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Article (Published Version)

Williams, Laurence J, Martin, Abigail and Stirling, Andrew (2022) ‘Going through the dance steps’: instrumentality, frustration and performativity in processes of formal public participation in decision-making on shale development in the United Kingdom. Energy Research & Social Science, 92. a102796 1-16. ISSN 2214-6296

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‘Going through the dance steps’: Instrumentality, frustration and performativity in processes of formal public participation in decision-making on shale development in the United Kingdom

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ABSTRACT
We employ a mixed-method approach to analyse four forms of formal public participation in decision-making on shale development in the UK – planning, environmental permitting, public consultation and dialogue workshops. We focus analytically on the kinds of issues that can be raised effectively in such processes and the scope for public influence. This focus is conceptually inspired by literatures on public participation from Science and Technology Studies and on energy infrastructure planning disputes, with our findings building on existing work on public participation in decision-making on UK shale development. We also conduct local community interviews in the Fylde, Lancashire, UK, in order to understand how these processes are viewed by those who have participated in them. We find that these formal participatory opportunities generally tightly restrict the types of issues that are open for discussion, narrowing the scope for public influence. Some of these forms of participation (public consultations and dialogue workshops) take on an instrumental character, serving as a tool to help achieve the policy aim of facilitating a domestic industry. Others (planning and environmental permitting) are designed to be insensitive to public questioning of that policy aim. Perhaps unsurprisingly then, many of our local community interviewees saw these processes as performative exercises in the legitimation of UK government shale gas policy.

1. Introduction
In the United Kingdom (UK) and other liberal democracies, cultural expectations and often legal obligations demand that the public and local communities have the opportunity to participate in policy and regulatory decision-making about energy infrastructure. At the same time, governments are under pressure to deliver the infrastructure required for affordable, secure and sustainable energy. The purpose, design and consequences of such formal public participation is the topic of this paper. We explore this issue through the case of shale development in the UK. We argue that this case offers a potentially significant lesson as governments in the UK and beyond establish and pursue ‘net zero’ strategies, which require both large amounts of new infrastructure and considerable public buy-in.

Shale gas is an unconventional hydrocarbon, the extraction of which requires the use of hydraulic fracturing. Hydraulic fracturing is technique that “involves injecting a mixture of water, sand and chemicals (known as ‘fracturing fluid’) at high pressure into horizontally drilled boreholes to fracture the rock and release gas or oil” [1]. Following Evensen [2], here we use the term shale development to better capture the full range of processes, infrastructures and impacts associated with shale gas exploration and production. For instance, shale development will typically involve site construction, well drilling, gas flaring, hydraulic fracturing, flowback fluid disposal or reinjection, and eventually site restoration; and potentially produce impacts such as increased traffic, noise, landscape and visual impacts, water contamination, seismicity, public health impacts, greenhouse gas emissions, industrialisation, community tensions, and economic benefits and disbenefits for the local community.

Between 2012 and 2019 the UK government adopted a policy of pursuing the development of a domestic shale gas industry. UK shale policy ultimately failed with the imposition of an ‘effective moratorium’ on hydraulic fracturing in England in 2019, following similar moratoria previously imposed in the devolved administrations of Scotland, Wales and Northern Ireland. The stated reasons for the English moratorium were “clearly unacceptable” persistent low-level seismicity at the...
company Cuadrilla's exploratory site, Preston New Road (PNR), and scientific uncertainty over the probability and magnitude of further seismicity [3]. The extent to which members of the public and local communities should be involved in policy- and decision-making on shale development was a constant source of controversy over the course of the UK government's pursuit of a domestic shale industry.

In one common framing of the relationship between public participation and infrastructure delivery, this controversy can be seen as having arisen due to tensions between pressures to deliver an industry that some argued offered significant benefits on the one hand, and the requirement (and at times the legal obligation) to enable public and community participation in policy and decision-making processes on the other. This situation has been termed the ‘delivery-democracy’ dilemma of energy infrastructure [4].

During the 2012–2019 pursuit of a domestic shale gas industry in England, some actors considered processes of public participation to be slowing down or even preventing delivery of a shale industry. For instance, the UK government described planning decision-making on shale gas development as disappointingly slow [5], and others argued that without the ‘streamlining’ of planning and permitting processes “it may not be possible to achieve shale gas production at any scale” [6]. However, at the same time, criticisms of a lack of inclusivity and fairness in policy- and decision-making on shale development were major and successful arguments of anti-shale development campaign groups [7,8]. In other words, whilst some criticised the processes of public participation that did exist for slowing down delivery, others argued that the available processes fell well short of genuine democratic decision-making.

Some scholars and policy actors adopted an alternative framing of the relationship between public participation and infrastructure delivery, one in which participation is viewed instrumentally as a tool for securing community acceptance of energy infrastructure. For instance, the UK government's rationale for localism in planning emphasised that restoring power to the local level may help “people feel positive about development” [9]. Furthermore, whilst “[i]mposition alienates... proper discussion with local people encourages a sense of ownership about development... [and] involvement lets people see the benefits of development, and helps them be prepared to say ‘yes’” [9]. In this view, participation can increase the likelihood of project delivery, and as such, no delivery-democracy dilemma exists.

Similar arguments have come from academia. For instance, Whittington et al. warned that the experience of other energy technology siting processes suggests that inadequate public participation in both wider policy questions and siting decisions “would likely lead to public opposition, political controversy and eventual planning failure” in the shale development case [10]. They added that “justice and fairness during processes such as participation and decision-making can aid in increasing local support for a project” [10].

However, Cowell and Devine-Wright have cautioned against linear accounts of the relationship between engagement, acceptance and delivery [4]. Research shows that depending on exactly how they are designed, conducted and experienced; processes of public participation may alienate publics, amplify concerns and undermine trust, especially where such processes are widely viewed and experienced as performative or instrumental [11–13]. In this context performative processes are those that are designed to be seen to offer a participatory opportunity without actually offering scope for meaningful public influence, whereas instrumental processes are those that are designed to produce particular outputs (e.g. a particular decision) or help achieve more general outcomes (e.g. trust or public acceptance for a particular form of development) [14]. Of course, the two notions are closely connected because an instrumental process can be experienced as performative by participants who seek to achieve a form of influence that contradicts the instrumental aims of that process.

There are therefore contrasting accounts about the relationship between public participation and infrastructure delivery, in particular whether these two aims are in tension or whether participation can help secure community acceptance and so aid project delivery. There is at the same time recognition that participatory processes can lead to a range of outcomes (e.g. acceptance or exacerbated opposition), and that the ways participatory processes are designed and experienced are crucial for understanding the outcomes they produce. In this paper we draw a distinction between two types of consequence that a participatory process can have. On the one hand, we refer to the more direct results of participatory processes as outputs. Here outputs include regulatory and planning decisions, as well as the extent to which consultation and deliberative processes influence policy. On the other hand, we refer to the wider set of consequences that participatory processes can have as outcomes. Outcomes often relate to how the process and outputs of participation are perceived by an audience, and include consequences such as building or squandering trust, securing public acceptance or fuelling opposition, and generating perceptions of legitimate or inadequate decision-making.

How these relationships between the purpose, design, and consequences of participation, community experiences of participation and infrastructure delivery play out in practice is of course an empirical question. We explore this question through an analysis of four key formal, ‘invited’ forms of public participation in policy- and decision-making on shale development in the UK – planning, environmental permitting, consultation on government policy and legislative proposals, and a series of dialogue workshops. In each case we ask how these processes are designed and conducted, and how this shapes the kinds of issues that are open for participation and the scope for public influence. Furthermore, based on interviews with community members in a case study region (the Fylde, Lancashire), we ask how these processes were perceived and experienced by those who took part in them. These community perceptions and experiences provide evidence of the outcomes of the approach taken to formal public participation in our case study region and help to explain why these outcomes occurred.

As we will argue below, in the UK shale development case, and particularly in England prior to the moratorium, formal public participation was generally designed in ways that restricted the kinds of issues that could be seriously considered and offered limited scope for public influence. Participatory processes often took on an instrumental

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1. Our use of the term performative here is distinct from its use in other literatures, such as the literature on the sociology of expectations. In that literature describing expectations as performative means that they don’t merely describe or predict the future but (can) materially influence the futures that do and do not come about [61]. Here we use the term performativity to describe a situation in which participants cannot achieve the forms of influence they desire through participation because their aims contradict the institutionally favoured outputs that processes are instrumentally designed to achieve. As will be seen, in the case of anti-shale development community members taking part in processes designed to help deliver or avoid the questioning of government shale policy, this leads to participation being experienced as rather hollow and pointless and being perceived as merely about fulfilling legal obligations or offering a veneer of legitimacy for resulting decisions.
character, in that they appear to have been designed to either help achieve the UK government’s shale policy or prevent the questioning of that policy. Our local community interviews demonstrate that the restrictiveness and instrumentality of these processes caused a good deal of frustration amongst many of those who participated in them and that they were often viewed as performative – as a matter of going through dance steps to paraphrase one of our interviewees. Such findings suggest that instrumentally gearing formal participation toward the delivery of energy infrastructure risks provoking public cynicism and opposition (potentially jeopardising infrastructure delivery as well as democratic legitimacy), and should be carefully considered by the policy-makers, regulators and industries tasked with conducting public participation in decision-making on net zero infrastructure, and indeed by those advocating for a renewed attempt to establish a domestic shale industry in the light of the current energy crisis.

In the following section we draw conceptual insights from both the literature on public participation in planning decision-making on energy infrastructure in the UK and the Science and Technology Studies (STS) literature on public participation. In particular, these literatures draw attention to the importance of how the design of participatory processes shapes the issues open for serious consideration within and scope for public influence through such processes, and how these design features influence the experience of those that participate in these processes and their outcomes. We then review existing work on public participation in planning and regulatory decision-making on shale development in the UK and highlight procedural features of the planning system identified within this literature that restrict the issues open for consideration and limit the scope for public influence.

Section 3 then details our mixed-method approach, comprised of document analysis, observation and semi-structured interviews. In Section 4 we describe the way that the four forms of participation were designed and implemented (Section 4.1), analyse the issues open for debate within and scope for public influence through these forms of participation (Section 4.2), and report local community perceptions and experiences of participating in them (Section 4.3). Finally, in Section 5 we summarise our findings and discuss their contributions to and implications for the literatures covered in Section 2, before drawing our conclusions in Section 6.

