A 'delivery-democracy dilemma'? Mapping and explaining policy change for public engagement with energy infrastructure

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Abstract

There is a need to understand the changing provisions that governments make for public engagement in energy infrastructure decisions, but the existing literature is deficient in focusing mainly on single case studies. In response, we conduct a multi-sectoral, comparative analysis for the first time to assess how UK governments have engaged publics, applying a novel mapping methodology that is systematic, longitudinal and cross-technology.Moreover, our focus embraces mechanisms of consultation and support measures (e.g. community benefits) and seeks to explain patterns of change using a pragmatic sociology framework. Findings indicatetrendstowards a reduced scope for public engagementalongside expanded encouragement of community benefits, butalso important sectoral differences. On-shore wind movedtowards giving local decision-makers significant control over decisions. Gas-fired power stations experienced continuity, with central government controlling consents and limited interest in community benefits. Fracking facilities received intense promotion ofcommunity benefits, alongside incremental moves to restrict local decision-making. We argue that the patterns observedreflect government beliefs about the scope for depoliticisation in concrete situations, in which the conjunction of technologies, sites and publics affecthow and whether arrangements for public engagement change. These results raise challenges for how researchers seek to connect energy transitions and democracy.

'We need a system that always says 'yes' to the right sorts of development ... which delivers the infrastructure, transport and energy we need to thrive in this new century of ours ... We also need a system that is much more democratic' (Pickles 2011)

1.0   Introduction

Decision making about new energy infrastructure – power stations, major grid lines, hydrocarbon supplies – is caught up in a series of worldwide challenges.Firstthere is the need tofashion systems of provision that address the so-called energy 'trilemma', by beingenvironmentally sustainable, secure and affordable. Second is the sustained call for greater public engagement in decision-making around energy, frequently advocated by researchers and civil society groups,often under-scored by international conventions. Taken together, these challengesraisemajor questions around whether, how far and in what forms public engagement is functional for the delivery of transformed energy systems (MacKerron 2009).Such questions in turn reflect enduring tensions aroundthe roles of democracy in navigating society through ecological crisis (Ophuls 1973; Jacobs 1997; Stirling 2014).

Given these challenges, governments are searching for institutional 'fixes' that meld public engagement and legitimacy with energy policy agendas informedmainly by political priorities and particular forms of expertise (Sovacool 2017).One effect is that decision making procedures for energy infrastructure in many countrieshave undergone rapid and repeated changes (Marshall 2012), with new arrangements for citizen participation bound up with a host of other measures intended to promote, *inter alia*, social acceptance of new infrastructure projects by 'affected communities'. In the UK, diverse combinations of public engagement measures have emerged, includingmoves to speed up consenting decisions, expand the use of pre-application public consultation,,and channelling'community benefits' to places that host facilities.The ambit of public engagement is also affected by steps that extend or retract the authority of national political representatives.A complex picture is developing, exacerbated by the way that changing public engagement practices are being applied differently to different energy technologies, such thatonshore wind, other renewables, frackingand nuclear power are each subject to particular combinations ofmeasures.The diversity of changecreates challenges for all actors involved, and governments aredecried for their 'inconsistency' (Carrington 2014; Toynbee 2014; ENDS Report 2015).

The concern that drives theanalysispresented here is that the ways in which states actually seek to orchestrate public engagement in energy infrastructure decisions has important implications for the relationships between energy transitions, democracy and justice but rarely receives adequate research attention. Infrastructure projects are constitutive of broader energy pathways, a source of significant environmental, social and economic impacts, and a tangible focal point for public concerns, yet energy infrastructure decision-making processes are rarely subjected to systematic appraisal. Indeed, such an exercise falls down the cracks between the major bodies of research. Burgeoning research on energy transitionshas a conceptual armoury for bridging micro- and macro- forms of change, with 'the social' an embedded part of 'socio-technical regimes' that characterise dominant forms of (energy) provision (see Verbong and Loorbach 2012). Yet, its origins mainly in studies of technology

and innovation means that analystsrarely foreground publics as significant actorsor engage with research on infrastructure siting and conflict (Cowell 2017).At the same time, mostof the voluminous research into infrastructure siting and public responses tends to focus on single cases and particular technologies and frames its goals in instrumental terms (e.g. 'getting to yes' or promoting 'social acceptance'), rarely connecting siting decision-making with broader political and technological changes (Aitken et al 2008).In this, most researchers echo wider tendencies in public engagementresearch, where only to a limited extent have researchers integrated macro- and micro- perspectives, to locate the 'diffusion of participation' within a specific historical context (Moini 2011, p.156).

This paper makes claims to empirical and conceptual innovation. Empirically, we systematically map for the first time changes to public engagement policiesin the UK over time and, importantly, across different energy infrastructures. Rarely have analyses of public engagement in energy infrastructure decision-making sought to encompass such breadth, and exploit the potential insights of cross-technology comparison (although see Owens 1985). Furthermore, in its approach to understanding the ways in which governments have sought to orchestrate 'public engagement', the analysisembraces modes of consultation and participation in consenting decisions alongside other mechanisms for securing public support – we call them 'support measures' - focusing on flows of financial benefits to communities.Most infrastructure siting research focuses on one set of mechanisms or the other, not how they have developed together. We aim to address this gap.

Clearly, however, decidinghow to'map' change is not innocent of theory, and the analysis seeks to be innovative in the conceptual framework that it uses for interpreting change in public engagement practices. We have sought to move beyond the more familiar frameworks of political-theoretic or ethical critique (Metzger et al 2015; Moini 2011). Instead, we have drawn upon frameworks that seek to deal seriously with the diverse (energy infrastructure) objects being considered and the 'situations' they create, and that can understand how engagement practicesand other measures,infrastructural objects and publics come together to stabilise social institutions(or fail to do so).This concern with what happens in concrete situations also provides a way of interpreting how macro-level changes in public engagement practices evolve. Our approach maps shifts in public policy instrumentation, afterLascoumes and Le Galès (2007), as appropriate to our broad-scale analysis of policy change, but seeks to achieve some sensitivity to the diverse energy infrastructures at play by drawing on the 'new' pragmatist sociology of Boltanski and Thévenot (2006).In recognition of the delivery-democracy dilemma that introduced the paper, our mapping gives particular attention to shifts towards openness or closure around energy infrastructure decisions, contributing to understanding of the links between project decision-making, democracy and energy transitions(Smith and Stirling 2007).

The context for our analysis is the UK and England in particular, which is of heuristic value for a number of reasons. Firstly, the UK exemplifies many of the challenges faced by states that have achieved significant expansion of renewable energy (supplying 25% of electricity in 2016), yet face difficult decisions in determining how more profound decarbonisation might be achieved. Secondly, the UK government has subjected public engagement procedures

around energy infrastructure to numerous changes in the period under examination, 2008-2017, thus providing an active sphere for analysis.Thirdly,government and industry figures routinely introduce any energy-related announcement with rhetoric about the massive scale of infrastructure investment required: for example '(e)nergy makes up over half the total infrastructure investment pipeline ... and close to double the amount for transport'[1].

