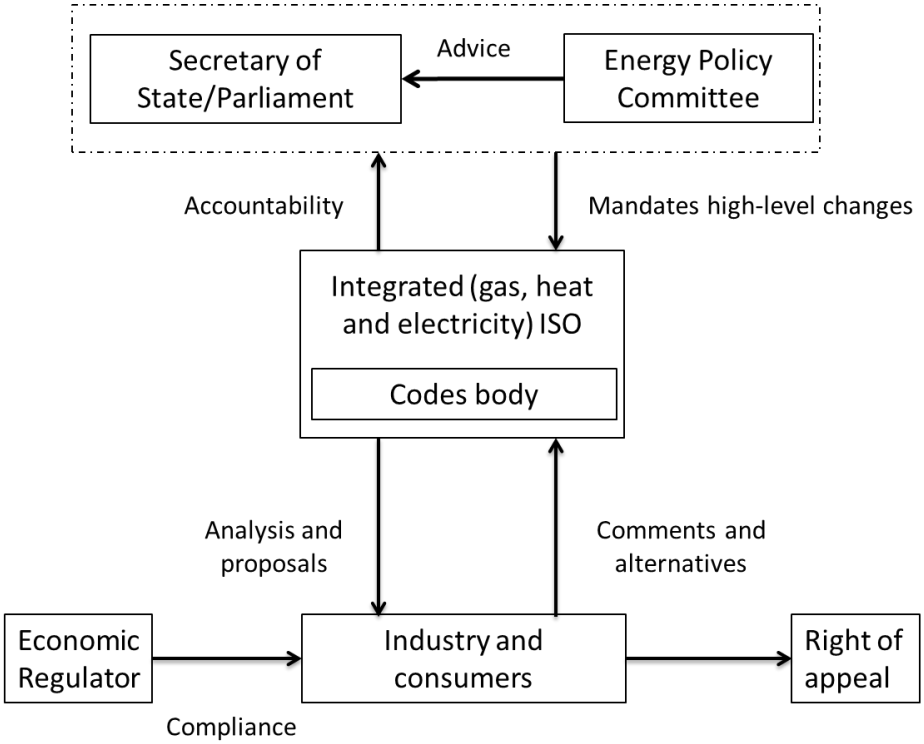
For such an approach to be effective, efficient and fair and to bring forth sufficient investment, the code management body would have to have sufficient capacity and expertise, and there would have to be statutory requirements governing consultation processes and a right to appeal. These points are discussed further below.

Such an approach would address many of the issues discussed in section 4 above. Some industry participants argue against the adoption of a sustainability objective in code governance on the grounds that existing objectives are specific while sustainability is too vague (e.g. EDF 2015). But the main issue at stake here is not that all code changes should somehow aspire to a general objective of increasing sustainability and facilitating innovation; rather it is whether codes are barriers to the achievement of the objectives of specific policies aimed at greater sustainability, set by government. In addition to overcoming the gap between code governance objectives and wider policy objectives, a single body, appropriately designed to avoid silos, would facilitate better

[40] In a workshop on code governance held by the University of Exeter Energy Policy Group in October 2015, one area of consensus was that there should be more explicit consideration of how modifications affect consumers, in the form of a required analysis in all mod reports (see IGov 2015)

coordination of cross-code changes. However, as with current code administrators, there is a danger that smaller actors do not receive sufficient support in the code change process, so there would have to be a strong set of incentives and rules to try to ensure that they do. This would be in addition to proposals below for creating greater fairness, inclusivity and openness.

Figure 2: Proposed reformed institutional architecture for code governance



Creating greater fairness, accessibility and openness

From the discussion in section 4.1 above it is clear that the complexity and fragmentation of codes are significant barriers to fairness, accessibility and openness in the codes governance regime. In approaching potential reform measures such as code simplification and consolidation here, it is important to engage with the arguments about how far industry codes are *inherently* complex.

Codes in Great Britain are detailed sets of multi-lateral rules that in some cases (for example the UNC) replaced a large number of bilateral contracts between industry actors. This means that they inevitably use legal and technical terms. The complexity and length of codes documents has increased partly because the industry has become more complex over time. For example, when the UNC was originally written, there were

four parties to it; now there are around 20, and the number of products covered (e.g. gas futures and derivatives) has also grown substantially. A commonly made argument is that this detailed specification of rules increases certainty, reducing the need for costly court cases to establish fair treatment and a level playing field. Less detailed broader principle-based codes would increase uncertainty because of potential ambiguity in interpretation. However, as codes have grown in complexity and length, the possibility for an actor that they are not in compliance (or that they would not know whether they were or not) with all the rules rises. Additionally, precisely because they are very detailed rulebooks, codes need to be amended frequently,[41] which leads to the problems described in section 4 above.