2. Concepts and literature

2.1. Concepts: The planning cascade and critical public engagement studies

In this section we review work from the literature on public participation in planning decision-making on energy infrastructure in the UK and the STS literature on public participation in matters relating to science and technology. We draw out conceptual insights concerning formal participation that go on to orientate and sensitise our analysis of formal public participation in the UK shale development case. These literatures emphasise the importance of the ways that participatory processes are designed and implemented and how this is experienced by those participating in them. In particular, these literatures draw attention to both the openness or restrictiveness of processes in terms of the kinds of issues that can be raised through them and the extent to which public input through such processes goes on to have a discernible influence on decision or policy-making as factors that are important in determining how such processes are experienced by participating publics and the kinds of wider outcomes they achieve (e.g. building trust or acceptance, legitimating decisions or entrenching cynicism and suspicion).

In planning literatures, the inability of objectors to question government policy through planning processes in the UK has been widely and consistently criticised. Such criticism goes at least as far back as the so-called ‘big public inquiries’ into nuclear planning decisions in the UK throughout the late 70s and 80s [15]. Looking more broadly at conflicts in energy planning in the UK during the same period, Owens notes that environmental groups attempted extend the terms of reference of inquiries beyond ‘traditional’ site-specific matters to also embrace broader issues such as government policy and national need “[i]n the absence of a credible alternative forum” [16]. Cowell and Devine-Wright identify that this same exclusion of broad questions of policy and need from consenting processes which focus solely on siting impacts continues to constitute a key form of closure in their analysis of changes in public engagement processes on a range of energy infrastructures (including shale development) over the period 2008–2017 [4].

Owens [17] conceptualises the effect of this exclusion of policy questions from planning decision-making as a ‘planning cascade’. Here, broad, strategic questions of policy and national need are settled at the level of national policy without public consultation, leaving planning processes over the siting of individual projects to assess local impacts only. Implicit here is the idea that ‘local people’ participating in the planning system should ‘have a say’ on local issues but that such forums should not act as arenas through which broader notions of the public interest are articulated, examined and critiqued; with such questions having already been settled through the processes of representative democracy. Instead, planning decisions are concerned with implementation questions of ‘where’ infrastructure should go and ‘how’ its impacts can be managed; rather than ‘why’ questions concerning the social desirability of and need for particular forms of development, which are instead solely within the purview of national government.

As Owens argues, people’s concerns about infrastructure regularly flow over this neat, artificial separation: infrastructure siting acts as a fulcrum around which broader debates about need and social desirability coalesce, need cases are contested, single-site impacts exist within the context of a wider policy programme entailing multiple sites and cumulative impacts, and site impacts can make a contribution to wider national and even global problems (e.g. GHG emissions). Owens argues that this attempt to hermetically separate these issues “risks closing one of the most important apertures through which dominant paradigms have been exposed to critical scrutiny, and by implication is likely to diminish the potential for policy learning and change” [17]. As such, institutions render themselves insensitive to a valuable source of policy critique, learning and the articulation of public values. Furthermore, in the absence of wider participatory processes, publics flood narrow participatory processes with broader arguments and participation overflows these formal processes via ‘uninvited’ channels. The broadness and or narrowness of the issues open for discussion (especially whether broader questions of policy and need are open for public participation) therefore emerges as an important feature of the design of participation. The importance of the timing of participation is also closely related here. In Owens’ planning cascade, broader policy commitments in favour of a particular form of energy infrastructure are set in stone and then public participation is subsequently invited on the site-specific impacts of particular sites. Public participation is therefore invited after a policy commitment has been established and is conducted in ways that prevent the questioning of that prior commitment. These themes – the topics and timing of public participation – also emerge as crucial in the STS literature on public participation, especially so-called critical public engagement studies.

For instance, Irwin argues that the view that increased public engagement leads to trust is naïve, and that such processes can lead to further criticism and scepticism where there are doubts about their practical consequences (e.g. do such processes influence policy, are they experienced as tokenistic?) and aspects of the process itself (are certain voices excluded, how narrow or broad are the issues open for discussion?) [18]. In other words, scepticism may be engendered by the permissible inputs to (e.g. a narrow range of issues being open for serious consideration) and achieved impact of (e.g. a lack of discernible influence over decision- and policy-making) participatory processes. Here we see that the way participatory processes are designed, and the way certain design features are experienced by those who take part in them
can have important implications for the outcomes of such processes. In particular, the way the design of participatory processes shapes the issues open for consideration and scope for public influence emerges as crucial.

Further critical scrutiny comes from Stirling who argues that both participatory and analytic appraisal processes are susceptible to either tacit or deliberate conditioning influences in their design, implementation and interpretation that provide scope for the channelling of such processes toward either decisiveness in general (‘weak justification’) or particular outputs (‘strong justification’) [14]. In short, rather than informing policy commitments, participatory processes can work to legitimate the already-formed policy commitments of their sponsoring institution or wider incumbent interests. In other words, Stirling identifies that participatory processes can be instrumentally geared toward particular outputs or outcomes (e.g. selecting a particular favoured option as the best way forward – an output – and so potentially helping to secure legitimation for or public acceptance of that option – an outcome). Once again, we also see the importance of timing in Stirling’s work, and in particular whether participation occurs prior to and helps to inform policy commitments or whether it occurs after a policy commitment has already formed and works toward helping to achieve it.

The STS literature on public participation therefore reminds us that the idea that participation straightforwardly leads to particular desired (by the sponsoring institution) outcomes such as trust or acceptance is simplistic. In fact, this literature suggests that overly instrumental, tokenistic and restrictive approaches to engagement may well backfire by further alienating publics [18]. Simultaneously, however, this literature also offers the insight that at other times participatory processes can work to legitimate already existing institutional commitments [14]. Whether in practice particular instances of formal participation legitimate prior institutional commitments or backfire by causing further public alienation is of course an empirical question, one we pursue in the later sections of this paper.

Furthermore, the STS literature on public participation reinforces the insights of Owens’ planning cascade concept. Whether we think in terms of ‘cascades’ [17], scale [19], or upstream and downstream [20,21] – the broadness or narrowness of the issues opened for formal public participation, and the timing of that participation relative to the emergence of a particular domain of science or form of development and any related policy commitments, emerge as crucial areas of focus for the analysis of public participation.

Taken together, the work on public participation covered here urges analysts to focus on the way the design and timing of participatory processes shape the issues open for consideration and scope for public influence, how participating publics experience such design features, and the consequences of this for the outcomes of such processes. In following section, we review work that has focused on these kinds of issues in the case of public participation in planning and regulatory decision-making on shale development in the UK.

2.2. Literature: Public participation in planning and regulatory decision-making on shale development in the UK

The planning and regulatory systems that governed shale development in the UK, including the role of publics therein, have received a good deal of scholarly attention [22]. Analyses of public attempts to influence decision-making on shale development through invited forms of participation in the UK have overwhelmingly focused on the planning system. This literature identifies a number of procedural features of the planning system that restrict the kinds of issues that can be seriously considered within these processes and limit the scope for public influence on planning decision-making.

Notable work here includes Hilson’s assessment of the capacity of both the Environment Agency’s (EA) environmental permitting regime and the planning system to ‘hear and consider’ the key frames of anti-fracking campaigners [23]. Hilson finds that whilst the planning system will consider some local environmental issues, other local environmental issues are the responsibility of other regulators – notably the EA – who planning decision makers should assume will operate effectively. He finds that the EA will consider many key local environmental concerns when raised through consultation. On climate change, Hilson finds that both regimes are likely to consider some climate change related concerns (e.g. direct emissions from flaring or generators at the site), but are unlikely to consider arguments regarding ‘final fuel use’ emissions due to both the phase-by-phase compartmentalisation of planning oversight and the requirement for both regimes to effectively defer to government energy policy [23].

Szolucha also identifies the requirement for planning decision makers to assume other regulatory regimes will operate effectively, and singles this out as the main limitation of the planning system [24]. Its effect, argues Szolucha, is to restrict the kinds of issues that members of the public can raise in opposition to shale development proposals, effectively ruling out successful objections on the grounds of health, environmental and climate impacts [24]. Szolucha’s ethnographic research in Lancashire suggests that whilst local residents are aware of this and tailor their objections accordingly, many residents see the situation as unfair and do not share the assumption that regulations will operate effectively [24].

Like Hilson, Szolucha also identifies the compartmentalised nature of shale development oversight in the planning system – in other words, the way that development is split into phases (exploration, appraisal and production), with separate applications required for each stage. As Szolucha argues, the consequences of this are that future production phase impacts cannot be considered during an exploration phase application. Furthermore, production phase applications would only consider the impacts that are additional to the development that has already taken place (i.e. the site will already have been constructed, wells drilled, etc.). As such, the full, long-term impacts of a development are never considered in their totality, rather developers have to clear a series of lower hurdles where only a subset of the impacts of the site are considered [24].

Such findings are further emphasised by Beebeejaun who, in an analysis of shale development planning processes in Lancashire between 2012 and 2015, highlights how both the site-by-site compartmentalisation of oversight and strict separation of regulatory responsibility for particular issues lead to a narrow range of local issues (i.e. traffic, noise, and visual amenity) being open for public participation through the planning system, whilst issues such as climate change and environmental risk are placed beyond the scope of planning [25].

This body of literature details the experiences of, scope for, and barriers to public influence on shale development through the planning system in England. A number of features of the planning system that work to narrow the kinds of issues that can be used to successfully influence decision-making have been repeatedly identified in this literature. This includes deference to government energy policy, the assumption that other regulators will operate effectively, and the ‘double’ (site-by-site and phase-by-phase) compartmentalisation of oversight [26]. We return to this literature in Section 5 to highlight the contributions offered by the present study. In general though, our contribution to this literature stems from the breadth of our analysis, which focuses comprehensively on four forms and multiple processes of formal public participation that on the surface promise scope for public influence on policy- and decision-making on shale development (as detailed in the next section). This breadth of focus enables us to make a more general assessment of the approach to formal public participation in the UK shale development case.