In the next section of the paper, we review contending approaches for interpreting how governments seek to orchestrate public engagement, teasing out implications for energy infrastructure and transitions. Following this, we outline our mapping framework and sketch our methodological approach. We then proceed to set out our findings, first summarising the prima facie patterns in the way that public engagement and support measures have changed and then offering interpretations of the outcomes that we see. The paper ends with conclusions and recommendations for further research.

2.0   Interpreting changes in public engagement in energy infrastructure decisions

2.1   Alternative conceptual perspectives

Analysts of energy infrastructure siting conflicts have often treated the 'rules' governing public engagement as a static backcloth to the analysis of social responses. Too rarely has consideration been given to the shifting ways in which governments seek to orchestrate the procedures and ambit of public engagement, the knowledge claims that may legitimately bear on decisions, and how this affects the power of different actors (Aitken et al 2008). Nevertheless, there are conceptual frameworks – mostly used outside the energy sphere –for understanding the mechanisms and directions in which institutional change unfolds.

Researchers seeking to understand the historical evolution of public engagement practices have tended to adopt one of a number of critical lenses. Some draw upon political economy,for exampleMoini(2011), who sees the increased deployment of participation as mainly about the legitimising power of economic elites under neo-liberalism. The key pattern is thatpublics are involved in policy-making and decisions in ways that compensate for the social, economic (and environmental) consequences of pro-market policies but leave the main dogma of competitiveness unaffected (Moini, ibid; Cooke and Kothari 2001).Scholars using Foucault's work on governmentalityposition the deployment of community involvement as a means of social regulation although, as Marinetto (2003) argues, have tended to underplay the importance of central government interventions.

Such critical perspectives have been applied to understand the evolution of land use planning policy, which provides a series of apertures for publics to engage with infrastructure decisions. In the context of infrastructure planning, Legacy (2016) reviews how narratives of 'urgency' and 'exceptional circumstances' help legitimise changes to decision-making processes that 'truncate and minimise the opportunities for disruption' to infrastructure implementation (2016, 2). Such 'foreclosure of the political' (Legacy 2016, 2), or

'depoliticisation' (Wood and Flinders 2014), may include reducing spaces where critical engagement around more fundamental social and environmental concerns such as need or alternatives could take place, and shifting decision-making to technical arenas(see also Owens 2004). Privatisation in many spheres of infrastructure provision, including energy, have also handed spheres of decision-making to independent bodies (like regulators) and private companies, also reconfiguring the scope for democratic processes, public engagement and challenge (Cotton and Devine-Wright 2010; Groves et al 2013).

Critical theoretical perspectives clearly offer useful insights for grasping the connections and disconnections between democracy and energy transitions, but a number of issues are left unresolved. First, analysts tend to construct theoretical arguments wholly in terms of social relations, without giving much importance the physical objects involved (Beauregarde 2011); in our case, to different energy infrastructures. Yet as researchers from a 'techno-politics' position increasingly argue, the *objects* in focus can affect how and why certain things become political, in the sense of becoming open to contingency and debate, while others do not (Barry 2002; Marres and Lezaun 2011), and co-construct the publics involved (Chilvers and Longhurst 2016).As noted by Callon et al (2009), some projects give rise to controversies where arguments 'overflow' the parameters created by project promoters and the formalised channels of decision-making, and government efforts to orchestrate public engagement approaches fail to contain the dispute.

Second the evaluative stance of many theorists often assumes that closure of democratic debate or opportunities for public participation is alwaysundesirable and problematic. However, analysts of sustainability transitions have recognised that steering our way towards a more sustainable low-carbon energy system requires that there are aspects and moments when the direction of travel and choice of technology must be opened up for deliberation and contestation of alternatives, and periodswhere there needs to be a degree of closure, to provide a stable institutional context for delivering change (Smith and Stirling 2007).

These dilemmas around infrastructure delivery, public engagement and the relationship to wider democratic steering point us to our final concern with many critical perspectives, which is that the emphasis on domination fails to deal adequately with the 'pluralistic character of the modes of assessment and attachments operative in social life' (Boltanski 2011, 47). The existence of plural, incommensurable principles creates ambiguities about how best to orchestrate public engagement practices vis-a-vis other means of legitimising decisions.

2.2   *Insights from pragmatist sociology*

What is required is a framework that can help us to understand how and when governments seek to orchestrate the relations between public engagement and infrastructure delivery, the fate of these efforts, and which is sensitive tothe energy infrastructure objects at stake. We propose the pragmatist sociology of Boltanski and Thévenot (2006; Boltanski 2011) as apotentially useful approach. Their centralconcern is with the making, un-making and re-making of social integration, and concrete 'situations' are given prime importance. Situations are instances where disputes have emerged about the relationship between person-states and

things-states, in turn generating societal desires to re-establish order. This focus provides an alternative to critical theories (after Boltanski (2009, p.20) in which situations tend to be neglected either in favour of 'the dispositional properties of actors' (p.20) or 'structures', ignoring the disputes in which actors are engaged.

In their conceptualisation of situations, Boltanski and Thévenotadopt a post-foundational perspective in viewing society not as one single social order but rather 'indeterminately structured by a plurality of conceptions and embodiments of common good and "worth"' that coexist' (Fuller 2012, 647).These 'orders of worth' are historically evolving but, at any point in time, represent 'major legitimate frameworks within western society' (Fuller 2012, 649) for making well-founded, legitimate arguments. Each provides a particular way of determining the common good (Arts et al 2017) but they are incommensurable. Table 1 summarises the orders of worth framework, with the orders of 'markets' (the pursuit of private economic interest), 'industrial' (the pursuit of instrumental effectiveness), 'civic' (using transparent, public procedures') and 'fame' (where public opinion is what matters) having particular relevance to energy infrastructure.

[Insert Table 1 near here]

This conception of society and situationsunderpins akey feature of their approach - the attention given to the justifications of actors in shaping the possibility of coordination. Actors are not ciphers for particular interest positions but inhabit multiple worlds simultaneously, and are capable of responding flexibly to situations through their justifications. Their scope to do so is constrained, however, since effective public justification requires meeting standards of justifiability, which means choosing particular orders of worth to use in the defence of particular solutions.

As Table 1 captures, each 'order' has a higher common principle, then bestows worth on particular persons and objects able to articulate them, but it is the 'tests' associated with each order that is especially germane to our concern with decision-making. In Boltanski and Thévenot'sframework,the concept of 'tests' refers to processes of verification by which the legitimacy of actions and objects are judged, to resolve disputes and re-establish agreement (Boltanski 2011, p.27). Testing processes can be institutionalised to varying degrees and it is the efficacy of testing processes in resolving situations that generates order or instability. Where it is accepted that the peoples and things implicated in a situation can be addressed within the tests located wholly within a specific order of worth (e.g. 'the market can decide') then solutions appear relatively simple, though there is still the possibility of something external(e.g. non-market factors) 'contaminating' the test, calling its legitimacy into question (Annisette and Richardson 2011). Sometimes however, disputes concern which mode of justification is relevant to the particular situation at hand. This can create a need to forge some kind of compromise without coming to any foundational agreement on the pre-eminence of a particular form of worth, and these compromises may be built into some kind of composite arrangement. Such compromises may become durable in that they are seen as effective, but all compromises have the potential for fragility, because the failure to resolve the fundamental clash of principles leaves them vulnerable to being exposed and denounced as a sacrifice of one order or another.

