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## The governance of industry rules and energy system innovation: The case of codes in Great Britain

Matthew Lockwood <sup>a, \*</sup>, Catherine Mitchell <sup>a</sup>, Richard Hoggett <sup>a</sup>, Caroline Kuzemko <sup>b</sup>

<sup>a</sup> Energy Policy Group, University of Exeter, Penryn, Cornwall, TR10 9FE, UK

<sup>b</sup> Department of Politics and International Studies, University of Warwick, Coventry, CV4 7AL, UK

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### 1. Introduction

Transforming energy systems so that they are environmentally sustainable is now a central goal for policy makers around the world. It is widely understood that innovation has a central part to play in this transformation, not only in specific low-carbon generation technologies and fuels, but also in systems and networks, in consumer behaviour and in business models (EIA, 2015; Mitchell, 2016; IEA, 2016). While they are somewhat different in nature, such changes are as significant as those seen in the telecommunications sector over the last three decades, if not more so.

Analysis of the measures required to support innovation for sustainability in the energy sector has tended to focus on key policies, such as subsidies for renewable energy technology development and deployment, and increasingly in areas such as new approaches to regulation for 'smart grid' investments. Such a focus is understandable, as these headline policies do play an essential role. However, because such policies require an enabling environment to be effective, it is also the case that *all* the governance elements of energy systems need to be adaptable to change. If this is not so, the danger is that governance arrangements at a deeper or more background level, whether in planning rules, network charging, technical standards or trading arrangements, may make transformation slower, more costly or even impossible. Moreover, it is *a priori* plausible that such 'deep' governance arrangements will

tend to reflect incumbent technologies and interests, and so are likely to be a barrier to innovation in the energy sector (Geels, 2014; Lockwood et al., 2017).

In this paper, we consider one element of this deep governance challenge, in the form of arrangements for amending the detailed commercial and technical rules found in electricity, gas and sometimes heat networks and markets around the world. To bring out the key issues, we examine in some depth the case of these rules in Great Britain (GB),<sup>1</sup> where they are known as energy industry codes. Such codes are effectively detailed multilateral agreements that define the terms under which participants can access networks and operate in markets, and are linked directly with licences.

As in other countries, the codes system in Britain 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 was largely delegated to the energy industry itself. This decision may be seen as a particular choice of institutional design. However, institutional designs also typically create unintended and unanticipated effects, and become outdated in changing environments (Pierson, 2004).

One particular concern about the GB codes governance system is that over time it has produced high levels of complexity and fragmentation which act as barriers to new entrants, and which both arise from and reinforce dominance by large incumbent actors in the process for changing codes. A second concern is the ability of the codes governance system to respond to the coming transformations mentioned above. Complexity and fragmentation makes systematic and non-incremental changes slow and difficult. There is also a gap between the direction of high-level policy and the formal objectives of codes. We argue that these problems produce a high risk of regulatory capture, including informational capture, and of regulatory inertia, and that the codes governance system in Britain militates against the innovation required for transforming the wider energy system.

\* Corresponding author.

E-mail addresses: [m.lockwood@exeter.ac.uk](mailto:m.lockwood@exeter.ac.uk) (M. Lockwood), [c.mitchell@exeter.ac.uk](mailto:c.mitchell@exeter.ac.uk) (C. Mitchell), [r.d.hoggett@exeter.ac.uk](mailto:r.d.hoggett@exeter.ac.uk) (R. Hoggett), [C.Kuzemko.1@warwick.ac.uk](mailto:C.Kuzemko.1@warwick.ac.uk) (C. Kuzemko).

<sup>1</sup> Because Northern Ireland has its own regulator and industry codes, the focus here is on Great Britain rather than the UK.

These problems have been recognised in recent attempts to reform the codes system, but these attempts remain piecemeal and insufficient. Most fundamentally, it is argued here that as long as the principle of ‘self-authored regulation’ adopted in the 1990s remains in place, codes will slow and sometimes prevent the realisation of policy change. Here, we develop an alternative agenda for reform, proposing a clearer mechanism for aligning policy and code change, reducing the risk of capture and addressing information asymmetries, while also addressing concerns about regulatory risk. We also reflect on the wider lessons from the British case for the governance of detailed energy industry rule changes in other countries.

The following section briefly lays out a conceptual framework for thinking about code governance as institutional design. In Section 3 we look at the case study of British industry codes, including formal governance rules and the problems that have arisen in practice, relating both back to the conceptual framework. Section 4 considers proposals for reform. In section 5 we place the British case within a discussion of governance frameworks for detailed rule change in other countries. Section 6 concludes.

