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Questioning the local: environmental regulation, shale gas extraction, and the politics of scale

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ABSTRACT

The exploration and potential extraction of shale gas – better known as fracking – has emerged as one of the most contentious dimensions to local environmental politics in the UK. Local residents and environmental activists have raised concerns about health, noise, ground water contamination, seismicity, environmental amenity, and other impacts of the industry on communities. Despite the complexities of shale gas extraction, an emphasis on the local has shaped key dimensions of the debate around the appropriate location for well pads to the relative exclusion of other issues. This paper draws on fieldwork in Lancashire, UK, to reflect on the political construction of scale in order to explore how an emphasis on “the local” can restrict political debate over shale gas to narrow concerns with land-use planning thereby obviating a fuller engagement with wider questions concerning risk, energy policy, and climate change. It is concluded that a more nuanced conception of scale is necessary for understanding how concerns with shale gas are diminished rather than strengthened through the current planning policy and regulatory regime operating in the UK.

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Introduction

On the morning of 29 January 2015 there were unprecedented scenes at Preston Town Hall, located in Lancashire, north-west England. The planning meeting, held every month, is normally sparsely attended and garners limited attention. However, on this day the councillors were due to decide whether to allow shale gas exploration, also known as fracking, to proceed at two sites in rural Lancashire: Preston New Road and Roseacre Woods.¹ Temporary barriers had been set up to block the main entrance to the town hall. Groups of police officers could be seen in discussion with plain clothes officers in readiness to remove disruptive members of the public from the meeting. During the morning hundreds of protestors had been arriving from across the UK. Many people in the crowd carried distinctive yellow banners demanding a “Frack Free Lancashire”. Other placards showed slogans such as “Keep it in the Ground”, “Fracking will pollute your planet”, along with demands for renewable energy and action on climate change. I recognised a familiar face in the crowd outside, a woman from a rural part of the Fylde in Lancashire, who is a member of an anti-fracking group, previously interviewed for my research. She introduced me to an environmental activist who had been staying with her and told me that the police have been harassing them. When speaking with her it was apparent that her opposition to fracking had changed from local issues to wider

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concerns with climate change and that her faith in policing and the state had been diminished by these experiences. Furthermore, they hoped that Lancashire councillors would refuse permission and send a message to the UK government that the country is not “open for fracking”. Before objectors could present their statements or the councillors determine the application, however, the meeting was abruptly adjourned as the shale gas operator wished to table further information. Angry scenes ensued, and the meeting ended up being delayed for nearly six months amid intensifying community anxieties over the future.

This paper explores the limits to the local: how can we reconcile the varying dimensions to environmental discourse that operate simultaneously at different regulatory and governmental scales? Existing research has articulated how the localised nature of planning decisions enables appeals to a national public interest to counter local objections to environmentally damaging developments (see for example Kemp 1990; Owens 2004). Communities face scrutiny of their motivations and values when they do use the planning system as a means to oppose development and NIMBYism can be a mischaracterisation designed to discredit potentially legitimate concerns (see also Burningham 2000; McClymont and O’Hare 2008).

In a UK context opposition to shale gas extraction has been routinely characterised as a form of “NIMBYism” by the UK government, the industry, and elements of the press (see Younger 2015).² This paper seeks to question the characterisation of anti-fracking protests as inherently driven by parochial concerns. Public objectors have mobilised the concept of “the local” to varying degrees of effectiveness. Yet these participants have been influenced by a multi-faceted range of perspectives that encompass social, political, environmental, and regulatory spheres. Despite this range of knowledge, however, public objections remain “trapped” within the local planning arena to the extent that wider concerns with climate change and environmental justice have been systematically downplayed.

I draw upon qualitative fieldwork in Lancashire conducted between 2012 and 2016, including interviews, analysis of activist and planning meetings, and documentary analysis of planning committee materials produced by Lancashire County Council, Cuadrilla, objectors, and expert witnesses from 2009 onwards. During this period I conducted 17 semi-structured interviews with key individuals, participated in meetings and events with an anti-fracking group for two years (2012–2013), studied key planning committees in 2015, and analysed the webcast of the 2016 Public Inquiry. Beyond the formal planning meetings, I also attended and participated in public open days, Cuadrilla organised exhibitions, protest events in the region and local meetings.³

The extraction of shale gas involves a series of complex processes that bring geological “facts” into a network of planning practices, regulatory regimes, and territorial governance. The shale gas industry creates social and environmental impacts for communities living near well pads or waste disposal sites, not just in the process of extracting these hydrocarbons, but through the entire life cycle of construction, extraction, and remediation of sites: whilst some issues are more restricted in scale such as noise, light pollution, or ground water contamination, the release of hydrocarbons contributes to global challenges such as climate change (see Thomas et al. 2017). The majority of work has focused on the North American experience which has explored not only the perceived environmental harms suffered by communities but also the social and political tensions generated within locales where opinion is divided (see Briggie 2015; Gabrys 2017). There is now a growing literature engaged with European experiences (see for example Bradshaw and Waite 2017; Cotton 2017) although analysis has been framed mainly around environmental perceptions since there is very limited direct experience of the industry thus far (see for example Evensen et al. 2017).