History suggests that governing energy infrastructure development continually generatestensions between multiple orders of worth, as disputes erupt about whether social institutions are a sufficiently good 'fit' with the situation. Consequently, the arrangements of decision-making – as a set of tests – are likely to face pressure in their construction and maintenance, as they seek to stabilise some kind of compromise between worths, objects and subjects from different orders.For example, giving more space to market orders (i.e. allowing developers flexibility to choose technologies without the need for public justification), or the efficient achievement of targets, technically-derived (industrial orders) diminishes the space for transparent tests of 'public interest', built on civic orders. Treating national government ministers as qualified persons for adjudicating consents frames the role of other, more local collectives. Importantly, the compromises may be more or less precarious in different situations, based on the person-states and things-states at play. Situations may arise that render previous tests unstable by calling their compromises into question e.g. pollution incidents, or the formation of organised pressure groups focused on issues that have been compromised 'out' of test procedures.

Boltanski and Thévenot's framework is high-level andrequires careful application to particular research fields, with one particular aspect warranting comment. Boltanski and Thévenot are silent on the scale of the polity to which they refer (Honneth 2010) but, in practice,seeking to re-scale public engagement or support measures - affording more importance to actors at local, regional or national scales -is an important means by which states seek compromises between the different orders of worth embodied in making infrastructure decisions i.e. different issues can be open for discussion in national arenasversus specific projects in particular locations(Owens 2004). In constructing tests for determining energy infrastructure projects, one should be alert to how far the state tries to standardise national tests or allow localvoices and conditions significant weight.

3.0   Methodology

3.1   Mapping parameters

The approach of Boltanski and Thévenot provides a potentially useful framework for addressing our key questions:

1) How have decision-making procedures and support measures for energy infrastructure in the UK changed in the period 2008-2017?

2) How have the changes been justified and how have the publics to be engaged been represented?

3) How has the state struck balances between openness and closure around what can be subject to debate, and what does this say about how publicengagement intersects with energy transitions?

The research was designed to assess and compare developments in public engagementand support measures across an array of energy infrastructures, both novel and extant, over time,

facilitating interpretation of both wider, temporal changes and technology-specific patterns. Given our prime concern with the policy level, categories are required for basic mapping of changes in public engagement practices. Here we draw on the categories of public policy instrument from Lascoumes and Le Galès (2007), but adapt them to reflect key questions in the instrumentation of public engagement. Table 2 provides a summary.

[Insert Table 2 near here]

Adopting Lascoumes and Le Galès' categories is useful, in that it alerts us to how instrument choice can be constitutive of policy choice and change. They also invite the expectation that any category of energy infrastructure will be subjected to public engagement practices that combine a diversity of instrument types i.e. they providecomposite tests that compromises across multiple orders of worth (after Boltanski and Thévenot 2006).

In line with our pragmatist conceptual approach, we also examine the following in particular:

- Justifications – arguments that are used to publicly rationalise existing or new modes of public engagement in energy infrastructure decisions-making, also noting those spheres in which justification is seen as unnecessary;
- Openness/closure – the extent to which changes to public engagement procedures affect the range of issues that are legitimately open for discussion;
- Conceptions of the public – whether represented as citizens to be engaged or as recipients of benefits, as individuals or as part of some collective (e.g. 'local communities').
- Scale – whether changes to public engagement or support measures, and the justifications for them,seek to afford more importance to social collectives at local, regional or national scales.

3.2   Parameters and data sources

Although the research adopts a much wider, multi-sector comparative research design than most studies of public engagement in energy infrastructure, it is still necessary to delimit what is included. For 'energy infrastructures' we focus on those that constitute the gamut of energy generation investment coming forward in the UK: electricity generating stations powered by fossil fuels (mainly gas), nuclear and various renewable energies, and fracking facilities. We do not include the plethora of smaller scale infrastructure – micro-renewables, smart meters, energy efficiency investments etc. – directly in our analysis. (Of course, whether infrastructure is considered sufficiently large and impactful to require consent from government is itself an important boundary to the scope for public engagement – a compromise, in Boltanski and Thévenot's terms (2006), between civic and other orders of worth.)To keep the breadth of the research manageable, we also exclude certain necessarily connected infrastructures, such as electricity transmission and distribution networks and waste management facilities, though we recognise that these have often been controversial.The focus is confined to changes in public engagement practices in England, given the diversity of practices across the devolved governments of the UK[2], and encompasses changes since 2008, following implementation of the Planning Act 2008, though with an awareness of arrangements previously in place.While many policy changes

for energy infrastructure are entangled in wider shifts in land use planning policy (see Tait and Inch 2016), we focus on changes that have energy infrastructure specifically as their object.

Our primary data source for identifying changes to public engagement practicesand support measures, and the rationales presented for them, is documentary. We use the public documents associated with the policy changes: speeches announcing and justifying potential changes and the policy statements that explain and implement the actual change. Policy statements and speeches areimportant sources of justifications that, as above, form part of the labour of achieving change and institutionalisation in potentially disputatious situations. As Boltanski (2011, p.2) suggests: the exercise of power is 'subject, at least formally, to requirements of justification that impart a certain robustness to them'. Ministerial speeches from June 2010 to June 2017 were identified from the website 'https://www.gov.uk/government/announcements'. An initial contents analysis search was conducted for all speeches referencing 'energy' or 'planning and building', identifying those in which 'energy', 'public', 'community', 'infrastructure' or engage' were mentioned. This first stage allowed us to organise the data so that a more fine-grained, thematic analysis could be performed (Braun and Clarke 2006). This examined the justifications employed by policy makers when discussing changes to decision-making procedures. Table 6 below gives the full set of relevant speeches.[3]

4.0   Findings and discussion

4.1   Summarising the changes

Tables 3 and 4 capture the main changes seen in the data.

Turning first to changes in the ways that publics are engaged as citizens, through consultation and participation mechanisms, a number of patterns stand out. Firstly, there are important areas of continuity. Within the UK, energy infrastructure has long been treated as an exceptional category of built development in that consent decisions on 'major' projects are taken by central governmentrather than local councils, with local councils and the public being engaged as consultees. This persisted through our period of analysis, with a long-standing aspect of this compromise being that 'major' for generating stations is taken to be over 50MW installed capacity. There is continuity too with other categories of infrastructure, such as electricity generation projects below 50MW (i.e. most renewable energy projects) and fracking facilities, in that the prime decision-making body for all applications is local councils and publics have opportunities for consultation at this level. Central government only takes a role when individual decisionsare pulled in for their own determination, either by calling them in or 'recovering appeals'[4], an issue discussed further below.

Such basic continuity belies significant changes. The Planning Act 2008 included steps to 'speed up' the consenting regimes for major electricity generation and grid lines, fixing in statute and regulation the time allowed for key stages of the process, but also requiring pre-application consultation (Lee et al 2012; Marshall and Cowell 2016). Initial arrangements in

which consents were determined by an independent 'Infrastructure Planning Commission' (IPC) were revoked in 2011, to return consenting powers to central government Ministers. There are also specific technologies that depart from this wider pattern, notably on-shore wind where projects over 50MW have seen their status as 'major' projects ('Nationally Significant Infrastructure Projects' [NSIPs]) removed, such that all projects of whatever capacity are determined by local councils.