However, in other countries such as Denmark and Norway, rather than prescribing detailed rules for a large number of types of transactions, industry regulations outline principles for governing the same functions and are much shorter documents that use ordinary rather than legal language. They are also amended much more rarely. In Denmark, for example, Regulations B, C1 to C3 and D cover ground equivalent to the BSC, and together are 158 pages in length compared with the BSC's 891 (excluding subsidiary documents). Technical regulations TR3.2.3 and 3.2.5 governing the connection of thermal plant and wind, equivalent to the Grid Code (636 pages), are 183 pages combined. Energy regulations in Norway are similarly simpler and shorter (Brattle Group/Simmons and Simmons 2008). The details lying beneath principles are provided by operational bodies such as system operators or through bilateral contracts. However, it may also be the case that industry rules in countries such as Norway and Denmark do not need to be so detailed, since industry actors tend to be state companies, municipally-owned or cooperatives, which although commercial entities are less likely to actively seek loopholes and to game rules than the large corporations that dominate British markets and networks and help create an environment that is more contentious and litigious.

Ofgem is expressing considerable interest in the possibility of a general move away from detailed rules to 'principles-based regulation' (e.g. Ofgem 2015c). We have argued elsewhere that whilst we support principles based regulation we do not consider that it

[41] Interestingly, a similar result is found at the level of national constitutions – Tsebelis and Nardi (2014) find that amongst OECD countries longer, more detailed constitutions are amended more frequently than short ones. Longer constitutions are also associated with lower growth and more corruption.

goes far enough. We are proposing an 'output-based regulation' approach where the focus is on practice change. With this in mind, we would propose that a **review of whether or not it would be possible to establish principles for codes work in the UK should be undertaken**. In the interim, if we take the complexity and length of code documents as given, then the question is whether there are measures that would make such complexity less damaging for market actors, especially smaller one.

Here there are two relatively easy, simple steps that could be taken.[42] One is **the accurate translation of code requirements and code change proposals from legal and technical language into plain English** (which some but not all code administrators do). Each code should have a relatively short, accessible summary and sign-posting document that lays out the basic principles of the code, its objectives, the main actors involved and how it relates to other codes. Producing such a document and keeping it up-to--date would be one activity of our proposed code management body

A second is to provide better guidance to what part of the code landscape an actor actually needs to pay attention to. A new generator or supplier typically needs to be aware of only a small proportion of the entire body of documentation of the codes they sign up to; what they then require is **a 'one-stop shop' guidance service** to which parts these are. At present new entrants would typically need to hire a consultant with specialist codes knowledge to provide such a service. Again, a code management body should be doing this.

Code complexity also has implications for the idea of consolidation of codes. A number of serious proposals for some consolidation of codes exist (see above section 6.1), which should be developed further. However, while there may be some duplication that could and should be eradicated, if the complexity and length of codes in Britain is linked to their nature as detailed multi-lateral rules, then the overall gains from consolidation may be limited.

The second level of complexity and fragmentation relates to code governance processes, as discussed in section 4.1. Here, we would argue that a further benefit to

[42] These points were made at a Codes Governance Workshop organised by the University of Exeter Energy Policy group in October 2015 – see IGov (2015)

moving to a single code management body would be that it allows for the standardisation and simplification of the current range of different practices, collateral requirements etc., where beneficial. There would be a single website, etc. The danger of drawing all processes across a number of codes, assuming that they are not all consolidated into one, is the creation of silos in what becomes a larger organisation than any of the existing code administrators. This issue would have to be addressed through writing in the prevention of siloing into the core strategy of the body, and linking it to performance indicators and, crucially, incentives for staff.

A final issue is to do with inclusivity. An issue that will become increasingly important as the energy system is transformed is not simply that smaller code signatories are marginalised, but also, as the IET (2014) has argued, that there are actors, such as aggregators, electric vehicle designers, and community energy groups, which are currently completely outside the code system but who will be affected by it, and who should also have an input into code changes. The current self-governance system, a form of regulated 'club governance' (Moran 2003) means that those not in the club do not have a voice. Again, the approach of an independent code management body in the public sphere has an advantage here. Such a body will be able to consult not only with industry actors bound by the code, but with a broad range of other actors as well. This extends the current approach (where, for example, representatives from consumer organisations sit on panels), but it does so in a more useful form.