In this paper I draw upon a politics of scale to examine the rationale for decision-making on the location of shale gas well sites. Whilst the politics of scale has generated a wealth of insights within geography, there is a lack of attention to the implications within governance debates (see for example, Papanastasiou 2017). The experience of Lancashire, which has emerged as the epicentre of recent European developments, shows how differing scales have been critical in shaping public debate including the various arguments that have emerged to either support or reject the industry.

England is the only nation in the UK to pursue shale gas extraction: Scotland, Wales, and Northern Ireland have now all introduced moratoria on this process. Moratoria have also been enacted in many other European nations and in several US states based ostensibly on the same evidence of the impacts of shale gas extraction. Yet national and regional differences remain striking: in the United States, for example, New York and Maryland have banned the industry whilst Texas accounts for around two-thirds of the US shale gas output (see Brannstrom and Fry 2017).

However, disputes over shale gas extraction extend far beyond local impacts to wider concerns. Many issues are now being explored from multi-disciplinary perspectives and include landscape and environmental degradation, water contamination, the disposal of waste materials, and legal and regulatory practices (see for example Brantley et al. 2018; Hawkins 2015; Hilson 2015; Meng and Ashby 2014). The anthropologist Thurka Sangaramoorthy's study of Maryland (2019) explores these concerns from the framework of anxiety given that communities foreground uncertainties and limitations of scientific evidence. Climate justice movements articulate global responsibilities but also the complicated multi-scalar nature of the debate given that shale gas is a fossil fuel (see McKendry 2016). However, these dimensions have been largely absent from the national and local scales of planning deliberation in the UK.

Whilst the anti-fracking movement spans multiple scales and a diversity of people and organisations, communities have devoted many resources to engaging with the local planning process. Shale gas extraction itself spans multiple policy domains at different scales yet it is not possible to drill anywhere since recoverable deposits are dependent on the identification of geological structures and the financial viability of extraction. Whilst the focus of this paper is the Lancashire case, it has implications for shale gas development and associated opposition elsewhere. The US operates with a very different regulatory and political context to the UK but the the "local scale" has likewise emerged as a key site for communities opposing fracking. The industry and state regulators have had to deploy significant resources within local arenas in the face of strong public opposition.

Nonetheless, the local scale focuses attention on site specific concerns that may draw attention away from some of the most controversial aspects of shale gas extraction and the resources it draws upon. We begin with a discussion of how the local scale has become critically important within shale gas extraction and contrast this with the literature on the politics of scale. We then turn to the Lancashire experience to examine the "re-scaling" of a potential national shale gas industry to address local concerns over temporary well pad drilling sites.

Place, scale, and shale gas extraction

Existing research reveals the important role of local governance and public participation. Here, local decision-making bodies can often serve as a crucible where numerous public concerns spanning from the local to the global find a space to be publicly voiced. Yet communities often find that their concerns are marginalised, apparently occurring at the wrong time and at the wrong scale for regulators and decision-makers.

The critical environmental scholar Julie Sze (2009) and her colleagues examination of the Sacramento-San Joaquin Delta articulates the tensions in determining an administrative geography that struggles to bind together complex socio-natures. They note that defining spatial boundaries is a complex task since "this scalar ambiguity does not merely imply a question of descriptive clarity. Rather it signifies and provokes fundamental questions of political power" (Sze et al. 2009, 809). This work emphasises that decision-making was seen to be a state level function in California. In contrast, the local level was seen as a subordinate scale composed of "special interests" distanced from a wider perspective. These "local" viewpoints were then sidelined by the state.

A increasing range of social scientific studies have identified the local scale as the focal point from which resistance can be organised against oil and gas interests (see for example, Briggles 2015; Davis 2014; Fry 2013; Willow and Wylie 2014). Studies that question the environmental and health impacts of shale have become heavily contested in the highly political US regulatory arena (see, for example

McKenzie et al. 2014). Nonetheless, an increasing number of ongoing studies find a number of impacts including low infant birthweights, stress and quality of life, asthma, and environmental effects including earthquakes and possible ground water contamination (see Burgos et al. 2017; Currie, Greenstone, and Meckel 2017; National Institute of Environmental Health Sciences 2014; see US Geological Survey 2018).