Utilising the insights from critical public engagement studies and Owens’ notion of a ‘planning cascade’ covered in Section 2.1, and building on the existing literature on public participation in planning decision-making on shale development discussed in Section 2.2, we analyse four forms of formal public participation in decision-making on shale development in the UK. Accordingly, we pay particular attention
to how these processes are designed and implemented and the consequences of this for the types of issues that are open for public participation and the scope for public influence within these processes, as well as how such processes are experienced by those who participate in them.

3. Methods and materials

We identified and examined four forms of formal, invited public participation in decision- and policy-making on shale development in the UK – the planning system, public consultation on environmental permitting, public consultation on UK and Scottish government policy and legislation, and a series of public dialogue workshops conducted by the Office for Unconventional Gas and Oil (OUGO), Sciencewise and the market-research company TNS.2 Due to the devolved administrations adopting effective moratoria on hydraulic fracturing in 2015 [27], opportunities for public participation in planning and permitting decisions were largely limited to England.

We selected these four forms of formal participation because they are processes that at least in principle offered members of the public the opportunity to influence decision- and policy-making on shale development. Whilst planning and environmental permit consultations offered a chance for the public to influence whether particular proposed sites received permission to proceed, public consultations and the dialogue workshops offered the opportunity to influence particular policy proposals, legislative reforms or public engagement policy. Other forms of formal participation existed beyond the four processes we focus on here, notably local industry or regulator engagement events and community liaison groups. We decided against including these processes in our analysis because they were geared toward providing information to and attempting to reassure local communities, rather than offering scope for influence on siting and regulatory decisions or policy and legislation, which is our focus in this paper.

We identified relevant consultation processes by searching gov.uk, consult.gov.scot and the EA’s consultation hub. Relevant planning processes were identified by triangulating between literature (e.g. [28]), news sources and community interviews (see below). This approach yielded a corpus of 11 planning processes (see Appendix 1), 9 environmental permit consultations (see Appendix 2), and 10 government consultations (9 UK government processes and 1 Scottish government process) (see Appendix 3), alongside the public dialogue workshops. Key documents associated with these processes (reports, assessments, consultation documents and responses, EA permit decisions and consultation responses, and planning decision minutes and reports) were analysed. In particular, informed by our conceptual influences discussed in the previous section, we explored the following questions: 1. How was each process designed and implemented? 2. How did this influence the issues open for discussion and the scope for public influence?

In relation to planning, the document analysis was supplemented by a closer analysis of the appeals inquiry into Lancashire County Council’s (LCC) refusal of permission for the PNR and Roseacre Wood (RW) sites. The lead author attended this inquiry and analysed livestreamed video footage. The lessons learnt from this more in-depth engagement were then compared with the rest of the planning process corpus in order to check the consistency, validity and ongoing relevance of our findings.

We also conducted a set of semi-structured interviews with local community members in the case study region of the Fylde, Lancashire. This case region was selected because of its long-running experience of the company Cuadrilla’s exploratory activities (Cuadrilla were initially granted a petroleum exploration and development license in the area in 2008). As such, the case is a rich source of community perceptions and experiences of participatory opportunities relating to decision-making on shale development, including the high-profile planning processes for the PNR and RW sites.

The interviews were conducted between April and June 2019 by author 1 and author 2. We employed a purposive sampling strategy that sought to recruit local community members who had participated in formal processes of public participation, and also aimed to achieve both a good balance of attitudes to shale development and a good spread across three geographical areas. These three geographical areas were the more rural inland Fylde (where PNR and the prosed RW site were located), the more urbanised Fylde coast (including Lytham St Annes and Blackpool) and the wider region licensed to Cuadrilla for exploration and development (known as PEDL 165 and taking in settlements further afield such as Preston). The rationale for this was to attract a diverse range of perspectives, and in particular to recruit as many pro-shale development participants as possible. Potential interviewees were identified by noting and contacting individuals and groups that had participated in planning and consultation processes through news coverage, public records, contacts that the lead author has in the region and the snowballing technique.

31 local community members were interviewed, many of whom had participated in the formal processes focused on here, as well as in other more ‘uninvited’ ways (see Table 1). Recruiting pro-participants proved challenging, especially in the rural Fylde area, however we did manage to recruit some pro-shale development interviewees in the other geographical areas. Interviewees were asked about their expectations, perceptions and experiences of both formal participatory processes generally and the four particular forms of participation we focus on here. This included asking interviewees about our two key areas of analytical focus discussed in the previous section – the issues open for discussion within and scope for public influence through formal public participation. Thirty of the interviews were conducted face-to-face, whilst the remaining interview was conducted by phone. Interviewees did not receive payment for participation. With the informed consent of participants, the interviews were audio recorded and then selectively transcribed. The transcripts were then analysed with a particular focus on recurring perceptions and experiences related to our themes of analytical focus.

The research questions, aims, objects of analysis and methods of our study are summarised in Table 2.

In the interests of reflexivity, we come to this subject with diverse expertise on issues of environmental governance and planning, as well as awareness that our positions likely influenced to some extent how we collected and interpreted data used for this study. Two of the authors (authors 1 and 3) are English with professional experience with the English planning system, which informed data interpretation. With respect to data collected from semi-structured interviews with community members, we acknowledge our position as educated outsiders who are not themselves members of these communities. Author 1 (who led the data collection, analysis and writing) is English, with family members residing in the region where fieldwork was conducted, which helped study participants to feel comfortable sharing their lived experiences in a way they felt best expressed their thoughts and feelings. Author 2 (who contributed to data collection, analysis and theoretical framework) is an ethnic minority scholar from the US—an outsider status that she discussed openly with interview subjects to emphasise

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2 To be clear, the authors were not involved in designing and conducting these workshops. They were not a method a data collection we employed but rather a public participation process that we have analysed using document analysis (alongside planning, EA permitting, and public consultation).
Table 2
Summarising the research questions, aims, objects of analysis and methods of the study.

<table>
<thead>
<tr>
<th>Research question</th>
<th>Aim</th>
<th>Object of analysis</th>
<th>Method</th>
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<tbody>
<tr>
<td>How are the four formal forms of public participation designed?</td>
<td>To describe how the four forms of formal public participation are designed (reported in Section 4.1) in order to provide context for and enable the subsequent analysis (reported in Section 4.2)</td>
<td>Four forms of formal public participation (planning, environmental permitting, consultation, dialogue workshops)</td>
<td>Document analysis (planning, environmental permitting consultation, public consultation, dialogue workshops) and observation (planning – the PNR and RW appeals inquiry)</td>
</tr>
<tr>
<td>How does the design of these forms of participation influence the issues that can be seriously considered within them and the scope for public influence?</td>
<td>To analyse the nature of the participatory opportunity offered by the four forms of participation (reported in Section 4.3), focusing in particular on design features identified as important in Section 2.1 (issues open for consideration and scope for influence)</td>
<td>Four forms of formal public participation (planning, environmental permitting, consultation, dialogue workshops)</td>
<td>Document analysis (planning, environmental permitting consultation, public consultation, dialogue workshops) and observation (planning – the PNR and RW appeals inquiry)</td>
</tr>
<tr>
<td>How were these forms of participation perceived and experienced by those who took part in them?</td>
<td>To understand the outcomes of formal participation in our case study community (reported in Section 4.3), with a particular focus on the design features identified as important in Section 2.1 (issue open for consideration and scope for influence) and how they shaped interviewees’ perceptions and experiences of participation</td>
<td>Local community perceptions and experiences of formal public participation</td>
<td>Semi-structured interviews with local community members in the Fylde</td>
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her distance from UK-specific shale gas controversies and which helped the smaller subset of subjects she interviewed to feel comfortable and avoid making assumptions of similarity or failing to explain their individual experience fully.

4. Findings

4.1. The design and implementation of the four forms of formal participation

4.1.1. Planning decisions and appeals

Shale gas sites require planning permission from Local Mineral Planning Authorities (LMPAs). There are various ways in which publics can participate at different points in the planning process - here we restrict our focus to public participation at the decision-taking phase, including participation in LMPA decisions and subsequent appeal processes.

Planning decision-making is a matter of assessing whether a proposed development is an acceptable use of the land in accordance with national and local planning policy [28]. Decision-makers must take all ‘material considerations’ into account when determining applications. Material considerations are those considerations relevant to the particular application under consideration; and what is considered material is dictated by a set of established norms, policies, and legal precedents from case law, and is ultimately a matter for the courts [29]. It is for the decision-maker to determine the ‘weight’ (i.e. relative importance) of the various material considerations relevant to a particular application. The aim of public participation in the decision-taking phase of the planning system, therefore, is to try and influence planning decisions through the raising of significant (i.e. weighty) material considerations in support of or opposition to planning applications.

Early unconventional onshore oil and gas exploration sites in the UK tended to be granted planning permission through a process known as delegated powers. Under delegated powers, planning decisions are made by planning officers – professional planning experts – rather than committees of elected local councillors. Delegated powers are used to determine the majority of applications generally, as they are considered minor and uncontroversial. The community is able to participate on decisions made under delegated powers through written representations during the consultation period.

Once hydraulic fracturing emerged as a controversial issue, later applications were determined by development control committees made up of elected councillors. In this process, a planning officer assesses the application and makes a recommendation to the committee. The committee then considers the application at a committee meeting, before taking a vote. The public can participate through written representations during the consultation period, and by speaking at the committee meeting.

Where planning permission has been initially refused by a planning committee, applicants can make a planning appeal. Only applicants have this right to make a planning appeal, so decisions to grant permission cannot be appealed in this way, although other forms of legal challenge are possible in certain contexts [28,30]. Appeals against refusals of shale development applications have tended to trigger inquiries – the most elaborate appeals procedure. Inquiries are open to the public and involve the “investigation into, and formal testing of, evidence, usually through the questioning (‘cross examination’) of expert witnesses” [30]. The public can participate in inquiries in a number of ways, including both written representations during the consultation period and speaking at the inquiry as an interested person.

The most elaborate and demanding form of participation is to apply to be a Rule 6 party as part of an inquiry. Rule 6 status is granted to interested parties with a substantive case by the Planning Inspectorate [31]. These groups are represented by an advocate (usually a planning barrister) who puts forward a case based on the evidence of expert witnesses and has the opportunity to question the evidence of rival Rule 6 parties’ expert witnesses. Planning inspectors preside over and determine inquiries, except where appeals have been recovered by the Communities Secretary, in which case the inspector’s recommendation informs but does not bind the decision of the Communities Secretary.

