Fracking the online:

An exploration of the digital in shaping contention over shale gas

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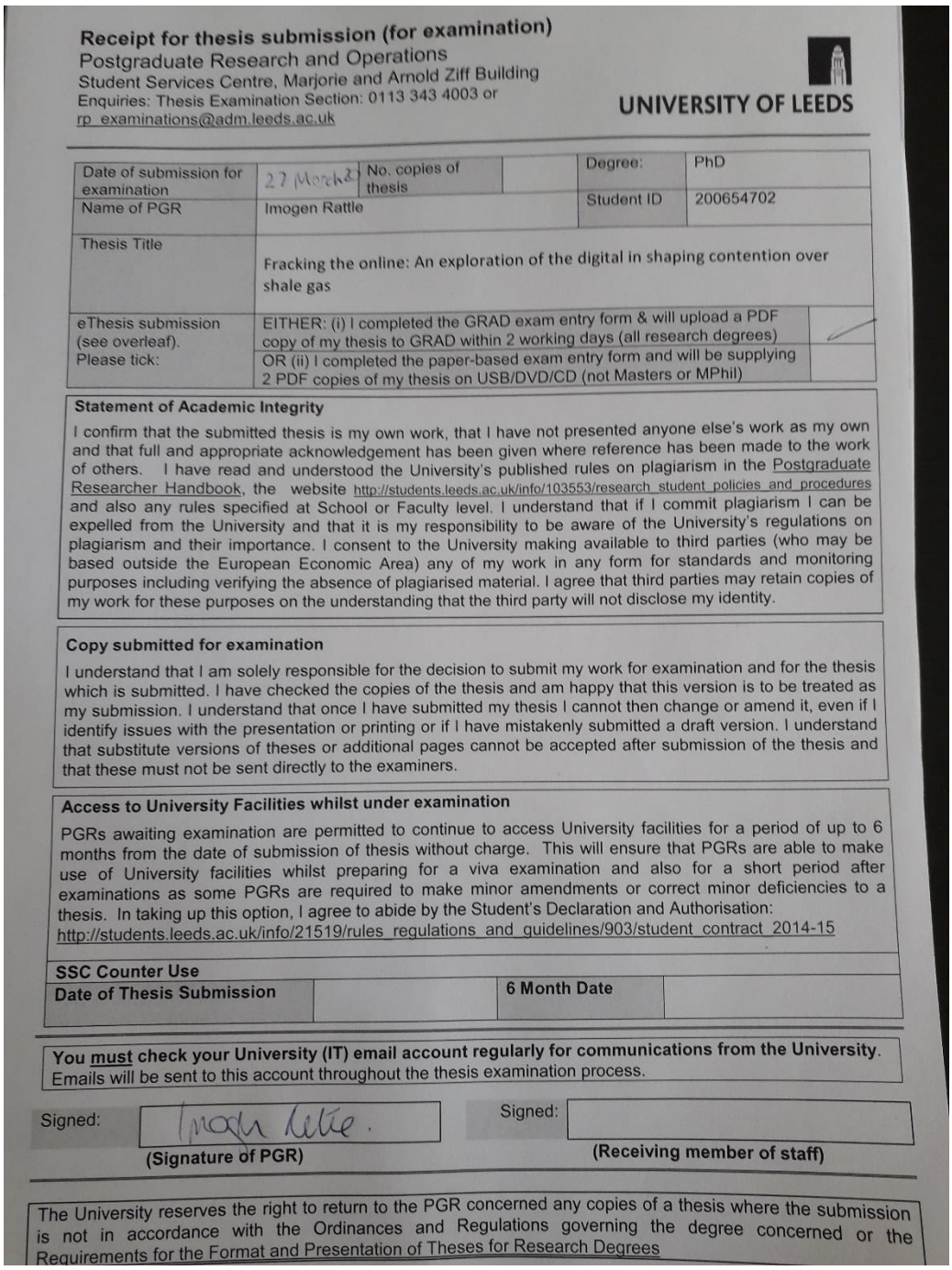

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For anyone who I have forgotten, please accept my apologies. The omission is not out of a lack of appreciation but rather stems from my own forgetfulness.

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Abstract

This thesis applies a post-political lens to online activity on shale gas, using Lancashire, England as its case study. Its focus is upon the ways in which online activity may both contribute to, and constrain, the expression of dissent. It argues there is a dual gap in the current literature: empirically, in considering how online activity may be influencing the development of the debate and theoretically, in how we conceive of conflict over shale gas. It seeks to address these gaps using a combination of 37 stakeholder interviews and social media postings from anti-shale gas groups.

The first results chapter draws from post-political theory to build a framework through which to understand the conflict over shale gas in England. It identifies three main areas of dispute: over the legitimate modes for public participation in the debate; over the scope of the threat presented by development, and over the credibility of existing knowledge on shale gas. The second results chapter uses this framework to consider the role of online information in the developing dispute. It shows how a lack of technical information led to an online information divide which constrained how the dominant institutional actors engaged online. Anti-shale gas campaigners remained relatively unconstrained but the substantial burden of online activism contributed towards perceptions of disempowerment, spurring a move to direct action. The third results chapter applies a collective action frame analysis to social media postings aimed at mobilising supporters to take part in direct action. It argues that while mobilising on social media has significant advantages for campaigners, it also has the potential to dilute a movement's messages amidst pressure to maintain local approbation. The apparent paradoxical effects of digitally mediated activism and the implications for practice and theory are discussed in the final chapter, alongside recommendations for future research.

Table of Contents

List of Tables

List of Illustrative Materials

Abbreviations

BEIS	Department for Business, Energy and Industrial Strategy
CEO	Chief Executive Officer
DCLG	Department for Communities and Local Government
DECC	Department of Energy and Climate Change
EA	Environment Agency
FFL	Frack Free Lancashire
FoE	Friends of the Earth
LCC	Lancashire County Council
MHCLG	Ministry of Housing, Communities and Local Government
NGO	Non-governmental organisation
NIABY	Not in anyone's backyard
NIMBY	Not in my backyard
NSIP	Nationally Significant Infrastructure Project
OGA	Oil and Gas Authority
PNR	Preston New Road
PNRAG	Preston New Road Action Group
PR	Public Relations
RAG	Roseacre Awareness Group
RRP	Preston New Road, Rolling Roadside Protest
RTP	Reclaim the Power
STS	Science and Technology Studies
UKOOG	United Kingdom Onshore Oil and Gas

1. Introduction

1.1. Why study the digital politics of shale gas?

Since it first burst into the broader public consciousness with Academy Award nominated documentary *Gasland* (Fox, 2010) shale gas has been hard to ignore. The footage of flaming tap water which the documentary became famous for was widely shared online. Simultaneously fascinating and terrifying, the clip became emblematic of the dangers of the industry (Vasi *et al.*, 2015) and of broader concerns about the environmental effects of fossil fuel extraction. While the implications of climate change can be difficult to comprehend, drilling rigs appearing close to, if not in, people's backyards, made shale gas extraction local and specific (Nyberg *et al.*, 2020). Even the word 'fracking,' - a technical term related to a particular step of shale gas extraction - seemed, with its profane connotations, to write its own headlines: ideally positioned to go viral in the hashtag age (Evensen *et al.*, 2014).

This thesis is the result of the eight years I have spent in the shale gas policy field, starting in 2012, as an MSc student, then as an employee of the Environment Agency working on the Onshore Oil and Gas Programme - the programme which regulates shale gas - and finally as a PhD researcher. Like many, I first learnt about shale gas when I saw the YouTube clip of flaming water from *Gasland* (Fox, 2010). The footage was striking enough to compel me to undertake my MSc project on the issue (later incorporated into Cotton *et al.*, 2014) and subsequently to join the Environment Agency in 2013, in the hope of learning more about the issue. I was sceptical about the industry, and in particular, how investing substantial amounts of political and financial capital into fossil fuel development could be consistent with mitigating climate change. Equally, it did not appear possible to understand these dynamics without a deeper insight into the issue.

It was not until 2015, however, that I began to wonder how online activity might be influencing the debate. The question arose from a specific incident. The Onshore Oil and Gas Programme was running an online consultation on using standard rule permits to regulate two activities at shale gas sites: drill and core (drilling wells to obtain geological samples) and the storage and handling of crude oil from exploration and production activities. Standard rules permits are an 'off-the-shelf' form of regulation, which contain pre-prepared risk assessments and apply a fixed set of

standards. They can be contrasted with bespoke environmental permits that are tailored to a particular activity and site. Since neither drill and core, or crude oil storage and handling were activities specific to shale gas, the regulatory logic was that shale gas sites would be regulated in the same way as any other sites undertaking these activities.

The week before the consultation closed, the *Independent* newspaper published an article suggesting the proposed use of standard rules amounted to an attempt to fast-track hydraulic fracturing without public consent (Bawden, 2015b). One of my roles within the programme was to monitor the group inbox. When I logged in on Monday morning, I found almost thirteen thousand emails awaiting me, the number increasing as I watched. The vast majority had an identical subject line objecting to shale gas development and had been generated by an e-petition site. Later that day, as the number topped twenty thousand, I received a bemused message from a colleague in radioactive substances regulation. As the result of an error on the 38degrees petition site, a further nine thousand emails objecting to shale gas had arrived in the inbox of a consultation on nuclear waste storage. What did I want to do about them?

The eventual number of e-petition responses reached 36,626 (Environment Agency, 2016). It was 2015. Digital technologies were not new. Electronic consultations had been running for over a decade and the deliberative value of mass electronic participation in regulatory rule making had already been the subject of significant academic study (e.g., Schlosberg *et al.*, 2008; Schlosberg *et al.*, 2009; Shulman, 2007; Shulman, 2009; Zavestoski *et al.*, 2006). Nevertheless, the volume of the online response in this instance was unprecedented; an order of magnitude higher than for any previous Environment Agency consultation and, as this was an official consultation, there was a statutory duty to consider every response.

In the meetings that followed, I couldn't help but wonder what it all meant. It was clear the online response was symbolic, representing a loud, if unfocussed, 'no' to shale gas, but what was the overall influence of this activity going to be? Was it something about shale gas specifically that had made the online response so large? Did the thirty-six thousand people who had signed the e-petition realise that the consultation was not on hydraulic fracturing and therefore their response would be read and discounted? Or was to view the mass response in that light to miss the broader point that people were objecting via the Environment Agency consultation because they had no other way of making their voices heard? On the other hand, the

Environment Agency had recently undergone mass redundancies, losing twelve percent of its staff. Was employing half a dozen temporary workers to spend weeks reading and logging thirty-six thousand near-identical emails really the best use of limited regulatory resources? Particularly when, in the end, the decision was to go ahead with using standard rules? Or was gumming up the consultation process part of an overall strategy by those objecting to the proposals? Whatever the answers, it was apparent that the influence of online activity was not straightforward; it formed part of the overall debate on shale gas and had to be understood on those terms. In particular, influence could not simply be understood in terms of success or failure: in this case, whether the mass response had any effect on the eventual decision whether to use standard rules. How then, could the influence of this activity be explained?

1.2. Research questions

The research questions addressed in this thesis were distilled from these experiences. Inevitably, given the time and word count constraints of the PhD format, some points have been expanded upon in depth, while others fell by the wayside. In addition, some broader questions not specific to online activity, such as why the public response on shale gas became channelled towards particular public bodies, have been explored in a separate work (Rattle *et al.*, 2018, see Appendix 1). In summary, the aim of this thesis is to explore the effects of online activity on the English[1] shale gas debate, posing four research questions:

1) How can contention over shale gas be conceptualised?
2) How are actors in the English shale gas debate using online activity to engage with the issue?
3) What is the influence of this activity?
4) What are the implications of these findings for understanding the influence of online activity on the contestation of environmental issues?

[1] England is specified within both the research aim and questions, since Scotland, Wales and Northern Ireland have set their own, territory-specific, policies on shale gas.

1.3. Summary of key contributions and findings

In this section, I show how the answers to these questions contribute to academic knowledge on the subject. First, I set out the theoretical and empirical novelty of the thesis. Then I summarise the key findings and specify where they are contained within this work.

Theoretically, this work draws upon post-political theory as elaborated upon by political geographer, Erik Swyngedouw, to analyse conflict over shale gas and the influence of online activity upon the debate. It is only the second study to apply post-political theory to shale gas, and the first to apply it to the context of a national debate Previous work (Thomas, 2019) has focussing upon the radical potential of the grassroots anti-shale gas protests in Manchester.

The analytical power of the post-political lens lies in its capacity to focus our attention upon the ways in which activities or situations are constructed to exclude certain voices and topics from political debate (Catney and Doyle, 2011; Clarke and Cochrane, 2013, Dikeç, 2015) and its underpinning ontological position that such constructions are always unstable, leaving open the irreducible potential for the return of dissent (Rancière, 1999; Wilson and Swyngedouw, 2014). To date however, despite an extensive body of work on how digitally mediated activism may be influencing politics, for better or worse (section 2.4), little attention has been paid to online activity from a post-political perspective. For cases such as shale gas, where the institutional arenas heavily circumscribe the legitimate topics for debate, and where government has suggested limiting public access to these arenas still further (section 4.2.3), a post-political analysis appears particularly appropriate. Whether digitally mediated activity provides a channel for dissent to return and disrupt this imposed framework, however, was less evident, previous empirical work using a post-political lens tending only to reference digitally mediated activism in passing.

This thesis therefore extends upon previous post-political analyses which have presented digital technologies as a tool which activists use, with greater or lesser effect, rather than part of the fabric of political life (section 2.5.2). The theoretical contribution is made through:

- Using post-political theory to identify three processes which have shaped the ways in which the conflict over shale gas in England has evolved. These are: the use of rhetorics of threat by both for those and those against the industry; the

emergence of a civil society response based partly upon claims of injustice; and the Government's reliance upon a techno-managerial framework for decision-making on the issue (chapter four).

- Developing a novel framework with which to understand how these processes have interacted to disrupt and reinforce each other. Three main areas of dispute are identified as characterising the English debate on shale gas: disagreement about the appropriate arena in which to express opposition to the industry ; disagreement about the scope of the threat which shale gas represents; and most critically, disagreement about what counts as credible knowledge on the issue (chapter four).
- Applying this framework to identify how these disputes have manifest in the case of online information use (chapter five) and digitally mobilised protest (chapter six).
- Using this framework to synthesise the findings of chapters five and six and provide the first case study assessment of the influence of online activity, in post-political terms, showing how it has operated to both enable and constrain the expression of dissent (chapter seven).

This novel theoretical contribution extends our knowledge on shale gas by moving beyond existing studies which have tended, in the case of the UK, to frame the issue particularly around questions of environmental justice (section 2.5.1). While justice frameworks allow us to consider how the policy area operates in practice, and provide insights into how it might operate in a more just manner, post-political theory considers instead how and why the debate is constructed as it is. This approach opens up new areas of research and provides alternative ways of understanding the specifics of the case.

Empirically, this thesis is the first study to consider how online activity has influenced the development of the shale gas debate within a national context, arguably one of the last under-researched aspects of a highly researched issue. To make its case, it draws upon interviews with, amongst others, members of the onshore oil and gas industry. As Evensen (2018) notes in his review of the social science literature on shale gas in the United Kingdom, research to date has focussed upon three broad areas: public perceptions, discourse and rhetoric, and planning and regulation (section 2.5.2). Only articles in the middle group incorporate industry perspectives, and of these only two to date (Cotton *et al.*, 2014; Williams and Sovacool, 2019) draw upon

interview data from industry members. Incorporating accounts from industry stakeholders about their perceptions of the influence of online activity therefore provides an empirically novel contribution not only to research on digital politics, which have tended to focus upon activist accounts (section 2.4), but also to research on the national shale gas debate more generally.

Empirically, this thesis finds that online activity (or lack thereof) influenced the development of the English shale gas debate in the following ways:

- The dominant institutional actors were constrained in how effectively they could engage online due to a lack of domestically-generated information about shale gas. The result was an online information divide, whereby anti-shale gas campaigners were highly active online while the incumbent actors were not (chapter five).
- By providing access to a variety of sources of expertise, access to online information revealed the extent to which decision-making within the techno-managerial framework served to privilege business interests over those of community (chapter five).
- The ease of access to official information online led campaigners to perceive they were expected to engage with and master this information. This expectation served to make participation in formal decision-making processes increasingly burdensome (chapter five).
- Simultaneously, the ease of mobilisation via social media lowered the barriers to participating in informal modes of dissent such as direct action (chapter six).
- Mobilising direct action through social media, had the potential to mute the disruptive power of protest by limiting the types of claims protesters could make while maintaining local approbation (chapter six).

1.4. Key terms

1.4.1. Relating to shale gas

Hydraulic fracturing, shale gas and fracking are not neutral terms (Evensen *et al.*, 2014) and differences in usage often reflect differences in stances towards the industry. As a general rule, hydraulic fracturing is a technical term used by the industry to refer to a well stimulation technique for shale gas extraction. By contrast, 'fracking' is used by opponents (Grubert, 2016) and has come to mean the entire process of shale gas extraction from exploration drilling to well abandonment (Matz

and Renfrew, 2015), in addition to the extraction of other unconventional hydrocarbons, such as coal bed methane and shale oil, which do not necessarily require hydraulic fracturing to access. The use of 'hydraulic fracturing' has become a shibboleth amongst industry members who believe the widespread use of 'fracking' in its second, broader sense demonstrates the extent to which the public is ignorant of the technology. Conversely, amongst those opposed to shale gas, insisting upon the distinction is perceived as example of industry hair-splitting which is used to shield their activity from public scrutiny.

In this thesis, I have used the following definitions, since they are the most accurate terms which are also in common use. *Shale gas* refers to methane, the product. I have also used *natural gas.* Natural gas is a historic term used to distinguish between gas extracted in its naturally occurring gaseous state, from town gas which is manufactured from coal. Use of 'natural' in this context is becoming contentious since it suggests a non-polluting product. In future, it may be replaced by 'blue gas' to distinguish it from 'green gas' or biomethane, but these are not yet terms in general use. I use *Hydraulic fracturing* to refer to high volume slick-water fracturing, the particular well stimulation technique developed by Mitchell Energy to access shale gas (Steward, 2007). *Shale gas extraction* is used to refer to the extraction process as a whole. *Shale gas development* is used to refer to the infrastructure surrounding shale gas extraction, such as well pads etc. *Unconventional hydrocarbon extraction* and *development* are used when referring to the exploitation of the group of fossil fuels which include coal bed methane, tar sands, and shale oil and gas, which require advanced extraction techniques to access.

While these distinctions may appear technical and abstruse, their practical effects are important. Last year's moratorium on shale gas (BEIS OGA, 2019) has taken the form of a presumption against issuing any further *hydraulic fracturing* consents. It is not, therefore, a moratorium on hydrocarbon exploration activity prior to hydraulic fracturing, although the financial incentives to undertake such work are presently minimal. It does not automatically cover well stimulation techniques which do not use water as their substrate, as these would not fall under the definition of hydraulic fracturing. It does not prevent exploration work at unconventional hydrocarbon sites which are not shale gas sites, for example Balcombe (shale oil), Horse Hill (oil) and Barton Moss (coal bed methane), since hydraulic fracturing is a technique used to extract shale gas.

1.4.2. Relating to the digital

Terminology for internet-based technologies is subject to constant change as technology evolves. It is general accepted that the *internet*, refers to the global network of computers, which infrastructure supports online services such as email and peer to peer file transfers, in addition to the *World Wide Web*. The World Wide Web or web is one portion of the internet, made up of webpages and hyperlinks, intended to be viewed with a graphical browser (Chadwick, 2006). Beyond this, there is an ever-increasing proliferation of terms as the technologies, devices and platforms which people use diversify and change over time.

Terms in current usage for the technology itself include new media (Wright, 2012; Pan *et al*., 2019) digital media (Crockett, 2017) and digital technologies (Mattoni, 2017). For political activity using this technology: digitally enabled activism (Earl and Kimport, 2011); digital activism (Karatzogianni *et al.*, 2017); internet activism (Earl *et al.*, 2010); online activism (Tai, 2015); networked protest (Tufekci, 2017) and online resistance practices (Lokot, 2018). Terms for groups which use this technology for political purposes include online collective action networks (Pavan, 2017) online social movements (Hara and Huang, 2011) and activism networks (Xu *et al*., 2014).