Incentives-based instruments have seen dramatic changes, as Table 4 shows. Across an array of energy technologies from the 1990s onwards (Cowell et al 2008), there has been a growth in *ad hoc*, voluntary provision of various forms of benefits by infrastructure developers to communities; usually geographical communities deemed affected in some way by the project. Overlaying this, we have seen measures by government (and sometimes energy sector trade associations) to steer this activity through additional instruments, for example the creation of voluntary guidelines, embodying prospective standards for the levels and procedures for delivering community benefits. However, governments have not generally instituted legislation or regulation to mandate action. This may reflect the contested legitimacy of providing community benefits, with critics claiming that the issuing of payments (reflecting market orders of worth) risks contaminating the virtues of transparent decision-making made on planning criteria (rooted in civic orders of worth). A key discourse of critique here is that of 'bribery' (Cass et al 2010). Governments have been able to be firmer in its instrumentation in promising to channel *public* funds arising from infrastructure development to nearby communities – notably prospective royalties from fracking, use of the seabed by offshore wind, or increasing local retention of business rates.

Two further aspects of the deployment of community benefits warrant comment. Firstly, one can see a shift in justifications issued by government (Table 6). From claims that delivering benefits to communities will foster more positive responses to development – a kind of market logic, inferring that payments incentivise assent (Cowell et al 2011; Conservative Party 2010) - there has been an increasingly developed narrative that communities should share the benefits of energy infrastructure development, in which conceptions of distributive justice are more prominent. With fracking, for example, Ministers have stated 'local people should feel they are getting their fair share from the development of shale' (Fallon 17.07.2013) and for wind, communities should 'see real benefits from the facilities that they host' (Hendry 25.05.2012) (see Table 6).

Secondly, government and corporate activity around community benefits has been decidedly uneven between types of infrastructure. Community benefits have been an *ad hoc* practice with gas-fired power stations and for renewables other than wind. Government became much more active in promoting community benefits with fracking and, until 2015, with on-shore wind, including bold provisions for community shared ownership. However, although successive governments accepted the advantages of community-owned energy projects, they have received relatively little positive treatment in the consenting process. Policy remains ambiguous over how far the extra social advantages of such ownership forms are legitimately considerable in the tests of consenting decisions (Strachan et al 2015).

Looking at justifications more widely, other patterns stand out. Overall, the frequency of ministerial speeches addressing aspects of public engagement and support mechanisms is highly uneven across time and infrastructure technologies, reflecting the emergence of initiatives and concerns with particular types of infrastructure at particular times. Moreover, publics, infrastructure and instrument change is justified in different ways in different contexts. Looking at speeches by planning ministers, the key narrative is that 'planning processes should be locally controlled' because 'when local people have a real say over development they are more likely to welcome it' – an instrumental justification for public engagement (Pickles 10.01.2015). Simplified guidelines, less 'red tape' and removal of 'top down bureaucracy 'have been presented as supporting this positive relationship. However, planning ministers almost never referred to energy infrastructure when talking about public engagement – the object concerned was 'development' in a broad sense and often housing in particular. By contrast, energy ministers tended to represent planning as a 'burden' on infrastructural development, thus justifying changes, and public engagement was not something that pertained to the civic tests ofinfrastructure consenting processes, but to community benefits[5]. Common to almost all references to publics, however, was the scalar representation of them as 'local' and 'communities' - localising and collectivising narratives that seek to meld engagement and delivery by presenting publics as uninterested in wider strategic issues. Only for fracking do we see efforts to justify community benefits as serving constituencies at community, local council and regional scale. In none of the speeches were publics represented as 'energy citizens' (Devine-Wright 2006) in relation to the national or systemic level.

4.2   Openness and closure

In their justifications for the Planning Act 2008, Ministers were keen to stress that the new system 'puts the public at the centre of the process' (Blears 2008), but the various changes to public engagement processes, summarised in Table 5, require careful interpretation. Certainly, the legislation made new, statutory provision for pre-application consultation with local communities, though this must be read alongside the ways in which particular issues have been opened or closed for discussion across the period under analysis.

A key innovation of the 2008 Act was the introduction of National Policy Statements, designed to provide clear statements on government policy and, especially, to specify the national 'need' for certain categories of project ('Nationally Significant Infrastructure projects') and thereby justify not allowing this issue to be re-opened in individual project consents (DECC 2011). It has long been the case that issues of need for energy infrastructure are not 'normally' legitimate objects for discussion or objection in consent decisions (O'Riordan et al 1988). Arguably, the NPS represent an intensification and formalisation of this position, creating a 'planning cascade' for major infrastructure projects in which need is resolved before individual project consents come forward, in order to reduce consenting processes to seek to details of siting choice and impact (see Owens 2004). Further scrutiny of the NPS shows how such justification for excising need from individual project consents compromises civic with market orders of worth: need cannot be challenged because it is for

developers to judge the kind of infrastructure that they consider viable or feasible, and not for government or others to question it (DECC 2011, para 3.3.6).

However, at national level, opportunities have been created for institutions of representative democracy. Parliament can scrutinise and approve draft NPS, which are also available for public consultation. The Localism Act 2011 returned the final decision on infrastructure projects to government Ministers from the independent IPC, which it abolished. Ministers were keen to reassure developers that 'there will be no unnecessary delay in decision-making as a result' (Hendry 14.06.2011): industrial and market orders underpinning delivery would be pre-eminent.

In other respects too, the issues open for discussion are contained, though the practices vary between technologies. For NSIPs like gas-fired power stations, the NPS rules that it is inadmissible for the consents process to assess the GHG implications of projects against national carbon reduction targets (DECC 2011, para 5.2.2). It is for developers to take a market-based view of the weight to attach to carbon reduction in the light of the incentive instruments of the EU Emissions Trading Scheme (ETS). With fracking, actions have been taken to greatly extend developers' rights of access to the sub-surface environment, thus removing underground issues from arenas of public contestation, to more firmly enforce the 16 week performance standard for local planning authorities to make decisions, and to give the government specific grounds to call in local council decisions or recover appeals for its own determination (Stokes 2016).

Overall one could say that UK energy infrastructure consenting has experienced various forms of closure of what is permitted for public discussion in conjunction with increasing promotion of community benefits, with justifications emphasising distributional fairness over procedural fairness (Cowell et al 2011; Goodkoep and Devine-Wright 2016). Onshore wind is the exception. Not only have all consenting decisions been passed to local arenas, but Government has also made it a requirement of consent that there is demonstrable local public support (DCLG 2016). The construction of tests in which 'local people have the final say on windfarm applications' (Conservative Manifesto 2015, 57), in which national direction has been treated as the contaminating element and been removed, is not applied to any other category of energy infrastructure. Industrial and market orders of worth are marginalised, even though such logics might support on-shore wind as the cheapest, most straightforwardly investable form of renewable energy.

4.3   Interpreting the patterns

The large number of changes captured in Tables 3, 4 and 5 constitute policy turbulence, and have attracted criticism for their inconsistency (Carrington 2014; Toynbee 2014; ENDS Report 2015). But can a cross-sector, cross-instrument, longitudinal analysis of what has been happening tease out plausible explanations?

