Environmental justice implications and conceptual advancements: community experiences of proposed shale gas exploration in the UK

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ABSTRACT
Environmental justice (EJ) concerns about shale gas have recently emerged. Relatively little is known about the lived experiences and on-the-ground EJ concerns of UK communities facing drilling proposals. We address this knowledge gap through a UK case study of Woodsetts, South Yorkshire, where a prolonged planning process has created anticipatory EJ issues that demonstrate how injustices occur prior to development, creating damaging effects on a community across several years. We find evidence of both well-established and newly emerging distributive, procedural and recognition justice issues, including concerns about the disparate distribution of risks for the most intersectionally-vulnerable residents, a lack of timely access to data and information, and a lack of understanding and recognition of local residents and their place-based concerns. These findings have conceptual implications for future research on perceptions, anticipations and experiences of EJ, as well as practical implications for future energy proposals aimed at meeting net zero emissions.

KEYWORDS Environmental justice; shale gas; fracking; intersectional environmental justice; data justice; place-based concern; anticipatory environmental justice

Introduction

Over the last 20 years, the expansion of unconventional oil and gas (UOG) resources has drastically changed the global energy industry. Efforts at recovering shale have been extremely successful in the US. Other countries have attempted to replicate this success, including the UK. While potential benefits of shale include energy security, reduced emissions and economic benefits, potential risks include economic downturns, environmental degradation, seismicity, and concerns about pollution and public health (Sovacool 2014, Finkel 2015). As the practice has moved forward, environmental justice (EJ) concerns have been raised, primarily in the US (Kroepsch et al. 2019; Malin et al. 2019), but also in other countries such as Lithuania (Mincyte

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Bartkiene 2019) and the UK (Cotton 2017). Yet much work remains to understand these issues as they emerge anticipatorily (Szolucha 2018), and in different contexts.

In England, induced seismicity at an exploratory shale site – Preston New Road (PNR) – led to a moratorium in 2011 and a second in 2019, which remains in place. This has created a lack of clarity around other proposed sites under planning review, contributing to community opposition to the practice. Though informed by experiences in Australia and the US, the UK presents a different geological, socio-cultural, legal and regulatory context for shale development. Given the lack of widespread exploration in the UK, relatively little is known about on-the-ground experiences and EJ concerns of communities facing shale exploration. This is particularly true beyond PNR, the only site where exploration has occurred. Here, we explore early experiences and anticipatory justice concerns in a different social and geographic context: Woodsetts, a village in South Yorkshire. Without ever moving into the exploration phase, the planning application process in Woodsetts has been drawn out for over three years and remains undecided, leaving local residents subject to unique experiences and anticipations of injustice tied to long-term uncertainty.

Hence, Woodsetts provides an interesting case for understanding anticipatory justice concerns. We highlight how injustices are anticipated or experienced across the three primary dimensions of EJ literature: distributive (DJ), procedural (PJ) and recognition justice (RJ) (Walker 2012). Using a case study approach, we pose the following questions:

(i) Across distributive, procedural and recognition dimensions of EJ, how are justice issues anticipated or experienced within a previously unstudied UK community facing shale exploration?
(ii) What understudied aspects of DJ, PJ and RJ in UOGD contexts are central for developing a more holistic understanding of prominent EJ concerns in Woodsetts?
(iii) How do these findings expand conceptualizations of distributive, procedural and recognition justice, and their interrelatedness in UOGD contexts?

In doing so, we build on recent conceptual advancements by focusing on the prominence of nascent justice considerations across each central dimension of environmental justice: intersectional DJ concerns, the procedural concern of information access and data justice, and place-based RJ concerns.

While this case represents an exceptionally long planning process, the lack of exploration and anticipatory issues are of broader relevance as many proposed UK shale sites underwent prolonged pre-exploration phases. Further, while residents voiced localized concerns about the project, they
also drew from the broader experiences of fracking in other places, particularly in the US and at PNR. A better understanding of understudied aspects of EJ issues in shale gas development that emerge prior to exploration and persist across prolonged development decision-making processes can help refine our understanding and mobilization of justice. Proactively and preemptively improving these processes is vital in light of an urgent need to move forward on the path to net zero.