The Government made a number of reforms to planning policy and other important interventions during the 2012–2019 pursuit of a domestic shale gas industry that influenced planning decision-making on shale development applications. This included revisions to planning practice guidance on minerals (PPGM, a suite of national planning policy) in 2014. The key implications of these revisions were to clarify the issues that planning decision-makers should take into account and those issues that should be left to other regulators (paras. 12 and 112), to make clear that decision-makers should not consider any prospective impacts of a hypothetical production phase application when
considering an exploratory proposal (para. 120), and to stress that decision-makers should take government energy policy – that energy supplies should come from a range of sources including onshore oil and gas - into account (para. 124) [32].

A 2015 written ministerial statement (2015 WMS) from Energy Secretary Amber Rudd was another important intervention. In the statement – which makes clear it should be taken into account by the planning system – Rudd set out the Government’s view that “there is a national need to explore and develop our shale gas and oil resources” [33]. Particularly important here is that this statement made clear that this support was based on the government’s view that shale gas could potentially “help meet our objectives for secure energy supplies, economic growth and lower carbon emissions” [33]. The 2015 WMS also made clear that the Communities Secretary would consider ‘recovering’ appeals (i.e. determining an appeal) and ‘calling in’ applications (i.e. determining an initial application).

A 2018 statement from the Business Secretary Greg Clarke (2018 WMS) reiterated the government’s view that developing the UK’s onshore resources would potentially bring about substantial climate change, energy security and economic benefits. The statement made clear that shale development was considered of national importance and that LMPAs should give “great weight to the benefits of mineral extraction” [34].

Finally, in 2018 a number of revisions were made to the core national planning policy document, the National Planning Policy Framework (NPPF). The revisions included the requirement for LMPAs to recognise the benefits of onshore unconventional hydrocarbons for energy security and supporting the transition to a low-carbon economy (para. 209a) [35]. These revisions joined existing policies that clarify the remit of planning decision-makers and require them to assume the effective operation of other regulatory regimes (para. 183); require LMPAs to distinguish between the three phases of onshore oil and gas development (exploration, appraisal and production) (para. 209b); and require LMPAs to give ‘great weight’ to the benefits of mineral extraction (with the exception of coal), including to the economy (para. 205) [35].

4.1.2. EA environmental permit consultations
The EA has a legal obligation to consult with the public on certain applications for environmental permits, including those for onshore oil and gas activities. Environmental permits regulate facilities that pose risks to the environment and human health and use conditions to control and monitor certain activities [36]. This legal requirement is put into practice through core guidance and a public participation statement. Both documents make clear that the purpose of public participation in environmental permitting is for public comments to enable the regulator to make better decisions [36,37].

The process of public consultation begins with publishing a notice of the consultation on gov.uk, which details what the application is for, where application documents can be viewed, how to comment, and the deadline for comments [37]. For many of the relevant consultation processes listed in Appendix 2, there were two consultation periods – an initial consultation followed by a ‘minded to decide’ draft decision, which was then subject to a second period of consultation. The EA have also tended to hold local ‘drop-in’ engagement events associated with permit applications for particular shale development sites.

4.1.3. Government policy and legislation consultations
Unlike the previous two forms of formal participation considered, these consultations focus on proposed policies and legislative changes rather than particular shale development sites. It is for the government or relevant government department to decide the specific questions to which they are inviting public responses. Consultations remain open for a defined period of time after which the government provides a response which details the comments received and the government’s response to them. The UK government has described the purpose of such consultations as “to seek arguments and evidence to consider in developing the proposed policy” [38], and furthermore, consultation has been described as a qualitative exercise to seek evidence rather than a public vote [39].

Consultation practice is guided by the so-called Sedley principles, which demand that consultations occur when proposals are still at a formative stage, include sufficient reasons for the proposal to enable intelligent consideration and response, ensure adequate time for consideration and response, and conscientiously take the consultation into account when issuing the decision [40]. The Sedley Principles are put into practice through the Cabinet Office’s consultation principles, which add that, in relation to the first principle, public authorities should not ask questions about issues on which they already have a final view [41].

4.1.4. Public dialogue workshops
In 2014, a series of dialogue workshops were conducted for OUGO and Sciensiwse [42-44]. Rather than public dialogues on shale development, the dialogue workshops were primarily positioned as public dialogues on how to engage the public on shale development. The primary purpose of the workshops was described as “to inform [OUGO’s] public engagement policy, inform industry’s development of a community benefits package and help stakeholders (from government and industry) to develop appropriate plans for local engagement” [44].

Workshops were held in three geographical areas, with a total of 71 participants purposively sampled to reflect their locality using quotas based on age, gender, socio-economic status and home ownership [44]. As such, unlike the three previous forms of formal participation, which attract a ‘self-selecting’ public largely comprised of those with an existing interest in and committed view toward shale development, these workshops actively brought together a ‘public’ largely comprised of those without strong existing views or knowledge. The workshops were held across two waves. The first focused on participant understandings and beliefs about shale development informed by the presentation of technical information about shale development and information about the UK regulatory regime. The second wave then focused on what public engagement should look like. The deliberative methodology was designed to enable participants to learn about the issue, debate it, develop their views and reach carefully considered conclusions [44].

4.2. Relevant issues and scope for public influence

4.2.1. Planning decisions and appeals
As the processes summarised in Appendix 1 demonstrate, prior to the moratorium publics achieved relatively little influence through the planning system in terms of influencing ultimate decisions, and where this influence did occur it was achieved by raising particular issues and went with the grain of professional planning judgement. Specifically, local group Roseacre Awareness Group successfully objected to the RW site on traffic grounds (the site was eventually refused permission on traffic grounds – see Appendix 1), but planners had always been in agreement that the site posed unacceptable highway safety impacts. In the case of PNR, objectors had initial success in persuading LCC to refuse permission, going against the planning officer’s advice. However, this refusal was overturned by the Communities Secretary, who had ‘recovered’ the appeal. Until very recently (see below), local community objections had therefore only achieved influence on a final decision through the issue of traffic at RW, where such objections were in step with the view of planners.

This relatively narrow scope for public influence was the result of a...
set of procedural features which restricted the types of issues that could be raised successfully through the planning system. First, planning decision-makers tend to take a deferential approach to government policy. During most of our timeframe government policy has been supportive of shale development as expressed in written ministerial statements and revisions to national planning policy, and this specific support joined existing planning policy support for minerals extraction in general (NPPF, para. 205). Planning decision-makers treated this government support as a material consideration in favour of shale development applications. For example, in granting the PNR site planning permission on appeal, the planning inspector overseeing the appeal process concluded that the national need for shale gas set out in the 2015 WMS was a factor of ‘great weight’ in support of the appeal [45].

Second, beyond the general impact of the government's support for shale development, the specific reasoning behind this support also had an impact. Government support was in part based on the purported climate change benefits of shale development. This resulted in the RW and PNR appeals inquiry dismissing objections on the basis of climate change because they contradicted the government's view on the relationship between shale development and climate change. The inspector in this case concluded that “[t]aking an overall view of national policy, there can be no doubt that shale gas is seen as being compatible with the aim to reduce GHG emissions by assisting in the transition process over the longer term to a low carbon economy” [45]. Furthermore, debates about the reconciliability of a domestic shale gas industry and climate change targets were “a matter for future national policy and not for these appeals” [45].

Third, planning decision-makers are instructed to take a deferential approach to other regulatory regimes. Planning policy makes clear that planning decision-makers should not focus on issues that are subject to regulation by other regulatory regimes and that they should assume these regimes operate effectively (NPPF, para 183). This is reiterated in the 2014 PPGM revisions, which go into further detail about matters that are the responsibility of other regimes (para. 112). The implication of this is that objections on the basis of concerns over public health, regulatory efficacy and scientific uncertainty over environmental impacts have tended to be dismissed by planning decision-makers. For instance, at the RW and PNR appeals inquiry, the inspector dismissed criticisms of the efficacy of the regulatory regime because the “evidence does not lead me to find that the regulatory regime could not be relied upon to operate effectively in these cases”, and granted indirect health impacts (i.e. stress) little weight because “all pathways that could potentially impact upon human health would be monitored and appropriately controlled” [45]. The ‘assumption of effective regulation’ is therefore not only about spheres of regulatory responsibility (i.e. which regulatory regimes should oversee particular issues) but also establishes a general expectation of effective regulation in planning policy, which can be used to dismiss concerns over public health, and the adequacy of regulations and capacity of regulators.

Finally, planning oversight of shale development is compartmentalised on a site-by-site and phase-by-phase basis. The planning system assesses the acceptability of particular applications, rather than innovations or industries in general. Furthermore, in relation to onshore oil and gas development, national planning policy makes clear that decision-makers should distinguish between three phases of development – exploration, appraisal and production (paras. 120 PPGM and 209b NPPF). In combination, this ‘double compartmentalisation’ [26] left a profound narrow- and short-sightedness in planning oversight of shale development. Consequently, planning was not a forum in which publics were able to engage with more overarching, strategic questions relating to the impacts and acceptability of a prospective production-phase shale industry at scale. For example, at the RW and PNR appeals inquiry the inspector dismissed concerns over the reconciliability of a domestic shale gas industry and climate change targets not only because of deference to national policy as seen above, but also because such concerns related to the GHG emissions of a prospective production-phase industry as a whole. Instead, the inspector concluded, “[f]or the purposes of these appeals, the analysis should be limited to a consideration of the project emissions during construction, operation and decommissioning, together with cumulative impacts [i.e. the emissions of both sites together] as assessed by the [environmental statements] within the framework set by national and local policies” [45]. Such concerns were therefore found to be immaterial because they strayed beyond the site-by-site and phase-by-phase compartmentalisation of oversight.

The much-delayed appeals for the Woodsetts and Ellesmere Port proposals were finally determined in June 2022. As detailed in Appendix 1, both sites were ultimately refused planning permission. In the case of Ellesmere Port refusal was based on climate change and community wellbeing grounds, and in the case of Woodsetts permission was refused primarily because the proposed development was found to be inappropriate for the Green Belt.