Understanding usage varies, for the purposes of this thesis I have made the following distinctions. *Digital devices* is used to mean hardware such as computers, smartphones, tablets and equipment such as drones which are used to access, or operate through use of, the internet. *Digital platforms* are the online connective platforms which allow individuals to connect online (Van Dijck *et al*., 2018). These platforms include, but are not limited to, social media sites such as Facebook and Twitter. *Digital technologies* is used as an umbrella term referring to digital platforms, devices and the internet, in addition to the broader infrastructures of cloud computing. *Digitally mediated activism* is therefore activism which uses digital technologies in some form. I have used 'mediated' in accordance with my research approach which focusses not on technologies but on people's use of technologies (Earl and Kimport, 2011), and in preference to 'enabled' since, as this thesis discusses, the enabling power of technology cannot be assumed. I use the overarching term *online activity* to refer to internet use more broadly, to include activity by regulators and industry.

Online is used heuristically to refer to activity which takes place on the internet; *offline,* activity which takes place in the corporeal world. As we approach the third decade of the twenty-first century, this distinction has come increasingly fuzzy. As Castells (2010c) argues, digital technologies have altered the spatial and temporal architecture of society, just as the printing press and the telegram did before them. Even those who do not use these technologies operate within a reconfigured societal environment (Tufekci, 2017). This distinction therefore is not intended to suggest there is a strict binary between online and offline activity, or that one is more potent or 'political' than another.

For the purposes of interview, I used the general terms online resources or online activity, because I did not want to presuppose use of a particular website, platform, device, or the purposes for which participants might use the internet. They also had the advantages of being straightforward to understand.

1.4.3. Relating to information

Chapter five, Google Fracking, considers the role of a changing information ecology in the shale gas debate. By *information* I have taken a broad view, following Bimber (2003) who, in his analysis of the effect of changing information regimes on the evolution of American democracy, characterises information as "something that can be known or communicated," (*ibid.* p.11). This definition does not distinguish between data, knowledge, opinion and experience. Information therefore can be of varying semantic content and the relationship between having information and becoming informed is not a linear or inevitable process. Indeed, information overload, misinformation (incorrect or low quality information) and disinformation (false information) are core characteristics of the information age (Lash, 2002). I return to the implications of this changing information ecology for environmental governance in section 7.3.1.

1.4.4. Relating to groups opposed to shale gas

Diani (1992) characterises social movements as sharing three core characteristics: an informal network of plural actors, engaging in cultural or political conflict, on the basis of shared beliefs and solidarity. This can be contrasted with coalitions, which share less of the identity element, and organisations which rely more heavily on formal networks (Diani *et al*., 2004). However, these definitions are not universally

applied (Saunders, 2013) and as digital technologies become increasingly ubiqutious distinctions have become blurred. In particular, the ease of mobilisation as afforded by social media means social movements in the twenty-first century are characterised by a membership which shares looser ties and a broader range of concerns than was the case in the past (Bennett and Segerberg, 2011). Concurrently, networks themselves have become an increasing prevalent form of social organisation (Castells, 2010c) no longer the domain of informal groups.

The sociological literature on the anti-shale gas campaign has tended to frame it as a social movement with an overtly political aim, although more recent work has begun to problematise this assessment (e.g., Luke *et al*., 2018, Steger and Drehobl, 2018). Steger and Milicevic (2014) argue that local protests against shale gas have converged into a global movement that challenge the dominant discourse of energy politics. It has, they suggest, more in common with global movements on environmental and social justice than 'standard' environmental movements, concluding that to be anti-fracking is to be "pro-democracy," (Steger and Milicevic, 2014 p.71). Other commentators agree, drawing links with the civil rights movement (Simonelli, 2014) and suggesting participation in the movement has the potential to catalyse an increased environmental consciousness (Willow, 2014). While this characterisation may be accurate on the global level, the extent to which the Lancashire protests against shale gas constituted a political movement is open to debate and interviewees' views on the matter varied. This is consistent with previous work on the grassroots protests against shale gas in Barton Moss, Manchester, which revealed a broad terrain of protest incorporating groups and individuals with both more and less radical aims (Thomas, 2019).

The conceptual difficulties both in defining what a social movement is, and what kind of movement protest against shale gas is means the choice of a collective noun is not straightforward. Saunders (2013) suggests that in the case of the environmental movement, 'network' may provide a more useful umbrella term to indicate the plurarlity of groups which participate. In the normal course of affairs this would provide the most elegant solution. However, in a work which also makes reference to digital networks, there is a risk that this dual usage would add to the confusion. Since it is not the purpose of this thesis to categorically state which of the plurarality of possible environmental organisation types the groups opposing shale gas fall into, in this work I have followed the majority usage and used *movement* and *protest*

movement to refer to the general protest against shale gas. When referring to the activities of named groups within Lancashire, I have used *campaign* since this is how local people referred to it.

1.4.5. Relating to individuals opposed to shale gas

Members of the local anti-shale gas campaign identified themselves in a variety of ways. 'Activist' was a term which some embraced proudly while others rejected it as a pejorative. A third group felt they were concerned residents who might be involved in the campaign but were not necessarily 'campaigners' or affiliated to any particular organisation. Nor were these categories static over the course of the study; a number of interviewees reflected on a 'scale shift' (McAdam *et al.*, 2001) in their concerns and a move from resident towards activist. Others had moved in the opposite direction, having once considered themselves campaigners, but having found the time and energy commitment too great to maintain, now acting as concerned residents. By contrast, members of climate justice networks, were more likely to refer to themselves as activists and consider this a core and ongoing part of their identity.

Recognising no one definition covers every individual circumstance, in this thesis I have used *campaigner* or *campaigner member* as a collective term for the members of loose coalition of NGOs, local resident groups and concerned individuals which make up the Lancashire anti-shale gas campaign. I have used *activist* to denote members of climate justice networks such as Reclaim the Power, or Frack Off. While this is not a perfect solution, it is broadly in line with how interviewees categorised themselves.

1.4.6. Relating to institutional actors

Just as there is no agreed collective term to apply to members of the anti-shale gas movement, there is equally no agreed term to those charged with regulating and delivering shale gas shale gas. I have used *government* to refer to ministers and members of Whitehall departments, i.e., those in charge of setting policy on shale gas. I have used *councillors* to refer to the elected members of local authorities. I have used *regulators* to refer to members of those agencies tasked with implementing policy, such as the Environment Agency. I have used I have used *industry* to refer to employees of oil and gas companies. I have used *consultants* to refer to anyone contracted to work for one of these preceding groups. Evensen (2018 p.5) uses the term "actors with power" to refer to regulators, government and industry *en masse*. I

have used instead the term *incumbent actors* to indicate these individuals operate within existing power structures, since the relative power of any individual is difficult to ascertain.

1.5. Thesis structure

The thesis is structured as follows. **Chapter two** sets out the main literatures and concepts I have drawn upon to inform my conceptual framing and analysis. First, I introduce shale gas as a contentious issue and summarise the key social science literature to date. I argue that while the anti-shale gas movement has been characterised by internet-enabled cross-border linkages, the role of online activity in shaping the debate has, as yet, been little researched. I then turn to the digital politics literature and the different ways in which the influence of online activity on contentious politics has been approached. Noting there is no single way in which to approach this issue, in the third section, I introduce the post-political literature as a useful lens to interrogate the dynamics of shale gas set out how it understands contentious politics and how these insights might apply in the case of online activity on shale gas.

In **chapter three**, I discuss my methodological approach, my reasons for adopting it and the limitations of the research design. I set out first how my positionality as a researcher influenced the research, then reflect upon the nature of the research topic and how this context shaped my approach. I then introduce my critical realist paradigm, note why I adopted this position and provide details of the methodological and interpretative choices which flowed from it. In the third section, I outline my case study approach and introduce the three embedded sub-units of the case which inform each of the subsequent results chapters. In the fourth section, I provide details of data collection and analysis, and discuss the challenges of obtaining data saturation when interviewing participants in a small and highly contentious topic area, and upon the ethical and logistical challenges of using online data in such cases. Finally, I consider the interpretative process and the broader considerations which shaped the writing up stage.

Chapter four, **Contesting fracking,** addresses research question one and introduces the framework which structures the rest of this thesis. Drawing upon the post-political theory introduced in chapter two, it identifies three means by which processes of post-politicisation have manifest in debates over shale gas in England:

the use of rhetorics of threat; the imposition of a techno-managerial framework, and the subsequent shaping of the civil society response. It argues that the 2018 proposals to reform the planning framework for shale gas represented a further government effort to diminish the opportunities available for citizens to influence policy on the issue. However, dissent can never be permanently excluded from the political sphere. Debates about legitimate modes of dissent, the scope of the threat, and credibility of knowledge emerged as central points of conflict, and uncertainty around the material volumes of shale gas became a powerful destabilising force, sustaining the conflict.

In chapter five, **Google fracking**, I address research questions two and three in the context of shale gas in Lancashire, applying a post-political lens to determine how online information access shaped the dynamics of protest. I argue that the seismic events of 2011, in combination with the government framing of public scepticism as a matter of information deficit led to an online information divide which constrained how effectively the dominant institutional actors could engage. I show how between 2012 to 18 three challenges of online information: complexity, overload and loss of gatekeepers, served to perpetuate this division. Anti-shale gas campaigners were less constrained in their activity but the substantial burden of online activism contributed towards perceptions of disempowerment, as improved information access failed to deliver policy influence. One consequence may have been to galvanise the turn to direct action.

Chapter six, **#WeSaidNo,** addresses research questions two and three specifically in the context of this direct action. First it uses a collective action frame analysis of social media data to illuminate how protest and activism are formulated in publicly visible social media discussions, and in the mobilisation of protest. It then applies a post-political lens to consider what the effects of this activity might be. In doing so, it documents the challenges which emerge as campaigners seek to frame messages acceptable to potential allies, in-group members, and a sometimes-critical public while negotiating the tightrope between social acceptance and political effect. It shows how social media activity, while opening up the actions of incumbent actors to intense scrutiny, also reflects scrutiny back onto the protest. It discusses how in this case while digitally mediated protest may have enhanced the ease of mobilisation, it may have also dampened its disruptive power.

In **chapter seven**, I synthesise the results of the preceding three chapters to address research question four and the implications of the findings for both theory and

practice. I summarise the contributions and limitations of the thesis and make recommendations for future research.

2. Literature review

2.1. Introduction

This chapter provides a critical review and synthesis of the key concepts and literatures which underpin this thesis. It first sets out the research gaps which it will address and provides the questions which form the subject of chapters four to seven. It then sets out the underpinning literatures upon which these chapters draw. The discussion takes five parts. Section 2.2 introduces shale gas as a contentious energy issue. It outlines the key debates around the issue, first in terms of the industry's effects, and then in terms of the discourses of environmental justice which have come to characterise the civil society response. It charts the rise of the global anti-shale gas movement, arguing that while much of the movement's activity has, of necessity, been digitally mediated, research on the political effects of this activity is presently lacking. This first identified gap generates the empirical research questions which this thesis addresses. Section 2.3 turns to the question of how the political influence of online activity might be assessed. It establishes that there is no single way of theorising the political influence of digital technology use; instead the researcher must frame the issue in the manner which best addresses their research questions. This second identified gap generates the theoretical question which this thesis addresses.

Having established the underpinning research questions, section 2.4 considers the empirical literature on the effects of digital technology use to date. Drawing from the work of Manuel Castells, it characterises these effects as manifesting primarily in changes to global information flows and in a shift to more networked forms of social organisation. This section reveals how ideas about the political effects of digitally mediated activism have evolved over the last quarter century, and shows how this activity has been argued to both enable and constrain political protest. It finds that digital technology use cannot be understood apart from its context. Section 2.5 introduces post-political theory as a useful conceptual lens with which to interrogate the conflict over shale gas and shows what it adds to existing work on the issue. In doing so, it provides the theoretical basis upon which chapter four builds. It notes that as yet, post-political theory has engaged only in a limited way with the influence of digitally mediated activism despite the latter's growing use in contentious politics.

Section 2.6 concludes by returning to the research questions and setting out where they are addressed in the remainder of the thesis.

2.2. Politicising energy production: shale gas in context

Conflict over extractive industries is endemic. However, shale gas development has particular features which heighten its controversy. This section sets out the reasons for this controversy, how debates on the issue have evolved and identifies a gap in the literature relating to how online activity has shaped the development of these disputes. Section 2.2.1 introduces shale gas, setting out the distinguishing features of the resource and the means by which it is extracted. It argues that many of the local environmental and social effects have been exacerbated by these unique features and that conflict over the issue cannot be understood independently of them. Section 2.2.2 charts how concerns about shale gas evolved, from an initial focus upon its local effects to concerns about its global climate change implications, given impetus by the 2010 documentary *Gasland* (Fox, 2010). It shows how mistrust and uncertainty and have come to dominate the debate, and how many of the disagreements over shale gas have centred upon the distributive and procedural injustices caused by the industry's development. Section 2.2.3 considers the global anti-shale gas movement in more depth. Characterising it as a movement united by climate justice principles, it identifies how disputes about information credibility and cross-border linkages have become important facets of the civil society response, but notes that while this activity is often digitally mediated there is, to date, little research considering how online activity may be influencing the dynamics of the debate. To address this gap, it introduces the empirical research questions which this thesis will address.

2.2.1. Characteristics of shale gas

Contained inside low permeability geological formations, the recovery of shale gas was considered uneconomic until the development of horizontal drilling and high volume slick-water fracturing (fracking) technologies in the United States during the 1990s (Steward, 2007). These innovations reversed the fortunes of US gas producers, and turned the industry from one in decline to the world's largest producer of natural gas between 2004 and 2009 (Gény, 2010). Such headline figures provided a powerful inducement to other governments to investigate their own domestic resources, in the hope that shale gas development would lead to job creation, cheaper energy prices,

economic growth and energy security (e.g., The Conservative Party, 2015; The Conservative Party, 2017). The industry, however, has been controversial almost since the outset. The 2005 decision of the US federal government to exempt its operations from key provisions in the Safe Drinking Water Act (the so-called Halliburton loophole), at the behest of the then-Vice President Cheney, himself a former chief executive of Halliburton, appeared to exemplify the corporate lobbying power of Big Oil and reinforced the view that the United States Government favoured business interests over the public good (Sachs, 2011).

The material characteristics of shale gas, hydraulic fracturing and the associated infrastructure of shale gas development are important factors in explaining the industry's development and the numerous conflicts which surround it (De Rijke, 2013). Shale gas deposits are fixed within geological formations known as 'plays'. Unlike 'conventional' gas, which has gathered over the preceding millions of years into relatively compact and high permeability reservoirs, shale gas is diffusely distributed within low permeability horizontal rock strata. Such formations have relatively low productivity, are challenging to access and require significant technological capability to exploit. Exploiting shale gas reserves only became a commercial priority once easier to access conventional reservoirs were exhausted (McLean, 2018).

Shale gas extraction requires drilling downwards several kilometres to the target rock formations, then horizontally along the shale play in order to maximise the surface area between the well and the surrounding rock strata. The resulting horizontal wells can extend several miles. Once the wells are completed, high volumes of fracturing fluid are pumped down the vertical well at high pressure and along its lateral offshoots. This fractures the shale, increasing its permeability and providing a route for the gas to flow from the strata (Green *et al.*, 2012). Fracturing fluid is made up predominantly of water, but contains also sand, to prop open the created fractures; friction inhibitors, to facilitate the passage of the fluid along the wells; acids, to dissolve minerals and initiate fractures; and a variety of other additives, often dictated by the local geology. Neither horizontal drilling nor the use of fracturing fluid is novel to shale gas extraction (Steward, 2007); as conventional gas reserves decline, both techniques are being used to stimulate production in conventional wells. The novelty of the shale gas extraction process lies in the specific combination of high pressure and volume, necessary to force the fracturing fluid along the length of wells and break

open the low permeability shale; in the optimisation of the fracturing fluid additives; and in the use of water as a fracturing fluid substrate, rather than the alternative, and more expensive, gel matrices. It is for these reasons that the method used to assist in the extraction of shale gas is properly known as high volume slick-water fracturing, and it is these refinements of existing techniques, alongside the use of horizontal drilling to bring a greater volume of shale into production, which made shale gas extraction both technically and economically feasible (*ibid*.).

These features have also increased the environmental and social impacts of the industry. Each is addressed here in turn, although in practice there is significant overlap between the two categories. In a review of over 700 articles, Costa *et al*. (2017) suggest the local environmental impacts of shale gas development can be classified into effects on water resources, emissions to air, land use, induced seismicity and health. In terms of water impacts, as is apparent from the name, high volume slick-water fracturing consumes large amounts of water, leading to concerns about over-extraction from local aquifers and increasing the risk of ground and surface water contamination from subsequent leakages and spills (Vengosh *et al*., 2014). In terms of emissions to air, site preparation, the drilling of wells and injection of water at high volumes and pressures requires extensive use of diesel-powered equipment leading to air quality impacts (Moore *et al*., 2014). Air quality issues also arise from the increased road traffic movements, which are significant (Graham *et al*., 2015), as sand and hydraulic fracturing chemicals must be transported to the well pad and wastewater must be tankered offsite for treatment. Land use effects relate to land use change, industrialisation of the rural landscape and biodiversity loss, and are exacerbated by the spatial intensity of the process, discussed further in the paragraph on social impacts below. Seismic events, which have come to dominate the English debate following the Lancashire earthquakes of spring 2011 (section 3.4.2), are not unique to high volume slick-water fracturing. However, as a general principle, the number of seismic events induced by hydraulic fracturing will increase in proportion to the volume of fluid injected (Green *et al*., 2012). Hydraulic fracturing for shale gas is therefore more likely to lead to induced seismicity than was the case for previous methods of gas extraction. Evidence regarding the direct public health impacts to surrounding communities remains inconclusive (Costa *et al*., 2017) although the associated anxiety and stress caused by the perceived risks of development are

recognised to have had negative effects on the surrounding communities (McCoy, 2016; Short and Szolucha, 2019).

The social impacts of shale gas development are likewise linked to the location, scale and pace of development. Like many natural resources, shale deposits have a geographically uneven distribution although they are relatively abundant and widespread compared to conventional gas reservoirs. This widespread but uneven distribution means firstly that there is the potential for more and new communities, often in rural or suburban neighbourhoods, to be brought into proximity to hydrocarbon development (Willow, 2014). Secondly, once an area has been found to have good shale gas productivity, activity is likely to cluster there. The diffuse distribution of the resource means development takes place on a larger scale and at a higher intensity than for conventional oil and gas extraction. Since productivity in each well declines rapidly, more wells must be drilled, and existing wells refracked, in order to maintain supply (Andrews and McCarthy, 2014; Fry, 2013; Jackson *et al.*, 2014; Konschnik and Boling, 2014). From the perspective of the surrounding communities, it is precisely the scale and pace of shale gas production which causes the greatest concern (Haefele and Morton, 2009). Problems stem not only from the intense nature of industrialisation but also the cyclical nature of production (Jacquet, 2014) which makes local impacts difficult to adjust to, and the pace of the industry's growth, which has meant questions about its effects have arisen faster than they can be addressed, leading to concerns about regulatory sufficiency (North *et al.*, 2014).

2.2.2. Birth of a controversy: from local to global concerns

Unsurprisingly, given the disruptive nature of the industry, there is now a significant body of research on its effects. Initial social science work focussed on the United States in particular and on the local social and environmental impacts of shale gas development for the surrounding communities (e.g., Anderson and Theodori, 2009; Brasier *et al.*, 2011; Theodori, 2012; Weigle, 2011; Wynveen, 2011). A common finding from this section of the literature was a profound ambivalence in local perceptions. Community members perceived a range of negative and positive impacts, generally disliking the social and economic impacts while appreciating the economic benefits. Relative weighing of these effects was frequently made with reference to previous local experience of extractive industry, with individuals more familiar with industrial activity generally more favourable to shale gas (e.g., Brasier *et al.*, 2011; Weigle, 2011;

Wynveen, 2011). Such findings give credence to later arguments (e.g., Willow and Wylie, 2014; Willow, 2014) that the widespread distribution of shale gas, and its consequent potential to bring new communities in proximity to intensive industrial development, is one feature which has heightened the controversy of the issue.

Work on local effects was soon joined by a second strand of literature focussing on the climate change effects of shale gas and questioning the wisdom of further fossil fuel development, given the urgent need to mitigate anthropogenic climate change through a transition to renewable energy sources (Intergovernmental Panel on Climate Change, 2012). Concerns about climate change effects stemmed from a number of sources. Shale gas is predominantly methane, a potent greenhouse gas, and the global warming potential of the methane inadvertently released during extraction (fugitive emissions) was the subject of academic debate (e.g., Cathles *et al*., 2012; Howarth *et al*., 2011;). The risk of shale gas lowering energy prices leading to increased hydrocarbon consumption (Newell and Raimi, 2014) or diverting investment from low carbon energy sources (Staddon and Depledge, 2015) locking-in fossil fuel consumption were also causes for concern.