**Justice concerns in shale gas exploration and development**

EJ emerged in the US in the 1980s, when evidence showed that low-income communities of color were being disproportionately impacted by toxic and hazardous waste sites (Bullard 1983). Since then, environmental injustices have been documented primarily across three dimensions: DJ (fair cost-benefits distributions), PJ (meaningful participation in decision-making for all affected parties), and RJ (fair representation of affected parties) (Bullard 1983, Whyte 2011, Walker 2012). Research on energy and resources has uncovered a long history of environmental injustices (Malin 2015, Daum et al. 2019). This includes recent work that has adopted a justice lens for understanding UOGD, which has primarily emerged in the US (see Clough 2018; Kroepsch et al. 2019). Yet most research focuses solely on these dimensions of justice separately as opposed to accounting for them more holistically.

**Distributive justice and intersectional vulnerability**

Research has uncovered patterns of unequal distributions of benefits and risks related to some shale gas operations in the US (Johnston et al. 2016, 2020; Kroepsch et al. 2019, McKenzie et al. 2016, Ryder 2018), including proximity of children and the elderly to well sites (Ogneva-Himmelberger and Huang 2015). In the UK, Cotton (2017) highlights the potential for inequalities to develop in shale community benefit schemes. However, there is limited understanding of how risks might disproportionately impact individuals within host communities as a result of intersectional vulnerabilities, a nuance called for in emerging critical EJ scholarship (Malin and Ryder 2018, Pellow 2018). This approach draws from established literature on intersectionality in critical legal studies and Black feminist theory, which focuses on how interlocking systems of oppression work together to multiply marginalize and privilege individuals with different intersecting identities (Crenshaw 1991, Cho et al. 2013, Collins and Bilge 2020). The intersectional framework has expanded to several environmental contexts such as climate change, disasters, energy development, natural resources and sustainability (see Kaijser and Kronsell 2014, Ryder and Boone 2019). To build on this
work, we offer a concrete example of how intersecting vulnerabilities are crucial for understanding the potentially uneven distribution of benefits and impacts of proposed shale gas exploration within a community’s population, by highlighting the multiplicative vulnerabilities of residents who live closest to the proposed exploratory site.

**Procedural justice and data and information inequities**

A lack of opportunities for meaningful participation in decision-making have been documented in UOGD in the US (Malin and DeMaster 2016, Ryder 2018, Malin et al. 2019, Ryder and Boone 2019, Marlin-Tackie et al. 2020). In the UK, Short and Szolucha (2019) find that residents facing exploratory drilling at PNR were dissatisfied with a lack of fairness in planning. Similarly, Whitton et al. (2017) find a lack of sufficient opportunity for public participation in shale decision-making processes in both the US and the UK.

A less studied aspect of PJ in UOGD has to do with information and data. Popularly conceptualized in the context of fairness in the collection, use, and analysis of peoples’ data (Taylor 2017), the idea of data justice has recently been re-tooled and expanded in EJ scholarship. Dillon et al. (2017, p. 186) define it as ‘the public accessibility and continuity of environmental data and research, supported by networked open-source data infrastructure that can be modified, adapted, and supported by local communities.’ Further, they contend that it includes paying close attention to ‘what counts as data, what data are collected, and whose interests they serve’ (Dillon et al. 2017, p. 186). More recently, Jalbert et al. (2019, p. 165) draw more directly on data justice and data activism to suggest that ‘people seeking to manage their relationship with powerful interest groups have a basic right to determine the nature of critical information flows’. They adapt approaches to data justice developed in relationship to surveillance and data activism to apply it to communities facing UOGD, suggesting communities have a right to information to: (1) determine their relationships to driving factors of the process, (2) establish fact-based claims which may counter industry claims and (3) develop equitable and just environmental governance practices (Jalbert et al. 2019). Here, we deepen existing understanding of procedural injustice by demonstrating how lack of information access, the politics of evidence, and data justice play in a UK shale gas community.

**Recognition justice and place-based issues**

RJ has received less attention in empirical research on fracking, though denigration and lack of appropriate recognition of local communities have been briefly noted in the US and UK (Malin and DeMaster 2016; Short and
Szolucha 2019). A crucial aspect of RJ is that through decision-making, the values and culture of those who will be impacted must be fairly considered and represented (Whyte 2011). Recognition injustice can place constraints on people, denigrate ways of life, cause physical harm, negatively impact understandings of self, strip people of rights, remove people from being recognized and participating in processes and further reinforce structures of oppression (Schlosberg 2003). Groves (2015) draws on Young to define recognition injustice as ‘the denial of active capabilities of self-definition and self-determination’ (Groves 2015, p. 854). He demonstrates how a pipeline’s disruption to place attachment threatens how residents individually and collectively organize in the present toward an uncertain future. More broadly, research suggests that environmental degradation disrupts culture and social identities and – like the uncertainty and rapid transformations in shale communities – can lead to psychosocial stress. There is evidence this pattern (which could constitute recognition injustice) is emerging in communities impacted by UOGD (Sangaramoorthy et al. 2016).