Certainly, theorists interested in how neo-liberal ideologies foster depoliticisation could find material to support their positions. Echoing Moini (2011), we see steps to remove key issues like 'need' from openpublic contestation while reserving significant decision-making

flexibility for commercial actors, with such closure serving the creation of a more certain investment environment (Legacy 2016; Marshall and Cowell 2016). Energy infrastructure decision-making seems to echo wider trends in UK land use planning, in which neo-liberal thinking informs the view that planning (and thereby the apertures for public engagement it contains)must be streamlined, contained, and de-risked (Tait and Inch 2016). As one Minister stated (Jones 30.06.2014), '(t)here is absolutely nothing more crucial to efficient infrastructure development ... than a benign, flexible and practically-focused planning system'.Viewed through the orders of worth at stake (Boltanski and Thévenot 2006), such tests from the civic world must not unduly undermine market or industrial logics, and so must be compromised against.

Analysts have also explained the growth of community benefits as arising from the same logic, whereby communities are paid a 'price' for hosting infrastructure but have less voice (Cowell et al 2011). Again, market orders of worth have won out over the civic. This may explain why (after Moini 2011), we can see justifications for instrument changes that detach public concerns from debates about wider development trajectories or issues of need and attach them to 'local issues', notably by constant reference to publics as '(local) communities', implying that they should be interested only in localised siting concerns.

However, the problem with adopting these kinds of critical perspectives is that the changes analysed do not amount to blanket closure of the scope for contestation or political intervention. While Government has often sought to contain what is discussable within consenting processes – a key moment when controversy could arise – the will to remove opportunities for representative political engagement is less evident. Ministers took back responsibility for major infrastructure consent decisions, and have also been active in intervening in local planning decisions on smaller scale energy infrastructure through 'recovered appeals' and 'call ins'. The Black Ditch wind project, proposed for a site near the M5 motorway in Somerset is just one of many wind energy decisions recovered for determination by the Minister and declined consent (Toynbee 2014). Recovered appeals have been an important element in granting consents for fracking facilities, overturning local council refusals, as at Preston New Road, Lancashire. Ministerial control has also been used to override project consenting procedures in the past.[6]

At a broad level one can say that objects matter, and that energy infrastructure, because it is bound up with the potential controversies surrounding the energy trilemma, makes it difficult to depoliticise decision-making (Kuzemko 2014), in the sense of removing influence from those that can claim national electoralmandates. Given this, one might interpret the evolution of public engagement practices as simply a concomitant of energy policy i.e. as a reflection of the kind of energy infrastructure projects that central governments believes constitute an efficient and effective part of the UK's future energy mix. The diverse directions of instrument change are simply 'the tactical use of regulation' (Stokes 2016, 986) in the pursuit of development objectives. So, nuclear power and gas are seen as integral to future electricity supply mixes(DECC 2011), and to this end have been subjected to new, speeded-up decision-making regimes and, with nuclear, various provisions for community benefits.

The very different arc travelled by public engagement processes for onshore wind can also be interpreted as reflecting energy policy shifts. Prior to 2010, expanding on-shore wind was seen as critical to helping the UK meet renewable energy targets, and so was subject to a flurry of reforms to speed up decision-making, reinforce positive planning decisionsand foster social acceptance.Ministerial justifications supported these actions, arguingthat it should be: 'socially unacceptable to be against wind turbines in your area – like not wearing your seatbelt or driving past a zebra crossing'" (Stratton 2009). From 2010, after a change of government, political consensus around renewable energy expansion and on-shore wind in particular began to fragment.From 2015 Ministers took the view that there was already sufficient on-shore wind energy investment in train to meet the short-term 2020 renewable energy targets set by the EU. With delivery concerns dissipating,government acted to shift public engagement measures towards a set of arrangements that allowed, effectively, a local veto over all new wind projects. Official interest in fostering greater social acceptance or public engagement faded; ministers ceased making speeches justifying their actions, and specific policy initiatives on shared ownership (see Table 4) have been all but ignored. When added to the curtailment of market support for on-shore wind, large numbers wind energy projects in the development pipeline failed to proceed.Undifferentiated economistic accounts, seeing shifting decision-making as driven by government desires to foster jobs and growth, have difficulty accounting for the diverse experiences of these different technologies.

4.4   Responding to situations

The explanations above recognise the ways in which states exercise 'strategic selectivity' in how they govern, but still reduce the shifting patterns of public engagement to a linear product of energy policy, realised in some 'higher' analytical realm, then translated into institutional change. It ignores the various ways in which the situations created around energy infrastructures – or fears about potential situations - have generated questions about the appropriateness of prevailing public engagement arrangements. Looking at the changing instruments, and at the justifications, we can see governments working to maintain stability around facets of energy policy, but also struggles to engineer compromises between goal delivery, public engagement and legitimacy. A number of examples stand out.

Nuclear power is a pre-eminent example of how a history of controversy across a number of arenas has driven changes to public engagement procedures. The creation of the fast track NSIPs process under the Planning Act 2008 and reduced ambit of public examinations can be seen as designed precisely to avoid the protracted inquiry that affected the UK's last new nuclear power station, Sizewell B,which sat for 340 days between 1982 and 1985(DTI 2007; Hatchwell 2015). For on-shore wind, the intense policy innovation around community benefits makes sense in relation to governments responding to mounting controversy arising from wind farm projects. In 2015, political party control of government shifted to the Conservatives, more sensitive to the increasing electoral salience of rurally-based public opposition, with concerns growing about the costs of market support to renewables (Geels et al 2016). The resulting new orchestration of public engagement procedures ceased upholding tests in which compromises favoured market and industrial orders of worth over local public

engagement, in favour of arrangements that emphasisedrestrictive, locally administered civic tests.

Concerns to resolve situations with legitimacy can also restrict government in the kinds of compromises it strikes.The Government clearlywishes to promote fracking, seeing it as an 'urgent national priority' (House of Lords Economic Affairs Committee 2014, para 258), and has extolled its benefits to justify adjustments to the regulatory regime (Stokes 2016). Equally evident, however, is the clamour of opposition from a large number of protest groups in prospective fracking locations, national environmental NGOs and sections of political parties – arguably more broadly based than opposition to onshore wind. The potentially volatile situations around fracking projects in Sussex and Lancashire may explain why government moves to adjust the instrumentation of public engagement in project consenting have been *relatively* modest to date (see Tables 3-5). The unexpected event of earth tremors from a fracking operation at the Preese Hall 1 site, Lancashire, also created a situation in which safety needed to be seen to receive careful attention. At the same time, the Government has given significant attention to community benefits, reflecting a belief, perhaps, that a positive public view needs to be created, by acting on the incentives affecting publics at multiple scales: householders, local communities, local planning authorities and regional elites. However, the more major step of removing decision-making entirely from local councils is evidently not a step that has been taken (yet) for fracking, as it has for other energy infrastructure and a growing array of other development types (Tait and Inch 2016).[7]

As noted above, Governments have used the mechanism for recovering appeals to implement policy, often overriding local decisions. Appeals might be seen as arestricted form of compromise within Boltanski and Thévenot's framework: ostensibly responding to the exceptional nature of the situation (the site and/or project) but without violating the integrity of 'normal' tests or explicitly changing policy. Like all compromises, such actions are open to being denounced because of the inappropriate treatment of orders of worth, and so it has proved. In the case of on-shore wind, Minister's pulling in applications for their own determination mainly to refuse them was widely decried as playing politics by seeking electoral advantage i.e. the 'fame' order of worth was undermining a test that ought to respect civic orders of worth (Merrill 2014; Toynbee 2014). With fracking, and the Preston New Road example, the intervention of central government has been decried for undermining the principle of 'localism' (Vaughan 2016).