Existing work examining scale and environmental governance offers insights into the processes seeking to stabilise shale gas decision-making and how this reframes local voices as potentially undemocratic. Following local residents attempts to ban shale gas extraction in municipalities such as Denton, Texas, state regulators intervened to overturn such bans. Now many US disputes focus on attempts to ensure that well pads are located as far away as possible from residential areas, schools, and hospitals (Briggle 2015; Fry 2013). Shale gas deposits are determined by geology and thus decision-making can only occur in these localities. However, these cannot exist as solely local debates. Energy policy occurs at national and international scales and environmental impacts, not least climate change, do not respect administrative borders. Yet public debate about energy has been markedly absent at alternate scales, particularly national debates focused on energy pathways and energy security. One reason is that energy policy has tended to be viewed as highly technical with limited opportunities for public engagement (see Castán Broto and Baker 2017).

This dissonance in policy-making has been explored by the geographer Matthew Cotton (2017) who suggests that rescaling to the local scale might provide the most appropriate arena for just decision making. Cotton positions the national scale as removed from a potentially more democratic local arena. Despite the notable organising of local communities seeking to stop or reduce the harms of shale gas development there are difficulties in assuming that local scales offer more progressive perspectives. The political scientist Mark Purcell (2006, 1928) urges us to be alert to the “local trap” arguing that “there is no inherent or even tendential link between the agendas of local-scale groups and the agenda of democracy or that of social justice”. Similarly, the geographer Gordon Walker argues for a more sophisticated engagement with the sometimes seemingly obvious questions of scale and proximity. For Walker (2009), questions of community raise further challenges in thinking through not just scale but temporal dimensions to decision-making. Further attention must be paid to how environmental harms such as pollution may have disproportionate impacts on vulnerable groups within communities.

The geographer Sallie Marston and her colleagues (2005) have argued that scale poses inherent problems as it assumes hierarchies: scales are inherently “representational” and conjure up meanings within the descriptive terminologies that are adopted. “Once these layers are presupposed”, suggest Marston, Jones, and Woodward (2005, 422), “it is difficult not to think in terms of social relations and institutional arrangements that somehow fit their contours”. The idea that shale gas deposits identified by the British Geological Survey should necessarily be extracted demonstrates how a pro-shale national policy implicitly reframes local opposition as illegitimate. The political rescaling of shale gas governance is underpinned by a series of hierarchies that appear to reflect levels of decision-making despite limited public involvement or influence in national policy processes. Scale emerges as a political tool in itself.

Contesting the local in Lancashire

Gaining permission to undertake exploratory drilling in England involves permitting and licencing from a series of national regulatory bodies. Despite Cuadrilla, the Anglo-Australian mining company, holding exclusive rights to explore for shale gas within a 1162 km² within Lancashire, a shale gas company only “goes local” when applying for planning permission to construct a well pad and undertake exploratory drilling at a specific site.⁴ Since 2009 a series of seven individual sites for well pad drilling have been identified north and south of the Ribble Estuary in Lancashire for exploration, although only two are active.⁵ These individual sites are considered as separate developments with no consideration of how Lancashire might change if commercial production commenced.

Contrasting conceptions of the local scale have become increasingly important to justify both support and opposition to shale gas extraction in Lancashire. If scale is political then it is necessary to note who is making claims. Corporate mining interests have been busily constructing their version of “the local” in Lancashire. Cuadrilla’s own publicity materials emphasise a long history of oil and gas production in the area and they describe themselves as a “Lancashire owned company”.⁶ Cuadrilla’s website claims that they “are committed to working with local communities as we attempt *safely and sensibly to unlock Lancashire’s energy*” [italics added]. Cuadrilla’s implication is that this shale gas is “Lancastrian” and that these processes whilst local will benefit the UK as a whole.