Mincyte and Bartkiene (2019) demonstrate how public debate surrounding Chevron’s development of a fracking site in Lithuania devalued the rural population and their concerns over local organic agriculture in a borderland region. In the UK, Cotton (2017) suggests that decisions to drill in the north of England amounts to recognition injustice and place-related inequality, as places in the industrial, economically marginalized north are deemed ‘desolate’ by elected officials and therefore more acceptable for fracking than affluent areas of the south of England. We extend this application of RJ by focusing on the distinctive character and culture of a local community and the lack of place-based recognition in the planning process.

Cotton (2017) and Griffiths (2019) have written about the possibilities of environmental injustice across multiple dimensions of EJ in the UK. They focus on the distribution of community benefits and regional risks, community consent, unequal decision-making powers, and how neoliberal, industry-friendly value systems overshadow and devalue communities and their desires. Yet neither of these studies are rooted in on-the-ground research in locally-impacted areas. Bradshaw and Waite (2017) demonstrate that in the case of PNR, operator Cuadrilla lacks both a political and a social license to operate. Other research on the social impacts of fracking in the UK uncover community harm and collective trauma (i.e. sense of powerlessness, loss and fear and negative framing of local concerns and those who support them. (Szolucha 2016, Short and Szolucha 2019). This reflects a lack of fair consideration and representation in decision-making, amounting to recognition and procedural injustice.

In summary, we seek to expand UK shale gas research to address lived experiences and perceptions of real and anticipated EJ issues in the UK, and to advance EJ research in UOGD contexts by discussing justice issues across
three primary dimensions of EJ. In doing so, we highlight the interrelatedness of EJ dimensions and provide empirical evidence to support expansions of EJ which account for intersectional vulnerability, information and data justice, and place attachment.

**Methods**

We conducted qualitative case study research (Marshall and Rossman 2016) to study in-depth accounts of peoples’ perceptions and experiences in Woodsetts, South Yorkshire where a shale gas project was initially proposed 25 October 2017 (see Figure 1). Woodsetts was selected as a case study because exploration has yet to occur. As such, here we can examine justice issues within an early stage of development than most existing research. Second, this case involved a different operator in a different geographical context from existing research. Finally, the site was proposed in a county which had already received one planning application (though neither had been approved at the time this research began).

**Data collection and analysis**

Ethnographic fieldwork included participant observation and in-person semi-structured interviews (Marshall and Rossman 2016). Devine-Wright attended and observed the June 2019 Planning Inquiry. Between February and March 2020 Ryder travelled to Woodsetts to conduct 18 interviews, one of which was a walking interview to the proposed site. Snowball sampling was used to identify residents and local government officials for interviews. Of the residents interviewed, ten were actively involved in the local anti-fracking campaign group, and five were local council members. All interviews were digitally recorded and transcribed verbatim. Key patterns were identified through initial memos and codes in NVivo, which was followed by thematic coding (Rubin and Rubin 2012). Field notes were recorded and reviewed multiple times to check the validity of the interview coding scheme. Further triangulation was achieved through document analysis of planning materials and news coverage.

**Findings and discussion**

Here we draw on a case study to demonstrate the empirical relevance of recent extensions of justice conceptualized across distributive, procedural and recognition dimensions (see Table 1). We also highlight the relational aspects of these dimensions and point to their anticipatory nature.
Table 1. Prominent themes of distributive, procedural and recognition justice concerns and experiences expressed by Woodsetts interviewees.