Against this backdrop of increasing unease, Academy Award nominated documentary *Gasland* (Fox, 2010) brought shale gas to wider public attention (Vasi *et al*., 2015). Narrating the experiences of communities experiencing natural gas drilling in Colorado, Texas, Utah and Wyoming, the documentary became known for its attention-grabbing footage of Colorado resident, Mike Markham, igniting a fireball from his tap water, with the suggestion that methane from nearby fracked wells had polluted his drinking water aquifer. Subsequent investigations (Mims, undated), raised questions about the truth of this allegation. Methane was revealed to have been present in Markham's well for decades, long before high volume slick-water fracturing had begun, and a previous investigation by the Colorado Oil and Gas Commission had found it to be biogenic (i.e., derived from plant and animal sources) in origin rather than the result of hydrocarbon contamination (Axelson, 2008). Regardless of the truth of the matter, clips of the footage had already gone viral and *Gasland* became one of the cornerstones of the global anti-shale gas campaign (Steger and Milicevic, 2014) and emblematic of the perceived harms of the industry.

2.2.2.1. Shale gas as an issue characterised by uncertainty

In practice, the extent to which the United States' experience will be replicated elsewhere remains uncertain. National differences in geology, regulation,

infrastructure, supply chain maturity, population density and hydrocarbon ownership regimes will all shape the industry's development (Reins, 2017). Nonetheless, its first-adopter status means the United States provides the benchmark for perceptions of the industry globally (Lozano-Maya, 2016) and remains the source of most primary information about its effects (Prpich *et al.*, 2015). This fundamental uncertainty about how the industry might evolve in other jurisdictions only compounds public concern: "fracking is a generator, par excellence, of 'known unknowns,'" (Ingle and Atkinson, 2015 p.541). Some of these uncertainties, such as the extent of fugitive emissions, can be addressed in part by further research; others, such as future energy prices or climate change policy, cannot. As a result, governments in favour of shale gas have resorted to offering companies financial incentives in order to encourage investment in a potentially risky venture, thereby heightening public perceptions that policy is being driven by corporate interests (Pyhäranta, 2016).

In response, public debate on the issue has become marked by a profound mistrust of official sources and a deeply-felt belief that local interests are disregarded in favour of economic gain (Cotton *et al.*, 2019; Finewood and Stroup, 2012; Short and Szolucha, 2019; Whitton *et al.*, 2017; Willow, 2015). As for many issues characterised by scientific uncertainty, contests over what counts as legitimate knowledge have come to the fore (Jasanoff, 1987) leading to variances in national policy as the available data is subject to different interpretations (Weible *et al.*, 2016). Research reveals clear evidence of the gap between public and expert perceptions of the risks of shale gas development (Thomson, 2015), with the public taking a broader of view of the risks than regulators (Williams *et al.*, 2017), and that the gap has been worsened by the tendency of officials to cloak their value-based judgements in references to science (Evensen, 2015; Espig and de Rijke, 2016). As the conflict has evolved, highlighting the scientific uncertainty which permeates the issue has proved a successful tactic of resistance in some jurisdictions. New York State, Scotland and the Netherlands have all imposed moratoria after campaigners invoked the precautionary principle to gridlock development (Dodge and Lee, 2015; Metze, 2014; Stephan, 2016).

For much of the last decade, such oppositional tactics proved unsuccessful in England, where debates over contentious scientific issues have long been marked by an institutional belief that public scepticism is a matter of information deficit which can be addressed by the populace becoming better informed (Millar and Wynne, 1988). Such beliefs were once again apparent in the case of shale gas (Williams *et al.*,

2017) with government ministers arguing public disquiet would ease once development was underway and more was known (Hope, 2016). This position was justified by reference to attitude trackers which showed almost half the public remained undecided about the industry, largely because they did not believe they knew enough to judge (BEIS, 2019). Relying upon this assumption, ministers pressed ahead in the face of substantial local opposition, won over by industry arguments that focussed upon the potential for shale gas to provide abundant cheap energy, job opportunities and freedom from foreign imports (e.g., Ernst & Young, 2014; Institute of Directors, 2013; Regeneris Consulting Ltd, 2011). Often the projected benefits were based upon predictions and scenarios informed by experiences from the United States. The consequences of the Government's decision are discussed in greater depth in chapters four and five, but the most immediate effect was to shift the focus of the national debate specifically towards claims of procedural injustice and bad governance (Bomberg, 2015). In response, shale gas became one of the most politicised and contentious issues ever to arise within UK energy policy (Neil *et al.*, 2018).

2.2.2.2. Shale gas as issue characterised by injustice

Over the last eight years an extensive body of academic research has examined the anti-shale gas movement in depth. Particular attention has been paid to how the issue has been framed and contested, across North America (e.g., Dodge and Lee, 2015; Dufour *et al.*, 2012; Neville and Weinthal, 2016; Simonelli, 2014; Wright, 2013); South Africa (Fig and Scholvin, 2016; Ingle and Atkinson, 2015); Europe (e.g., Bomberg, 2015; Cotton *et al.*, 2014; Keeler, 2015; Metze, 2014; Steger and Drehobl, 2018; Vesalon and Cretan, 2015; Goldthau and Sovacool, 2016); transnationally (e.g., Metze and Dodge, 2016; Dodge and Metze, 2017) and globally (Steger and Milicevic, 2014). There is a significant commonality between these accounts (Williams and Sovacool, 2019) and discourses centring on justice have come to form a prominent theme in the academic literature, particularly in relation to the distributive and procedural injustices of shale gas development (Clough, 2018). These are addressed below in turn.

Distributive injustice claims relate to the geographically unequal allocation of environmental costs and benefits (Jenkins *et al.*, 2016). Research on this facet of shale gas development most frequently draws on data from the United States, where the industry in mature and effects can be measured. Analysis substantiates claims of unequal allocation of costs showing that shale gas wells are often disproportionately

located in areas with poorer communities (Ogneva-Himmelberger and Huang, 2015; Johnston *et al.*, 2016; Fry, 2013). The distribution of benefits is less clear. Some studies suggest that these generally accrue to businesses and individuals from outside the local area (Fry *et al.*, 2015) with surrounding communities experiencing little positive effects either on income or employment (Paredes *et al.*, 2015). Others suggest that the effects vary; some communities may benefit but this is dependent on the productivity of the local geology and energy prices at the time of development (Munasib and Rickman, 2015). This substantiates the argument that the uncertainty surrounding the industry is one of its most disruptive features (section 2.2.2.1).

A second, more extensive body of literature considers the potential procedural injustices present within shale gas policy-making. Procedural justice manifests in equal access to decision-making and equitable procedures (Jenkins *et al.*, 2016). Claims relating to a perceived deficit in the justice of the decision-making process (Beebeejaun, 2017; Cotton, 2016; Szolucha, 2018b; Whitton *et al.*, 2017) and in its democratic legitimacy (Cotton, 2015; Hays *et al.*, 2015; Williams *et al.*, 2017) have come to form a defining feature of the shale gas debate. In a review of shale gas governance across Europe, the UK and the US Whitton and Charnley-Parry (2018 p. 220) conclude, "opportunities for the public to be involved in shale gas decision-making are limited." Claims of bad governance have emerged as a central feature of the English debate (Bomberg, 2015) following the Government's decision to overturn local Councillors' rulings against shale gas development (section 3.4.2). As Williams and Sovacool (2019) note, the bad governance frame is rhetorically powerful since it can be substantiated with reference to government actions to date; however, as will be argued in section 2.5.1, too great a focus on how injustice has manifested may obscure other important questions.

2.2.3. Strategies of resistance on and offline

As the previous sections have shown, shale gas development is an issue characterised by uncertainty across multiple axes and fraught with concerns about the local environmental and social consequences; the climate change effects, regulatory capture and sufficiency; and injustice and citizen disempowerment. In response, a global anti-shale gas movement has emerged which links local concerns with master frames (Rootes, 2013) of climate justice under the slogan "*Ni ici, ni ailleurs,*" (Kinniburgh, 2015) or 'Not here; not anywhere.' Outside of North America, the

movement's aim is most often preventative since shale gas extraction has yet to take place. Campaigners must of necessity look abroad to inform themselves about the likely impact of the industry in their locality. A notable feature of the protest has been the extent to which local groups have used the internet to connect across national boundaries in order to coordinate their efforts, provide mutual support and solidarity and access alternative sources of information to those preferred by the political mainstream (Dodge and Lee, 2015; Steger and Milicevic, 2014; Willow and Wylie, 2014). Social media in particular have been widely used to share details of the US shale gas experience, providing alternative discursive frames through which to understand the technology and its effects (Jaspal *et al.*, 2014b).

These twin features of a locally situated but globally networked protest and the central questions of justice and democracy which it has expanded to incorporate have led to the conflict on shale gas being dubbed, "the first virtual civil rights movement," (Simonelli, 2014 p. 266). However, while the role of websites and social media in mobilising opposition to shale gas has been noted (e.g., Jones *et al.*, 2013; Keeler, 2015; Pearson, 2013; Vasi *et al.*, 2015), academic studies to date have predominantly used the internet as a repository of content through which to study the way in which the issue is being presented online. One group of studies focusses upon how shale gas is being framed on different online platforms, for example, by examining the discourses used on Twitter (Hopke and Simis, 2017); YouTube (Jaspal *et al.*, 2014b) and in the online press (Jaspal and Nerlich, 2014; Jaspal *et al.*, 2014a). A second group examines how different stakeholder groups frame their online depictions of the technology (e.g., Matz and Renfrew, 2015; Vasi *et al.*, 2015; Wright, 2013).

Three studies have focussed more specifically on the digitally mediated nature of this activity, and how the use of digital technologies may be influencing the debate. Neil *et al.* (2018) examine the influence of digital information on media content in the UK between 2012 and 2014, arguing that the success of anti-shale gas campaign in disseminating its message demonstrates the growing importance of online activity in this context. Hopke (2015) reviews Twitter use by activists across 27 countries to publicise a day of anti-shale gas protest, finding that despite the publicly accessible nature of the platform, Twitter was predominantly a space in which to build a movement identity rather than for outreach. Hopke (2016) undertakes a social network analysis of hyper-linkages in relation to the same day of protest, revealing the increasing important intermediary role played online by globally-focussed local

groups. The face of environmental activism is changing, she argues, and online activity is no longer optional for movement particpants.

> *In order to be successful environmental movements need to win both in material and symbolic terms, meaning in physical places and also in digitally mediated spaces [...] by necessity movements need to be active in both realms.*

(Hopke, 2016 p. 13)

While these studies provide a useful indication of the potential importance of digitally mediated activity to the shale gas debate, to date there has been little examination of the broader effects of this activity in a national context. As the previous section has revealed, contention over shale gas combines four trends within social movements and environmentalism which are likely to increase in prominence as the twenty-first century progresses. Firstly, the decentralisation and consequent increased spatial impact of the energy system. This is a shift which applies to renewable energy generation as well as to unconventional hydrocarbon extraction, bringing new communities into proximity to energy production and inevitably resulting in social conflict (Cuppen, 2018). Linked to this is a second trend, that of the key societal struggle between the perpetuation of a fossil-fuel based economy on the one hand, and the transition to a low carbon, more sustainable energy system on the other (Dodge and Metze, 2017; Ibrahim *et al.*, 2016). Thirdly, the 'scale shift' of protest (McAdam *et al.*, 2001) whereby local campaigns against unwanted infrastructure projects transform into broader environmental movements. Finally, the way in which digitally mediated activism is changing the spatiality of protest, allowing local campaigners to look beyond "beyond place and boundaries," (Ahmed *et al.*, 2017 p. 461). This initial identified gap generated the following empirical research questions which guide this thesis.

- How are actors in the English shale gas debate using online activity to engage with the issue?
- What is the influence of this activity?
- What are the implications of these findings for the influence of online activity on the contestation of environmental issues?

2.3. Conceptualising the influence of digital technology use

Establishing the influence of digital technologies is not a straightforward task. It has long been apparent that online activity can be helpful, meaningless or outright damaging for citizens attempting to influence public policy (Highfield, 2017; Lodge and Wegrich, 2015; Lupia and Sin, 2003), for the quality of environmental decision-making (Schlosberg *et al.*, 2009; Zavestoski *et al.*, 2006), and for democracy itself (Morozov, 2011; Van De Donk *et al.*, 2004). As we enter the third decade of the twenty-first century, a significant body of scholarship has evolved to examine how digitally mediated activism is changing the face of contentious politics. Key questions include firstly, whether it affords activists new 'repertoires of contention' (Tilly, 1977) with which to engage in political struggle or instead enforces existing patterns of authority and influence (Rethemeyer, 2007; Tufekci, 2014). Secondly, whether it represents a transformative or iterative change over offline forms of activism (Bennett and Segerberg, 2012; Earl and Kimport, 2011). Thirdly, whether it offers a revitalised public sphere for democratic deliberation, allowing marginalized voices to be heard (Pickard, 2008; Rheingold, 2000) or corrals discussion into limited and self-referential echo-chambers (Sunstein, 2009; Bright, 2018). Some scholars (e.g., Chadwick, 2006; Gibson and Ward, 2008; Pickerill, 2003; Wright, 2012) however, have asked whether drawing a binary distinction between revolution and normalisation, utopia and dystopia, is necessarily a helpful means by which to understand the political impacts of digital technology use, or whether doing so is inadvertently technologically deterministic in its effect (section 3.5.1.1). In and of themselves digital technologies will not revolutionise politics; rather it is how they are adopted and used by people, and the contexts in which they are used, which will shape their effects (Wright, 2012).

More recently, concerns about online content in the form of internet-promulgated 'post-truth' politics and 'fake news' have risen to the fore in both academic and mainstream literature. As facts appear to become less influential than appeals to emotion in shaping public opinion, pressing questions have been raised about the extent to which these phenomena are new, what their political implications might be, and how these might be addressed (Boler and Davis, 2018; Law, 2017; Neimark *et al.*, 2019; Sismondo, 2017). Amidst increasing unease about the realities of life in a society which is becoming, almost without reflection, "digital by default" (Cabinet Office, 2013) academics have mooted a number of societal responses. These include a "radical digital citizenship" embedding a more critical analysis of the consequences of

technology use into public debate (Emejulu and Mcgregor, 2019) and calls for a more proactive and global governance of an online ecosystem overwhelmingly owned by big business (Van Dijck *et al*., 2018).

Digital technology use has penetrated to the heart of politics (Margetts, 2017) and there are multiple lenses through which to study the intersections between digital technology use and political activity (Boulianne, 2015; Hara and Huang, 2011; Mattoni, 2017). This diversity reflects the number of academic fields which the issue permeates (Mattoni and Treré, 2014) and the fact that, as for the study of offline protest, the political effects of social movements are difficult to determine (Earl and Kimport, 2011). Achieving policy change is one criterion, but a high bar to clear. Indirect effects, such as cultural change or influence on future patterns of contention, provide alternative metrics (Tilly and Tarrow, 2015) but are difficult to assess, particularly in the short term. In practice, efforts to understand the political effects of technology often draw from a variety of disciplines in order to provide a richer conceptualisation of its impacts (Chadwick, 2006). This observation leads to the theoretical question which underpins this thesis.

- How can contention over shale gas be conceptualised?

Accepting that definitive statements about effect and success are likely to prove elusive, the remaining sections of this literature review begin to explore this question in more depth. Section 2.4 introduces the digital politics literature to establish what is already known about digital technology use in contentious politics, and its sometimes-equivocal effects. From this review it draws the conclusion that the political influence of digital technology use cannot be understood separately from its context. Returning to the English shale gas debate as one which has been marked by a ministerial reluctance to engage in depth with public concerns, section 2.5 introduces post-political theory as a conceptual lens through which to understand the ways in which the political order may operate to exclude processes of dissent from mainstream debates, and how political movements may act to disrupt this order (Rancière, 1999). Considering the influence of digital technology use in this light, it argues, provides one means of understanding its effects in the broader context of the shale gas debate.

2.4. Digital politics

In his trilogy, *The Information Age*, sociologist Manuel Castells (2010a; 2010b; 2010c), argues that we are witnessing the emergence of a 'network society' enabled by digital technologies. In this society, he argues, nation-states are bypassed by global flows of information and geographically distant places and people are integrated into an aspatial global network (Castells, 2010c). *The Information Age* has been criticised for being technologically deterministic and for neglecting the continued importance of local geographies and existing social connections in mobilising political activity (e.g., Gerbaudo, 2012). In addition, it is important not to overstate the extent to which the rise in digital technology use has reshaped societal structures; networked-based forms of social organisation predate the internet (Juris, 2005). Nonetheless, *The Information Age* remains a highly influential work, and the twin affordances of near-frictionless information flows and horizontal, decentralised networked forms of organisation which Castells theorises as characterising the network society, are important underpinning elements of this thesis. The effects of a shifting information ecology on the English shale gas debate are addressed in chapter five, Google fracking. The challenges and consequences of mobilising a networked leaderless campaign via social media are addressed in chapter six, #WeSaidNo. To site this analysis, the following sections introduce the digital politics literature on how changes in information access and a shift to more networked forms of organisation have been theorised.

2.4.1. A shifting information ecology

The growth in digital technology use has led to a seismic shift in the ways in which both public and incumbent actors can engage with information. Although varied in consequence, these can be grouped into two broad categories: changes in accessing information and changes in broadcasting information. The consequences of each will be addressed in turn.

2.4.1.1. Changes in information access

Access to information lies at the heart of a free society: if citizens are to exercise power then they must have access to information in order to participate meaningfully in the democratic debate (Dahl, 1989). Changes in the accessibility of information are therefore an important political question with the potential to force changes upon incumbent actors (Bimber, 2003; Garnham, 2004). Early work on the changing

dynamics of protest in the network society argued that the environmental movement was well placed to exploit the near-frictionless exchange of information which internet use offered, due to the cross-boundary nature of environmental issues and the movement's intrinsic orientation towards information-based campaigns (Bimber, 2003; Castells, 2010b). Over the last sixty years, environmental issues have increasingly become recognised as interdependent in nature and global in scale. Concurrently, globalisation has led to political and economic power shifting beyond national boundaries (Lemos and Agrawal, 2006), with troubling consequences for democratic control and accountability. The global information flows which internet use afforded appeared to offer the potential for concerned citizens to follow this cross-boundary shift and engage with the issues on a more global scale (Van Laer and Van Aelst, 2010). Whether this potential could transform into influence, however, remained open to question. As Bimber (2003 p .224) acknowledged, as of 2003 the new information environment did not appear to have "changed levels of political engagement in any substantial way."

Arguably, this outcome was inevitable. Modern environmental issues, shale gas amongst them (section 2.2) are often complex and intractable 'wicked problems' containing high levels of uncertainty and rarely amenable to straightforward analysis (Fischer, 1993). Inevitably, issue framing is required to make them more tractable. Studies of the sociology of scientific knowledge reveal the extent to which scientific facts are socially constructed and how the ways in which they are framed reflect the wider beliefs of those involved in their interpretation (Forsyth, 2004). Policy and scientific elites, however, often remain blind to the extent to which normative judgements are embedded within their scientific adjudications (Welsh and Wynne, 2013). While a significant element of what activists do, therefore, may be related to information-based tasks (Gillan *et al*., 2008), improved information access of itself can never be assumed to deliver policy influence. Rather, as environmental issues are 'scientised' by policy elites (Sarewitz, 2004) a boundary contest ensues (Jasanoff, 1987) whereby experts, officials and political interest groups make competing claims for their interpretations of the evidence. Citizens must not only master their subject, they must also articulate their claims in a way which is consistent with these scientised framings if they are to be considered legitimate participants (Carolan, 2006).

Online information has a number of pitfalls which further complicate these processes of assimilation and framing. Information abundance leading to overload; the

predominance of sloganeering instead of analysis; and difficulties in assessing information quality have long been acknowledged as particular problems with online content (Wright, 2004). More recently, concerns about deliberate online misinformation, or disinformation, promulgated for political effect have come to dominate mainstream and academic debates over post-truth and fake news (Boler and Davis, 2018; Law, 2017). Access to near-limitless amounts of online information might not only be irrelevant when engaging in political debate, it might actively be damaging in its effects. As a result, recent academic work has been cautious about the emancipatory potential of online information access for the environmental movement, arguing instead for more consideration of the broader consequences of its use, both positive and negative (Leong *et al.*, 2015). These recommendations are echoed in broader calls for further research on how protest movements are navigating an online information environment of ever-increasing complexity (Earl and Garrett, 2017). This aspect of conflict over shale gas is addressed in more depth in chapter five, Google fracking.