Instead we can consider company registration and financing. Cuadrilla Resource Holdings was initially registered in Lichfield, Staffordshire in 2010, moving 100 miles north to Preston in Lancashire in January 2016. The presentation of a “local company” belies their share structure with 45 percent owned by AJ Lucas, an Anglo-Australian mining company, 45 percent owned by Riverstone, a financial vehicle registered in the Cayman Islands, and the remaining 10 percent owned by Cuadrilla employees. The flows of capital to exploratory work have been significant with losses in 2016 of \$11.54 million attributable in part to the significant delays within the planning process. This ongoing presence in Lancashire can only be sustained through a global network of financialization.⁷

The “Lancashire persona” adopted by Cuadrilla is at odds with their initial mode of engagement with communities in the development of drilling activity. Two action groups were established near to the initial well pads in 2011: Ribble Estuary Against Fracking (REAF) and Resident Action Against Fylde Fracking (RAFF) were the two groups on either side of the Ribble Estuary. REAF meetings were held at the house of a family who had first started to investigate shale gas when they saw a well rig in a field opposite their home. The family had later found a notice attached to a lamp post along a private lane where they walked their dog.⁸ The shale gas well pad had been granted planning permission by a planning officer under delegated powers and the applicant used a screening process to argue that there was no need for an Environmental Impact Assessment. There had initially been no public objections to these applications, most likely due to a combination of low levels of publicity about fracking at that time and the absence of formal notification by the local planning authority to neighbouring properties.

Public concerns in Lancashire were heightened when an earthquake was experienced in the Black-pool area on 1st April 2011.⁹ In response the UK government initiated a moratorium on drilling between May 2011 and December 2012 and commissioned an investigation. The resulting joint report prepared by the Royal Society and Royal Academy of Engineering concluded that shale gas exploration at Weeton had been responsible for the unprecedented earthquake event. The report concluded that robust regulation and industry monitoring could mitigate future activity and made recommendations for such a system. A process of “separate but complementary” regulation through national and regional agencies was set out. The local planning system was instructed that major environmental issues would be addressed by other agencies and thus were not a legitimate matter for public comment.

During this time period local groups spent much of their time in meetings trying to understand fracking, considering the material from Cuadrilla highly subjective, and the lack of information from Lancashire County Council a case for concern. My notes from these meetings record numerous discussions about assigning tasks such as trying to calculate the number of trucks needed to deliver water during the fracking process or estimating how many wells would eventually be needed under commercial production through the analysis of community accounts from the United States and the scrutiny of emerging reports and studies:

We cover [fracking] as much as we can as we want to keep it in the public mind. The drilling rig’s gone [Banks] and so people think that it’s all finished. They think they’ve got the gas and they’ve gone and they think it failed. (Community Activist, REAF, Interview with author, 4 September 2012)

The emphasis on local opposition may be used to imply a parochialism that presumes opposition is selfish or could be mitigated through financial or other inducements (see for example Bell, Gray,

and Haggett 2005). Yet there is little engagement with the scalar dynamics that prioritise a sense of local concerns seemingly disconnected from wider issues. Engagement is localised through the processes that demand comment on specific sites rather than at a regional or other scale. Community activists often face criticism for their resistance to development but they are often working to address the “information gap” between the state, developers, and local communities (see Beebejaun 2016; McClymont and O’Hare 2008). A lack of information on shale gas extraction led these groups to hold multiple public information days alerting residents to community accounts from the United States and encouraging people to register objections and comments to the local planning authority.

This segregated as well as hierarchical approach to planning policy produces a series of tensions in environmental planning. The seemingly discrete multi-level approach belies the complexities of the decision-making process spanning multiple agencies and temporal frameworks. Many communities do not consider commenting on national, regional, or local policies until they are directly affected. They may have to wait months or even years for the opportunity to do so. By moving opportunity for public comment to the local scale UK national policy has been subject to relatively little national response although this should not be confused with public support. The UK government has indicated their support for shale gas through public statements and policy-making at a national level. Yet a recent survey finds that 16 percent of the British public support shale gas, 33 percent oppose it, and the remainder have no opinion (DBEIS 2017). This framework carefully reduces public engagement on the shale gas industry to articulating local concerns, implying a pre-existing national consensus on the viability and safety of shale gas within a wider energy discourse. For REAF members the joint report by the Royal Society and Royal Academy of Engineering (2012) was deeply disappointing as climate change considerations were excluded from its terms of reference.