| EJ Dimension | Reported Anticipation or Experience |
|--------------|-----------------------------------|
| **Distributive Justice** | Regional concern about why this is happening in the North and not in the South of England.  
Anticipated disparity between community where the burden of the exploration and extraction would lie (i.e. impacts to quality of life, public health, community and local environment), and the operator (Ineos) and the central government who they believed would benefit financially from it.  
Lack of clearly articulated and acceptable benefits or compensation from operator to impacted community members (i.e. who, if anyone in the community would gain employment or receive economic benefits/compensation and how would this be determined?)  
Concern for future generations as shale gas exploration and development is still a reliance on fossil fuels, which contribute to climate change.  
Potential damage to the ecosystem and more-than-humans (wildlife, birds, domesticated animals).  
*Differences of the degree to which folks are at-risk within the community, in terms of proximity to the site or the truck route, as well as the different risks for children and the people in Berne Square.* |
| **Procedural Justice** | Planning Inquiry decision taken up by central government and thus out of the hands of the local borough council.  
The limitations of the planning process, where only a narrow set of objections to a development are considered as valid  
Disparity in resources to mobilize to influence decision-making.  
*Lack of community engagement efforts by Ineos, which also meant the burden of keeping the community informed fell to resident group ‘Woodsetts Against Fracking.’*  
Standard rules for altering planning applications after they are already submitted were broken so Ineos could move forward with their application.  
*Lack of access to most requested information and data gathered by Ineos.  
Lack of transparency on process and certain aspects of the planning application both from Ineos and the mineral development authority (Rotherham Metropolitan Borough Council).  
Ineos at times ignored and tried to discredit data collected by community and their experts.* |
| **Recognition Justice** | *Misrecognition of the character of community members and their representatives (i.e. local community painted as uninformed).*  
*Failure to understand, appreciate, or alter plans based on crucial aspects of local culture, community identity and place attachment and the concerns of how the proposed site might impact them (i.e. Hollybush, footpath).*  
*Dismissal of local concerns and place-based knowledge (i.e. locations of abandoned coal mines and the potential issues that might arise from drilling through them).* |

Those in bolded italics are the issues we primarily focus on within the context of this paper given their prominence in interviews and their importance for strengthening knowledge gaps in existing EJ literature in shale gas contexts.

**Distributive justice and intersectional vulnerabilities**

Residents discussed DJ issues related to the sharing of potential benefits, such as financial gain, employment opportunities, and direct access to or reduced cost of energy. As Cotton (2017) notes, a lack of clarity about community benefits and their distribution can lead to concerns about fairness. Most residents were sceptical they would benefit at all and likened? community payback schemes to
a bribe They also pointed to the potential disproportionate burdens their community could experience related to traffic, seismic activity, and impacts on the environment, landscape, wildlife, and people. Finally, interviewees frequently questioned why – like many other industrial activities in the past – development seemed to be relegated to the north of England instead of the south. These concerns align with previous research on DJ issues in shale development (Cass et al. 2010, Cotton 2017, Finkel 2015; Kroepsch et al. 2019) and other UK energy projects where communities fear potential negative local impacts and the ‘industrialization of the countryside’ (Batel et al. 2015).

While these traditional DJ concerns are important, the multi-scalar nature of DJ issues suggests that so too is how impacts of the proposed exploration project might differentially impact individuals within the Woodsetts community. As noted earlier, intersectional EJ – which focuses on how intersecting systems of oppression overlap and work together to create experiences of environmental marginalization (see Malin and Ryder 2018, Pellow 2018) – is a necessary approach to understand how distributive injustices might be experienced differently and disproportionately within the local community. In Woodsetts, the local community is ethnically homogenous, and concerns related to fracking appeared to be similar across genders.1 Yet, patterns in residents’ location, age, class, health and disability led to community concerns about the disproportionate risk that some residents would face relative to others.

Residents suggested that if the drilling were to move forward, not everyone would be equally affected. They believed the bulk of the burden would be on those living nearest the site, but that it would also impact those in other communities along the truck traffic lines. Locational concerns were also tied to the day-to-day lives of those who tend to be in the most vulnerable age groups in the context of the environment – children and the elderly (Walker 2009, Peek 2013). For example, residents worried for children who could be at increased risk of exposure to air pollution or potential truck accidents when walking to school. Previous research demonstrates the detrimental impacts of negative environmental impacts and disasters on children (Stephens 1996, Peek 2008). In UOGD contexts, children may be particularly vulnerable, such as when a pregnant parent is exposed to related carcinogens (McKenzie et al. 2019). Age-related concerns were also present for the most elderly residents, who also experience risk and vulnerability differently at later stages of the lifecourse (Walker 2009, Peek 2013). Several of the village’s elderly residents are located in social housing owned by the Rotherham Metropolitan Borough Council. The housing in this area is known as Berne Square, and is in a council qualifying category such that it tends to house predominantly vulnerable residents. These houses are also the closest ones to the proposed exploration site (see Figure 2). Community members outside of Berne Square expressed concern for their neighbors based on age and health-related vulnerabilities:
Those homes are identified for the most vulnerable people in our community... And so, to propose a scheme which puts the entrance 40 metres from their homes, and a roadway that comes within 20 metres of their homes, is ill-conceived at best and bloody heartless at worst, isn’t it? – Woodsetts 1