2.4.1.2. New modes of broadcast: alternative media

Terming online publication and distribution formats as 'alternative' is admittedly a misnomer when government policy is 'digital by default' (Cabinet Office, 2013), when parts of the mainstream media have already transitioned to a digital-only format (The Independent, 2016) and when the Prime Minister broadcasts to the nation via Facebook Live (inews, 2019). Increasingly, digital formats *are* the mainstream and subject to increasing manipulation and censorship as a result (Morozov, 2011; Tufekci, 2017). Nonetheless, the term alternative media provides a useful heuristic through which to examine the shift from centralised one-to-many modes of news distribution to the diverse and decentralised formats which digital technology facilitates. While this is a shift which affects outsider organisations and incumbent actors alike, the effects for each group are different and are therefore addressed in turn.

For protest movements

Political movements have a long history of using new technologies to create and distribute their own media. The anti-slave trade campaign's use of the printing press to mass produce handbills provides one early example (Chadwick, 2006). That they should have seized upon digital technologies as a means by which to publish and disseminate their messages is therefore unsurprising, since the internet has clear

advantages for the circulation of non-mainstream views (Van Laer and Van Aelst, 2010). Digital publishing is low cost, fast and, crucially, provides the capacity to engage directly with the public through channels which are not dependent on mainstream media brokerage (Micó and Casero-Ripollés, 2014). This provides any individual with internet access the opportunity to produce and broadcast their own media to a mass audience. In doing so, it shifts the role of the public from a consumer of content to a producer and transmitter (Bennett, 2003). The decentralised, networked structure of the internet provides an open architecture which facilities the sharing of oppositional discourses (Routledge, 2017). On occasions, these may come to influence mass media coverage, as previous research has suggested was the case for the anti-shale gas campaign in the UK (Neil *et al.*, 2018).

Yet it is important not to overstate the benefits of alternative media formats for protest movements, and arguably they now offer less opportunities than they once did. Online space, as Karatzogianni *et al.* (2017 p. 3) note, "is not inherently democratic" and offline structures of power may be reproduced online. Actors with more resources have the capacity to exercise more power over online content than those with less and "new media politics creates new political tricks," (Castells, 2007 p. 256). Businesses have historically been wary of engaging online, particularly through social media, due to a perceived lack of control of their message (DiStaso *et al.*, 2011). However, as digital technologies become increasingly embedded within society, this reticence has waned. Search engine optimisation strategies allow those with the money to promote their content in ways which are invisible to the average internet user. This has led to concerns about targeted political advertising using social media becoming increasingly prevalent, particularly following reports about Cambridge Analytica's work for Leave EU (Digital Culture Media and Sport Committee, 2019). Furthermore, while the open networked spaces of social media may appear to provide a forum where everyone has an opportunity to have their voice heard, the sheer volume of content mitigates against this. Twitter, for example, hosts 200 billion tweets a year; for every tweet that goes viral, billions will not.

Mainstream media coverage, therefore, still has an important role to play in publicising a protest movement's messages. As they compete in an increasingly saturated media environment, which includes both mainstream and alternative formats, what DeLuca (2005) terms 'image events' have become an increasingly necessary tactic for environmental activists seeking to gain coverage of their activity

(McCurdy, 2017). Such performative forms of politics, (see for example the red line protests at Preston New Road, Fig 3-5, a form of action which debuted at COP21) may attract media attention but the political effects of this activity are less apparent. There is a risk that presenting their message in attention-grabbing ways may reduce activists' standing in the eyes of the public and obscure the point they are trying to make. As Gamson and Wolfsfeld observe, "those who dress up in costume to be admitted to the media's party will not be allowed to change before being photographed," (Gamson and Wolfsfeld, 1993 p. 122). Alternative media formats have therefore proved something of a mixed blessing for protest movements, allowing their members to publicise themselves but, despite the advantages which a more decentralised system appeared to offer, not necessarily shifting the media environment to their advantage. The underpinning dynamics of these processes for the conflict over shale gas are explored in more depth in chapter six, #WeSaidNo.

For incumbents

When compared to the extensive academic literature on protest movements' use of digital technologies as a broadcast medium, the empirical research on incumbent actors' activity is relatively scarce. Michel and Kreziak (2009) set out a useful three-part typology of the ways in which governments engage online with citizens (Table 2-1) finding they range from administrative to deliberative in their underpinning aims.

There are clear parallels between these three modes of engagement and previous typologies of citizen participation. For example, Arnstein's ladder of participation (Arnstein, 1969), with e-administration lying towards the 'tokenism' end of the ladder and the deliberative activity entailed by e-governance sitting closer to 'citizen power.' Or alternatively, Rydin and Pennington's three-part typology of public participation within environmental planning (Rydin and Pennington, 2000). Here, participatory exercises are characterised as ranging from information provision-focussed 'environmental management' initiatives to more deliberative modes of 'collaborative environmental planning.'

	E-administration	**E-government**	**E-governance**
Underlying principle	Government for the people	Government of the people	Government by the people
Citizenship component	Rights	Duties	Participation
Role of the citizen	Consumer	Passive agent	Actor
Underlying logic	Delivering services	Improving chances of policy success	Encouraging deliberation, participation
Role of elected officials	Improving administrative performance	Understanding the opinions of citizens using consultation	Protecting free expression
ICT tools	Online administrative services	Electronic consultations	Collaborative tools

Table 2-1: Three-part typology of digitally mediated citizen engagement adapted from Michel and Kreziak (2009 p. 163)

Unsurprisingly therefore, while early work was optimistic about the potential for digitally mediated forms of participation to introduce public deliberation into the regulatory sphere (Schlosberg *et al.*, 2008; Schlosberg *et al.*, 2009; Zavestoski *et al.*, 2006) in practice, many of the criticisms about the democratic deficits within government-led participatory processes before near-ubiquitous internet use (Bickerstaff *et al.*, 2010; Levidow and Marris, 2001) continue to be levelled at e-governance initiatives (Lodge and Wegrich, 2015). In general, government online activity has tended towards e-administration (Hofmann *et al.*, 2013) and information provision. At their least interactive, websites may simply be used as a repository for 'brochureware' or content converted directly from printed material (Earl and Kimport, 2011). The extent to which incumbent actors relied on these limited forms of online activity in the case of shale gas, and the possible consequences of this decision on the dynamics of the debate, form one finding of this thesis and are discussed further in chapters five and seven.

2.4.2. Networked forms of protest

A second body of academic work has considered the effects which digital politics has had upon contentious politics and in particular the effects of social media use for

political mobilisation. The role of digitally mediated activism in building networked identities and the consequences for engagement in contentious politics has received particular academic attention (e.g., Coretti and Pica, 2015; Castells, 2010b; Bennett and Segerberg, 2012; Bennett and Segerberg, 2011; Smith *et al*., 2015). The following sections provide a brief introduction to the growing role of digitally mediated activism in protest mobilisation over the last quarter century, before turning to the most recent literature on networked forms of protest.

2.4.2.1. The rise of networked protest

The indigenous Mexican Zapatista movement is credited as the first to pioneer use of the internet during its struggle against the introduction of the North American Free Trade Agreement in the mid-1990s. In the initial stages, this activity was focussed upon sharing information through existing networks in order to communicate the movement's aims to the world. In the later stages, online activity became a means by which the Zapatistas could create new ties and mobilise an international network of opposition to neoliberal politics (Cleaver, 1998). As internet use grew globally, so did its use in contentious politics. Initial academic work focussed upon how the internet was used in group contexts, for example in enabling the activities of international NGOs (Lebert, 2003); in shaping the practices of grassroots groups (Hara and Estrada, 2005; Pickard, 2008), in mobilising anti-globalisation protests (Juris, 2005; Wright, 2004); and in shaping the strategies of environmental activist movements (Pickerill, 2003).

The increased reach, speed and low cost of digital technologies were generally agreed to provide a useful opportunity for activists, and in particular nimbler, outsider groups (Gibson and Ward, 2008; Pickerill, 2003). The opportunities which internet use appeared to offer to these groups fell into three main categories: lowering the barriers to information sharing; building the collective identity and solidarity through which subsequent mobilisation could occur, and providing new modes of participation (Garrett, 2006; Earl and Kimport, 2011). However, online activity was also recognised to have its disadvantages. There was a risk it might prove a distraction from other, more effective, forms of campaigning. This was a particular concern since the extent to which online action might translate into offline influence either in policy terms or in mobilising supporters, was far from apparent (Hara and Estrada, 2005; Cronauer, 2004). Now-topical concerns about online information quality (Wright,

2004) anonymity and lack of non-verbal cues leading to antagonistic behaviour (Cronauer, 2004; Walther *et al.*, 1994); and the encroaching privatisation and commercialisation of online spaces (Pickerill, 2003; Pickard, 2008) were also already well established. One overarching message remained clear: online activity did not take place within a vacuum and could only be understood within its broader social and political context (Chadwick, 2006; Earl and Kimport, 2011; Hara and Estrada, 2005; Pickerill, 2003).

The arrival of web 2.0 in the mid-2000s, characterised by growth in user-generated content particularly on social media platforms, was followed by the launch of the first smartphone in 2007. As these platforms and devices became increasingly ubiquitous, the political affordances which they offered were subject to increasing academic scrutiny. In particular, the Arab Spring of 2010 to 2011 and the global Occupy Movement, which emerged in 2011 as a response to the 2008 financial crash, appeared to represent a new politics of dissent. The role of social media use, particularly Facebook and Twitter, in building collective identity and mobilising collective action during Occupy formed the subject of extensive study (e.g., Bates *et al.*, 2016; Kavada, 2015; Smith *et al.*, 2015; Gerbaudo, 2012). Whereas under "web 1.0" the role of online activity in mobilising offline action had appeared, at best, ambivalent (Vissers *et al.*, 2012), Occupy, with its digitally facilitated, near-spontaneous mass occupations of public space across 82 countries under the banner "we are the 99%" and the Twitter hashtag #OccupyEverywhere appeared to suggest that, with the arrival of web 2.0, things had the potential to be different.

2.4.2.2. New forms of collective action

Mass occupation became a feature of the 'movement of the squares' of the early 2010s. In protests as diverse as the *Indignados* movements in Greece and Spain (Castañeda, 2012; Peterson *et al.*, 2015) the Gezi Park protests in Turkey (Haciyakupoglu and Zhang, 2015; Tufekci, 2017) and the student protests in Italy and the UK (Hensby, 2017; Mattoni and Treré, 2014) people took to the streets. In the academic studies which followed, one repeated question was whether the power of social media to mobilise previously unaffiliated groups of actors, with little political experience, through loose networks of connections represented a "new logic of aggregation" with the power to precipitate social change, or whether the resulting mass occupations were made up of "crowds of individuals" (Juris, 2012) which would deliver only evanescent political

effects. This framing of the issue, arguably, reproduced the revolution: normalisation binary in a new context. Certainly, terming the events of the Arab Spring as Facebook or Twitter 'revolutions' as they often were in the mainstream media, was agreed to be reductivist (Earl and Kimport, 2011). To do so, overstated the extent to which participants in these events used social media (Mattoni and Treré, 2014) and overlooked both the paramount importance of existing social networks in mobilising participation and the ongoing importance of local geographies of action in shaping the subsequent protests (Gerbaudo, 2012; Salvatore, 2013).

Bennett and Segerberg (2012) argued that rather than precipitating a step change in protest, digital media had facilitated a new, more personalised, 'logic of connective action.' This, they argued, would not replace collective action, based upon formally organised groups and the formation of collective identities, but would now operate alongside them. Connective action was characterised by the presence of easy-to-personalise collective action frames (section 3.5.3.4), such as "we are the 99%" in conjunction with the use of digital technologies to mobilise protest. Hopke's work detailing the networked structures of Twitter activism on shale gas (Hopke, 2015; Hopke, 2016) provide a more recent elaboration of how these processes develop in a case study context. Mass occupations mobilised according to logics of connective action were frequently large, fast to scale up and successful in bridging between different causes. However, the political effectiveness of these mobilisations was open to question, with sceptics arguing that the ease of mass mobilisation afforded by online organising might mute the messages it delivered to those in power (Morozov, 2011).

As the movement of the squares' protests dissipated or were dispersed, their long-term political effects remained ambiguous. One suggested reason for their apparent lack of traction beyond mass occupation was that the digital platforms and technologies which had enabled participants to mobilise and assemble at such unprecedented speeds and numbers might have also acted to the detriment of the movements' long-term coherence. In particular, recent commentators (e.g., Routledge, 2017; Tufekci, 2017) have suggested a failure to articulate broader political demands may have contributed to the protests' failure to transmute into broader political movements. While the loose ties and decentralised forms of organisation facilitated by digitally mediated activism facilitate rapid mobilisation, they also make it challenging for participants to agree and articulate a singular set of demands within

the timeframe of an occupation (Juris, 2012). Personalised forms of connective action require relatively little capacity building activity for participants to mobilise. However, this lack of capacity building may make it difficult to build the bonds necessary to undertake the subsequent deliberative activity which is required for the movement to articulate messages which go beyond the personal to achieve broader political resonance. The result, Tufekci (2017) argues, is a phenomenon which she terms "tactical freeze." A protest remains in the mobilisation stage and, eventually, dissipates.

While it is still too early to make definitive statements about the political effect of the movement of the squares, understanding how the movements evolved as a consequence of the means through which they mobilised provides an important insight into the ways in which digitally mediated activism may both enable and constrain political activity. The ways in which mobilising a protest against shale gas via social media may have influenced the protest's messages, form the subject of chapter six, #WeSaidNo.

2.4.3. Synthesis of digital politics literature

As this section has shown, the political effects of digitally mediated activism on contentious politics are not straightforward and may have both positive and negative consequences for political movements. The local context remains crucial in understanding how a protest evolves, and offline structures of power may be reproduced online. For all political movements therefore, digitally enabled or otherwise, a favourable political climate, sympathetic public opinion, and effective organisation remain important factors in whether or not a movement achieves its aims (Soule and Olzak, 2004). This means, as Castells (2007) notes, that the interaction between different actors is an important factor to consider when studying the political effects of digitally mediated activism. But it also raises the question of how political influence might be assessed in cases such as the English debate on shale gas, when the political environment is not favourable to a movement's aims (section 2.2.2.1). The following section introduces post-political theory as one means to address this question, and provides the rationale for why it is a particularly appropriate theoretical framework for this case.

2.5. Introducing post-political theory

Section 2.2 argued that it was necessary to understand the nature of shale gas and its extraction processes in order to understand why the issue had become so contentious. It set out the main areas of dispute over the industry, noting how environmental justice frameworks had often been used to examine the issues (section 2.2.2.2). It established that there was a gap in the empirical literature relating to the influence of digital technology use in the debate. Section 2.3 argued that the political influence of digital technology use could be conceptualised in many ways, and that an appropriate framework would need to be determined before the empirical research questions could be addressed. Section 2.4 set out in more detail the ways in which digital technology use had been theorised to have had political influence. It argued that questions of influence could not be understood apart from the context within which a conflict arises. This section draws together these three strands of argument and introduces the theoretical underpinning to this thesis.

Section 2.5.1 argues that in order to understand the conflict over shale gas, and more specifically the influence of digital technology use upon it, it is necessary to take an alternative approach to the majority of social science research on the English debate to date. Recognising that many civil society actors perceive the participatory processes for shale gas to exclude dissenting views, recognising that claims of bad governance have come to form a prominent part of the anti-shale gas campaign, and recognising that there has been little indication of any political appetite on the part of the Government to make the processes more participatory despite these criticisms, it argues that digital technology use appears unlikely to have yielded any direct policy effect. A more productive approach, therefore, may be to consider how participatory processes have been constructed to constrain debate, and how these constructions may be disrupted by online activity. To this end, it introduces post-political theory as one means to study these dynamics. Section 2.5.2 elaborates upon the development of post-political theory and its ontological underpinnings in order to provide the basis for this study. The specifics of how these post-political dynamics have played out in the English shale gas debate form the subject of chapter four, Contesting fracking.

2.5.1. Why apply a post-political analysis to shale gas?

As Evensen (2018) notes in a review of fifty social science research papers published between 2013 and 2018, research on shale gas in the UK (in practice, most often

England, since the remaining home nations have imposed moratoria) has fallen into three broad categories: public attitudes, regulatory sufficiency and discourses and framings. The first category (e.g., Andersson-Hudson *et al.*, 2016; Howell, 2018; Williams *et al.*, 2017) focusses upon how the public views shale gas, and the factors which may influence their attitudes. It finds that voting Conservative, being male and prioritising energy security predicates support, while prioritising environmental values increases opposition. The second category considers the content, adequacy and operation of the consenting processes for shale gas (e.g., Bradshaw and Waite, 2017; Cotton, 2016; Hawkins, 2015). It finds they are generally weighted in favour of shale gas development. (The specific processes for public engagement on shale gas are complex. They have been elaborated upon in a separate work, Rattle *et al.*, 2018, which is incorporated as Appendix 1). The third category (e.g., Bomberg, 2015; Cotton *et al.*, 2014; Hilson, 2015; Williams *et al.*, 2017) examines the discourses and framing of shale gas amongst different stakeholder groups. It finds unanimously that "the UK Government does not actively engage with or incorporate public framings of SGD [shale gas development] into its own rhetoric," (Evensen, 2018 p. 694).

While these studies have revealed a great deal about the underpinning dynamics of the national debate and why it has become so highly contested, one general criticism is that they have focussed upon how the existing systems function and are perceived, rather than how they have been structured. As the national debate over shale gas reaches its ninth year, it is time for a new approach. It has been apparent since 2012 that communities facing shale gas development believe that many of their concerns are excluded from the formal decision-making process (Cotton *et al.*, 2014). More recent work reveals that this perception of exclusion continues to exist (Short and Szolucha, 2019). Calls for greater participation and democratic legitimacy in shale gas policy have been made repeatedly in the academic literature (e.g., Cotton, 2015; Hammond *et al.*, 2015; Hays *et al.*, 2015; Williams *et al.*, 2017). It is equally apparent, however, as Evensen notes above, that there is little appetite on the part of the Government to engage with these criticisms. Indeed, as discussed in chapter four, the main ministerial response has been to attempt to constrain the opportunities for public participation further. As Williams and Sovacool (2019) argue in a synthesis of the UK literature on the discursive politics of shale gas, claims of procedural injustice have become particularly prominent in the national debate, in part because they are easy to substantiate compared to concerns about the environmental impacts of

development which, given the many uncertainties which continue to permeate the issue (section 2.2.2.1), remain open to debate:

> *The 'bad gas governance frame' is unique in that it is largely about behaviours and reforms that have occurred, rather than predictions and scenarios concerning the future which are relatively easily dismissed by, quite legitimately, questioning key assumptions and extrapolation from other national contexts.*
>
> (Williams and Sovacool, 2019 p. 13)

The destabilising role which reliance on future scenarios played in the English shale gas debate, and the importance of digital technology use in enabling the public to both access information from, and question assumptions about, other national contexts are key findings in chapters four and five respectively. More broadly, however, what the syntheses provided by Evensen (2018) and Williams and Sovacool (2019) reveal is that the academic focus to date has been on behaviours and reforms which have occurred, and the ways in which injustice has manifest. This focus, while entirely justifiable, may obscure other important questions about *how* these unjust processes come to be. Post-political theory provides an alternative approach to justice frameworks, which use evaluative and normative critera to assess instances of injustice and recommend how they might be remedied (Jenkins *et al.*, 2016). Post-political theory considers instead how a system may be constructed to be unjust and importantly, how this construction might be challenged, "how this world is constructed, disclosed and disrupted is a matter of politics. The apparent fixity of the order can be challenged," (Dikeç, 2015 p. 95). For the purposes of this thesis, which asks how contention over shale gas can be conceptualised, and the influence of digital technology use upon the debate, this focus on construction, and the ever-present possibility of disruption, provides a useful alternative means for thinking about the issues in question. It is not that post-political theory is 'better' than environmental justice frameworks but rather, as Thomas (2019) notes, that they provide different perspectives upon shale gas and thus allow different questions to be addressed. The following section introduces post-political theory. Its specific application to the case of shale gas is addressed in chapter four, Contesting fracking.