Comparative research highlights not only that energy infrastructure technologies can vary in their propensity to create controversy, but that other cross-cutting, geographical factors are important in shaping 'situations'that might pressurise decision-making arrangements – sites and places. Such geographical factors have been little examined by the pragmatic sociological perspective, though can be considered elements of the person-states and thing-states around which disputes can emerge. Our comparative analysis showed how the nature of social responses to energy infrastructures reflects the interactions between the technologies themselves (any 'inherent' properties or risks) and the sites or places they might occupy (Devine-Wright, 2009), and that it is technologies with the potential to disrupt attachments to landscape generally, and rural landscapes in particular, that have the highest potential for

creating controversial situations. Moreover, it is in such situations that governments have struggled to construct or maintain compromises within the tests of consentingdecisions that seek to reinforce project delivery and markets; especially so where the competing political tests of elections have salience. This is evident from the experience of on-shore wind, field-scale solar, and fracking. With solar power, Government action to greatly restrict the development of large field-scale projects on greenfield sites in favour of brownfield and building-mounted projects was justified as an effort to reduce the number of disputatious situations that might trigger more existential opposition to the expansion of the technology (see Table 6; DECC 2014).

The salience of place in shaping situations, and affecting the maintenance of social order, is reinforced by counterfactual examples. Moves to accelerate consenting processes for nuclear power have 'worked' in part because of the scope to exploit sites that are 'nuclear oases', with significant local economic and social ties to the industry (Blowers and Leroy 1995). Whatever the economic and engineering fallibilities of nuclear energy, or the particular public perceptions of risk that the technology engenders, the development consent for Hinkley C was attained within the statutory schedule (Marshall and Cowell 2016) and conflicting perspectives on 'need' have struggled to gain political traction. The same can be said for gas-fired power stations, for which 34,000MW had been installed between 1988 and 2014, vastly exceeding any other technology. Here Government has scarcely changed the instrumentation of public engagement in any significant way to foster social acceptance, and engaged in little public justification. In practice, a very high proportion of projects have re-used old power station or industrial sites, leading to few conflictual situations in which the rule of the 'tests' for consents came under fundamental challenge(Cowell 2017).

This conceptual frameworksuggests ways of interpreting why patterns of institutional change may differ in other contexts. In contrast with England, in Scotland and Wales the devolved governments have persisted in promoting on-shore wind and have also persisted with suites of public engagement and support measures that reinforce project delivery, contain the scope for challenge within consenting processes whilecontinuing to develop programmes of community benefit and ownership (Cowell et al 2017). On-shore wind has been vehemently resisted in both countries, but opposition to projects has failed to achieve the kind of 'rise to generality' (Boltanski2011, 34) that would challenge the positioning of wind as integral to the general Scottish and Welsh national interest. By interpreting 'situations' through the lens of place (Cresswell, 2004), it can be suggested that in England in particular, there is an enduring concernfor conservation of 'the countryside', founded in constructions of national identities (Short, 2002; Batel and Devine-Wright, 2015), which has consistently been able to express itself in ways that are able to pressurise decision-making processes. These dynamics have underpinned continuity in public engagement instruments for energy infrastructures sited in pre-existing, 'industrial' locations (i.e. nuclear, gas) and continual innovation in instrumentation for controversialinfrastructure proposals to be sitedin locations, typically rural, without previous energy developments (i.e. on-shore wind, ground-mounted solar, fracking).

This discussion of critique points to some limitations with the analysis presented here. We recognise that in focusing on the justifications of government, the analysis has not had scope to include the justifications of other actors that may support, resist or challenge the instrument changes we have observed, or justifications promoted in the media. There is certainly scope for further research that embraces this. However, the shadow of critique is very much present in what we observed. Justifications are generally provided where disputes are emerging, and thus in fields where there is a need to 'endlessly reconfirm ... a certain state of reality' (Boltanski 2009, p.99). Ministerial speeches support this, both in their repetition of the scale of energy infrastructure development that the UK 'needs', and in the ebb and flow of justificatory actions and instrument changes as particular technologies encounter challenges to delivery. Instrument change is also a reflection of successful critique, and the delegitimising of previous justifications (Arts et al 2017), reflected in changing tests. Applying Boltanski (2011, p.35) would suggest that, with wind energy especially, efforts to expedite the consenting process and furnish host communities with additional benefits often failed to be seen as just. Moreover, critics of on-shore wind (e.g. NOW, Country Guardians – see Hickman, 2012) proved effective opponents because their concerns were able to 'rise to generality' commensurate with the principles they sought to critique (Boltanski 2011, 134), by connecting their protests to collectives capable of corroborating them and offering them support and credibility (politicians in the Conservative Party and the UK Independence Party).

5.0   Conclusions

This paper aimed to achieve two things rarely attempted in research into decision-making for energy infrastructure. First,it maps changes in public engagement policy across time, spanning mechanisms for consultation/participation and engagement through benefit provision, and across a wide suite ofenergy technologies. Adopting this approach has been highly revealing. Overall, it shows energy infrastructure policy in the UK – for all the broad rhetoric of the necessity of delivery – to be subject to amêlée of changes, with different technologies subjected to different forms and combinations of interventions in decision-making arrangements, and varying intensities of change. Although there is a broad tendency towards closure in what is open for discussion in decision-making processes, and a wider tendency to frame publics as 'local communities' and recipients of benefits rather than active citizens, there are marked differences to be observed.

The second novel feature of the paper is the application ofBoltanski and Thévenot's conceptual framework to give explanatory power to the concrete situations that infrastructure projects create, the ramifications for stability and change in public engagement policy, and the directions change might take. Using this framework shows the changes observed to be not simply a reflection of the shifting technological preferences of national energy policy, or the structural force of neo-liberalism, but also the combinations of person-states and thing-states that infrastructure projects embody, the latter embracing technologies and places. These affect the potential for some infrastructures to become politicised, and the scope for constructing durable compromises between delivery and engagement. The framework of

Boltanski and Thévenot has helped to interpret outcomes that could simply have been badged as 'government inconsistencies', by bringing the 'things themselves' – the disputes that can erupt around energy infrastructure – into the equation. This explains why we see much more experimentation and change with some technologies than in others.It is not simply that government is enacting a desire to depoliticise decisions; actions are also a reflection of the uneven extent to which practices that affect the engagement of publicsare believed to work or to be legitimate or desirable, and there are limits to this in the energy field, sometimes requiring new apertures for local participation or national political representatives.The conceptions of social order used by Boltanski and Thévenot, and the evident need to keep repairingand salvaging situations, offers an alternative light on the apparent obduracy and vulnerabilities of 'socio-technical regimes' within transition theory. Equally, within the orders of worth framework itself, there is a need to further theorise the apparent voluntarism in the justifications actors choose, in relation to factors shaping the acceptable 'normative grammar' for effective arguments (Honneth 2010).