It would impact them vastly, enormously... If that drill is there 24 hours for three, four, five weeks, there’s no escaping it... There’s one of the men up there, he’s got PTSD and kidney problems... And then, they’ve got lung complaints, and asthma, and heart... I know there’s only 20 of them but... they were moved here because it’s quiet and the air quality’s good. – Woodsetts 5a and 5b

Yet, it is not only physiological differences, such as respiratory issues (McKenzie et al. 2012) that make Berne Square residents more vulnerable to potential risks related to shale gas. Pollution and exposure intersect ‘with life course, class and poverty’ where equal exposure does not mean equal impact (Walker 2009, p. 620). Elderly people in social housing are generally more vulnerable to age-related threats and are more at-risk for poorer health and lower life expectancy as they live at the intersections of reduced economic, social and physical well-being (Wheatley 2015). As one resident pointed out, he and others would lack the economic capital it would take to be able to distance themselves from potential shale-related risks:

Us in bungalows... we don’t get that opportunity to say well if they do start fracking there well I want to move. If you go out and said right I’m leaving... and then it comes down to you now really, really need a bungalow, they’ll [the council] say, well you left a bungalow, so why did you leave your other bungalow? – Woodsetts 11

Thus, trying to move away could come at the risk of housing security in the future. Essentially, several residents recognized that the potential impacts of the proposed shale exploration on residents in Berne Square would be exacerbated by their age, health status, and economic circumstances. Even within the group of individuals in Berne Square, these impacts would vary – for example, one resident’s PTSD suggests his capacity for noise pollution is at a much lower threshold than others. These findings build on important research which is exploring intersectionality and inter-categorical marginalization as it relates to age, class, housing security, health and disability in environmental contexts (Calasanti and King 2015, Jampel 2018, Vickery 2018, Daum et al. 2019).

Individuals who have reduced agentic capacity in their living situation are more likely to be impacted differentially and disproportionately by a proposed drilling site due to age, health-related issues like physical mobility, respiratory issues, or PTSD. These same factors mean they are least likely to be able to escape it. Conversely, younger residents who were in good health and possessed greater economic means recognized that they had the ability to escape the impacts of drilling by going on holiday or relocating. Intersecting vulnerabilities may not always be so easily identifiable, nor may
this solidarity around the most vulnerable always emerge in these cases (as suggested by Cotton 2017). As such, work to uncover less visible inequalities in contexts of less solidarity remains a significant component of future EJ research. More broadly, this finding highlights why calls for intersectional EJ are crucial for understanding the relationship between multiple systems of oppression and experiences and the severity of impacts of EJ situations (Ryder 2018).

**Information and data in procedurally just decision-making processes**

While DJ concerns were in anticipation of drilling, residents reported already having experienced issues of procedural injustice. They attributed a lack of opportunity to meaningfully participate in planning to a variety of issues that are well-documented in PJ literature on US and UK shale gas contexts, including the limitations of local planning processes and what constitutes a legitimate planning objection, the role of central government in shale decisions, a lack of meaningful community engagement, unequal access to resources, decision-makers and the decision-making processes, disparate economic and social capital, and the removal of planning decisions from local communities and decision-makers (see Cotton 2017, Malin and Ryder 2018, Ryder and Boone 2019; Ryder and Malin 2021, Short and Szolucha 2019). While these are crucial aspects of PJ, here we focus on an under-explored aspect in UOGD contexts: information and data justice issues within decision-making. This includes a lack of access to information and data, delayed access to information and a lack of transparency, information asymmetry, and the politics of evidence.

Concerns about transparency and access to pertinent information were apparent from the onset of the shale proposal in Woodsetts. In fact, many residents expressed frustration because they first learned about the proposed exploration from an injunction sign posted to a popular footpath:

*A friend banged on the door and said, ‘There are some signs around the field, you might want to go up and have a look’, so I took my camera and I went up to have a look at these signs, and it was the injunction. There was no knowledge that they were going to frack or have an exploratory well there, there was no application in, there was no discussion with the village or anybody in the village, there was no knowledge whatsoever.* – Woodsetts 4

When taken by surprise in such a way, a community loses the capacity to be able to effectively prepare for how such a process might be regulated (Jalbert et al. 2019). Still, residents did their best to begin trying to learn everything they could. Prior to forming the Woodsetts Against Fracking (WAF) group, some residents decided to conduct a community survey. As planning progressed WAF hired their own experts for data collection and analysis, engaging in ‘data activism’ (Meng and Carl 2018) where they could
potentially counter findings of Ineos’ data. WAF fundraised to deploy experts to conduct their own studies on traffic, ecology and noise. The latter became instrumental in the organization’s push for access to data about potential impacts of the proposed site. The residents were alarmed about sensor placement and weather conditions for Ineos’ noise testing, so WAF hired a sound expert (Agility Acoustics) to conduct testing and produce data. According to residents, Ineos discredited the WAF study, developing a politics of evidence around the data:

Ineos were saying the data that Agility Acoustics had collected didn’t fit the guidelines, it was their way of attacking the veracity of our data. So, they said that they would pay for another independent group to come in and, if we could get them access to the back gardens and the people of Berne Square and our noise expert oversaw it, they would gather the data and we would get all the raw data, so when we went to public enquiry, we’d all have the same data. – Woodsets 4

To some degree, this was a victory for residents who wanted access to information and data. They were able to push for more accurate data which legitimized their concerns and they had equal access to the raw data of the study just as Ineos did. This would likely not have been possible without WAF’s capacity to hire a sound expert.

Yet residents relayed other barriers in accessing information. For example, in the early stages of development, efforts were made between Ineos and WAF to form a community liaison group, which met twice. Residents described frustrations with this effort as they felt Ineos was continuously seeking information from them while refusing to supply them with requested information. As one resident laments, there was little effort to provide information that would answer the legitimate questions the community had about the project:

We were asking things like, ‘Tell us more about the trucks that are going to be coming through the village? Give us the results of your ecological survey?’ . . . But it [information] never arrived . . . And to this day they’ve not provided it. – Woodsets 3a

As such, members of WAF pulled out of the liaison effort. In the absence of a desired equal exchange of information, the community campaign group ended up not only experiencing information asymmetry in terms of information access, but they also found themselves disproportionately burdened with taking on the role of informing residents of new developments. Even when they stepped in to fill the void left by Ineos’ lack of information dissemination, they still found themselves only receiving access to pertinent information at the last minute:

[Ineos told WAF on a Friday afternoon that] ‘There’ll be a JCB in the field on Monday morning, digging. But don’t worry, it’s just an archaeological survey.’ . . . Well, obviously, if an excavator turns up . . . the village is going to think development has started, aren’t they? That’s going to start all sorts of
anxiety amongst the community. But it was left to us then to run up a flyer and deliver it to every house, or 950 households, over the weekend to say, ‘This is going to happen. Don't panic; they've not started development, it's an archaeological survey.’ That should have been their job. – Woodsetts 1

Insufficient effort to inform the community was also an issue when Ineos changed their development plans just before the Planning Inquiry. A lack of advance notification about the incorporation of a sound barrier to the plan left the WAF sound expert without the ability to examine the data and prepare accordingly, and can be viewed as a situation where Ineos used data asymmetry to act opportunistically (Kulkarni 2000) to benefit their position in the Planning Inquiry. Thus, residents protested moving forward with the inquiry, but were unsuccessful. One local council member pointed out that allowing this last minute change was something they had ‘never, ever seen before,’ essentially amounting to special treatment for Ineos.

Taken together, the community’s lack of access to data, their lack of timely access to information, and the lack of consideration of community-generated survey data provides a new empirical example of procedural injustice understood through informational and data inequalities and exclusion. Further, it violates what Jalbert et al. (2019) argue is a basic right for residents in managing relationships with power interest groups – the right to determine the nature of critical information flows and access any data that might support counter-industry arguments. Woodsetts residents and their representatives arguably lacked the ability to appropriately prepare for different stages of the planning process. They were kept from accessing surveys and reports, updates were only received at the last minute, and the validity of the information and data they and their experts worked to produce was challenged. Even now, the final decision on the Planning Inquiry is being withheld by the central government. This is inconsistent with ideal models of procedurally just decisions for planning and development sites, such as relational information sharing (Rowe and Frewer 2005). Yet Jalbert et al. (2019) find that the re-arranging of people-data relationships can actually enhance the process of public engagement, suggesting that this is a fruitful area for establishing more just, fair and effective community engagement efforts in future proposed renewable energy projects. Aligning with a ‘community science’ approach, resident-collected data like the WAF survey and local, place-based social and ecological knowledge should be included in the re-arrangement of people-data relationships to achieve more just energy projects moving forward.

Recognition justice, local culture and place-based concerns

It is important to recognize that for a community and culture to be respected and represented in a process an effort must first be made to understand the host community and culture. In Woodsetts, there are three inter-related
aspects of place-related recognition injustice that community members experienced: (1) a failure to understand and appreciate community identity and place attachment (2) the dismissal of local concerns and place-based knowledge, and (3) a misrecognition of the character of community members and their representatives.