2.5.2. Post-political theory

Post-political theory provides a framework through which to consider how dissenting opinions are systematically excluded from mainstream political debate. It emerged from a body of work by a group of key thinkers including Mouffe (1999; 2005) Rancière, (1999; 2010) and Žižek (2000a; 2000b) on the changing character of politics following the demise of communism in Europe, and the subsequent rise of non-adversarial modes of governance, as set out most clearly in the work of British sociologist Anthony Giddens. In *The Third Way,* Giddens (1998), argued that politics had entered a new era whereby traditional right-left divisions no longer held sway. In their place, an alternative politics premised upon negotiation and participation would underpin the construction of more socially just solutions to societal problems. While their theorisations vary, Mouffe, Rancière and Žižek disputed this analysis. The focus on generating consensus, they argued, obscured broader discussions about desired societal futures. The result was to reduce government to narrow debates over matters of techno-managerial administration, operating within an uncontested framework of neoliberal economics and purportedly liberal democracy (Žižek, 2000b). To prioritise consensus was to ignore the intrinsically antagonistic character of political debate, not only circumscribing the topics open for discussion but labelling those who questioned the dominant institutional frameworks as either traditionalists or fundamentalists, (Mouffe, 2005). Once delegitimised in this way, their complaints could be dismissed as meaningless 'noise' rather than rational discourse (Rancière, 1999) and their views thus excluded from political debate. Such exclusion, however, would not ensure the smooth operation of rational decision-making but rather contribute to the eruption of further antagonisms in unforeseeable ways.

Post-political theory has been subject to a number of criticisms, not least that its insistence on the intrinsically antagonistic character of politics focuses attention on certain forms of disruptive protest at the risk of overlooking other, less overtly radical, forms of political engagement (section 4.2). However, its core argument that dissent is irrepressible but also intractable, provides a useful way to approach the possible influence of digital technology use, with the potential to offer alternative insights to revolution-normalisation binaries (section 2.3). To understand why the post-political thesis insists the potential for dissent can never be excluded from political debate, it is necessary to briefly address its underpinning ontological assumptions. While their terminology differs, Mouffe, Rancière and Žižek share a post-foundational ontology

which argues there is no underpinning basis to any societal order (Wilson and Swyngedouw, 2014). That is, there is no state of nature or ideal form from which society emerges, and as such any 'foundations' of society are irreducibly contingent. For post-political thinkers, the important distinction, therefore, is not between different spheres of activity such as politics and the economy, but *politics* and *the political.* Using here, Mouffe's terminology, *politic*s is the activity, the ultimately futile attempt to consolidate existing power relationships upon a non-existent foundation, while *the political* is the absence, the lacuna upon which the social order rests (Mouffe, 2005). This 'absent centre' (Žižek, 2000b) is fundamentally destabilising to any attempts to impose order, which means the possibility of radical societal change can never be foreclosed. According to post-political theory, politics is inherently antagonistic: "the field upon which we deal with fundamental antagonisms, where we determine the basic economic and social coordinates of our shared future," (Winlow *et al*., 2015 p. 8). Attempts to exclude dissent from mainstream debate will never be completely successful. Indeed, they may be actively counter-productive. The outcome of exclusion is "not *less politics* but rather *more politics* - albeit by other means than those commonly and traditionally recognized as legitimately political," (Metzger, 2011 p. 191, emphasis in original).

An emerging strand of scholarship has focussed upon radical urban uprisings, amidst calls for greater consideration of the "emancipatory potentials that unfold in instances of political contestation that elude or escape institutionalized forms of politics" (Dikeç and Swyngedouw, 2017 p.15). However, while a number of studies using a post-political lens reference digital technologies in passing, as a tool used by activists (Ruming, 2017; Haughton *et al*., 2016), or an alternative political arena for the expression of dissent (Metzger, 2011), and while the mass occupation of public space has been presented as one symbolic means by which to destabilise the existing political order (e.g., Rancière, 1999; Routledge, 2017; Swyngedouw, 2011), to date the interactions between digitally mediated activism and processes of post-politicisation have not been examined in depth. This is an area which it appears would benefit from further research, not least because some political geographers (e.g., Haughton *et al*., 2016; Routledge, 2017; Swyngedouw, 2007a) have suggested a failure to express unified and universal claims is one factor which prevents protests scaling up from a localised event into the type of radical uprisings which, they argue, have the potential to escape the confines of institutionalised politics. As discussed in section 2.4.2.2, within the

digital politics literature, research suggests that the ease of mobilising via digitally mediated technologies may serve to rob a protest of its impetus, since the speed of assembly outpaces its growth in deliberative capacity. As the use of digital technology in protest becomes increasingly ubiquitous, it is time to consider the interplay between these two strands of research in more depth. The conflict over shale gas has been argued to be one example of a potentially radical urban uprising (Thomas, 2019). This thesis considers not only how the influence of online activity might be assessed using post-political theory but also, in the final chapter, the implications of digitally mediated activism for the post-political thesis.

2.6. Conclusion

This chapter has set out the main bodies of academic literature as they relate to the conflict over shale gas and digital politics. It has argued that a strong online response has marked public debate on shale gas since the outset, but to date this activity has been subject to relatively little academic scrutiny. It identified this gap as the main empirical issue which the thesis will address. It further noted that there is no single lens through which to study the influence of online activity and attempts to do so may draw from a number of fields. Understanding that the influence of this activity cannot be understood apart from the context in which it is used, developing a suitable theoretical lens was identified as the first gap which this thesis will address.

These gaps generated the following research questions, which will be addressed in the stated order:

1) How can contention over shale gas be conceptualised?
2) How are actors in the English shale gas debate using online activity to engage with the issue?
3) What is the influence of this activity?
4) What are the implications of these findings for understanding the influence of online activity on the contestation of environmental issues?

Chapter specific sub-questions will be introduced as needed in order to structure the analyses. The remainder of the thesis is set out as follows. Chapter three sets out the research design, methodology and methods which were used to generate the results. Chapter four, Contesting fracking, applies post-political theory to the English debate on shale gas, to establish the broader terrain of the protest and identify how processes of post-politicisation have operated in this particular case. In doing so it addresses the

first research question and generates a schematic framework through which to further explore the influence of digital technologies on the evolution of the issue. Chapter five, Google fracking, uses this framework to address research questions two and three in the context of the political effects of changes in information access. Chapter six, #WeSaidNo, uses this framework to address research questions two and three in the context of networked forms of protest. Chapter seven synthesises the findings of the preceding results chapters to address research question four and consider the implications of these findings for the contestation of environmental issues.

3. Research design, methodology and methods

3.1. Introduction

This chapter provides a summary of the thesis research design, methodology and methods. It is structured according to Denzin and Lincoln's (2018a) five phases of qualitative research design. In this work, the authors argue that in order to produce a conceptually coherent and robust piece of research, the qualitative researcher must consider their ontology, epistemology and methodology, and understand these as being underpinned by, and interwoven with, their own biography. Every researcher speaks from a particular perspective and approaches the world in a particular way. The resulting research will be informed and shaped by this interpretative paradigm.

The five phases, therefore, begin with a consideration of the positionality of *the researcher*. This is discussed in section 3.2, alongside some reflections upon the nature of the community and topic being researched. The second phase of the research process relates to the researcher's *interpretative paradigm.* Understood as the 'first principles' which guide action, research paradigms incorporate the fundamental philosophical questions which underpin the research, such as ontology (the nature of reality), epistemology (the manner by which the researcher apprehends the world) and methodology (the processes by which knowledge is gained) (Denzin and Lincoln, 2018b). These aspects of the research paradigm are addressed in section 3.3, alongside the approach to rigour entailed by the thesis's paradigmatic approach. *Research strategies* guide the researcher to particular research designs and forms of data collection. The research strategy is outlined in section 3.4. *Methods of collection and analysis* are the means by which empirical material is gathered and examined, and the ways in which theory is generated from them. These processes, and the choices which informed them, are discussed in section 3.5. Finally, the researcher must make sense of their findings through an iterative process of creation and interpretation. The "art, practices and politics" (Denzin and Lincoln, 2018a p.19), of this process are discussed in section 3.6.

3.2. The researcher and the researched

My positionality as a researcher influenced this thesis through the values I brought to the research, the choice of research topic, the data I collected and the interpretations

which I drew. In the following section, I detail the main influences of which I am aware. These are my previous research in the area, my previous employment and my demographic characteristics. I address each aspect in turn, documenting the effects which they may have had on my research, and the actions which I took to maintain the rigour of my findings. I then turn to 'the researched' and discuss how the characteristics of the research topic, and the context in which it evolved, influenced how the project developed.

3.2.1. The researcher

3.2.1.1. Previous research on shale gas

I began researching shale gas as an MSc student in summer 2012. For my final project, I undertook a discourse analysis of the Lancashire debate on shale gas. At the time, the industry was under moratorium and there was little UK-based social science research on the issue. To inform my analysis, I interviewed national and local stakeholders and undertook participant observation at public meetings and an industry conference. The data from this project were incorporated into a publication on discourses on shale gas (Cotton *et al.*, 2014). This previous work on the topic meant that my involvement with shale gas pre-dated that of approximately half my interviewees. I re-interviewed one participant from 2012 for this project, but the remainder had moved on, in the case of local campaigners, often physically by leaving the area.

This historical involvement with shale gas gave me a particular context and preconceptions about the issue. It was impossible to hear accounts of the 'early days' of the anti-shale gas campaign and not compare them with my own recollections, judging the interviewee's account accordingly. For example, a claim by one industry member that there had been little local concern about shale gas in Lancashire during 2012, was difficult to reconcile with my own memories of a heated public meeting where hundreds of local residents had railed angrily at Cuadrilla's then chief executive, Mark Miller, while the police barred the door to members of direct action group, Frack Off. Though the meeting may have been an exceptional event, it nonetheless coloured my perceptions of the credibility of this later account.

However, familiarity with the topic area also allowed contextualisation of my findings and, arguably, a deeper insight into the dynamics at play. It also assisted in

demonstrating my credibility as a 'serious' researcher with a genuine interest in the topic. Shale gas in Lancashire is, I suggest, an over-researched area (section 3.2.2.1 below). Interviewees appreciated that I understood the background and who the local 'key players' were without needing every casual reference explained. This assisted with the fluidity of the interviews and allowed us to cover the pertinent issues in more depth. The risk with this aspect of my positionality is not the presence of preconceptions *per se since* no qualitative researcher claims to approach a topic as a blank slate. Rather, that I subjected the accounts that were more in accord with my own recollections to less critical scrutiny that the ones which were not.

Acknowledging this possibility, I have, where possible, presented direct quotations from interviewees in order to allow participants to give their own account of events, rather than summarising their words. This is in accordance with my epistemological position that knowledge of reality is mediated through personal values (section 3.3) and cannot be understood independently of them. Where necessary, I have juxtaposed quotations from different stakeholders to show areas of agreement and dispute and how these values may compare. Of course, selecting quotations is still a choice, and one which I have made as a researcher. In results chapters four, five and six I have presented my results predominantly in the third person in order to allow participants the space to speak for themselves. I have written this chapter and my discussion chapter predominantly in the first person, in order to make it clear that the choices guiding the research design, and the conclusions I have drawn from the data, are my own, subjective, and guided and shaped by my positionality.

3.2.1.2. Employment on shale gas

In February 2013, I began a role at the Environment Agency and after eighteen months took a secondment to the Onshore Oil and Gas Programme. This is the programme which regulates shale gas in England. In this role, I attended numerous meetings about the regulation of the industry, training sessions on shale gas, and industry conferences, and was privy to confidential discussions with, and about, shale gas operators. I have not drawn directly upon this experience in writing this thesis: it would not be ethical to do so. Undoubtedly, however, it has been critical for my understanding of the issues and the interpretations I have drawn.

This context presented me with an ethical dilemma when it came to data collection. On the one hand, I did not want to mislead my interviewees about my background.

On the other, I did not want to 'become the story' and perhaps influence participants' responses. I sought ethical advice on this issue and was advised there was no duty to self-disclose my prior employment. As I was not funded by the Environment Agency and it had no input into my research, I did not discuss this previous employment with the majority of my interviewees. The exception was my previous colleagues, and the people with whom I had colleagues in common. Nor did I discuss my previous volunteering with Friends of the Earth (FoE) with shale gas supporters, for similar reasons, although this did arise naturally in conversation with participants who I met at FoE-run events.

Insider/outsider identities, Kusow (2003) argues, are not predetermined roles, instead they frequently depend on a particular social context and are continually negotiated. Being an insider does not necessarily yield privileged access or greater insight, instead it may bring with it a weight of expectation and impose cultural limits. While the context of my research is very different to Kusow's work as an ethnographer among Somali immigrants, I see parallels to my experience in his account of a dual, continually shifting identity. This positionality, on the periphery of several groups, while belonging to none, has shaped how I approached this research and was a major reason why I chose to incorporate accounts from different sides of the debate rather than focussing on particular stakeholder groups. The process of obtaining these accounts, however, was also influenced by the demographic factors which I detail below.

3.2.1.3. Demographic factors

In appearance and presentation, I am white, female, English, speak with a southern accent, middle-aged but younger than the majority of my interviewees, and 'conventional' in appearance and presentation. I have spent the majority of my career working in the public sector, in scientific and project management roles. Amongst the local members of the anti-shale gas campaign, many of whom were retired public sector workers themselves, this shared background provided a vocabulary in common and a degree of rapport. Of my interviews with shale gas supporters, half were obtained through approach at industry conferences; the other half through being introduced by trusted intermediaries. Shale gas is a contentious issue and speculative requests to industry organisations asking if their staff would like to participate in the research went unacknowledged. Difficulties in obtaining industry interviews have also

been reported in previous research (e.g., Szolucha, 2018a). Given the importance personal contact appeared to have in obtaining industry member's agreement to be interviewed, it seems likely that participants assessed my credibility based upon my appearance and presentation, before deciding their response. In a similar vein, I obtained interviews with members of climate justice groups because I was vouched for by mutual acquaintances or through existing social networks. Direct approaches at anti-shale gas events did not generate any interviews. Again, it seems likely that my appearance and presentation influenced this outcome.

3.2.1.4. Summary of known effects of positionality

Upon reflection, I am aware this context has shaped my thesis in the following ways. Firstly, in guiding the initial research focus upon online activity, since it was apparent from my work at the Environment Agency that the level of online response to shale gas was unprecedented for an environmental issue (section 1.1). Secondly, in suggesting a research focus upon the activities of local campaign groups rather than climate justice groups, since as local stakeholders their online (and offline) activities were given more credence by regulators. Thirdly, when devising a data collection strategy, my previous experiences guided my selection of interviewees, how I prioritised my efforts to obtain interviews with them and the approaches I used to contact them. Fourthly, during data collection, it provided improved access to interviewees at the Environment Agency; a shared vocabulary and understanding around shale gas in conversations with regulators, industry members and consultants: which will have opened up some avenues of conversation and closed others; and a context against which to assess interviewees' recollections of the early days of the Lancashire anti-shale gas campaign. Finally, it undoubtedly shaped my analysis: certain findings will have accorded with my pre-existing experiences and beliefs and been given greater precedence; others which were unexpected may have gained my attention due to their apparent novelty.

These are the factors of which I am aware. There will be others of which I am not. These reflections have been provided in the interests of transparency and to assist the reader in judging the validity of the findings for themselves.

3.2.2. The researched

In the following section I provide some background to the case study, to show how the research context shaped the work. Two major external factors are noteworthy here. Firstly, the amount of research already undertaken on shale gas in Lancashire, and secondly, the constantly shifting institutional and political environment of the last five years. These, along with my positionality (section 3.2.1) and research paradigm (section 3.3) influenced my research strategy and methods, as detailed in sections 3.4 and 3.5.

3.2.2.1. Lancashire residents: over-research as an ethical issue

There is now a significant body of published research using Lancashire as a case study, or drawing from interviews with Lancashire residents (e.g., Aczel and Makuch, 2018; Beebeejaun, 2017; Bradshaw and Waite, 2017; Cotton *et al*., 2014; Short and Szolucha, 2019; Szolucha, 2018a; Szolucha, 2018b) in addition to numerous unpublished student dissertations. This raises two questions for the researcher. Firstly, what more can usefully be said? I have addressed the novelty of this piece of research in chapter two. Secondly, whether it is ethical to continue to research a community already under pressure, placing greater demands on campaigners' limited time, and potentially offering the promise of policy impact which the research may not deliver. This is a particular concern in this case because the communities affected by shale gas are small, numbering their residents in the few hundreds, the number of key individuals smaller, and burn out a commonly reported concern.

The problem of over-researched communities is widely recognised but currently under addressed within sociological literature (Sukarieh and Tannock, 2013). Unfortunately, methodological approaches which aim to be more participatory and empowering for their participants may inadvertently contribute to this issue by placing a greater demand on their time and resources. I attempted to mitigate the effects of my research in the following ways. Firstly, by interviewing participants on all sides of the debate. This spread the burden of participation across different groups. Secondly, by focussing on the use of digitally mediated technologies. This novel research focus examined a new aspect of the debate and the majority of my interviewees had not been interviewed before. Thirdly, by incorporating online content into my analyses. This approach allows the researcher to collect data without

necessarily engaging with the subjects of observation (Lokot, 2018). For an over-studied area, this approach therefore removes some of the pressure on participants.

3.2.2.2. The changing political context of shale gas

Shale gas is an active policy area, which has developed within a shifting political context radically destabilised by the Brexit referendum vote of June 2016. It is outside the scope of this thesis to consider the consequences of the vote, but it has contributed significantly to the instability which has beset British politics over recent years. Between October 2015, when this project began, and the time of writing (Dec 2019), the UK has had two General Elections, three Prime Ministers and three Chancellors of the Exchequer. Amongst the departments with specific responsibility for shale gas (see Appendix 1), there have been four Secretaries of State for Business, Energy and Industrial Strategy, and its two predecessor departments; four Secretaries of State for Housing, Communities and Local Government, and its predecessor department; and four Secretaries of State for Environment, Food and Rural Affairs. While politics is never static, this is an unusually high turnover of key personnel. As a result, there has been a constantly changing series of policy initiatives as new incumbents seek to make their mark. These included the consultations on making shale gas development a Nationally Significant Infrastructure Project, launched in May 2018, which form the background to chapter four, Contesting Fracking, and the announcement of a second moratorium on hydraulic fracturing in Nov 2019, discussed in chapter five, Google fracking. The general election of 2017 provides the background to chapter six, #WeSaidNo. Inevitably, these events guided the focus of each results chapter, and the chapter specific sub-questions that they address.

3.3. Interpretative paradigm

I have sited this research within the realist paradigm, also known as the critical realist paradigm, which permits flexibility by drawing upon elements of both positivist and constructivist thought (Krauss, 2005). Critical realist enquiries aim at explanation (Lincoln *et al*., 2018) and the examination of the dynamics which influence actions and events (Krauss, 2005). This paradigm therefore aligns with the theoretical aims of post-political thought (section 2.5.1) and the research questions introduced in chapter two. In the following section I set out in more depth the ontological, epistemological and methodological beliefs underpinning the realist paradigm, show how these apply to my research and discuss the potential limitations of the approach. I conclude with

some comments upon the criteria by which rigour is judged within this paradigm and how they have been addressed in this thesis.

Critical realist research takes the ontological position that reality exists outside of human perception but is apprehended only imperfectly. This can be contrasted with positivist approaches which posit a single and apprehensible reality, or constructivist-interpretivist paradigms which assume there is no objective reality, but multiple and specific realities constructed by individuals and groups (Lincoln *et al.*, 2018). The ontological position that reality exists outside of human consciousness was particularly pertinent for the analysis in chapter five, Google fracking, which considers the role of online information in the shale gas debate. Ideas such as information quality and misinformation are difficult to conceptualise without an ontological position which recognises there is some criteria against which this quality can be assessed.

The critical realist epistemology assists with this issue. It argues that our knowledge of reality is mediated through our values and cannot be understood independently of interpretation by any given actor (Krauss, 2005). This approach allows us to understand information as having variable quality while also accepting its meaning is subject to interpretation. Further, this epistemological approach incorporates a recognition that the researcher's own interpretations are value-laden and cannot be understood apart from this context (Dobson, 2002). As I have set out in section 3.2.1, my positionality as a researcher influenced this thesis in numerous ways, and my research paradigm is therefore one which acknowledges this facet of qualitative research.

Methodologically, the critical realist paradigm permits a variety of research methods, including the use of case studies and in-depth interviews (Krauss, 2005). Importantly for this research, both inductive and deductive methods of analysis are considered valid, the paradigm advocates active interpretation throughout the research process, 'zig-zagging' between theory and data to develop and refine ideas and provide a theoretically informed analysis (Emmel, 2013). This iterative approach was particularly valuable for this study since the rapidly developing nature of current events (section 3.2.2.2) required ongoing revision of the findings.