Early opposition to shale gas in Lancashire had focused on many of the more troubling aspects of the industry including groundwater contamination or earthquakes. However, growing evidence from the US was subsequently dismissed from local planning debates, not due to lack of credibility but through the government’s determination that concerns about earthquakes, water contamination, or other environmental issues should remain outside the remit of planning consideration:¹⁰

In doing so the focus of the planning system should be on whether the development itself is an acceptable use of the land, and the impacts of those uses, rather than any control processes, health and safety issues or emissions themselves where these are subject to approval under other regimes. Minerals planning authorities should assume that these non-planning regimes will operate effectively. (DCLG 2013, 7)

This reframing of the planning protest contrasts with increasingly intense level of public objections. The next sites under consideration are similar in scope to the Banks well pad which faced limited scrutiny and no public comment. Over 30,000 objection letters being received for consideration along with a series of petitions at the planning committee held from the 23–25 June and then reconvened on 29 June 2015 at Preston Town Hall. Nearly 500 letters were received in support. An 803 page planning report was produced by Lancashire County Council for the two well pad sites and for two related seismic array monitors in advance of the June meeting. This accompanied several thousand pages of information on the varied potential impacts including matters such as noise, groundwater contamination, seismicity, and threats to local wildlife. The councillors had heard evidence and conducted site visits in advance of the meeting where they then heard presentations from a planning officer and representations from the public before going on to debate the applications.

This planning meeting reveals the challenges posed by “re-scaling” in practice. The framing of the planning process meant that residents had to produce a series of objections to the specific localised consequences of one exploratory shale gas well pad in isolation. The process of rescaling meant some issues became split between local and national arenas creating contradictions. For example, the flaring and venting of gas is controlled by the Department of Energy and Climate Change but regulated by the Environmental Agency. Lancashire County Council were charged with examining noise

and visual impact as a key planning consideration. Yet the complexities of this regulatory system require us to think about the flaring of gas locally, not as a potential pollution issue, but as one of noise and visual impacts. Flaring and venting of gas from shale gas wells is a cause of concern and stress for local communities. Monitoring programmes in the US report local residents suffering from headaches, nosebleeds and respiratory problems (see Resick et al. 2013). Venting can take place for a short period and is difficult for a national agency to monitor immediately.

A planning officer, the professional council employee advising the committee, noted that whilst there had been an “unprecedented number” of objections, the councillors should “keep weight in perspective” both in the report and the committee. Scale was deployed by the officer suggesting those directly affected should be given greater weight with the committee report noting that many letters were from outside the region and that nearly five percent of the adult population of the Fylde (for Preston New Road) and nearly three percent (for Roseacre Woods) had formally objected. Here scale was also used to suggest that impacts are limited as few people live nearby. Other objections became framed as being less relevant as these people would not be directly affected as rescaling reframed shale gas as a micro-local and surface level concern changing questions of evidence, monitoring, and regulation to questions about perception of visual or auditory sensations of nearby residents. The extensive subsurface exploration was “off the map”. Furthermore, by reframing impacts as an aggregation of individual perceptions and experiences, the space to question how scientific evidence is generated was truncated (see Corburn 2003 for a critique).

Members of the public were permitted to give three-minute oral statements opposing or supporting the application. Yet there were difficulties for these respondents: is it only possible to be concerned about the visual impact of a gas flare and discount any questions related to pollution or human health? The site of the human body and the household is often neglected as lying outside a political sphere as a hidden or unreliable sphere of investigation (see Buckingham and Kulcur 2009; Murphy 2006). Whilst the content of the objections ranged with some choosing to draw on scientific evidence or discuss government policy as the basis for refusing the application most respondents grounded their remarks around the potential impacts on themselves, their families, and their communities. For example, one objector did raise concerns about the industrialisation of the landscape, as a potential visual impact, but her primary fear related to how the construction of a well pad would impact her children’s health and wellbeing. Decisions facing them were “being forced to stay” and ending up leaving them in “in a toxic playground”.¹¹

Such representations could be viewed as individual fears but emphasise the burdens placed on individuals not only by pro-shale planning policy but through a complex framework of national regulation by bodies who conducted little, if any, public consultation. Objectors did not argue that shale gas would be more suitable elsewhere but urged the councillors to consider that refusing permission here would give a clear message that the industry should be banned in the UK. For objectors, the local was only one of a series of scales that had to be engaged with to consider the impacts of shale gas extraction.

The councillors on the development control committee turned from contested local and non-local impacts to specific local impacts centred on noise, visual impact, traffic, and more general ideas of amenity or a re-industrialised Lancashire in their debates. Their discussions did not make a clear distinction between localised visual or noise impacts, wider pollution concerns, and the more general idea of industrialisation in a predominantly rural area. Yet the councillors were torn between what they considered to be their remit, listening both to the concerns of local communities, and following official planning advice. In discussing the different viewpoints, one councillor suggesting that although the process had been educative they had “heard assertions, hyperbole, propaganda” in opposition to the development but they had a responsibility to “follow the evidence”. Another councillor summed up:

We’ve all seen literally thousands of emails. We listened carefully to many hours of evidence and it’s up to every member to cast their vote based on the evidence they’ve heard and what they have come to the conclusions. It’s important as well that we consider the application on its merits rather than what it could become. (Councillor Kevin Ellard, 24 June 2015)

Given that the UK is addressing anticipated consequences rather than actual or (problematically) verifiable causes it is even more difficult to establish consensus on evidence (Holifield and Day 2017). Thus the “facts” gave them little support for refusing the application and the councillors retired to take advice on how best to establish grounds for refusal. When the meeting reconvened, the councillors expressed considerable anger that they had been pressured by the local authority to grant permission. They had been advised in a closed session that if Cuadrilla sued the council they would be personally financially liable as they had not followed the planning officer’s advice. As one councillor stated at the meeting:

I felt that we were put in a position that we were being told that we would be unlawful and also that we would be irresponsible. We want to do the right thing for the people we represent. (Councillor Paul Hayhurst, 29 June 2015)

The councillors were mindful of the concerns of their constituents and the possibilities of the shale gas industry transforming the region. This fear of re-industrialisation of rural Lancashire as a kind of “toxic experimental zone” formed the backbone of the refusal with the noise, visual amenity, and landscape impacts deemed too severe. The decisions were made despite planning and legal advice that the well pad could only be viewed as temporary and no consideration could be given to any further development. However, the councillors used a series of local planning policies to underpin their decision despite it drawing on a range of matters considered to be outside the scope of planning. The councillors then debated on what basis they could refuse the decision, settling on noise and visual impact as the “most defensible” reasons.

The June 2015 committee then refused the development despite strong advice to the contrary by their officers and legal counsel. In the case of Preston New Road, permission was denied firstly due to:

Unacceptable adverse impact on the landscape, arising from the drilling equipment, noise mitigation equipment, storage plant, flare stacks and other associated development. The combined effect would result in an adverse urbanising effect on the open and rural character of the landscape and visual amenity of local residents. (Cited in DCLG 2016, 98)

The second reason for refusal was due to the noise that would be caused by exploration. The focus on landscape impact and noise as an insurmountable obstacle in the wider shale gas debates is intriguing as these were seen as the most viable rationale.

Cuadrilla challenged these decisions and they were passed to a public inquiry chaired by an independent planning inspector who heard further evidence. Before the Inspector formally issued her decision, the case was called in by the minister responsible for planning, Sajid Javid. He allowed Preston New Road to proceed and ordered a further inquiry on the traffic routes for Roseacre Woods. Javid agreed with much of the planning inspector’s report and argued that environmental, health, and wildlife impacts would be managed and mitigated through regulation. He further noted that exploration would not cause health problems or create sufficient emissions to impact climate change (DCLG 2016). The highly localised nature of the decision can best be illustrated through the planning inspector’s report from this subsequent inquiry:

The development would be sited in a location where only a relatively small number of residential properties would experience a significant adverse impact. The reduction in height of the drill rig to 36m would serve to keep the development as low as practicable to minimize visual intrusion. A lighting scheme would be in place and *other mitigation is proposed including the colour of the fencing and other structures*. It seems to me that all appropriate measures to mitigate the impact on visual amenity have been included within the scheme. (Paragraph 12.156 [emphasis added])

Whilst noise is a specific concern, the other worrying aspects of flaring and venting were made invisible through the specific remit of local planning. Thus, it was determined that the impacts of a shale gas well pad can be mitigated through considering height, lighting and colour schemes demonstrating the reductive nature of a primarily local state severed from concerns which certainly have local consequences, such as climate change, but are discursively relocated to another scale.

Concerns about visual amenity were weighed up as less significant as a limited number of people would be affected. Others living in the wider region simply disappeared from consideration. A process that had mobilised tens of thousands of people opposed to shale gas and the environmental impacts were offered mitigations through changes to the colour of a fence and the reduction of the well rig height emphasising the overground well pad site as the issue rather than shale gas extraction itself.

Attention has become focused not on whether shale gas exploration is appropriate but on implementing or legitimating nationally driven policy. More concerning is that the communities working to oppose shale gas, not just because of a commitment to their own localities, but through a wider shift to environmental concerns, have not only found themselves having to speak the “language of planning” but also devote many months if not years of resources to fighting each well pad individually. Moreover, their understanding and expertise generated in these applications is not readily applicable to new areas of exploration given the attention to specific immediate impacts.