In the Woodsetts decision the impacts of the scheme, especially on the Green Belt, were judged to outweigh considerations in favour of the development, namely the policy support for shale development as set out in the 2015 and 2018 WMSs (the WMSs are still extant despite the effective moratorium which was imposed on the issuing of hydraulic fracturing consents, a separate part of the regulatory system) [46]. This policy support was only granted ‘moderate weight’ by the SoS (compared to the ‘great weight’ the 2015 WMS received in the PNR case) because of the moratorium, evidence from the Sheffield Climate Alliance questioning the compatibility of shale development and climate policy, the high court decision to quash para. 209a of the NPPF (thus removing support for shale development on climate change grounds from the NPPF), and the Committee on Climate Change’s (CCC) 2019 Net Zero report [46,47].

The Ellesmere Port decision largely turned on the weight attached to policy support for shale development on the one hand and the climate change impacts of the site on the other. Once again policy support for shale development was found to only carry ‘moderate weight’ because of the moratorium and because the 2015 and 2018 WMSs were found to no longer reflect the latest expert advice on climate policy, in particular the CCC’s 2019 Net Zero report [47,48]. Having effectively dismissed the still extant government view on the relationship between shale development and climate policy (and the expert advice it was based on) as out-of-date, the SoS finds that the development is in conflict with NPPF policy requiring the planning system to shape places in ways that contribute to radical reductions in GHG emissions (para. 152, 2021 version) [48]. Furthermore, the predicted unabated emissions from the site are found to weigh “significantly against the proposal” [48].

These two decisions therefore demonstrate that both the moratorium and new expert advice on climate policy were key in reducing the weight attached to extant government support for shale development as expressed in the 2015 and 2018 WMSs. Moreover, in the Ellesmere Port case, the government view on the relationship between shale development and climate changes (as expressed in the WMSs) was effectively found to be out-of-date, leading to the decision-maker being willing to consider evidence that contradicted this view. This amounts to a suspension of deference to this aspect of government shale policy (i.e. support on the basis of climate change benefits), resulting in the issue of site-specific climate change impacts no longer being placed out of bounds. Therefore, taken together, the moratorium and developments in the latest expert advice on climate change have resulted in both an expansion of the issues, and a serious contraction of the planning system (to include climate change impacts) and greater scope for public influence on decision-making more generally (due to the reduced weight of extant policy support for shale development).

4.2.2. EA environment permit consultations
We find very little evidence of public influence on the permit applications summarised in Appendix 2, whether through substantive changes to the permit or on the ultimate decision of whether to grant the
permit. The EA are only able to consider comments that are relevant to the activities covered by the permit (e.g. extractive waste management, groundwater protection, flaring). More general concerns over hydraulic fracturing, the industrialisation of the countryside, traffic, climate change and the adequacy of regulation are considered beyond the scope of consultation.

There are many examples of relevant issues being raised by members of the public through the consultations listed in Appendix 2. However, in the judgement of the EA, such issues did not tend to justify making substantive changes to permits, let alone refusing permit applications. In fact, we find just one possible substantive change being made to a permit in response to public consultation. In the Ellesmere Port case, the site plan was amended to include “secondary containment and hazardous waste storage”, seemingly in response to comments from members of the public [49].

Whilst the public may see such consultations as an opportunity to halt development, the EA’s decisions demonstrate its belief that the risks of hydraulic fracturing had been comprehensively identified and a consistent set of mitigation measures existed to control them. As such, consultation operated more as a mechanism through which the EA could communicate this to publics, rather than a forum through which publics might have identified some issue that the EA hadn’t considered. Whilst in theory it was possible for public concerns and local knowledge to shape EA decisions, our analysis suggests that in the case of shale development this barely occurred. In practice, therefore, these consultation processes tended to be occasions of (attempted) public reassurance, rather than public influence on decision-making.

4.2.3. Government policy and legislation consultations

Many of the UK consultation processes summarised in Appendix 3 had very narrow scopes – for instance, consulting on how to implement something that has already been committed to (e.g. a new tax regime). There are numerous instances where many consultees sought to comment on broader issues but were ignored for failing to address the specific questions posed by the consultation.

A number of the processes listed in Appendix 3 resulted in measures being adopted despite them being overwhelmingly objected to during consultation – perhaps most famously, 99% of respondents objected to the proposal to grant access to developers below 300 m.

The UK process that arguably demonstrated the greatest scope for public influence was the consultation over the Shale Wealth Fund (SWF). This consultation saw strong support for the idea that the SWF should privilege local communities first and foremost, that local communities should be involved in decision-making on how funds are spent and that direct household payments should be possible if supported by the local community. This ‘community first’ principle was embraced by the government in their response and arguably helped to shape the design of the proposed scheme [50].

The final 3 UK processes in our corpus (see Appendix 3) resulted in the government not taking forward the plans under consideration. Whilst this was in line with the majority of responses in the cases of the NSIP and permitted development consultations, the dropping of these proposals is likely explained by the moratorium - which was announced after these consultations occurred but before the government had responded - rather than being the result of the opposition expressed through these processes.

The UK government’s approach to consultation on shale development policies is perhaps best illustrated by comparison with the Scottish government’s approach (see Fig. 1). Specifically, we highlight two key differences between the two approaches.

First, the scope of the Scottish consultation was broad. The topic under consideration was onshore unconventional hydrocarbons and the impacts of exploiting them. Instead of consulting on a specific proposal, the consultation focused on the issue in general. This broad policy question was never put to public consultation in England. Instead, after the government had decided on a policy goal of developing a domestic shale industry, various proposals aimed at helping to achieve this goal were put to public consultation, with the focus often being on how to...
implement a particular proposal.

The second key difference we highlight here concerns timing. The Scottish government’s consultation occurred during a moratorium prior to the government committing to a policy position on shale development. The Scottish process therefore not only addressed the broad question of shale policy, but also occurred at a time when it could feasibly inform the development of the Scottish government’s shale policy. In England, on the other hand, public consultations with a narrower focus on the implementation of specific proposals aimed at helping to achieve shale policy occurred after the UK government had already committed to a policy of pursuing a domestic shale industry, and this policy commitment could not be questioned through these subsequent consultation processes.

As we can see then, the approach to consultation in Scotland can be characterised as ‘early and broad’, whilst in England the approach was ‘late and narrow’. The significance of these differences is that in Scotland public consultation was designed in such a way as to enable the public to inform Scottish broad-level shale policy (i.e. the question of whether to support the development a shale industry in Scotland). The process did not restrict the issues under consideration due to its broad focus on the issue in general, and the process also evidently offered the opportunity to influence broad-level shale policy. In England, on the other hand, no comparable participatory opportunity was established. Instead, public consultation was used, not to inform broad-level shale policy, but to understand how people thought proposals aimed at helping to achieve that broad-level policy should be implemented. Not only could such processes not be used to influence broad-level UK shale policy, but proposals were often taken forward in spite of overwhelmingly negative public consultation responses. As such, and in contrast to the Scottish approach, these exercises were tightly restricted in terms of the issues under consideration and generally offered limited scope for public influence (certainly where opposition to the proposal under consideration dominated the public response).

4.2.4. Public dialogue workshops

There were some early signs that the dialogue workshops influenced DECC’s thinking on public engagement on shale development [42,43]. The workshops produced a set of principles for engaging the public effectively, which included: ‘framing engagement’ (‘directly addressing existing public concern - providing the rationale for shale, including affordability, energy security and sustainability’); ‘empowerment’ (‘using information throughout the process, supporting the public to influence decision-making, giving time for people to consider their views’); and ‘transparency’ (‘being clear about what is known about shale gas and what is not; what the public can influence, and what they cannot; as well as about operations, regulatory decisions and progress’) [44]. The extent to which these principles have informed public engagement practice is not a question we pursue here. For our purposes, it is important to simply note that – in line with the stated aims of the workshops – scope for public influence was limited to the question of how the public should be engaged on shale development.

The workshops also yielded a series of insights concerning participant perceptions on shale development. Amongst the insights detailed in the TNS report on the workshops’ findings was the recognition of a tendency amongst ‘many participants’ to become negative about shale development, and that this was a “trend that became stronger as the workshops progressed and participants learned more, which will be vital to address when designing engagement activities” [44]. The report then states that “engagement activities which seek to inform, involve and empower the public without driving negative views will need to be designed with the… principles in mind” [44]. As such, the process took on a highly instrumental character as it sought to inform engagement practice with the expressed intention of avoiding ‘driving negative views’. This gives the unfortunate impression that the purpose of public engagement is to produce positive views about shale development and that negative views can and should be avoided by the design of engagement processes.

4.3. Local community perceptions of formal participatory opportunities

Our interviewees expressed a range of views about formal participatory opportunities, and in general views about the fairness or satisfactoriness of the forms of participation we focus on here were sharply divided along attitudinal lines.

Many of the findings reported above are already widely recognised by those who have participated in such processes. In terms of the areas of analytical focus in Section 4.2 above – the issues that were seriously considered within these processes and the scope for public influence on decision-making – our anti-shale development interviewees also tended to perceive these processes as tightly restricted and as offering limited scope for public influence.

For instance, in relation to the planning system, many of our anti-shale development interviewees noted that the kinds of issues that could be successfully raised were tightly restricted, especially when it came to final decisions (i.e. after appeals). In particular, there was widespread recognition of and frustration about the effective exclusion of concerns about public health and climate change (our interviews were conducted prior to the June 2022 appeal decisions).

They didn’t seem to be allowed to consider the health impacts. So if it was a problem with noise, a problem with traffic, or that sort of thing. Those are real planning considerations but if it’s an issue with what might happen to the health of the people living close by, that seems to be given less consideration and it doesn’t seem to be taken into account. It just seems totally wrong (Ppt 5, rural Fylde, anti)

And I think the Preston New Road site, because of the planning regs., how it’s looked at and how it was looked at at the time, though I never thought this was right, they didn’t take health into consideration particularly. So the issues that we were all concerned about, they weren’t taken on board. They were looking at roads, what it looks like, what it sounds like, but they weren’t actually the major issues. They were bad, but they weren’t the major issues (Ppt 3, rural Fylde, anti)

So they look at visual impacts, and then they look at air quality, and they look at heritage assets… but they’re all looked at in isolation and they’re not looked at as an overall… you know, climate change isn’t really taken into… waste management really isn’t taken into account (Ppt 11, rural Fylde, anti)

Some anti-shale development interviewees also noticed what we and other scholars have termed the site-by-site compartmentalisation of planning oversight, and the effect this has in rendering planning oversight insensitive to the cumulative impacts of an industry at scale scenario.