There are limitations to the critical realist approach, however. Taking a middle path between positivism and constructivism, may limit the salience of this work to certain

audiences. Amongst regulators and policy-makers there is a continued, strong preference for positivist modes of enquiry. Conversely, from the constructivist perspective, positing an external 'real' reality, albeit one which is imperfectly apprehended, could be argued to re-enforce the privileged role of science within environmental governance. Ultimately however, the aim of this thesis was to explore the effects of online activity on the English shale gas debate, from the perspective of multiple actors. With this aim in mind, I considered the realist paradigm the most appropriate for the research approach and conceptual framing.

3.3.1. Rigour in qualitative research

Rigour is "the means by which we demonstrate integrity and competence," (Tobin and Begley, 2004 p.390) and how researchers demonstrate the legitimacy of their research process. There are no universally agreed strategies for judging rigour in qualitative research (Morse, 2018), but there are various good practice criteria to guide the researcher, although their applicability may vary between paradigms. Gaskell and Bauer (2000) suggest six criteria which they group into two broad categories: confidence and relevance. Two of these criteria fall into both groups (Table 3-3). Confidence indicators provide assurance that the results of the research are derived from empirical data which has been gathered in a transparent manner. Relevance indicators demonstrate that the research has validity through its links to broader theory and through its provision of novel insights. A summary of these criteria, and how they may be assessed, are provided in Table 3-3, alongside references to where they are addressed in this chapter.

Gaskell and Bauer (*ibid.*) note the sixth criterion: communicative validity, whereby the findings are validated with the research subjects, is not appropriate in all circumstances. In this instance I did not feel it would be. Firstly, because my previous employment history (section 3.2.1.1) meant validating my findings with interviewees from the Environment Agency might call into question the independence of my research. Secondly, because of the pre-existing issues of over-research of Lancashire residents (section 3.2.2.1), and the difficulties in obtaining interviews with shale gas industry members (section 3.2.1.2). Adding an additional requirement that participants validate my findings appeared likely to reduce the potential pool of interviewees still further.

Category	Criteria	Indicator (s)	Section(s) where addressed
Confidence	Triangulation and reflexivity of perspectives	• Use of multiple theoretical perspectives and methods • Awareness of divergent perspectives	3.2 3.3
	Transparency and procedural clarity	• Transparent documentation of data collection and analysis processes	3.5
Confidence and relevance	Details of corpus construction	• Maximising representation • Data saturation	3.5.1.1 3.5.2.1 3.5.2.2
	Thick description of results	• Extensive use of verbatim text to justify claims and generate insights	3.2.2.1 3.5.1.2 3.5.2.4
Relevance	Novelty and/or theoretical contribution	• Research generates revealing insights • Acknowledgement of confirmed and disproved expectations	3.5.1.1
	Communicative validity	• Validating interpretations with the research subjects	Not used

Table 3-3: Quality assessment criteria for qualitative research based upon Gaskell and Bauer (2000)

3.4. Research strategy

Methodologically, I adopted an exploratory case study approach using embedded sub-units to structure my analysis. A case study allows the detailed investigation of a phenomenon within its social and political context and is particularly appropriate where the delineation between phenomenon and context are unclear (Yin, 2017). The main focus of the case study was the anti-shale gas campaign in the Fylde, Lancashire. Home to the first and, to-date, only active shale gas sites in the UK, the Fylde area has become the test case for the social and technical feasibility of shale gas development in England. The unit of analysis, or focus of the case, (Baxter and Jack, 2008) was the experiences of those engaging online upon shale gas.

The case is a useful one for studying the influence of online activity. For all the academic research, media coverage and government time expended upon shale gas, the industry remains at a nascent stage and the number of individuals working in the sector is low. Cuadrilla Resources, the shale gas exploration company active in the Fylde, had at the time of fieldwork, 24 direct employees and one active site at Preston

New Road (PNR) while UK Onshore Oil and Gas (UKOOG), the shale gas industry body, employed six staff. The Environment Agency, the lead regulatory body for shale gas, had a larger number of people working on the issue but the number responsible for public engagement was likewise in single figures. The defined pool of incumbent actors meant it was possible to identify the targets of online activity with a degree of certainty and ask them directly about what they perceived its effects to have been. In this respect, conflict over shale gas can be distinguished from larger but more dispersed instances of digitally mediated activism, for example the Occupy movement, where the aims and targets of online activity were difficult to identify (Merrifield, 2014). This is not to suggest the two protests were entirely different in character, rather to note that online activism over shale gas is relatively tightly defined, meaning focussed research questions can be asked.

While the focus of the case study was the anti-shale gas campaign in Lancashire, the three results chapters approach the issue using different scalar and temporal foci, considering different aspects of the issue and drawing upon different data, or different aspects of the data. As such, they act as embedded units within a single case study design, allowing the researcher to analyse the issue within, between and across sub-units (Baxter and Jack, 2008). This approach, Baxter and Jack (*ibid.*) argue, strengthens the analysis and the conclusions which emerge from it. It also reflects the challenges of researching a live political issue, where the focus of the conflict shifted several times over the course of the research (section 3.2.2.2) and is in accordance with realist forms of analysis which recognise interpretation is an active and ongoing process (section 3.3). Table 3-4 summarises the case study focus of each chapter. The following sections provide more detail about the case sub-units.

Chapter	Scalar focus	Empirical focus	Temporal focus	Data	Section
4	The national debate	The proposed changes to the shale gas planning regime as a response to contention in Lancashire	2015-2018	Interview	3.4.1
5	The Lancashire anti-shale gas campaign	The challenges of engaging in an information-intensive issue in the internet age	2011-2018	Interview	3.4.2
6	Protest at Preston New Road	How protest and activism are formulated in publicly visible social media discussions during direct action	June-Aug 2017	Social media Corroborated by interviews	3.4.3

Table 3-4: Embedded case study approach

3.4.1. The national context

Chapter four, Contesting fracking, provides the national context to the case study and considers how Government responded to contention in Lancashire. It draws upon stakeholder interviews to inform its analyses. Shale gas in the UK has been contentious since it first impinged on the public consciousness following the seismic events of spring 2011 (section 3.4.2). While Scotland, Wales and Northern Ireland imposed *de facto* moratoria on further exploration, in Westminster, then Prime Minister, David Cameron, signalled a strong commitment to continued investigation of domestic resources (Watt, 2014). Protests in the communities affected stood in stark opposition to the Government policy statement that there was a "national need to explore and develop our shale gas and oil resources in a safe, sustainable and timely way," (DECC DCLG, 2015). Critics (e.g., Cotton, 2016; Whitton *et al.*, 2017) claimed a lack of transparency, accountability and local democratic input into the development and regulation of the industry, noting the Government's rather gung ho approach to public acceptance sat uneasily alongside its manifesto pledges to give local people greater control over planning decisions (The Conservative Party, 2015).

In 2018, the Select Committee for Communities and Local Government launched an inquiry on whether guidance for local authorities taking planning decisions on shale gas needed to be updated or improved. Chapter four considers these proposals, showing how they came about as a response to the ongoing local resistance to shale gas development in Lancashire over the preceding six years. It draws upon elements of post-political theory to build a framework with which to understand these developments, providing the theoretical basis for the rest of the thesis.

3.4.2. The Fylde

Chapter five, Google fracking, focusses upon the conflict over shale gas in Lancashire and uses a post-political lens to examine how online activity may have galvanised the move to direct action. To do so, it draws upon interviews from stakeholders on all sides of the conflict. The chapter situates its analysis upon the Fylde area . The Fylde is a coastal plain to the west of Lancashire, an affluent, semi-rural area, dotted by villages and hamlets, with two main towns - Lytham and St Anne's. Farming and tourism are the main sources of employment but a significant proportion of the population is recently retired, and many have moved to the area attracted by the quality of life. The first onshore high volume slick-water fracturing in the UK was carried out by Cuadrilla in spring 2011 at an exploration well at Preese Hall, to the north of the Fylde. During this process, fracturing fluid was inadvertently injected into a previously unidentified geological fault leading to a series of seismic events as the fault slipped (Green *et al.*, 2012). After a series of investigations, the Government announced a 13-month moratorium. Research undertaken in Lancashire at the time of the moratorium (Cotton *et al.*, 2014) revealed mistrust of both Cuadrilla and government regulators, and local concerns about a lack of transparency within the consenting process.

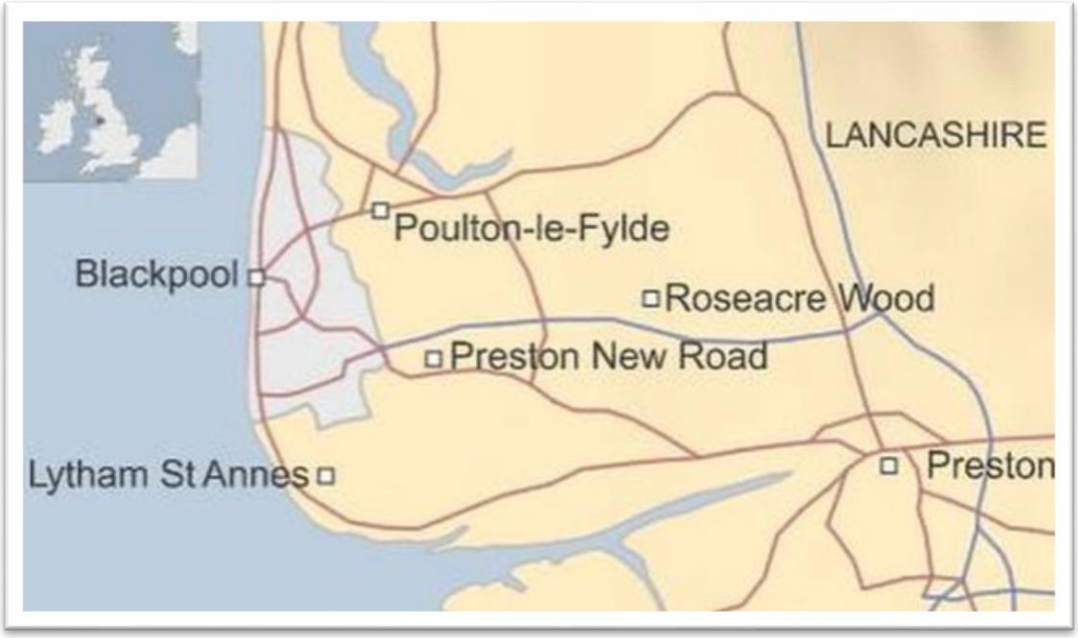

Figure 3-1: Location of shale gas sites at Preston New Road and Roseacre Wood (BBC, 2016a)

In June 2015, the local planning authority, Lancashire County Council (LCC) refused four further applications from Cuadrilla to undertake exploration drilling for shale gas at two new sites. These were in a semi-urban area alongside Preston New Road, and at Roseacre Wood, a rural location a few miles away (Figure 3-1). The Preston New Road decision was notable because it was made against the Council's technical officer's advice that the application be allowed. The Roseacre Wood decision was less controversial since the technical officer advised that the local single-track roads were unsuitable for the volume and type of traffic shale gas development required (section 2.2.1). Cuadrilla appealed against both refusals, leading to a five-week Planning Inquiry into the council's decision in spring 2016 (Figure 3-2) which commenced as fieldwork began. The arguments put forward at the Planning Inquiry are covered in more depth in a separate publication (Rattle *et al.*, 2018, Appendix 1).

Figure 3-2: Shale gas planning inquiry, Blackpool Football Club, February 2016

In October 2016, having reviewed the recommendations of the Planning Inspectorate, the Communities Secretary, Sajid Javid, overturned LCC's decision and permitted exploratory shale gas development at Preston New Road. Judgement on Roseacre Wood was reserved pending further work by Cuadrilla. While Javid's decision was in accordance with the Planning Inspectorate's advice, locally his actions were widely perceived to have excluded local voices from the decision-making process (Bradshaw and Waite, 2017; Short and Szolucha, 2019). Cuadrilla began site set up at Preston New Road in January 2017. Protest continued outside the site throughout the year but numbers were not always large. Seeking to revitalise the protest, local anti-shale gas groups took the decision to invite the direct action network Reclaim the Power (RTP) to join them in a month of direct action during July 2017. This action, known as the Rolling Resistance, was foremost in the minds of many local campaigners at the time of their interviews.

3.4.3. The Rolling Resistance

Chapter six, #WeSaidNo considers how protest and activism are formulated in publicly visible social media discussions, and how the effects of this activity might be understood using post-political theory. It does so through an analysis of social media postings made by four local anti-shale gas groups before after and during the Rolling Resistance. Since many of the social media postings relate to the details of the direct action, some details of the protest site and the activities it entailed are provided below.

Preston New Road is a major 'A' road and one of two main routes running east to west between Preston and Blackpool (Figure 3-1). The M55, to the north, provides a longer

alternative route. Cuadrilla's shale gas site at Preston New Road, lies a few miles east of Blackpool in a predominantly agricultural area. As site set up progressed, protesters assembled outside the site on the pavement opposite the main entrance. A substantial police presence awaited them (Figures 3-3 and 3-4).

Figure 3-3: Entrance to Preston New Road shale gas site, July 2017

Figure 3-4: Roadside protest outside Preston New Road shale gas site, July 2017

During the Rolling Resistance, in addition to protesting on the pavement, activists additionally deployed a range of tactics designed to block the road and prevent access onto the site. These actions were designed to slow Cuadrilla's progress but also to make visible local opposition to the industry. Some acts were predominantly visual in nature, such as dressing in red boiler suits to represent red lines on climate change and in particular the need to prevent further fossil fuel extraction (Figure 3-5).

Figure 3-5: Red line protest blocking access to Preston New Road shale gas site, July 2017

Other acts included protesters 'locking-on' to fences and heavy machinery by chaining their arms through concrete filled steel pipes, a form of direct action pioneered in the UK during the 1990s roads protests. Since the removal process was time-consuming, and required a specialist police team to resolve, locking-on also provided an opportunity for protesters to give interviews about their motivations to local media and supporters. A third form of action was 'lorry surfing.' This involved preventing vehicles from entering the site by climbing onto them. Since lorry surfing required the physical ability to scale to the top of a Heavy Goods Vehicle, it was generally the preserve of younger, male members of the direct action network. Locking-on, however, could be undertaken by a much broader range of protesters, including those with physical disabilities.

3.5. Methods of collection and analysis

This section addresses the methods used for data collection and analysis in this thesis and the justifications for their selection. The discussion takes three parts. Section 3.5.1 introduces the broader conceptual, methodological and ethical questions which the researcher must consider when researching digital technology use, and documents

how these were addressed. The remaining two sub-sections set out the specifics of the data collection and analysis processes for interviews and online data respectively.

3.5.1. Researching digital technology use

3.5.1.1. Conceptualising the political influence of digital technologies

Historically, there have been two schools of thought about how to conceptualise the use of the internet for political purposes, stemming from broader debates about the relationship between technology and society (Chadwick, 2006). Technologically deterministic approaches view technologies as having inherent properties, independent of human influence, which shape society in ways which we cannot affect. Conversely, socially deterministic approaches position technology as emerging from existing societal relationships, and presume a technology's features have little influence on how people may use it for political ends (*ibid*.). Empirical works considering digital technology use have found this binary theorisation somewhat simplistic (e.g., Earl and Kimport, 2011; Gillan *et al*., 2008; Tufekci, 2017). They suggest instead that the affordances offered by a technology are not irrelevant to how they are used. Technology use can act to both structure and inhibit political action, and may do so in ways which reflect the nature of the society which created them. Equally however, people may use technologies in unforeseen ways. A more fruitful approach, they argue and the one which is adopted in this work, is to accept that technologies have the potential to structure political action while placing their use in a social and political context (Chadwick, 2006). As a consequence of this approach, this thesis focuses not only on people's use of technologies, but also, when discussing the influence of this activity, how digital technology use may have both enabled and constrained their actions.

3.5.1.2. Approaches to researching digitally mediated activism

Researching how people engage in digitally mediated activism can be approached in a number of ways: through the use of interviews combined with participant observation (e.g., Gerbaudo, 2012; Kavada, 2015; Pickerill, 2003; Tufekci, 2017); through large and small scale online content analyses (e.g., Earl *et al*., 2013; Goh and Pang, 2016; Moussa, 2013; Van Aelst and Walgrave, 2002); through netnographic (Kozinets, 2010) approaches, whereby the researcher participates online within the research field (e.g., Taylor-Smith and Smith, 2016); and through combinations of these approaches such as online content analysis combined with interview (e.g., Hopke, 2015; Harlow, 2012).

This thesis used online content analysis combined with interviews as was appropriate for a study aiming to understand the influence of online activity within a particular context. The aim was to provide a 'ground level' view from the perspective of those directly involved (Gerbaudo, 2012), generating insights into both the positive and negative aspects of the phenomena. Semi-structured interviews were used to explore the perspectives of those campaigning against shale gas and those on the 'receiving end' of the campaign such as regulators, industry consultants and oil and gas company employees. In addition, I undertook a qualitative analysis of Twitter and Facebook postings from local anti-shale gas groups over the summer of 2017. Ethical approval was obtained for both aspects of this work. Copies of the application and the approval are provided in Appendices 2 and 3. In the section below, I detail the specific ethical considerations entailed by this research approach and the ways in which they were addressed.

3.5.1.3. Accessing the field: ethical considerations

The contentious nature of shale gas and the limited number of institutional actors made participant anonymization a primary concern. Interviewees were asked to choose their own pseudonyms to minimise the possibility of identification when reporting the results. Before interview, participants were provided with a participant information sheet in order to inform their decision about whether to take part in the research. A copy is provided in Appendix 4. Consent to take part was obtained before the interviews began. A copy of the consent form is provided in Appendix 5.

Online data collection drew from publicly available community accounts. I did not engage with these accounts online, nor did I seek account holders' consent for this data gathering exercise. The justification for not seeking consent was fourfold. Firstly, because as the data was posted to open community accounts the data collection process could be seen as analogous to participant observation in a public space, where it is recognised that the act of asking for consent may alter behaviour. Secondly, because data collection was retrospective: the selection of social media accounts and timeframes of the analysis guided by the information gathered during interview. Therefore consent could only have been given retrospectively and the extent to which this would have represented informed consent was not self-evident. Thirdly, because the community account owners could not consent on behalf of those posting on their pages, meaning obtaining consent would require contacting all individuals posting on the sites. This would have been logistically challenging given the number of

individual posters but also, more importantly, potentially intimidating, given the known surveillance of anti-shale gas social media sites by security firms working for the oil and gas industry (section 3.5.3.1, see also Ahmed, 2018). Finally, and linked to this third point, because seeking consent in such circumstances may introduce more ethical considerations than it solves (Wilkinson and Thelwall, 2011). In particular, contacting content creators to let them know their posts were being analysed for a research project risked reducing activity on these social media accounts and, inadvertently, curtailing the public discussion on shale gas.

This approach was agreed during ethical review (see Appendix 2 section 7.4). However, the lack of consent meant this data needed to be treated with particular care. In order to protect participant privacy, tweets and Facebook comments made by individual users under their own names have been anonymized in accordance with best practice guidelines. This involves removing personally-identifying information and Twitter handles, and paraphrasing quotes so they cannot be identified through the use of search engines (Ess, 2007). Posts made by community accounts and not attributable to any individual have been reproduced verbatim. All social media posts have been given a unique reference number so that they can be cross referenced back to the original data.

3.5.2. Interviews

Qualitative interviewing was used to understand how stakeholders viewed the influence of online activity on the debate. Interviews allow an in-depth understanding of beliefs and attitudes and provide rich detailed data (Bryman, 2016). The semi-structured method allows the researcher the flexibility to explore tangents while imposing sufficient structure to allow comparability between interviews. Interview protocols assist in this process. A copy of the interview protocol for this thesis is provided in Appendix 6. In addition, interviewees were provided with a prompt sheet containing examples of types of online platform, appended in Appendix 7. This was not presented as a definitive list, rather as an *aide memoire* to prompt and support discussion and to assist in comparison across interviews.

3.5.2.1. Data collection

The corpus is made up of 37 semi-structured interviews conducted between March 2017 and August 2018. They were contextualised by attendance at industry

conferences, public meetings and planning inquiries, and by 'off-the-record' conversations. A summary of the supporting events is provided in Table 3-3.