The Lancashire opposition has, at times, become represented in the media as the work of eco-activists or local residents opposed to development. However, a striking aspect of the opposition movement is their ability and desire to move beyond the local. Two of the local campaigners won an environmental justice award in 2016 which specifically honours activists opposed to climate change. One of these, the chair of one of the resident groups, described her changing attitude from local interests to global concerns in an interview:

It's been like a journey really since we heard about the plans in November. We've gone from not really knowing what fracking was then wanting to know more about it, to wanting to find out about it. Not being anti-fracking initially then realising what fracking would do to our community and being very angry about it and then realising the wider implications of climate change.¹²

This objector's comments were echoed by others and mark the shift of concern towards the global arena of climate change. A marked feature of UK shale gas protest movement is the range of regional and international networks that has been established. The process of changing attitudes towards environmental matters knitted these local objectors together into a series of connected communities with cross-cutting concerns that spanned multiple scales.

Concluding remarks

The local councillors' decision at Preston New Road was overturned by Sajid Javid on the 16th October 2016. At the time of writing Cuadrilla have been carrying out tests at the site. Hydraulic fracturing is ongoing although with a series of delays due to the significant number of seismic events.¹³ Protestors continue to engage in direct action at the site. Roseacre Woods was refused permission on traffic grounds. But the concern of this paper is not simply about who “won” this dispute but rather what was fought over and how shale gas impacts became effectively re-scaled as a series of separate local battles between different communities. Shale gas policies that assume the local arena is either subservient or operates in isolation do not sufficiently engage with the problems of governance across different scales.

The processes of legitimising previously experimental technology, little tested in the UK, relied on rescalings that obscure the knowability of shale gas impacts on local communities. The scientific knowledge underpinning shale gas extraction, and especially its environmental impacts, is the focus of multiple spheres of contestation. These ambiguities have created space to dispute the legitimacy of community evidence at the local level given the lack of baseline data and monitoring (see also Scanlan 2017). The prioritisation of the local scale has localised knowledge and evidence. Planning processes which have undermined communities experiences forecloses the possibility for environmental evidence to emerge and inform wider decision-making and scientific knowledge.

The legal scholar Chris Hilson observes that climate change based arguments that are aimed towards ending our dependence on hydrocarbons are

invariably excluded as an off-limits argument which cannot be considered by planning authorities in their decisions on fracking wells sites ... It is not one that these procedures will accept as a legitimate construction of the issue which can be considered by the relevant public decision-makers. (Hilson 2015, 190)

The local becomes an unimaginative site separated from the concerns of other local areas in the region or elsewhere across the globe. There is no possibility of comparison or concern about the global challenges of climate change or the comparative experience of shale gas extraction.

Disentangling the different dimensions of shale gas impacts is difficult. A series of studies tracking seismicity indicate increasing earthquake activity due to wastewater injection. There are far-reaching consequences emanating from the resource networks to the materials required for the industry. Consider, for example, Thomas W. Pearson's 2017 study of the loss of sand dunes in Wisconsin, sold for the fracturing process, which reveals the reach of the shale gas industry into landscapes far away from shale gas drilling or the NASA images that show the loss of night sky in North Dakota and the rising incidence of earthquakes in Oklahoma. These examples highlight the challenges of environmental assessment over such a wide-ranging industry dispersed across multiple sites. Whilst scientists seek to allay these fears, and earthquakes caused by fracking have been re-named "seismic events", these environmental impacts evade any kind of systematic multi-scalar evaluation.

The polarity between what counts as the local and the non-local creates a form of unanticipated parochialism within the heart of this significant energy dispute. Whilst the local is critical to understanding impacts of the shale gas industry it offers partial insights. The separation of well pads into individual sites of consideration creates significant challenges if opposition is rooted at the local level.

The framework for local decision-making insufficiently connects with the scalar dynamics of the industry that demonstrate global flows of finance and control over the scope of decision-making. The ideals of sustainable development are clearly in tension with unconventional hydrocarbon extraction in the UK policy context. In Lancashire, through playing out the planning process at the local level, Cuadrilla has been able to offer a series of planning mitigations that appear to surmount local obstacles but obscure other scales. The unconventional hydrocarbon industry has been able to brush environmental concerns to one side, in part, through the political use of scale. Questions of climate change, local or national environmental burdens, or questions regarding future exploration are effectively placed outside the scope of local planning.