Strengthening the expertise on codes in the appropriate regulatory body

Creating a new body in the public sphere that would have a brief to lead code changes needed to facilitate government policy would no longer have to oversee industry undertaking that task but would have to have sufficient capacity to make code changes competently. In its own current reform proposals, Ofgem itself is proposing to take on this role, by expanding its powers within the Significant Code Review process. However, Ofgem is a very large, organisation which has taken on multiple goals and activities over the years, in which the resource for expertise in code matters will inevitably be vulnerable, especially since it is primarily an economic regulator and was not intended to be an operational agency. Our argument for moving this function from Ofgem to a dedicated body, probably located in a more operational actor such as a system operator, is (i) that it will be easier to make a link between the case for resources and the activity, (ii) that it will be easier for the code review process to draw on the expertise

that will sit in the independent system operator and (iii) that there is then separation between the body writing the codes and the body overseeing compliance.

We envisage that within the code management body there would be a number of teams each of which would be assigned to a code, but also project teams that could work across codes where major cross-code reform is needed. Wherever this function is located, it is clear that to do it effectively and efficiently, **sufficient resource and expertise will be required**. From the issues raised in section 4 above, the types of expertise needed are likely to include:

- detailed knowledge of electricity markets and networks, including supplier-consumer relationships and consumer behaviour
- detailed knowledge of new and emerging areas such as intermittent renewables, distributed generation, demand side response, smart metering and networks, iomethane, and hydrogen;
- detailed knowledge of existing codes;
- relevant legal expertise;
- analysis of economic impact;
- energy systems analysis;
- IT technicalities, and
- project management.

Better operational efficiency

Better operational efficiency is largely expected to result from moving to a single code management body, with more coordination between codes and more harmonised processes.

5.3.3. Mitigating regulatory risk

We believe that our proposal is a simple and straight forward solution to the new needs. However, even the more limited proposals in 2008 for new powers for the regulator that led to the Significant Code Review and the CMA's Remedy 18b calling for a backstop power for Ofgem to raise and draft mods were met with concerns and even outright opposition from the main incumbents in the industry.[43] For a number of reasons, many industry actors expressed concerns that regulatory risk would be significantly increased, which would undermine investor confidence.

[43] See the submissions at https://www.ofgem.gov.uk/publications-and-updates/code-governance-review-major-policy-reviews-and-self-governance-initial-proposals-8409 and https://www.gov.uk/cma-cases/energy-market-investigation

At the most basic level, the concern of industry is that a regulator (or some public body) that is able to write and adopt code changes is then both 'judge and jury. In its review of governance arrangements in other countries and in other sectors in the UK, the original code governance review critique document argued that the evidence suggested that in fact such arrangements were not unworkable:

> *'The fear of the regulator acting as "prosecutor and judge" does not generally seem to have perceived as a problem and in many instances the regulator has some form of right of initiative. This varies from being able to start proceedings on its own initiative e.g. in the US, Norway, Northern Ireland, UK rail and UK postal services, to being able to amend or substitute proposals e.g. Australia, and Finland.' (Brattle Group/Simmons and Simmons 2008: 73)*

The 'judge and jury' concern can be disaggregated into concerns about three aspects of phases of the process: the initiation of code change, the process of code change and the right of appeal. What is clear that a proposal for a code management body that raises, drafts and approves code changes will only be credible if there are robust and transparent processes and safeguards in place in all of these phases.

One specific concern is about short-term political pressures and 'the need to do something' leading to 'inappropriate' interventions (e.g. E.On 2008). The history of British energy policy is certainly full of such examples. However, it is important to be clear about what is proposed here. In his study of delegated governance in Britain, Flinders (2008), drawing on Hay (2007) makes an important distinction between three arenas or spheres: the political, the (delegated) public and the private. The proposal here is for code governance to be taken out of the private sphere and into the public sphere, but not into the political. Thus while we are proposing a *re*-politicisation of code governance here, it is in the specific sense of reconnecting code governance with energy policy, rather than in a general sense of bringing politicians back in directly.