Date	**Organising body/ place**	**Event**	**Type**
4 Feb 2016	Frack Free Lancashire Preston Minster	*Will Westminster force fracking on Lancashire*?	Public meeting
17, 25 Feb 8, 10 Mar 2016	Planning Inspectorate Blackpool Football Club	Public sessions on Preston New Road and Roseacre Wood planning inquiry	Planning inquiry
07 Apr 2016	Billingley Parish Council Billingley	Presentation on hydraulic fracturing to Parish Council	Parish council meeting
29 Mar 2017	Open Forum Events Birmingham	*UK onshore oil and gas: Policy, Planning and Future Developments*	Industry conference
27 June 2017	Frack Free News Lytham	*Find out about fracking on the Fylde*	Public meeting
4 July 2017	N/A Lytham	Impromptu public meeting on shale gas	Public meeting
17 July 2017	N/A Preston New Road	Site attendance at Preston New Road	Site visit
28 Oct 2017	Friends of the Earth and Frack Free Leeds Leeds	*United Against Fracking II*	Training day for community groups, national anti-shale gas groups and activists
18, 19, 20 Mar 2018	Planning Inspectorate Blackpool Football Club	Public sessions on Roseacre Wood planning inquiry	Planning inquiry
15 Apr 2018	Roundhay Environmental Action Project, Leeds	*Fracking in Yorkshire*	Public meeting
5 July 2018	Open Forum Events Birmingham	3rd UK Onshore Oil and Gas Summit	Industry conference
23 Oct 2018	University of Leeds Bridlington	Presentation by Third Energy	Industry presentation

Table 3-3: Summary of supporting events

The primary selection criteria guiding my recruitment strategy was that interviewees should be people who engaged online in relation to shale gas, be that by searching online for information on shale gas, running shale gas specific blogs and news sites, identifying themselves as active commenters on online sites, acting as moderators for

social media sites on shale gas, running online publicity campaigns on shale gas, or dealing with online consultations. With that focus in mind, few of those interviewed were avid proponents of the benefits of online activity, and I was careful to incorporate those who characterised themselves as sceptical or occasional users. A summary of interviewees and their organisational or sectoral affiliations is provided in Table 3-4.

Role and stance towards shale gas	**Organisation or sectors**	**Number of participants**
Oil and gas industry members – current and retired (pro)	Cuadrilla Shell Third energy UKOOG	5
Other pro-shale gas	Union representative Local business	2
Industry consultants (pro/neutral)	Communications Environment Planning	3
Academics (pro/neutral)	Petroleum Leeds ReFINE consortium	2
Regulators and councillors (neutral/anti)	British Geological Survey Environment Agency Fylde Borough Council Lancashire County Council	8
Campaign groups (anti)	Friends of the Earth Frack Free Lancashire Preston New Road Action Group Reclaim the Power Roseacre Awareness Group	10
Fylde residents (anti)	Unaffiliated	4
Shale gas bloggers (pro/neutral/anti)		3
Total		**37**

Table 3-4: Summary of interviewees by affiliation and stance towards shale gas

The length of the data collection process reflected the contentious nature of the issue and the time required to build sufficient links with industry supporters to obtain interviews. Interviewees were identified through internet searches, event attendance and snowball sampling (O'Leary, 2017). The selection process was refined by my background in the field and by my understanding of who the most prominent individuals and organisations were.

Interviews took place either face to face or by telephone/Skype and lasted between 30 minutes and two and a quarter hours during which participants were asked about internet use and shale gas, and their views on the effects of online activity. The range of times reflects the differences between individual perspectives. Some interviewees provided in-depth reflections on how the internet was changing everyday life and how their participation in the shale gas debate had influenced their world view. Others were more concise in their responses. Data collection continued until saturation (Gaskell and Bauer, 2000) or until the available pool of relevant interviewees had been exhausted.

Challenges and limitations

The challenges of this part of the research process predominantly related to the recruitment of interviewees. As discussed in section 3.4, shale gas is a nascent industry in England with a small number of active participants within industry and government. While this feature allows a focussed analysis of the influence of online activity, the relatively small number of key individuals on the industry and regulator side presented challenges in participant recruitment. Data saturation, in particular, is difficult to achieve when key organisations have only one or two people tasked with online engagement and only one of them agrees to be interviewed. I focussed recruitment and sampling on those organisations and individuals that I knew to be key informants based on my understanding of the field. In order to substantiate my analysis, I extended recruitment of shale gas supporters to include academics, industry supporters and industry members active outside of Lancashire.

Due to the highly contentious nature of the issue a number of individuals were prepared to speak to me informally but not to go on record. This was the case for both those who supported and those who opposed the industry but particularly pronounced for those in favour. These conversations have been used as background information to corroborate my analysis and conclusions, but have not been included in the results or participant count. Interview requests were made in addition to the Whitehall departments involved in the regulation of shale gas, to Lancashire County Council planning department and to Lancashire pro-shale gas groups. None of these groups agreed to be interviewed.

3.5.2.2. Data analysis and theory building

Data analysis focussed upon the content of participants' accounts and sought to understand participants' experiences from their own perspectives (King and Horrocks, 2010). Interviews were digitally recorded and transcribed verbatim and in full. This approach was taken because the open nature of the research questions and the exploratory nature of the research meant it was important not to exclude data or presuppose how participants used and viewed digitally mediated technologies.

Analysis was not a linear process, rather evolving with the thesis, in conversation with the theory and in response to external events. Coding was initially undertaken using NVivo 11. Transcriptions were coded inductively using thematic analysis working from the specific to the general in a series of iterative steps (Creswell and Creswell, 2017). The characteristics of a theme were understood according to the definition provided by King and Horrocks (2010 p. 150):

> *Recurrent and distinctive features of participants' accounts characterising particular perspectives and/or experiences, which the researcher sees as relevant to the research questions.*

This process focussed upon understanding the context of participants' accounts. These included their understandings of the nature of shale gas as a contentious issue; how participants used digital technologies to participate (or not) in the debate; their experiences of online activity on shale gas and the effects they believed this activity had had. This analysis provided familiarity with the corpus and identified a number of key themes about the challenges which different stakeholders faced when engaging online. It was apparent on reflection, however, that it did not – as it stood - provide a broader explanation of the dynamics influencing actions and events, and therefore could not by itself address the final research question. Many of the interviewees, when explaining their use of digital technologies had placed this use within a broader narrative of how they had come to be involved in the shale gas campaign, an involvement which for many extended back to 2012 and the first moratorium. Presenting the data apart from this context appeared counter-productive since it would divorce it from much of its meaning. Nor was it obvious how to synthesise these rich and varied longitudinal accounts with an analysis of online data which would, for reasons of practicality, research philosophy and ethical considerations, of necessity be a dataset focussed upon a much shorter timescale (section 3.5.3.2).

To address these issues I returned to the theory, in accordance with the realist paradigm (section 3.3), to determine how best to theorise the intersection between the nature of the conflict over shale gas and the influence of online activity. In parallel, two external events highlighted post-political theory as one means to understand these dynamics. The first was writing a book chapter on the 2016 planning inquiries on shale gas (Rattle *et al.*, 2018 Appendix 1). The empirical focus of this work was a thematic analysis of the public arguments presented at the hearings. However, in order to site the analysis, it was necessary to elaborate upon why the planning process had become the main institutional arena for the conflict between a central government, strongly in favour of shale gas, and the local communities equally strongly opposed. This led me to the literature on the politics of the land use planning process. Just as the final proofs of the chapter arrived, the Government announced consultations on two proposals which, if implemented, would have restricted opportunities for public involvement in planning decisions on shale gas (Brokenshire, 2018). This apparently overt attempt to restrict public influence on decision-making had clear parallels with research on post-politicisation within the planning process (section 4.2.2) but it was not clear how these insights might apply to digital politics. This question led me to the work of Erik Swyngedouw on how these post-political processes might manifest within the sustainability field (section 4.2 and Appendix 9). From Swyngedouw I proceeded to the philosophical work of Rancière, Žižek, and Mouffe, which he draws upon, then to the empirical work applying his insights (section 4.2.1).

Zig-zagging between theory and interview data (Emmel, 2013) this process distilled the three elements of post-politicisation (section 4.2) which were used as a framework with which to understand how the conflict over shale gas had developed (section 4.4). The results of this analysis are presented in chapter four, Contesting fracking. Having established an overarching framework through which to consider the research questions it was then possible to return to the interview data and apply the insights generated by post-political theory to the previous NVivo analysis. In order to ensure the data was presented in context, interviewees were categorised by their stance towards shale gas, as determined by their self-reported views, and additionally their relationship to online content (Table 3-5).

	Pro	Neutral	Anti	Total
Content creators	1	1	4	**6**
Content commissioners	2	3	1	**6**
Content curators	1	0	7	**8**
Content recipients	4	2	2	**8**
Content consumers	2	1	6	**9**
Total	**10**	**7**	**20**	

Table 3-5: Interviewees by relationship to online content and stance towards shale gas

The categories were defined as follows. The ten pro-shale gas interviewees were members of the industry; industry consultants; ran websites on shale gas or were academics who had expressed support for the industry. Some interviewees took more than one of these roles. The twenty anti-shale gas interviewees were members of the loose coalition of Lancashire anti-shale gas groups; climate justice activists; worked for environmental NGOs or ran websites on shale gas. Once again, some interviewees took more than one role. The seven interviewees who characterised themselves as neutral worked for regulatory agencies in shale gas related roles; or undertook consultancy or academic outreach work on shale gas.

The categories concerning relationship to online content were defined as follows. Creators generated original content on shale gas for online publication. Commissioners had professional responsibility for online content on shale gas but did not create it themselves. Curators ran social media accounts sharing information about shale gas. Recipients had a professional role which meant they were on the receiving end of online activity about shale gas. Consumers used online information to research shale gas and to keep up to date with developments. Where interviewees approached online content in more than one way, they were characterised according to their primary relationship.

Viewing the data through this dual lens allowed the analysis in chapter five, Google fracking, to be presented in two parts. Firstly, the historical development of the debate is presented in section 5.4.1 according to the stance of the interviewees. Secondly, the challenges of digital technology use are presented in section 5.4.2 as a synthesis of the commonalities underpinning interviewees' accounts. Grouping these

according to participants' relationship to online content made it possible to identify the core areas of agreement in an otherwise highly politicised issue (Fingleton-Smith, 2018).

Maintaining rigour

One benefit of this approach to data analysis is that it allows novel themes to emerge from the data which have not been preconceived by the researcher, enhancing the relevance of the research (Table 3-1). However, as Fingleton-Smith (2018) notes, it also suffers limitations since themes only emerge through the process of analysis, providing little opportunity to validate interpretations with the research subjects. The justification for not validating the findings with participants is provided in section 3.3.1. Rigour has been maintained by providing a thick description of the results and juxtaposing quotes from different groups to illustrate areas of agreement and dispute.

3.5.3. Social media data

Social media data were used to understand how protest was framed in public online discussions by anti-shale gas groups (chapter six). Online data has the advantage of being produced independently of the research process and allows the study of past events as they occurred, permitting analysis to be both naturalistic and unobtrusive (Kozinets, 2010). In the data collection phase, this removes interviewer effects, recall bias and participant burden (Social Media Research Group, 2016). During analysis, it allows the researcher to consider online activity in its own context rather than filtered through the accounts of others.

It is important to also acknowledge the limitations of online data (Wilkinson and Thelwall, 2011). These include impermanence, incompleteness, possible lack of veracity and lack of structure. For these reasons, research using online content is most recommended when the web itself is part of the scope of the study, when triangulation with other data sources is possible or when there are no other alternatives (*ibid*.). Since the aim of this research was to understand the effects of online activity, I considered the use of online content to be appropriate. However, the nature of the content and topic entailed a number of decisions to ensure the research was ethically sound and empirically robust. In the following sections I outline the limitations of online data and how these were addressed in this research. I then

document how I decided which data to collect. In the final two sections I provide details of the methods of data collection and analysis.

3.5.3.1. Limitations of online data

Impermanence

All online data is impermanent. This is particularly true in the case of contentious issues such as shale gas where there are specific reasons for content creators to not want their content to remain online indefinitely. During the course of fieldwork, security firms working for the oil and gas industry used social media data to seek injunctions against protesters (Ahmed, 2018). As a consequence, many interviewees reported being cautious about what they posted online and how long they left it *in situ*. Some posts were deleted prior to data collection and others will have been deleted since.

This impermanence presents a challenge to the researcher who must balance ethical considerations with the requirement to document their empirical data (Bryman 2016). To address this issue, I took screenshots of all the posts included in the corpus in order to retain a record of the data at the time of collection (Mitra and Cohen, 1998). These have been saved in an encrypted online environment. However, I caveat my findings with the acknowledgment that the analysis provides only a snapshot of the data at the time of collection and note that online data analysis is always provisional, since the subject of analysis is always impermanent.

Incompleteness and lack of veracity

This issue stems from two main sources. Firstly, posters are self-selected, must have internet access and must be users of the online platforms under study. These factors may introduce gender, age and socio-economic biases into the data, with implications for confidence in the results. In addition, and particularly in the case of contentious issues, some commenters may be trolls posting deliberately misleading or inflammatory content. As a consequence, all researchers using online data should retain some scepticism about the intentions of their participants (Mazur, 2010). Secondly, online platforms, particularly social media platforms, often allow account administrators to block other accounts. Self-censorship, deletion and blocking therefore all mean that the data cannot be assume to represent a complete record of all instances of dissenting views, nor does it necessarily represent a random sample of

them. Instead, it reveals what account administrators and post authors were content to remain in the public domain.

Incomplete data is not a problem unique to online data collection. Self-censorship amongst social movement members unwilling to air their disputes in public predates widespread internet use (see Benford, 1993a). However, the researcher should be mindful of its possible effects. To address incompleteness, I maximised representation by collecting data from seven social media accounts across two platforms. These accounts were the ones which interviewees informed me were the most active local sites (s 3.5.2.2). To address a possible lack of veracity, I have evidenced my findings using substantiating comments from a variety of individuals across these accounts. One benefit of undertaking a manual content analysis was that it was possible to identify particular individuals who only posted inflammatory content and consider their contributions in that light.

Unstructured

Online data is unstructured and boundless. There is no objectively correct way to delineate the boundaries of the dataset, and understanding that any choice will necessarily be imperfect, one of the main challenges facing the researcher is to determine the parameters of their study (Mitra and Cohen, 1998). While it is tempting to collect as much data as possible, this approach abdicates the researcher's ethical responsibility to select a research strategy which aligns with the research questions and collect no more data than necessary (Silverman, 2017). Doing so requires a data collection strategy. The online data selection strategy for this project and the choices which it entailed are outlined in the next section.

3.5.3.2. Online data selection

Big Data or small data?

Online content analysis offers the possibility for the researcher to access massive datasets, spanning years and incorporating millions of people, to a degree which was unprecedented until very recently. While a number of insightful studies have applied Big Data approaches to examine how social media users interact online with political issues generally (Bakshy *et al*., 2015), and with shale gas in particular (Hopke and Simis, 2017) I have not taken a Big Data approach here. Firstly because, as boyd and Crawford (2011) note, massive datasets require automated tools for analysis which

change the process of interpretation, and limit the space for reflective, nuanced research. Secondly, Big Data is not necessarily better data; understanding the nature of the dataset and the ways in which it may be limited is a necessary part of understanding which interpretations are valid. This is particularly relevant for contentious issues such as shale gas, where concerns about bots, trolls and false flag accounts are prevalent and users cannot be uncritically assumed to be posting in good faith. Finally, "the size of data being sampled should fit the research question being asked," (boyd and Crawford, 2011 p.8). Since, as I have documented in section 3.5.2.1, shale gas in England incorporates a relatively small number of active participants, I have focussed the online content analysis particularly upon the activity of members of the Lancashire anti-shale gas campaign.

Platforms

Data was collected from Twitter and Facebook. This choice was guided by interviewees' reflections on which sites they used most often, and which they considered most useful to the campaign (Kavada, 2015). As one interviewee commented:

> *Facebook and Twitter to me are just the ones that are integral. If you were to say to me, "How can I use social media to organise?" "Facebook." If you were to say, "Tell me how to publicise myself?" "Facebook and Twitter."*
>
> Renewable energy activist

This data-led approach is in accordance with my exploratory case study approach, and the research paradigm in which variables may be experientially defined and developed throughout the research (Sudweeks and Simoff, 1998).

Account selection

The accounts selected for online content analysis were open Facebook community pages and Twitter accounts belonging to Frack Free Lancashire (FFL), Roseacre Awareness Group (RAG), Preston New Road Action Group (PNRAG) and Preston New Road, Rolling Roadside Protest (RRP). They were the accounts frequently mentioned during interview as active local sites. All were open accounts with no access restrictions on who could view them. Facebook community pages represent an organisation. They can be contrasted with profile pages which represent an individual

user. In total, the four groups ran seven social media accounts between them. One (RAG) did not run a Twitter account. The stated aim of the accounts was to raise awareness about shale gas.

Level of analysis

Degrees of separation can be measured by the number of hyperlinks a user has to navigate to move from text to text (Mitra and Cohen, 1998). The greater the number of hyperlinks, the greater the potential number of texts incorporated into the corpus. Since analysis was focussed upon how Lancashire anti-shale gas campaigners engaged online, I restricted data collection to posts made directly to or on the target accounts. Where necessary, I followed posted links to ascertain the content which they referred to but did not incorporate any comments or replies posted on external accounts into the analysis.

Time scales/ focus of analysis

Data were collected for the three months between 1 June 2017 and 31 August 2017. This time frame was chosen to cover the build-up, duration and aftermath of the Rolling Resistance (section 3.4.3) and coincided with the majority of campaigner interviews. Coincidentally, it also incorporated the snap General Election which took place on 8 June 2017, the results of which saw the pro-shale gas Conservative Party remaining the largest party overall but unexpectedly failing to retain their majority.

This time period was selected for two main reasons. Firstly, the majority of interviews with local campaigners took place over the summer of 2017 and the escalating protest at Preston New Road was at the forefront of the minds of many. While the protest itself was not the topic of the interview, the rights and wrongs of engaging in direct action was a subject which participants referred to repeatedly. Since the campaigners interviewed were often also active on the selected social media accounts, their reflections provided the context in which to understand the online content. Understanding social context and preceding events is an essential part of interpreting online data (boyd and Crawford, 2011; Hesen, 2014).

Secondly, the Rolling Resistance appeared to provide a microcosm of the anti-shale gas campaign as a whole. On the one hand, local campaigners and national climate activists were converging at Preston New Road. At Roseacre Wood however, campaigners were still hopeful Cuadrilla's application could be blocked through the

planning process. This was a period therefore, where digitally mediated activism was being used in both formal and informal modes of participation, and where those involved with the protest came from a variety of backgrounds and had a variety of aims.

3.5.3.3. Online data collection

Facebook data were collected using NCapture, a web capture tool, and imported into Excel. Twitter data were collected using Twitonomy, a Twitter analytics tool. Tweets were also imported into Excel. Data was collected retrospectively and included all public extant posts between 1 June 2017 and 31 August 2017. In sum, this exercise yielded a corpus of 695 tweets and 1302 Facebook posts (Tables 3-6 and 3-7) comprising 1997 texts in total.

Twitter account	New tweets	Replies	Retweets	Comments on new tweets and replies	Total tweets analysed
PNRAG	28	8	23	35	94
RAG (no acct)	0	0	0	0	0
RRP	134	7	56	8	205
FFL	54	2	288	52	396
Total	216	17	367	95	695

Table 3-6: Number of tweets by type and account

Facebook account	New posts	Replies	Posts to page	Comments	Total Facebook posts analysed
PNRAG	14	8	0	167	189
RAG	147	10	6	88	251
RRP	97	3	15	83	198
FFL	97	18	0	549	664
Total	355	39	21	887	1302

Table 3-7: Number of Facebook posts by type and account

3.5.3.4. Online data analysis

Since social media data is produced independently of the research process, the task of structuring it for interpretation falls mainly in the analysis stage. Analysis occurred in two stages. Data was intially coded descriptively by content, using an inductive approach to provide an overview of how posters had used the two platforms. This provided the basis upon which a more detailed analysis could be built, using the realist approach of 'zig-zagging' between theory and data to develop and refine ideas (Emmel, 2013). Theory building involved a combination of inductive and deductive processes, including reading, reflection and note-making. Through this process I identified framing analysis as a means by which to address my research question. In the following sections, I provide the rationale for this decision, and some details about the approach, before discussing the coding process and the steps taken to maintain rigour.