In this paper we have seen how the decision to restrict debate to one well pad created a micro-local scale as a distinctive sphere from which it is difficult to dispute development under current planning policy. The attention to the local scale can fragment attempts at scaling up to broader coalitions when they become spatially fixed dealing with specific well pad sites. The restrictive lens of planning denudes opportunity for public debate and frustrates the capacity for those opposing government policies. Some of the most pressing global questions about climate change and environmental degradation have been reduced to lengthy disputes over traffic, noise, and visual amenity. Whilst these are important considerations for local communities' quality of life, they fail to represent the intense and far-reaching concerns of the community activists. The considerable energy and accumulated expertise was diluted into a superficial planning process, despite the attempts of Lancashire councillors to localise national policy.

The shale gas industry has generated significant disputes at multi-scalar levels. Despite the lack of scientific consensus, the UK government has attempted to render the dispute both knowable and manageable. Through the development of separate and non-overlapping consent regimes, some of the most controversial aspects of shale gas development such as potential for groundwater contamination, air quality, climate change, and the disposal of wastewater, have fallen to national regulatory agencies. Whilst these agencies may be best suited to co-ordinate such regulatory regimes their capacity for public consultation is limited.

The argument developed here does not deny the importance of the local as a critical arena. Rather, I seek to raise concerns with the usage of "the local" as an idealised focal point to tackle

serious concerns about shale gas as no more than a series of isolated local and resolvable disputes. This “politics of fragmentation” can represent local impacts as minor or insignificant or driven solely by selfish motivations over individual quality of life. By relying on the local scale as the location for public participation, community concerns continue to be framed as parochial. However, there is a growing body of evidence showing that the shale gas industry carries significant social and environmental impacts. The exclusion of community concerns and anxieties from decision-making has potentially profound consequences for the legitimacy of the planning process and public participation.

In this context how can a more democratic kind of energy politics emerge? The implications of embarking on different energy pathways are always political and suggest the importance of democratic deliberation (see Feenberg 2010). A lack of participatory engagement remains a key barrier to achieving “just sustainabilities” (see Castán Broto and Westman 2017). The study of opposition to shale gas extraction in the UK provides insights into how a pro-shale national government, working in collaboration with the hydrocarbon industry, has worked assiduously to fragment community resistance and re-frame fracking as a series of highly localised impacts where most environmental effects, long-term health issues, and wider climate concerns are effectively excluded from consideration.

Notes

1. Unconventional hydrocarbon extraction comprises of multiple processes including deep vertical and horizontal drilling. To release hydrocarbons, a process known as fracking or fracturing occurs. This is only one dimension of the extraction of shale gas but has become a commonly used term particularly in the media and by opposition groups. Industry and state do not favour the term as it has pejorative dimensions.
2. In a recent debate in the House of Lords, Lord Tebbit stated that this is “NIMBYism and it needs to be put down.” Hansard 9 October 2017 Vol 785. In the House of Commons, after a question to the prime minister from an MP opposed to fracking, Liz Truss MP labelled them a NIMBY on Twitter.
3. The events attended encompassed a range of groups. Local meetings had between five and fifteen attendees, local events had up to 100 attendees, and protests were several hundred people.
4. Petroleum Exploration and Development Licence 165 was granted by the Department of Energy and Climate Change (DECC) in 2008.
5. Cuadrilla identify eight sites in total but Elswick was purchased in January 2010 and was hydraulically fractured 1993 before Cuadrilla’s ownership. All other sites have been either explored and are in the process of remediation or work has never been undertaken at one (Clifton). Roseacre Woods has been refused permission following a planning inquiry decision and Preston New Road is under active exploration.
6. See Preston New Road PNR Live 6 October 2017. Available at <https://cuadrillaresources.com/media-resources/video-gallery/>.
7. Telegraph, 11 June 2017.
8. Community activist REAF, interview with author (12 September 2012).
9. A seismic tremor 2.3 magnitude occurred 1st April and was reported by some people locally. This is a low level seismic event. See <https://earthquakes.bgs.ac.uk/research/BlackpoolEarthquakes.html>
10. The US debate is highly contentious, and it is difficult to “prove” shale gas impacts due to the difficulties of epidemiological studies, lack of existing baseline data, and environmental monitoring. Whilst studies such as that by the Southern Baptist University identified fracking as the cause of earthquakes near Azle, Texas, the state regulator rejected these claims. The regulator is headed by political appointees.
11. Respondent verbal statement, June 2015 Planning Committee, Preston, UK.
12. Community organiser, Roseacre Awareness Group, 29 January 2015 (interview with author).
13. A total of 47 minor earth tremors have been reported between mid-October and mid-December. Work had to be suspended for 18 hours on three occasions in line with the Oil and Gas Authority regulations. See Guardian <https://www.theguardian.com/environment/2018/dec/11/fracking-blackpool-tremor-cuadrilla>

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