But again, remember, these are individual planning applications, you're not talking about a national infrastructure… In some ways, that's what you should be looking at - the overall impacts of that industry on climate change and on waste management because that's the only way, when you're looking at it at scale, when you actually assess the true impacts on the whole of the country… Because they actually said, they actually mentioned climate change on Roseacre, I was just looking at the report the other day and what it said is this one exploratory site on its own would not have an impact. Well it's true, it probably wouldn't have a major impact but you multiply that out and take that industry at scale - and that's what we're trying to get across… that unless you look at the whole thing, and the industry are deliberately not doing that in my view (Ppt 11, rural Fylde, anti)

Here the interviewee identifies the same narrow- and short-sightedness produced by the compartmentalisation of planning oversight that we refer to in Section 4.2.1. As we argue above, the consequence of this is that planning was not a forum in which the impacts and acceptability of
a prospective production-phase shale industry at scale could be engaged with.

There was also a good deal of frustration and cynicism amongst our anti-shale development interviewees about what they saw as the limited scope for influence on policy- and decision-making offered by these formal participatory opportunities. For instance, public consultation was widely perceived to be a ‘tick-box exercise’ that offered little scope to influence policy-making.

What I found out very quickly is that the idea of public consultation is one of those things. It sounds wonderful. And let’s have localism, let’s have all this and then the Government can tick the box and say we’ve done that. The actual effect you can have is minimal… So yeah, it’s a box ticking exercise. The Government had no intention of listening to anybody over anything (Ppt 9, rural Fylde, anti)

Well, I think like I said before it’s just a tick-box exercise, they’ve given you the opportunity to respond, you have done, you know and that’s it, they’ve received it and - so as far as they’re concerned - complete, we gave them the opportunity, yes, [they’ve] answered that, so it’s, yeah (Ppt 8, coastal Fylde, anti)

This sense that formal public participation was performative was a recurring theme amongst anti-shale development interviewees. Anti-shale development interviewees often assumed that the rationale underpinning formal participation was to invite members of the public to participate in decision-making in order to fulfil legal obligations and legitimate the resulting decision, without actually offering scope for meaningful public influence where community views were in conflict with government policy.

It’s just to give it some face validity isn’t it. To actually say that they’ve consulted. But it’s just a complete PR exercise (Ppt 4, rural Fylde, anti)

They have to make it look like they’re listening when they’re not really listening to people. So we’ll have a public consultation but we’re not really gonna listen to the results of it if it doesn’t fit in with what our policy is (Ppt 11, rural Fylde, anti)

It’s like a protocol, isn’t it? It’s like we have to do these dance steps (Ppt 2, coastal Fylde, anti)

Thinking of forms of formal public participation in shale development decision-making in terms of dance steps captures both their often elaborate procedural rules and the performative quality of going through a series of obligatory steps with little scope for influence on decision-making. These quotes also demonstrate how the notion of performativity is distinct from the closely connected and overlapping concept of instrumentality. Performative participatory processes also have an expressive, misleading quality that is not captured by the concept of instrumentality, which refers to the notion of designing participatory processes in ways that seek to achieve particular outputs (e.g. particular decisions) or more general outcomes (e.g. public acceptance of a particular form of development). This is because inviting and being seen to invite participation may produce a veneer of democratic legitimation for a process that is nonetheless designed to prevent publics from interfering with the pursuit of the sponsoring institution’s instrumental aims – to provide ‘face validity’ or ‘make it look like they’re listening when they’re not really listening’ as our interviewees put it above.

In the case of planning, in our Fylde case study region this sense of a lack of scope to influence decision-making was exacerbated by the way in which LCC’s PNR decision had been overturned on appeal by the government.

To me it just came over as central government riding roughshod over local views… it seemed very much that local people, the local government, didn’t want fracking but it was forced upon them. So to me the process wasn’t fair (Ppt 21, wider region, anti)

The general response to this episode amongst our anti-shale development interviewees was one of anger at the way the government could seemingly impose shale development on local communities, irrespective of local opposition expressed through the planning process and the initial LMPA refusal. Views on this episode were mixed amongst our pro-shale development interviewees. A number of these participants were uneasy about local decisions being overridden but ultimately supported the government’s approach as a ‘necessary evil’.

The main exception to this cynicism amongst anti-shale development interviewees over the scope for public influence on decision-making was those that had acted as part of Rule 6 parties in planning processes. These anti-shale development interviewees did consider themselves to have a realistic chance of influencing decision-making (this was of course encouraged by the appeal decision in the RW case). However, this perceived scope for influence came at a cost for these interviewees, as they detailed the financial costs and sheer amount of work required to participate as a Rule 6 party.

These findings are significant because they offer a source of triangulation and validation for key elements of our analysis presented in Section 4.2. Based on their own experiences, many of our anti-shale development interviewees independently identified the restrictiveness of the issues that could be successfully raised within planning (certainly prior to the 2019 moratorium), the compartmentalisation of planning oversight and its implications, and the limited scope for influence through public consultation. Moreover, these findings begin to give a sense of the consequences of formal participatory processes that are perceived to tightly restrict the issues that are open for consideration and to offer limited scope for influence by those that participate in them. Amongst our anti-shale development interviewees, these processes did not generate trust, acceptance or a sense of legitimacy, but rather produced a good deal of frustration and cynicism because they were experienced as highly restrictive and performative.

5. Discussion

Our analysis of four forms of formal participation finds that, in general, during the 2012–2019 pursuit of a domestic shale industry these processes typically allowed only a narrow range of issues to be considered and there was limited scope for public influence on shale development policy- and decision-making through these processes.

On planning, whilst there was evidently scope for local residents to persuade LMPAs to take a more expansive view of the agency of planning decision-makers, in the light of the planning and energy policy context, these expansionary tendencies tended to be reined in by planning inspectors and Communities Secretaries on appeal. As our analysis of the June 2022 appeal decisions demonstrates, after the 2019 moratorium there are signs that changes in this policy context (and the expert advice underpinning it) have led to an expansion of the issues open for consideration within and scope for public influence through the planning system. Nonetheless, our analysis provides further support for the key mechanisms identified in the literature reviewed in Section 2.2 through which relevant issues and scope for public influence were narrowed during the 2012–2019 pursuit of a domestic industry. Deference to government energy policy in combination with the 2015 WMS effectively side-lined the issue of climate change in this period; the assumption of the effective operation of other regulatory regimes ruled out concerns based on public health, the adequacy of regulation and the capacity of regulators; and the double compartmentalisation of oversight obscured longer-term, strategic questions about the impacts of an industry as a whole.

Unlike planning, the other three types of participatory process considered here have not previously been the subject of widespread scholarly attention in relation to shale development in the UK. We find that in practice EA permit consultations operated as a mechanism through which the EA could (attempt to) reassure publics that the concerns they raised were addressed through conditions in the
members of the public raised arguments that caused the permit to be substantively amended or even refused. There is therefore arguably a mismatch between the kind of participatory opportunity desired by many participating members of the public (i.e. one where they can influence decisions) and the kind of participatory opportunity that permit consultations have in practice been (i.e. one where the EA communicates how the permit safeguards public health and the environment).

Turning to UK government consultations, these processes tended to focus on extremely narrow questions of implementation. Typically, the government had already committed to a particular policy intervention aimed at helping to facilitate the development of a shale industry and the questions being put to consultation were narrow ‘how’ questions. This approach adhered to the consultation principle to only consult on matters that are not already decided, but because the government had already committed to so much, what was left for public consultation was extremely narrow in scope.

Similarly, the dialogue workshops were designed to explore the narrow question of how to engage the public on shale development, rather than public views on shale development more generally. There is also evidence that, for at least some of the actors involved, this process had the deeply instrumental aim of informing the design of engagement processes in ways that would discourage negative public responses.

Finally, our interviews with community members in Lancashire reveal a fundamental mismatch between the expectations that some members of the public had about their level of influence and the kinds of debates they wanted to have and the institutional realities of the formal participatory opportunities that were actually available. Such expectations may well have been encouraged by the government’s rhetoric on localism (see [51], for example), and this mismatch generated a good deal of cynicism and arguably helped to entrench opposition amongst some community members in the Fylde. Our local community interviews suggest that these processes were often experienced as tokenistic and performative exercises in legitimation by those participating in them.

These findings offer four empirical contributions to the literature on public participation in planning and regulatory decision-making on shale development considered in Section 2.2. First, in relation to planning, our findings provide further support for the mechanisms identified in this literature as having narrowed the scope for public participation, in terms of both the issues that were on the table for serious discussion and the likelihood of public influence on final decisions.

In particular, Hilson’s assessment was made at a time when relatively few planning and permitting decisions had been made for shale development sites. We build on this work by exploring whether these largely in-principle expectations are reflected in decision-making in practice now that more planning and permitting decisions have taken place. We find that Hilson’s anticipatory assessment of the scope for planning to consider climate change and environmental risk was slightly optimistic. Whilst, as identified by Hilson, some direct emissions are material, the subsequent (to Hilson’s work) articulation of government support as being in part based on the climate change benefits of shale development in WMSs worked to ensure that such emissions were unlikely to justify the refusal of permission prior to 2019, especially at the appeals stage. Furthermore, the wider question of the reconcilability of a domestic shale industry with climate change targets was rendered immaterial by the double compartmentalisation of planning oversight. As Hilson also identifies, in particular environmental risk issues were material planning considerations whilst others were defined as the responsibility of the EA. However, our assessment – based on planning decision-making as opposed Hilson’s anticipatory assessment of planning policy – demonstrates the in practice restrictiveness of the assumption of the effective operation of other regulatory regimes. This requirement not only defined spheres of decision-making responsibility as Hilson anticipated, but also mandated an assumption of the consummate regulation of shale development sites in practice which was used by planning decision-makers to dismiss concerns over local environmental risk and public health, scientific uncertainty and regulatory efficacy.