Woodsetts residents frequently pointed out Ineos’ lack of familiarity with the community:

_They’re very dismissive I would say, have no real interest in the village and people’s feelings. They weren’t properly aware of the community in the village here when they arrived, but they had already made the decision they were going to go ahead … and they know how the community feels about it, we’ve given them the survey._ – Woodsetts 3a

Residents also believed the company was unaware of the intersectional vulnerabilities and needs of the people closest to the proposed site. Further, lack of recognition can also occur in the form of insults, degradation, stereotypic representations, devaluation, and a lack of respect – at both the individual and cultural level (Schlosberg 2007). Residents reported feeling their own character was misrepresented in the planning process:

_When they came to that meeting, it felt like they thought we were all yokel idiots, you know? That’s how we were made feel, I think._ – Woodsetts 1

This type of dismissive attitude has been reported by residents near other proposed shale extraction sites (see Ryder and Boone 2019), and several residents felt that through the planning process Ineos was bulldozing or ‘bully-[ing] their way through.’ For several interviewees, this lack of respect was also tied up in recognition injustice related to how communities in the North of England are characterized and treated relative to the South (see Cotton 2017), as one resident even suggested they felt as though they were once again becoming a ‘sacrifice zone’ just as the area had in the past with coal mining. This was different than the community’s relationship with local farmers who ran industrial agriculture operations in the field where the exploratory site was proposed, and had established a rapport of respect and mutual understanding:

_Is Ineos prepared to do my washing if it gets mucky? I don’t mind once in a while a tractor coming up because it’s farming land. But the tractor drivers know when I’ve got my washing out they slow down … – Woodsetts 13a_

Without local, cultural knowledge and respect for local community members and their way of life, the recognition of place-based concerns in the planning process is unlikely (Schlosberg 2003). Of particular contention was a popular public footpath which runs between the drill site and Berne Square, leading to a crossroads where a lone holly bush has local cultural significance:

_Hundreds of people on a day will use that footpath, and stop and chat … And there’s a little memorial bench there, where people will sit and gather and chew the fat really, put the world to rights … So, it is quite iconic in terms of_
the village . . . in terms of social interaction, it’s quite important . . . And, again, we know from our surveying that if the development goes ahead, people will be far less inclined to walk that way. – Woodsetts 1

For the Woodsetts residents we spoke with, the footpaths and holly bush represent important connections to the land, the geography, their social ties within the community, and the countryside lifestyle which they see as at risk of becoming industrialized (see also Sangaramoorthy et al. 2016). Despite being of crucial importance to the social fabric of the community and brought up as such at the Planning Inquiry, this socially significant landmark was not registered as a legitimate planning concern. This reflects arguments made by Groves (2015) where the potential loss of significant place attachments is a form of potential harm. Similarly, Devine-Wright (2011) points to ways that developers overlook subjective, experiential features of local places and peoples’ emotional connections to them. In this way, the planning process devalues place-based community concerns as ones which do not constitute ‘material’ evidence (Rydin et al. 2018).

Residents also expressed concerns about the disregard for the collective anxiety faced by residents as a result of the proposed development:

They’ve [Ineos] never understood just how much anxiety all this has caused along the way. They have absolutely no concept, or if they have, they just don’t care; the pain, the worry that this has caused to so many people for the last two-and-a-half, almost three years. And that’s the biggest shame of it all really . . . Because it has been, it’s been the most stressful time, you know? – Woodsetts 1

Residents suggest that Ineos made little efforts to understand and address the lived experiences of community members and the perceived threats to place and place-based aspects of the community members’ identities. This amounts to an issue of RJ which has contributed to increased experiences of stress about project uncertainties, similar to previous findings on place attachment in shale gas communities in the Marcellus shale (Sangaramoorthy et al. 2016). Residents continue to live in limbo with their anticipatory fears given the decision has been drawn out. This adds weight to existing evidence that potential injustices and harms tied to shale gas can develop prior to the onset of actual exploratory drilling (Szolucha 2018, Short and Szolucha 2019). Further, it suggests that these anticipatory experiences not only develop early on, but can persist long-term where the uncertainty about the possibility of exploration continues to produce damaging consequences. The relationship between recognition injustice and experienced and anticipated place disruption in the context of potential or proposed energy developments, remains to be further unpacked.