## 2. Theoretical approach

Detailed commercial and technical rules in energy systems specify how actors should interact. These rules are governed in systems which vary across countries, but that in each case specify who can change these rules, under what conditions. Here, we argue that as such governance systems stipulate ‘rules that assign normatively backed rights and responsibilities to actors and provide for their ... enforcement’ (Streck and Thelen, 2005: 12) they can be seen as institutions. These institutional arrangements will tend to be quite stable, with their design tending to reflect principles that seemed appropriate at the time of any major structural reform in the energy sector of the country concerned. In the case of Britain, many elements of the codes system date from the 1990s, and were designed for conditions of technological and institutional stability. A widespread institutional design principle for the governance of these detailed rules, found in many countries, is some form of *delegation*. That is, the job of changing rules is rarely if ever undertaken by governments directly, but is delegated to another body, often a relevant system operator in gas and electricity, and sometimes an energy regulator.

As described in more detail below, the British governance arrangements are somewhat unusual in that they involve a ‘double delegation’, first from the government to the energy regulator, and then from the regulator to industry. These arrangements are sometimes described as a form of self-regulation, but since they actually involve regulations with the power of the state behind them, we argue that they are better described *self-authored regulation*.

However, there are limits to the efficacy of institutional design for a number of reasons. These include the fact that institutions have multiple effects, the likelihood of unanticipated effects, and changes to the wider policy environment (Clemens and Cook, 1999; Pierson, 2004). Moreover, despite any initial intentions, the working of institutions also tend to reflect and maintain inequalities of power ‘by facilitating the organization of certain groups while actively disarticulating others’ (Thelen, 2002: 92, see also Pierson, 2000). These considerations point to the possibility that over time, and especially during periods in which policy is changing rapidly, particular institutional arrangements in the energy sector will become dysfunctional, even if they were originally well-designed.

The design of code governance was based on assumptions about a set of anticipated benefits of delegation, but as Flinders (2008: 50)

points out ‘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.’ Here we consider such costs and trade-offs in three areas: regulatory capture, informational capture and regulatory inertia.

One rationale for the design of British code governance was that it would minimise regulatory risk, by making code modification subject to the control of industry actors and preventing the regulator from enforcing arbitrary changes. In theory this should reduce the cost of capital, and so ultimately benefit consumers (Newbery, 1999). On the other hand, because self-authored regulation involves a relatively high degree of independence of industry from government, it also increases the risk of *regulatory capture* (Shleifer, 2005; Wren-Lewis, 2011). Industry drafting of regulation involves a high degree of *de facto* control over the decision-making context, stability of arrangements (avoiding the costs of continuous lobbying), and the use of the monopoly powers of public authority, thus going far beyond attempts at simply influencing the regulatory process (Mitnick, 2011). The risks of distortion are potentially very strong. It is unlikely that any single company will manage to extract rent purely for itself through a code change, since it faces all the other companies directly in the modification process. Rather, the concern is that incumbents will collude to use code governance effectively to make entry by potential competitors more costly and difficult, as suggested by Stigler (1971).

Within the British code governance arrangements, and frequently also in other cases, the regulator has a final veto over code changes, which is in part designed to act as a check on the possibility of capture. This check will, however, only be effective if the regulator has sufficient expertise and information to judge effectively whether rule-writing powers are being abused or not. In the British case, an important second rationale for the institutional design of delegating authorship of regulations to industry was informational efficiency (Huber and Shipan, 2002; Flinders, 2008). However, this rationale arises from the existence of asymmetric information. In the standard principal-agent framework the agent (company) is better informed than the principal (regulator), for example about true costs of network services. The central problem for the regulator is then how to extract information from companies (this is the rationale for incentive regulation, e.g. Laffont and Tirole, 1993).

The same problem exists in code governance, since the regulator has to make a decision about modifications in the exercise of its veto, based on information and analysis. If it is to be an effective check on incumbent capture of rule-writing, the regulator has to have enough information and expertise to make correct judgements about whether specific modifications are distorted (Flinders, 2008; Baldwin et al., 2012). The more that the regulator has to depend on industry itself for analysis and information the higher the risk of ‘*informational capture*’ (Wren-Lewis, 2011), involving partial, selective or misleading representation. The more complex an area of activity, the more difficult avoiding capture is likely to be (McCarty, 2013).

A third issue is that independence of decision making, along with formal restraints that are hard to change, is built in to the design of regulatory frameworks precisely to protect against the potentially changing agendas of future governments. However, the disadvantage of such arrangements is that it can create *regulatory inertia* when wider policy goals, or other aspects of the environment such as technology costs, change (Faure-Grimaud and Martimort, 2003).

## 3. The case of code governance in Great Britain

We now turn to the operation of the British code governance

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