Second, in analysing a more comprehensive list of planning processes than the studies covered in Section 2.2, we confirm that such narrowing effects were not the result of idiosyncratic judgements on particular decisions, but were indeed general features of the system. Furthermore, our analysis of the June 2022 appeal decisions demonstrates how the situation has changed post-2019.

Third, in looking additionally at three other key forms of formal participation, we have identified that such narrowing effects were not unique to planning. We found that EA processes could only consider a narrow range of site-specific issues, UK consultations focused on narrow ‘how’ questions of implementation, and the dialogue workshops addressed the question of how to engage the public on shale development. As such, we are able to argue that during the 2012–2019 pursuit of a domestic shale industry processes of formal public participation in shale development decision-making were in general tightly restricted to focus on a narrow range of site-specific impacts or questions of implementation, and were therefore unable to accommodate broader policy debates concerning the reconcilability of shale development with climate change targets and the wider public acceptability of shale development. This breadth of approach also enables us to confirm that in England, the wider issues that were excluded from the site-specific regimes (planning and permitting) were not subject to meaningful public participation in wider forums (such as public consultation or bespoke deliberative processes). This meant that members of the public that wanted to engage with and influence shale policy were left without a credible forum through which to do so beyond traditional practices of representative democracy (e.g. voting in elections or lobbying representatives).

Finally, building on the work already done by Szolucha and colleagues in this direction, we have also identified community perceptions and experiences of formal participatory processes. Amongst our anti-shale development interviewees we found frustration over the restiveness of formal participation in terms of the issues open for consideration and cynicism concerning the scope for public influence. These processes were therefore widely experienced as performative. These findings not only support our own analysis of these processes, but also suggest that participatory processes geared instrumentally toward the achievement of energy policy are likely to produce outcomes such as public frustration, cynicism, and exacerbated opposition, rather than trust and acceptance.

Our findings also have three main conceptual implications. First, our analysis demonstrates that Owens’ notion of the planning cascade has relevance beyond planning and constitutes a more general feature of the design of formal public participation in energy infrastructure decision-making in the UK. In this more general ‘cascade’, the public was not invited to participate in the initial policy decision in favour of pursuing a shale industry and the narrow opportunities for formal participation that followed were designed to either help implement or not unsettle that prior policy commitment.

Second, looking back to the STS literature discussed in Section 2.1, our findings support Irwin’s argument that, depending on how they’re designed and implemented, participatory processes don’t necessarily result in trust and public acceptance, but can instead lead to further public alienation, especially where such processes are experienced as restrictive, instrumental and performative [52]. As our findings reported in Section 4.3 demonstrate, for many community members in the Fylde, formal processes of participation in decision-making on shale development were often perceived as highly circumscribed and performative tick-box exercises with questionable scope for public influence over an issue on which the government had already made up its mind. This led to outcomes such as frustration and cynicism amongst our anti-shale development interviewees, rather than trust or acceptance. More generally, common arguments concerning the ‘undemocratic’ nature of the UK government’s pursuit of a shale industry [7,8] and declining
levels of public support for shale development [53,54] both suggest that the approach to formal public participation in decision-making on shale development struggled to widely achieve outcomes such as trust and public acceptance.

In relation to Stirling’s work [14], we find evidence that the design of and interventions in participatory processes geared such processes toward either helping to achieve or not questioning the policy aim of developing a domestic shale gas industry. Looking across the four forms of participation, the dialogue workshops (with their focus on avoiding negative views) and the UK government consultations (with their narrow focus on details of policy implementation) can be identified as being instrumentally geared toward the delivery of energy policy. With permitting and planning, elements of the design and implementation of these processes (including government reforms to and interventions in planning) worked to prevent them from being used to question and resist government shale policy, albeit arguably unsuccessfully. However, our local community interviews, alongside the aforementioned perceptions of undemocratic decision-making and declining levels of general public support, suggest that these participatory processes (whatever the intention) failed to provide much in the way of strong justification or legitimation for either specific exploration sites or shale policy in general. This is arguably precisely because these processes were widely viewed as restrictive, performative and instrumental attempts to help deliver a policy goal, or at least as being insensitive to public questioning of that policy goal. This in turn suggests that gearing participatory processes toward particular outputs that are in line with existing policy commitments and producing legitimation for both the outputs of specific processes (e.g. decisions to grant permission to particular sites) and the policy commitment in general (i.e. the pursuit of a shale industry) are two tasks that are in tension. In other words, policy-makers cannot expect to influence participatory processes to produce outputs in line with their policy commitments and simultaneously expect such processes to produce outcomes such as democratic legitimation for these policy commitments.

Finally, with respect to the recent focus on diverse, already occurring practices and spaces of participation (see [55,56]), we hold that there remains value in the close examination of formal, invited processes. Our analysis reveals a particular ‘institutional way of seeing’ public participation in decision-making on innovation and infrastructure that limits the prospects for the kind of institutional recognition of diverse forms of already-occurring participation that Chilvers and colleagues advocate. This way of seeing participation is reflected in processes that tightly restrict the issues that are on the table for discussion and limit the scope for public influence; and in processes that occur after broader government commitments have already been made and so focus on questions of policy implementation and a limited range of site-specific impacts, without sensitivity to public questioning of the substance and direction of government policy.

Our study has a number of limitations. First, we have analysed a non-exhaustive selection of forms of formal public participation. We discuss the rationale for selecting the four forms of formal public participation we focus on in Section 3. For the reasons discussed in Section 3, we believe that our focus on these four types of participation is sufficiently comprehensive for our purpose of investigating the scope for public influence on decision-making on shale development in the UK.

Second, we entirely overlook the various forms of informal or ‘un-invited’ participation that members of the public engaged in (e.g. legal challenge, protest, lobbying councillors and MPs, etc.). Such forms of ‘uninvited’ participation have already received attention in the UK shale gas case (see [28,57,58]), and moreover, for the reasons outlined just above, we believe that there is value in studying formal, invited processes of public participation.

Third, our insights on how these formal processes were perceived by local community members come from a single case study region and a non-representative sample of interviewees that is both skewed by design toward members of the public that had taken up the opportunity to directly participate in decision-making and unavoidably skewed by context toward anti-fracking attitudes.

Further work on the perceptions and experiences of those that participated in such processes in other regions with experience of shale development in England would be useful in order to ensure that the Fylde is not an atypical case in terms of the kinds of perceptions and experiences we report here. Work looking into broader public perceptions and expectations of participatory opportunities on energy infrastructure decision-making would be hugely valuable, especially given the infrastructure required to achieve net zero in the coming decades. However, we would argue that work engaging with the ‘campaigning public’ (see [59]) that have actually participated in such processes can both help to explain the frustrations that emerged around participatory opportunities in the shale development case and provide insights about how to avoid such frustrations looking forward to the infrastructure requirements of net zero.

Our approach of intentionally seeking the perspectives of those that had participated in formal processes overlooks the perspectives of those that did not participate for various reasons. This likely explains why we encountered different views compared to Hawkins, who found strong support for expert-led decision-making so long as experts are trusted and are pursuing the publicly-defined aim of environmental protection [60]. Many of our participants would have gladly delegated decision-making responsibility to the kind of trusted public champion that Hawkins discusses, though we sense more because participation is so resource intensive than the view that this is a more legitimate way to make decisions. However, in the absence of such a champion, the opportunity to participate, and more importantly to potentially influence decision-making, was certainly valued. In fact, in this context direct participation was widely seen as a duty.

The skewing of our interview sample toward anti-shale development perspectives was partly a result of the difficulty in recruiting pro-shale development interviewees (especially in the rural Fylde area) and partly because these formal processes tended to be dominated by anti-shale development members of the public (certainly in the case of planning, permitting and consultations). There may be value in future work that intentionally identifies and engages with reticent pro-development publics, with a view to better quantifying and/or understanding such perspectives. Whilst the existence of a ‘silent’ pro-development majority that is obscured by a loud anti-development minority should not be taken as a given, investigating this potential phenomenon and seeking to understand the reasons behind any reticence to participate may yield valuable insights.

6. Conclusion

Looking across the forms of formal public participation considered here, we find a set of processes that in general tightly restricted the issues open for consideration and offered limited scope for public influence during the 2012–2019 pursuit of a domestic shale industry. As we have argued, these processes can in various ways be seen as having been instrumentally geared toward the achievement of shale policy during this period, whether by focusing on narrow questions of implementation or by limiting the issues under consideration to particular site-specific issues and so ignoring public questioning of shale policy. As Owens observed [16], one result of these restrictive designs that limit the issues that can be raised effectively within these processes is that in the absence of an alternative forum these processes tend to attract a huge volume of irrelevant contributions that are simply ignored, engendering frustration on all sides. The instrumentality and restrictiveness of these processes and the feelings of frustration this helps to engender are reflected in the fact that some of those to have participated in these processes saw them as performative. That is, as merely a matter of going through the dance steps - to paraphrase one of our interviewees - in order to fulfil statutory obligations, governance norms and cultural expectations, whilst offering little scope for public influence on policy- and
decision-making.

The approach taken to formal public participation in England in this period not only ultimately failed to help deliver a shale industry, but also led to widespread questioning of the democratic quality of decision-making on shale development. In short, the approach taken by the UK government in England can be argued to have achieved neither delivery nor democracy. Whilst there are no procedural magic wands – especially for institutions only interested in how participation can be used to help deliver an already committed to policy goal – an upstream participatory process of the sort envisaged by Whittton et al. [11] may at the very least have, like the Scottish ‘Talking Fracking’ process, clearly identified the challenges faced in securing the social license to operate and prevented a costly policy failure.

As governments look toward the infrastructure required for ‘net zero’ it is important that lessons are learnt from the case of formal public participation in decision-making on shale development in the UK. We would argue that the ‘late and narrow’ approach taken in England during this period – where formal participation was invited on a narrow set of questions and issues largely after the government had committed to pursuing the development of a shale industry – geared formal participation toward the instrumental delivery of policy, fuelling the feelings of frustration and perceptions of performativity discussed here. Avoiding such outcomes with net zero infrastructure may require an alternative ‘early and broad’ approach in which public deliberations on broad questions of policy, social desirability, priorities and trade-offs, and looking across a range of options, occur prior to and feed into the formation of policy commitments.