Although this analysis focused on the UK, future research caninvestigate how these insights might apply in other settings. For example, in European wind energy 'leaders' like Germany and Denmark, any problems with infrastructure delivery is not located in infrastructure consenting procedures themselves being a 'barrier' to development, as the objects being governed enjoyed more positive support *inter alia* because of high levels of public *economic* engagement (e.g. as shareholders or farmers) (Szarka 2007). Indeed, the increasing size of projects and growing commercial involvement in wind in these countries has created situations that contribute to declining rates of social acceptance (Sovacool 2017).

In making this analysis, our account highlights problems for a number of prospective solutions to the democratisation of energy system change.

- Firstly, researchers need to be more careful in extrapolating general theories about the relationship between public engagement, social acceptance and the delivery of energy infrastructure. While there is significant research showing how efforts by government or developers to 'short circuit' public engagement on energy projects risks exacerbating dissent that threatens delivery (Huber et al 2012), much of this draws on particular national experiences around on-shore wind. Our research has shown how objects matter, in that different conjunctions of energy technologies, publics and sites can greatly affect whether or not particular arrangements for public engagement – be they relatively closed, centralised and hierarchic or relatively open to diverse publics – persist and facilitate delivery, or become subject to destabilising critique.

- Second, and following from this, we endorse Chilvers and Longhurst'sbelief (2016) that scope for reflexivity and public engagement in governance of energy choices should be pursued in diverse *extant* collectives of participation, not through creation of new but detached arenas. Indeed, there is a growing view that the disruptive conflicts that infrastructure projects can create ought to be seen (after Marres 2007) as 'occasions of democracy', with efforts made to embrace un-organised and emergent patterns of engagement (Metzger et al 2015, p.21; Crompton 2015), and the focus of new claims about the fair distribution of benefits. However, our cross-technology comparison also shows the

uneven consequences of such recommendations, in that some infrastructures in certain types of places are much more prone to create situations in which important questions are brought into dispute, than others. Fracking may generate many more such 'occasions' than battery-based energy storage for example.

- Third, the complex assemblage of public engagement approaches that has been revealed by our cross-sectoral analysis creates problems for those who argue that the challenges of transition mean that we need to promote engagement in 'whole energy system transition' (Parkhill et al 2013). As our research shows, the idea that there is 'a system' – in the sense of coherent and hermetic entity that can be steered - is an aspirational and (sometimes) policy-based construct, not an established fact in governance terms. Part of the issue is that government orchestration infrastructure decision-making has tended to work to delimit public scrutiny, especially for any issue that is 'systemic' or non-local. More fundamentally, energy 'systems', like other aspects of social order, can usefully be conceived as built from compromises between multiple, incommensurable orders of worth.

To conclude, we are not endorsing the approach to decision-making of the UK government. A more fundamental point that the analysis makes is to show how steering towards any particular energy pathway, and navigating the shifting infrastructure requirements it creates, is likely to entail steps that structure and manage the scope for public engagement, requiring decisions about which issues are open for contestation at which stage in the policy and decision-making process. This may require balances to be struck between different dimensions of justice, in the light of the situations that certain energy infrastructures create. There are no easy solutions, but there is an evident need to be able to chart the balances that are struck on the public's behalf.

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Table 1: Orders of worth and some energy dimensions

	Civic	Market	Industrial	Domestic	Inspired	Fame
Higher common principle	Collective good, civic duty	Competition	Effectiveness, performance	Tradition, loyalty, hierarchy	Inspiration, originality	Public opinion
State of worth	Representative, free, official, statutory	Defence of self-interest	Dedication to work	Dedicated, wise	Creative, passionate	Prestige, public recognition
Subjects endowed with worth	Elected representatives and officials	Competitors, clients	Professionals, experts	Superiors and inferiors	Visionary	Star and fans
Actions required to access the higher principle	Renunciation of personal interests,	Search for personal opportunities	Making progress	Sense of duty	Risk	Pursuit of publicity
Test	Public, transparent demonstration	Contract	Rational tests	Family, ceremonies	Adventure, solitude	Electoral mandate
Energy dimensions	Public consenting processes	Developers can pursue what is profitable	Oriented towards efficiency, system integration, decarbonisation goals	Community-led, community-developed initiatives	High profile innovators	Party political platforms
Adapted from Boltanski and Thévenot (2006), as well as Annisette and Richardson (2011)						

Table 2: Instruments and public engagement (after Lascoumes P and Le Galès 2007)

	Explanation	Example
Legislative and Regulatory	Category concerns actions that the state has mandated.	Pre-application consultation for major infrastructure under Planning Act 2008.
Incentive-based	Instruments that affect the flow of monetary costs and benefits to publics, coming directly via the public purse or developers	Proposed £100,000 for each community that accepts a fracking operation
Information-based and communication-based	Instruments that affect information available to communities potentially affected by developments	Register of community benefits paid by wind farm developers to communities viewable on-line
De facto and de jure standards	Includes management standards that developers are encouraged to attain, some that lead to certification and some not.	Community benefit charters

Table 3: Changes to arrangements for consultation and participation

	Before 2008	2008-2016
Onshore wind	Post-application consultation; consents determined locally (<50MW), or by central government (>50MW)	2008-2015, for >50MW, pre- and post-application consultation; statements of community consultation for pre-application consultation, requiring approval; time constraints; all consents determined by central government (by Infrastructure Planning Commission, 2008-2012; by Ministers from 2012) Post 2015, pre- and post-application consultation, with all consents determined locally and applications needing to be within a site identified in the neighbourhood or local plan, and to show community backing.
Offshore wind	Post-application consultation; all consents determined by central government	Pre- and post-application consultation; statements of community consultation for pre-application consultation, requiring approval; time constraints; all consents determined by central government (Infrastructure Planning Commission, 2008-2012; Ministers from 2012; Marine Management Organisation (1MW to 100MW))
Solar PV	Post-application consultation; consents determined locally (<50MW), or by central government (>50MW)	For >50MW, pre- and post-application consultation; statements statements of community consultation for pre-application consultation, requiring approval; time constraints; all consents determined by central government (Infrastructure Planning Commission, 2008-2012; Ministers from 2012); new scope to modify consents; For <50MW, post-application consultation and consents determined locally For both, trade association voluntary good practice guidance
Gas (and other fossil thermal)	Post-application consultation; consents determined locally (<50MW), by central government (>50MW)	For >50MW, pre- and post-application consultation; statements of community consultation for pre-application consultation, requiring approval; time constraints; all consents determined by central government (Infrastructure Planning Commission, 2008-2012; Ministers from 2012); new scope to modify consents; <50MW, post-application consultation and consents determined locally.
Nuclear	Post-application consultation; all consents determined by central government	Pre- and post-application consultation; statements of community consultation for pre-application consultation, requiring approval; time constraints; all consents determined by central government (Infrastructure Planning Commission, 2008-2012; Ministers from 2012)
Fracking	NA	Post-application consultation; voluntary industry charter promoting wider consultation; all consents determined by local government (mineral planning authorities)