This is why in our proposals a code management body would be part of a wider governance framework in which a cross-party political energy agency developed and helped create political consensus about a long-term strategic direction, and a mandated but arms-length independent system operator coordinated delivery (see http://projects.exeter.ac.uk/igov/new-thinking-fit-for-purpose-gb-energy-governance/). Such an arrangement is important, because it would generate a **clear and transparent**

link from policy to major code changes. The final decision on policy would be made by the Secretary of State, following advice from the energy agency. Once made, policy would be implemented mainly through the IISO, with code change as part of that process. The proposed code management body would have clear mandate on a case-by-case basis, rather than general powers.

From this perspective, there are additional benefits to locating powers to initiate code change in a new body rather than in Ofgem. First, Ofgem is supposed to be an arms-length regulator, independent of government, rather than a delivery body. Second, Ofgem has a particularly close relationship with network companies through its role as economic regulator, but many changes to network codes actually affect network users and customers as much of not more than networks. Separating economic regulation and code governance would therefore be desirable. Thirdly, by removing Ofgem completely from the upstream end of the code governance process, it can then play the role of providing final sign off or veto in a truly independent way. However, this would be in its scaled-back capacity as an economic regulator with a narrow set of duties than now, so its decision would be made on the basis simply of whether the code changes were consistent with legislation and policy.

A second fear is that a code governance process led by a public body would impose arbitrary changes on industry without consultation. To counter this fear (and in fact to guard effectively against any attempts by incumbents to recapture the process by lobbying), there would need to be **a robust and transparent consultation process and decision-making process**, laid out in statute. Likely major code reviews should be signalled as far ahead as possible. There is also a concern that even a well-intentioned public body leading code change may impose misconceived code changes, or changes with unintended consequences, because they do not understand the detailed working of the industry.[44] Here, credibility can only be established over time by ensuring that a code management body does in fact have the necessary knowledge and expertise. This is also why these aspects are so important.

[44] REW npower (2015) cites the example of Project Nexus, where it considers that Ofgem set unrealistic milestones because it did not sufficiently understand the complexities of IT change. Another example would be the electricity balancing SCR, where it was only once the md had gone through the BSC process that it became clear that what Ofgem wanted might have anti-competitive implications.

Steeping back from the detail of these concerns, there are in fact incentives for government to design a good process for code change led by a public body. The first is that in the absence of a robust and transparent process that is properly followed, the government is open to Judicial Review.[45] The second is the broader fact that governments fear disruption and a collapse in investment in the energy sector even more than does the industry, so they have a strong interest in making code changes that work effectively.

Finally, industry incumbents are concerned that any move away from self-governance to regulator-led or publicly-led code governance should be balanced by a **robust right of appeal by individual companies or actors**, although this should be seen as a last resort. Under the Energy Act 2004, code decisions can be appealed to the Competition and Markets Authority. This could simply be continued.

[45] As currently happens: RWE undertook Judicial Review of a decision on transmission charging, but lost in July 2015

6. Conclusion

In this paper we have argued that industry codes are an important element in the energy governance structure in Britain. At the same time, if energy governance is to be fit for purpose in a period of rapid transformation of how energy is produced and consumed, the codes system needs to be fundamentally reformed.

Despite the reform efforts arising out of the 2008 Code Governance Review, the codes system remains highly complex and fragmented, and one which in practice discourages new entrants. The ability of the change process to respond to new directions in policy is hampered by a gap between code objectives and the high-level aims of that policy. However, the most fundamental problem is the self-governance approach, which is dysfunctional for a period of system transformation, and has in practice led to slow and difficult change in codes.

Recognition of these challenges has meant that code governance reform is back on the agenda, both in Ofgem and in the energy market investigation currently being carried out by the Competition and Markets Authority. However, these reform processes have limited remits, and we have argued that a more thorough-going approach is needed.

Our proposal is that code governance be located in a new code management body, with a clear line of accountability to government and a clear remit to create codes that facilitate a sustainable and efficient energy system. We argue that such a function is best located not within Ofgem, but rather within a not-for-profit independent system operator. Such a code management body would provide integrated and coherent oversight of all codes, providing clear guidance to industry participants on the principles of the codes and a ‘one-stop shop’ assistance function for new entrants and smaller actors. It would need sufficient capacity and expertise to carry out these functions efficiently and effectively. The ultimate aim is to make the process of writing industry codes a simple, transparent and technical one. We also argue that with careful design of such a system, regulatory risk can be mitigated. This working paper is intended to stimulate further debate in this area, and we welcome comments and feedback.

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