As governments look toward the infrastructure required for ‘net zero’ it is important that lessons are learnt from the case of formal public participation in decision-making on shale development in the UK. We would argue that the ‘late and narrow’ approach taken in England during this period – where formal participation was invited on a narrow set of questions and issues largely after the government had committed to pursuing the development of a shale industry – geared formal participation toward the instrumental delivery of policy, fuelling the feelings of frustration and perceptions of performativity discussed here. Avoiding such outcomes with net zero infrastructure may require an alternative ‘early and broad’ approach in which public deliberations on broad questions of policy, social desirability, priorities and trade-offs, and looking across a range of options, occur prior to and feed into the formation of policy commitments.

### Appendix 1

#### Table A1

Key planning processes for shale development sites in England.

<table>
<thead>
<tr>
<th>Site and operator</th>
<th>Date</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preese Hall, Fylde, Lancs. Cuadrilla</td>
<td>Original application made in July 2009</td>
<td>Granted by delegated powers in October 2009</td>
</tr>
<tr>
<td>Balcombe, Sussex, Lancs. Cuadrilla</td>
<td>Original application made in January 2010</td>
<td>Granted by delegated powers in April 2010</td>
</tr>
<tr>
<td>Preston New Road and Roseacre Wood, Fylde, Lancs. Cuadrilla</td>
<td>Original PNR application made in May 2014</td>
<td>Both refused by LCC in June 2015 – RW on traffic grounds in line with planning officer’s recommendation; PNR on landscape and visual grounds and noise grounds, going against planning officer’s recommendation</td>
</tr>
<tr>
<td>Preston New Road and Roseacre Wood, Fylde, Lancs. Cuadrilla</td>
<td>Original RW application made in June 2014</td>
<td>Appeals recovered by the Secretary of State (SoS) PNR appeal granted by SoS in October 2016; RW inquiry reopened to allow further evidence on highway safety</td>
</tr>
<tr>
<td>KMB, Kirby Misperton, North Yorks. Third Energy</td>
<td>Original application made in May 2015</td>
<td>Granted by NYCC in May 2016 in line with planning officer’s recommendation</td>
</tr>
<tr>
<td>Springs Road, Misson, Notts. IGas</td>
<td>Original application made in October 2015</td>
<td>Granted by NCC in November 2016 in line with planning officer’s recommendation</td>
</tr>
<tr>
<td>Tinker Lane, Notts. IGas</td>
<td>Original application made in May 2016</td>
<td>Granted by NCC in March 2017 in line with planning officer’s recommendation</td>
</tr>
<tr>
<td>Common Road, Harthill, South Yorks. INEOS</td>
<td>Original application made in May 2017</td>
<td>INEOS appealed against non-determination (i.e. application not being decided in reasonable timeframe) Grant by a planning inspector in June 2018 going against planning officer’s recommendation to refuse on traffic grounds</td>
</tr>
<tr>
<td>Bramleymoor Lane, Marsh Lane, Derbyshire, INEOS</td>
<td>Original application made in May 2017</td>
<td>INEOS appealed against non-determination (i.e. application not being decided in reasonable timeframe) Duplicate application submitted in December 2017, DCC vote against dealing with it Granted permission by a planning inspector in August 2018 in line with planning officer’s recommendation</td>
</tr>
<tr>
<td>Ellesmere Port, Cheshire, IGas</td>
<td>Well test application made in July 2017</td>
<td>Refused by CWCC in January 2018 on climate change grounds, going against planning officer’s recommendation Appeal recovered by the SoS Appeal eventually refused by the Housing Minister (on behalf of the SoS) in June 2022 on climate change and community wellbeing (stress and anxiety) grounds, in line with the recommendation of the inspector</td>
</tr>
<tr>
<td>Woodsetts, South Yorks. INEOS</td>
<td>Original application made in October 2017</td>
<td>Refused by RMBC in March 2018 on ecological and traffic grounds (planning officer recommended refusal on ecological grounds only) INEOS submitted new application in June 2018 Refused again by RMBC in September 2018 on traffic grounds and a lack of information on the control of environmental impacts, going against planning officer’s recommendation Appeal recovered by the SoS Appeal eventually refused by the Housing Minister (on behalf of the SoS) in June 2022 primarily because...</td>
</tr>
</tbody>
</table>

#### Uncited references

[55,56]

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Data availability

The data underpinning this study are openly available from the UK Data Service’s ReShare repository at https://doi.org/10.5255/UKDA-SN-854986.

#### Acknowledgments

The research presented here was funded by the UK Natural Environment Research Council (NERC) and Economic and Social Research Council (ESRC) as part of the “Unconventional hydrocarbons in the UK energy system: environmental and socio-economic impacts and processes” research programme – grant number NE/R018138/1. The authors would like to thank our interviewees, whose community has been so heavily studied, for their generosity and valuable contributions. The authors would also like to thank Tim Mitcham, Dot Kelk, Julie Norman and Amy Pennington for their invaluable help in identifying suitable interviewees.

(continued on next page)
Appendix 2

Table A2
Key permit consultations for shale development sites in England.

<table>
<thead>
<tr>
<th>Site and operator</th>
<th>Date consultation initially opened</th>
<th>Details and outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preston New Road, Cuadrilla</td>
<td>June 2014</td>
<td>Consultation on a radioactive substance activity permit application, granted (nonetheless were 534 responses from individuals)</td>
</tr>
<tr>
<td>Preston New Road, Cuadrilla</td>
<td>June 2014</td>
<td>Consultation on a mining waste and groundwater activity permit application, granted</td>
</tr>
<tr>
<td>Roseacre Wood, Cuadrilla</td>
<td>June 2014</td>
<td>Consultation on a radioactive substance activity permit application, granted</td>
</tr>
<tr>
<td>Roseacre Wood, Cuadrilla</td>
<td>June 2014</td>
<td>Consultation on a mining waste and groundwater activity permit application, granted</td>
</tr>
<tr>
<td>Kirby Misperton (KM8 well), Third Energy</td>
<td>June 2015</td>
<td>Consultation on a radioactive substance activity permit application, granted</td>
</tr>
<tr>
<td>Kirby Misperton (KM8 well), Third Energy</td>
<td>June 2015</td>
<td>Consultation on a mining waste and groundwater activity permit application, granted</td>
</tr>
<tr>
<td>Misson, IGas</td>
<td>January 2016</td>
<td>Consultation on a mining waste permit application, granted</td>
</tr>
<tr>
<td>Tinker Lane, IGas</td>
<td>August 2016</td>
<td>Consultation on a mining waste permit application, granted</td>
</tr>
<tr>
<td>Ellesmere Port, IGas</td>
<td>August 2017</td>
<td>Consultation on an application to change an existing mining waste permit, granted</td>
</tr>
</tbody>
</table>

Appendix 3

Table A3
Key consultations on government policy and legislation relating to shale development in the UK.

<table>
<thead>
<tr>
<th>Title</th>
<th>Date consultation opened</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK government</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A fiscal regime for shale gas</td>
<td>July 2013</td>
<td>A consultation on the government's proposed shale gas tax regime, primarily industry stakeholder focused (just 12 responses from ‘individuals’).</td>
</tr>
<tr>
<td>Revised requirements relating to planning applications for onshore oil and gas</td>
<td>September 2013</td>
<td>A consultation on three changes to the planning process – removing individual notification requirements for land above proposed subsurface activities, introducing a standard application form for onshore oil and gas, and calculating application fees on the basis of the area of surface development only; aimed primarily at developers and local authorities (nonetheless the were 534 responses from ‘individuals’, 52 of all responses)</td>
</tr>
<tr>
<td>Strategic Environmental Assessment for Further Onshore Oil and Gas Licensing</td>
<td>December 2013</td>
<td>A consultation on an Environmental Report, as part of the Strategic Environmental Assessment (SEA) for the 14th licensing round; a total of 2419 responses were received, 2367 from individuals, 52 from organisations (industry, statutory consultees and other agencies, local authorities, and NGOs and campaign groups)</td>
</tr>
<tr>
<td>Underground Drilling Access</td>
<td>May 2014</td>
<td>A consultation on simplifying the process for underground access when seeking to exploit oil, gas or geothermal resources; 40,647 responses</td>
</tr>
<tr>
<td>Technical consultation on draft regulations to allow the local retention of 100 % of business rates on shale gas and oil sites Shale Wealth Fund: A consultation</td>
<td>October 2014</td>
<td>Technical focus, aimed primarily at stakeholders (industry, local government) – 25 responses, 10 from ‘members of the public’</td>
</tr>
<tr>
<td></td>
<td>August 2016</td>
<td>A consultation on the delivery method and priorities of the Shale Wealth Fund (SWF); 170 responses, of which 115 were from members of the public (submissions that failed to provide evidence or answer the specific consultation questions were not counted as formal responses)</td>
</tr>
<tr>
<td>Permitted development for shale gas exploration</td>
<td>July 2018</td>
<td>A consultation on whether and in what circumstances non-fracking shale gas exploration development should be granted planning permission through a permitted development right; 15,226 responses (5411 personal responses, 8668 as part of a Folio campaign), additional joint petition with 307,720 signatories in opposition to the proposals from a range of NGOs.</td>
</tr>
<tr>
<td>Compulsory community pre-application consultation for shale gas development</td>
<td>October 2018</td>
<td>A consultation on whether applicants should be required to conduct pre-application consultation with the local community prior to submitting a planning application for shale gas development; 524 responses, 435 of which were ‘personal responses’.</td>
</tr>
<tr>
<td>Inclusion of shale gas production projects in the nationally significant infrastructure project regime</td>
<td>October 2018</td>
<td>A consultation on whether major shale gas projects should be included in the NSIP regime, and, if so, what the most appropriate criteria would be to establish whether a project should be considered nationally significant; 2369 responses, 2142 of which were from individual members of the public.</td>
</tr>
<tr>
<td>Scottish government</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talking “Fracking”: A Consultation on Unconventional Oil and Gas</td>
<td>January 2017</td>
<td>A general consultation on onshore unconventional oil and gas and the potential impacts of developing these resources; 60,535 responses</td>
</tr>
</tbody>
</table>

References