In summary, we find that RJ issues are tied to place-based community characteristics, concerns and attachments. Residents describe being faced with industry operators that are unfamiliar with locals and the collective
aspects of place-based community attachments and concerns which are embedded in both environmental and social relationships. As a result, the proposed shale exploration in Woodsetts disrupts community identity, place attachment (Devine-Wright 2009), and a secured, shared vision of lived futures – which Groves (2015) identifies an act of harm and environmental injustice (see also Broto 2013). Further, these disruptions are drawn out by long-term uncertainty about the plan. These issues of RJ could perhaps be ameliorated by developers prioritizing the investment of time and resources into working to understand and integrate themselves within the community. A lack of recognition and erasure of local people’s knowledge and culture is a missed opportunity, where future energy projects could work with communities and incorporate local knowledge to improve their development plans instead of working to actively ignore, discredit and dismiss these important development considerations.

**Conclusion**

Our research expands what is known about the lived experiences of shale gas development in the UK, particularly in terms of how residents anticipate and experience environmental injustices related to proposed shale exploration near their community. We find that residents’ wide-ranging concerns about the impacts of fracking align with other potential host communities, though there is some variation in which concerns are most prominent. We also find locally contextualized concerns about proposed shale exploration in a rural community in northern England, where the legacy of coal country looms large in the minds of residents whom face long-term uncertainty and a lack of PJ during a prolonged planning process for a practice which was perceived to potentially disproportionately impact the intersectionally-vulnerable, threaten the life and livelihood of the village, and disrupt people’s sense of place and place attachment.

We find evidence of the importance of anticipation in experiences and perceptions of EJ tied to proposed shale gas exploration (see also Short and Szolucha 2019; Szolucha 2018), and the damage that long-term uncertainty about risks to people, community and the disruption of place can cause prior to the onset of development. Temporality, and in particular thinking about justice issues anticipatorily (see Partridge et al. 2018; Williams and Sovacool 2019) is an under-developed aspect of EJ which is crucial for avoiding the creation of environmental injustices. Further, we address three areas of EJ research that are relevant for advancing the primary dimensions of EJ in the field: intersectional DJ concerns, information and data justice as PJ issues, and the inclusion of place-based concerns and emotional attachment as RJ concerns.
What is crucial in this analysis is to recognize the relationship across these dimensions of injustice. For example, it is clear that the lack of recognition of place-based community knowledge, character and culture will lead to exclusion as a legitimate stakeholder in the decision-making process. That is, how the public is viewed is directly related to how plans for public engagement and participation unfold. This parallels existing research on ‘imagined publics,’ which highlights assumptions policy makers and developers make about publics and the need to ‘educate’ them (Burningham et al. 2015). Further, this case demonstrates the importance of exploring the nuances of recognition injustice and marginalization within more homogenous, white communities in the Global North – spaces where power, culture and local knowledge are often under-examined. If members of the locally-impacted public are going to be sufficiently recognized and included, the starting point for engagement on future energy projects must be rooted in a commitment to recognizing local stakeholders and valuing local sets of knowledge as equally crucial to that of other stakeholders. Further, this must take place on an even playing field. Future research must more rigorously interrogate these relationships and empirically examine the intersections – the ‘overlapping circles of concern’ (Schlosberg 2004) – between issues of DJ, PJ and RJ.

Beyond advancements of EJ research, these findings have practical implications for how future energy proposals can better account for potential social impacts of development. Suggestions include re-localizing decision-making (Cotton 2017), incorporating justice considerations and social impact assessments into proposal evaluation and planning decisions (Griffiths 2019, Short and Szolucha 2019). Findings from our research further support these calls and suggest the need for community engagement and planning processes for energy development that incorporate RJ and PJ considerations. Given the climate crisis, societies simply cannot afford to continue to fail to account for justice considerations in advancing energy proposals which move us toward the 2050 net zero targets (Committee on Climate Change 2019). The potential to develop net zero initiatives rapidly and collaboratively will depend on a willingness for the energy industry to learn an important lesson from the present ‘shale fail’: that adopting more justice-centric approaches is not an additive or an afterthought, but a pre-emptive necessity.

Notes

1. While existing research (and observations from Ryder’s existing research) suggest that activism around fracking is gendered, in the case of Woodsetts patterns of concern and activism were more gender neutral. Sub-committee
roles across WAF were held by both men and women. In addition, the gendered concerns of impacts suggested by existing research (i.e. spontaneous abortions) were not brought up by participants here.

2. Still, it is crucial to explore these nuances against the backdrop of justice issues across multiple scales, acknowledging the historical disparities in exposure to risks related to energy extraction and production across the Global North and South.

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