Table 4: Changes to arrangements for community benefits

	Before 2008	2008-2016
Onshore wind	Ad hoc company practice; voluntary sector-led protocols	Ad hoc company practice; voluntary sector-led protocols and good practice guidelines; community benefits online register; Government endorsement of sector protocols (£5000 MW); greater local retention of business rates; policy on mandatory community share ownership for renewables instituted in Infrastructure Act 2015, but not implemented by 2017.
Offshore wind	Ad hoc company practice	Ad hoc company practice; Coastal Communities Funds giving % of state royalties to adjacent coastal areas
Solar PV	Ad hoc company practice	Ad hoc company practice; trade association voluntary good practice guidance; policy on community share ownership for renewables instituted in Infrastructure Act 2015, but not implemented by 2017.
Gas (and other fossil thermal)	Ad hoc company practice	Ad hoc company practice
Nuclear	Ad hoc company practice	Ad hoc practice; Government endorsement of company practice; Government policy to allow local government retention of business rates, and centrally fund community benefits
Fracking	NA	Voluntary, sector-led protocols for community benefits for each well site (£100,000) and 1% of ensuing revenues; government policy to increase local government retention of business ratesand a Shale Wealth Fund for channelling royalties to households/communities/local authorities/regions

Table 5: Towards openness or closure?

	Before 2008	2008-2016
Onshore wind	Supportive guidance, with 'presumption in favour of development'	By 2016, local preferences and environmental conditions paramount in determining consents, with applications needing to be in sites designated in a local or neighbourhood plan, and show that impacts fully addressed and communities give their backing.
Offshore wind	Need conventionally *ultra vires*.	National Policy Statements makes need *ultra vires* for consenting; guidance supportive of development
Solar PV	NA (no object-specific instruments)	From 2014-2015, ministers seek to discourage solar development outwith brownfield sites or roofs; granting permitted development rights (i.e. no need for planning consent) to schemes up to 1MW on commercial buildings.
Gas (and other fossil thermal)	For >50MW, need conventionally *ultra vires*.	For >50MW, National Policy Statements makes need and greenhouse gas emissions *ultra vires* for consenting; guidance supportive of development; from 2012, steps taken to make it easier to modify existing consents and streamline pre-application consultation.
Nuclear	Need conventionally *ultra vires*.	National Policy Statements makes need *ultra vires* for consenting; guidance supportive of need for development and specific sites.
Fracking	NA (no object-specific instruments)	Regulatory changes give rights of access to underground environment below 300m; extension of rights to drill/frack under land without landowner's consent, subject to constraints in protected areas; enforcement of 16 week time standard for local authorities to make consent decisions; new information/notification system for communities; government information campaign on fracking

Table 6: Justifications

Infrastructure Technology	Exemplars of justification (Source by document or ministerial speech)	Other speeches making this justification
Onshore wind	'people must be confident that they have a full say in the way their communities are developed and that they see real benefits from the facilities they host' (Hendry 23.05.2012)	Huhne 24.03.2011; Huhne 22.03.2011; Hendry 23.05.2012; Davey 14.06.2012; Davey 05.11.2013; Rudd 24.06.2015 (NB most speeches about wind energy embraced both on- and off-shore)
Offshore wind	'the public, and particularly host communities, must see the benefits of the moral and financial support they are providing the industry' (Rudd 24.06.2015)	
Solar PV	A keenness that 'inappropriate solar farms do not ruin it for the rest of the sector' (Barker 12.12.2013) 'I want to sweep aside unnecessary regulatory barriers to the on-site generation of solar' (Barker 12.12.2013)	Barker 25.04.2013; 08.10.2013; Barker 12.12.2013; Barker 01.07.2014; Rudd 14.10.2014
Gas (and other fossil thermal)	'the Government believes that there is more that can be achieved to improve the balance between consultation, scrutiny and delivery timescales' (DECC 2012, para 3.48)	Davey 18.10.2012
Nuclear	'we should recognise the contribution of these communities to our long-term energy security' which 'should be able to benefit accordingly' (Hayes 19.03.2013) The NPS will 'help ensure that the UK is a truly attractive market for investors by ensuring that we have a planning system that is rapid, predictable and accountable' (Hendry 22.02.2012)	Hendry 16.06.2010; Huhne 02.11.2010; Hendry 08.12.2010; Hendry 14.06.2011; Davey 07.02.2013; Hayes 19.03.2013; Fallon 12.09.2013; Fallon 05.12.2013; Verma 27.01.2014; Neville-Rolfe 01.11.2016
Fracking	'Local people should have greater control and say in decisions that affect them' (HM Treasury 2016, 3) 'ensure that the benefits of shale developments are shared by communities and regions in which the resource is developed' (op cit.) 'a community payment in return for access' to terrain below 300m (Hancock 07.11.2014) 'we need to tackle the issue of extensive planning delays head on if we are to reap the benefits which shale gas offers' (Leadsom 25.05.2016)	Davey 08.10.2012; Davey 11.03.2013; Fallon 08.05.2013; Cameron 06.07.2013; Fallon 17.07.2013; Davey 05.09.2013; Fallon 22.11.2013; Fallon 24.06.2014; Hancock 07.11.2014; Hancock 13.11.2014; Leadsom 25.05.2016
	Other speeches included in the analysis but not referencing specific technologies are: - Hendry 21.10.2010; Pickles 21.03.2011; Huhne 13.10.2011; Huhne 26.10.2011; Hendry 15.11.2011; Hendry 22.02.2012; Clegg 06.08.2012; Davey 06.08.2012; Davey 11.10.2012; Jones 30.06.2014 (speeches focusing on speeding up decisions) - Huhne 01.07.2010; Barker 23.10.2010; Davey 27.06.2011; Davey 04.09.2014 (focusing on community ownership of energy) - Barker 20.06.2011; Barker 27.02.2014; Barker 12.06.2014; Davey 12.12.2014 (miscellaneous)	

For accessing original speeches, see endnote 3.

[1] Fallon, speech 18.09.2013

[2] Though the fragmented nature of devolution in the energy sphere means that many such changes also apply directly to Wales (Cowell et al 2015).

[3] Speeches are referenced in this paper by giving the surname of the minister and the date. The full text of each speech can be obtained from https://www.gov.uk/government/announcements, by searching within the site for 'energy' or 'planning and buildings', whereupon speeches are listed by date of delivery.

[4] Most decisions that are subject to appeals are normally determined by inspectors (independent, public officials), but when appeals are 'recovered' inspectors take the role of issuing recommendations to central government Ministers, who ultimately decide.

[5] Although there are differences in the political party of Ministers issuing these speeches and documents, because the 2010-2015 coalition government saw energy policy controlled by a combination of Conservatives and Liberal Democrats, there is little sign that the justifications used varied markedly along party political lines, except for on-shore wind.

[6] Concerns about the 'dash for gas' in the 1990s, including the effects on coal privatisation, led to periods of moratoria and tighter conditionality on the consenting of gas-fired power stations (Marshall and Cowell 2016).

[7] With fracking the Conservative Party's 2017 general election manifesto did propose bringing fracking within the centralised, fast-track NSIPs regime, but this foundered in the wake of the Conservative's failure to secure an outright majority, in a political context in which most other parties are critics of fracking.