Rationale for use of framing analysis

Framing analysis has become a popular means by which scholars have characterised and interrogated debates on shale gas (Williams and Sovacool, 2019) with almost thirty published works using some variation of this approach. These works fall into two main catergories (Dodge, 2017). The policy-orientated literature gives greater weight to how framing disputes structure the public debate as a form of political strategy, while the social movement literature focusses upon the collective action frames (Snow and Benford, 1988) which social movements have used to mobilise action against shale gas. For the purposes of this study, the latter approach is employed, using Snow and Benford's (*ibid*.) influential three-part categorisation of the core framing tasks of social movements:

- Diagnostic (how was the problem defined?)
- Prognostic (what solutions were suggested?)
- Motivational (was the comment a call to arms or motivating?)

A substantial body of work has used this categorisation to examine collective action framing in offline contexts and the processes by which movement members challenge dominant problem framings, mobilise potential supporters, demobilise opponents and cultivate bystander support (Benford and Snow, 2000). In recent years, it has also been used to examine the role of online content in mobilising and sustaining offline protest (e.g., Bates *et al*., 2016; Goh and Pang, 2016; Harlow, 2012; Moussa, 2013). By

providing a framework with which to link online activity to offline action, framing analysis provides a means by which to better analyse how the characteristics of digitally mediated activism contribute to, or indeed hinder, social movement mobilisation (Moussa, 2013). Once framing analysis had provided this intermediary step,-post-political theory could then be applied to the findings. This allowed the influence of online activity to be assessed, as required by the research questions (chapter six) and for the synthesis of the results from the interview data and online analysis (chapter seven).

The art of framing analysis

Framing analysis is more than simply descriptive. Goffman (1974) conceptualises frames as the underlying interpretative schemata which allow individuals or groups to render their experiences meaningful, through locating, perceiving, identifying and labelling them within the world at large. Framing analysis entails the examination of how these frames operate in "the organisation of experience" (*ibid.* p 11). Entman (1993) elaborates upon how these organisational processes manifest, arguing that framing is a matter of "selection and salience" (p.52) whereby certain features of an issue are elaborated and emphasised, through the use of stock phrases, images and information sources, while others are played down or excluded from discussion. It is the means by which particular features become associated or divorced from an issue which form the basis of framing analysis (Reese, 2007).

Frames are not solely an outcome of a social movements' activity however, rather continually in negotiation as movement members engage with opposing voices (Dugan, 2004). Opposition may come from both internal and external sources and the framing disputes which result form an inherent part of social movement dynamics (Benford, 1993a). Incorporating framing disputes into the analysis, recognises that framing is a dynamic process, the product of human agency, and assists in overcoming descriptive bias (Benford, 1997). Online content analysis is a useful means to investigate these dynamics at work. Whereas previously these disputes may have occurred behind closed doors, now dissenting voices are made visible within the data.

Coding using framing analysis

Having identified collective action frame analysis as a necessary intermediary step to bridge between online content and the application of post-political theory, data were coded using the three-part categorisation provided by Snow and Benford (1988)

above. Additionally, areas of disagreement were coded as dissenting frames. Coding began with identifying specific instances and built upwards into broader themes. The unit of analysis was a single social media post, any given instance of which could contain several frames, or none. The short length of social media texts combined with the use of Excel filters facilitated an iterative coding process whereby texts coded with the same frame could be quickly compared to ensure the coherence of the category. A significant minority of posts contained media elements in addition to text (Table 3-8). These elements did not form a separate unit of analysis but were used to contextualise and interpret the text of the post.

	Photo/image	**Video**	**Link**
Facebook	7%	4%	13%
Twitter	27%	2%	44%

Table 3-8: Percentage of social media posts with additional media content by media type and online platform

Maintaining rigour

One methodological problem of frame analysis is that the source is the text, while the reported results purport to represent the meaning of the text (Gerhards and Rucht, 1992). The issue is compounded in this instance by the texts numbering almost 2,000 and being authored by scores of individuals. Claims to represent their overall meaning should therefore be scrutinised with care. One strategy by which the rigour of frame analysis can be maintained is to provide the reader the text so that they can assess the plausibility of the interpretation for themselves (*ibid.*). Chapter six, #WeSaidNo, therefore makes extensive use of quotations from the online content in order to substantiate its findings. The character limits of social media posts mean it has been possible to provide comments in their entirety. In addition, when feasible, verbatim quotes have been used. However, the ethical considerations around using online data mean on occasion it has been necessary to paraphrase (section 3.5.1.3). The second strategy suggested by Gerhards and Rucht (1992) is that the researcher provide a graphical representation of the overarching frame structure which underpins their analysis, so that the content of the text is reduced and the argument becomes visible. In accordance with this recommendation, the diagnostic, prognostic, motivational and dissenting frame structures for this analysis are provided in Appendices 10, 11, 12 and 13 respectively.

3.6. The art, practices and politics of interpretation and evaluation

The qualitative research process is interpretative as researchers draw from their analyses to construct a narrative (Denzin and Lincoln, 2018a). The resulting findings are assessed in terms of their rigour against the evaluative criteria of their interpretative community and presented as the results of the research. There is however, no single 'correct' interpretation which represents the final statement on an issue and different research communities will have their own criteria for evaluating the coherence of the results. The findings of this thesis have been developed iteratively through an active process of interpretation and evaluation. This has included teaching, presentations at academic conferences, discussions with colleagues at research groups, writing retreats and research workshops, and in the case of chapter five, Google fracking, peer review and publication. To support the digital politics aspect of this thesis, I undertook a research assistant role on a separate project examining the intersection between digital politics and sustainability studies (see Kuntsman and Rattle, 2019).

In the following three results chapters I have drawn upon different data types and different analytical frameworks to address my research questions, using post-political theory to interpret the results. The power of the post-political lens is in its ability to alert us to the ways in which dissent is excluded from politics, while its post-foundational ontology insists always on the potential for its return (section 2.5.2). I have chosen this approach because of the insights it offers into conflict over shale gas and its capacity to shed new light onto the effects of digitally mediated activism. However, it is important to acknowledge that post-political theory incorporates an explicit critique of consensus-based politics (Aiken, 2017) and takes a position which is highly critical of much mainstream politics. As such, it embeds certain normative judgements into its analyses, particularly with regards to the radical potential of different forms of community organisation; the relative value of different modes of participation; and its criticism of the use of expert knowledges to depoliticise contentious issues. These aspects of post-political theory are discussed in relation to the findings of this research and elaborated upon in section 7.4. Other conceptual lenses would provide different interpretations embedding different values.

Finally, and returning to Denzin and Lincoln's (2018a) starting point of the centrality of the researcher to qualitative research, my interpretations have been shaped by my positionality on the periphery of several stakeholder groups (section 3.2.1). The critical realist paradigm recognises that it is not possible to take a position of absolute impartiality; interpretations are always mediated by values. Understanding this, in the following three results chapters, I have nonetheless endeavoured to construct my narrative and present my findings using the voice of an interested observer, rather than an advocate, activist or participant. As discussed in section 3.4, the conflict over shale gas provides an unusual opportunity to explore the influence of online activity from multiple stakeholder perspectives. In writing this thesis, I have chosen the approaches which appear to best represent this diversity.

4. Contesting fracking: a post-political analysis of the English shale gas debate

4.1. Introduction

Chapter two argued that just as conflicts over shale gas could not be understood in isolation from the properties of the resource and the methods of its extraction, so the influence of online activity on the issue could not be understood apart from the broader context of the conflicts over shale gas. It showed how the majority of social science work on the UK case have focussed upon the existing attitudes, processes and discourses relating to shale gas, and introduced post-political theory as one alternative means by which to examine how the issue had been constructed and contested. This chapter builds upon these points to provide a post-political analysis of how conflicts over shale gas have evolved in England. It addresses the first research question of this thesis: how can contention over shale gas be conceptualised? It does not therefore focus upon online activity specifically but rather the broader dynamics of the debate in order to establish the terrain within which online activity occurred. The specifics of online activity are addressed in chapters five and six.

To undertake its analysis, this chapter builds upon the growing body of environmental politics literature which uses post-political theory to examine contentious issues, drawing particularly upon the conceptual work of political geographer Erik Swyngedouw. Working within the realist paradigm (section 3.3) which builds theory in conversation with empirical data (section 3.5.2.2) it introduces three chapter-specific sub-questions to structure its analysis and answer question one of this thesis.

1) How can contention over shale gas be conceptualised?
    a) How do processes of post-politicisation operate?
    b) How did these processes manifest in the case of shale gas in England?
    c) What do these findings reveal about the conflict over shale gas?

In answering these questions, it generates a schematic through which to understand the major disputes which underpin the English debate, and how these might be understood according to post-political theory. This schematic is used to inform the remaining two results chapters and the final discussion, providing a framework

through which to understand the influence of online activity on the English shale gas debate.

The remainder of this chapter is structured in five parts. Section 4.2 addresses research question 1a). First, it provides a synthesis of how processes of post-politicisation have been characterised as operating in disputes on environmental issues. This identifies three overarching categories. It then turns specifically to the literature on the operation of post-political processes within land use planning. It introduces the 2018 proposals to reform the planning processes for shale gas as one possible example of this phenomenon. Section 4.3 provides a brief synopsis of the data and methods used in this chapter, which have already been discussed in depth in chapter three. Section 4.4 addresses research question 1b) and undertakes a post-political analysis of the English shale gas debate, using the three processes identified in section 4.2 to structure its discussion. Section 4.5 addresses research question 1c) and the broader implications of these findings for conflicts over shale gas, generating the framework applied in the remaining chapters. Section 4.6 concludes with a discussion of the limitations of this work and introduces the remainder of the thesis.

4.2. Understanding post-politics

This section addresses question 1a) by providing a synthesis of how processes of post-politicisation have been theorised to manifest in environmental debates. The discussion takes three parts. Section 4.2.1 discusses how post-politics has been theorised to operate in practice. Section 4.2.2 considers particularly the scholarship on the operation of post-politics within the English land use planning process. Section 4.2.3 introduces the Government's 2018 consultation on changing the planning consent process for shale gas, providing the context for the results and discussion.

4.2.1. Post-politics in operation

Section 2.5 introduced post-political theory and in particular, its power as a conceptual lens to alert us to both the ways in which dissent may be excluded from political debate, and the irreducible potential for its return, upon which its post-foundational ontology insists. However, while these insights form the philosophical basis of-post-political theory, applying them empirically can be testing, as Routledge (2017) acknowledges. This challenge has been taken up by political geographer, Erik Swyngedouw who, across a series of works, (Swyngedouw, 2007a; Swyngedouw, 2007b; Swyngedouw, 2009; Swyngedouw, 2010) theorises how processes of post-

politicisation may manifest within the politics of sustainability. For Swyngedouw, sustainable development, with its neoliberal emphasis on the desirability of economic growth and focus on consensus-based decision-making, is an archetypal post-political construct. Of particular relevance to his analysis is the way in which sustainable development's emphasis on the role of 'the people' may pave the way for populism to emerge within political debates (Ruming, 2017). To illustrate his argument, Swyngedouw charts eight to ten features of populism which he suggests are prevalent in contemporary environmental debates and outlines how they may operate to curtail dissent. While his arguments are illuminating, applying these insights to empirical data is challenging since the identified features vary between publications and often overlap (Appendix 8). For the purposes of this analysis therefore, they have been distilled into three overarching processes:

- **Rhetorics of threat:** dissent is minimised by universalising narratives of impending catastrophe, which emphasise a common enemy and obscure important differences in how different groups will be affected by its arrival.
- **Failing to articulate a 'properly' political response**: dissent is enfeebled when protest limits itself to making specific claims addressed to existing elites, rather than asserting itself as a political movement and articulating a universal vision for a positive, alternative future.
- **Imposition of a techno-managerial framework**: dissent is marginalised through systems of governance which use consensus-based decision-making and appeals to superficially progressive values to maintain their legitimacy, while simultaneously mobilising expert knowledge and methods of risk calculation which reinforce growth-led ideologies.

More details about how each of these processes have been theorised to operate are provided at the start of each of the relevant results sections.

This three-part categorisation provides a schematic framework through which to classify recent empirical works using a post-political lens. For example, Bettini (2013), Catney and Doyle (2011) and Davoudi (2014) examine the universal threat narratives which have been used to depoliticise climate change discourses. Winlow *et al*. (2015) Haughton *et al*. (2016) and Routledge (2017) take the second approach and analyse contemporary protests in terms of their political claims. Hilding-Rydevik *et al*. (2011), Neo (2010) and Raco and Lin (2012) draw upon insights from the third catergory to

consider how sustainable development discourses are mobilised as a conflict management tool to legitimise existing power relationships. Finally, Bond *et al*. (2019) Haughton *et al*. (2016) Oosterlynck and Swyngedouw (2010) and Ruming (2017) combine insights from the last two categories to chart how techno-managerial processes function when faced with embryonic political movements.

However, while providing a useful lens with which to critique the ideologies which underpin current political rhetoric, post-political accounts have been criticised on a number of grounds. These include being pessimistic and disempowering (Metzger, 2011); understating the antagonistic nature of contemporary politics (Cochrane, 2010) and implying a false distinction between post-political and 'properly' political action which misrepresents the numerous ways in which dissent can manifest (Aiken, 2017). In response, academic attention has turned to post-politics in context, examining how conflict develops and interacts with existing institutional forms (Allmendinger and Haughton, 2010). Studying 'post-politicisation' as a process rather than a state allows us to consider the ways in which political processes may operate to exclude alternative viewpoints from political debate, the channels through which dissent may re-emerge, and the, sometimes unexpected, effects that this may have (Johnstone, 2014). This chapter contributes to, and builds upon, this strand of the literature.

4.2.2. Processes of post-politics within planning

In the UK, changes to planning policy have led to a body of work focused specifically upon scalar politics as they manifest within the planning process. Of particular interest to this work, is the use of post-political theory to examine the ways in which purportedly consensus-based processes may operate to minimise dissent. The Nationally Significant Infrastructure Project (NSIP) regime introduced by the Planning Act (2008) appeared to be one prime example of these tendencies. Designed to streamline the approval process for large infrastructure projects, it did so by shifting the locus of decision-making away from local councils to the national Planning Inspectorate. Under the NSIP regime, developers apply directly to the Planning Inspectorate for a Development Consent Order, the process proceeds according to a statutory timetable during which the application is examined by an expert panel, and the final order is issued by the appropriate Secretary of State. While the public may make submissions to the panel, in practice the opportunities to influence outcomes are limited (Davis and Wright, 2017).

The negative consequences for democracy entailed in this approach have led to a post-political critique of the NSIP process, itself part of the broader post-political analysis of planning modernisation (e.g., Allmendinger and Haughton, 2010; Allmendinger and Haughton, 2012; Bickerstaff and Johnstone, 2017; Cowell and Owens, 2006; Cowell and Owens, 2010; Johnstone, 2014; Metzger, 2011). Prior to 2018 however, the NSIP regime was predominantly applied to large scale developments such as nuclear power plants and energy transmission networks. While also controversial, they can be distinguished from shale gas since they involve established industries with relatively well-characterised risks and benefits.

4.2.3. Planning reform for shale gas

In May 2018, the then Secretary of State for Housing, Communities and Local Government, James Brokenshire, announced he was considering streamlining the planning process for shale gas (Brokenshire, 2018). The announcement came against a backdrop of six years of increasing conflict over the industry, which had primarily manifest in disputes over planning permission. Previous work (e.g., Cowell and Owens, 2006) has revealed the subversive role which the planning process may play in providing an arena for the public to register its dissent to government policy. In the case of shale gas, positive government framings of the industry initially appeared to have achieved dominance within planning hearings (Hilson, 2015). However, as conflict developed, the planning process soon evolved into the sole institutional arena in which the public could register their objections to the industry (Rattle *et al*., 2018).

The June 2015 decision by Lancashire County Council to reject Cuadrilla's application for a shale gas exploration site at Preston New Road marked the turning point in this process. Taken in the context of ongoing local concern about shale gas development, following the 2011 seismic events (section 3.4.2), the decision was made in unusual circumstances. Prior to their final determination, councillors were sent legal advice that if they refused Cuadrilla's application the Council might be subject to cost penalties, and that they personally might be called on to justify their decision at the appeal (Annex 3 LCC, 2015). This intervention was highly controversial and led to councillors complaining that their independence was under threat (Bawden, 2015a).

The planning committee's subsequent decision to refuse planning permission to Cuadrilla despite this advice, was seen locally as a triumph for democracy. While the

Government subsequently overturned this decision and granted permission for exploration work to proceed (section 3.4.2), this intervention did not prevent other Councils in England from following Lancashire's lead. Between 2016 and 2018, local planning authorities across England rejected a further 11 out of 16 planning applications for onshore gas development, on eight occasions against their technical officers' recommendations (UKOOG, 2018). Planning determinations on exploratory shale gas wells became increasingly contentious, taking on average 18 months to determine, against a statutory time frame of 16 weeks (DCLG, 2018). In the interim, all shale gas development ground to a halt. Operators appealed the planning authorities' decisions and these appeals were themselves subject to judicial review.

The 2018 announcement by the Communities Secretary was an attempt to break this gridlock. In a written ministerial statement, he set out a range of proposals to expedite the planning processes for shale gas (Brokenshire, 2018). These included one consultation on the criteria to trigger the inclusion of shale gas production projects into the NSIP regime and a second on making shale gas exploration, prior to hydraulic fracturing, permitted development. Permitted development rights are a prior grant of planning permission issued by Parliament. Once granted, developments do not require further adjudication by local councils, therefore bypassing the requirement for a planning hearing where the public has the right to express their views. UKOOG, the industry body for onshore oil and gas companies, argued that hydraulic fracturing itself would continue to require planning permission (UKOOG, 2018). However, in practice, the publics' grounds to object to development would have been significantly reduced since all work relating to well site construction would have been removed from the Councils' purview. The Government maintained it was committed to ensuring "local communities are fully involved in decisions which affect them," (DCLG, 2018). However, since both proposals left operator-led consultation as the primary avenue for public engagement in the shale gas consenting process, it was not apparent what, if any, influence this involvement would yield.

In this context therefore, the proposed reforms appeared to represent a further attempt to exclude dissenting viewpoints on shale gas development from political debate, by shifting the locus of decision-making away from the messy and contentious local planning hearings to expert-led adjudication in national venues. As it happened, the proposals have yet to be implemented, overtaken by external events. While the

official consultation closed in October 2018, the results remained unpublished for over a year. When they were eventually released, the proposed changes were revealed to have been deeply unpopular, with 97.5% of respondents objecting to them (MHCLG, 2019). The Government announcement of a second moratorium on hydraulic fracturing in November 2019 included a statement that the reforms would not be taken forward "at this time" (BEIS OGA, 2019). As argued in section 5.4.3, however, the fate of shale gas in England remains in the balance, and they may re-appear in due course.

4.3. Summary of data and methods

This chapter draws from 37 semi-structured interviews conducted between March 2017 and August 2018. They have been contextualised by attendance at supporting events, and substantiated by reference to the relevant policy documents. The time period of the data collection meant the gridlock in the planning process and the Government's subsequent proposed reforms formed the backdrop to many of the interviews. The results have been interpreted in this context.

Interviews were recorded, transcribed and analysed using NVivo 11. The transcriptions were coded using thematic analysis, working from the specific to the general in a series of iterative steps. Analysis was undertaken in conversation with the empirical and theoretical literature on post-politics, zig-zagging back and forth between data and theory (Emmel, 2013) to first distil the processes of post-politicisation discussed in section 4.2 and then apply them in section 4.4. A full discussion of this process is provided in section 3.5.2.2.

4.4. Results

This section addresses research question 1b) and reveals how processes of post-politicisation manifest in the case of shale gas in England between 2012 and 2018. The results are presented in three parts, according to the three processes identified in section 4.2. Section 4.4.1 shows how the incumbent actors attempted to minimise dissent by mobilising rhetorics of threat to argue for the immediate need for shale gas development. It then shows how the intrinsic uncertainty which underpins shale gas development dispelled the rhetorical force of these arguments. Section 4.4.2 considers the issues faced by Lancashire anti-shale gas campaigners when considering if and how to assert themselves as a political movement. Section 4.4.3 considers the

Government's proposed planning reforms as an example of how expert-led processes may be imposed to stifle dissent.

4.4.1 Rhetorics of threat

Rhetorics of threat gloss over conflicts of interest by invoking an apocalyptic future which requires immediate and direct action to avert. According to Swyngedouw's analysis of the populist tactics present in current environmental debates, invocations of the impending catastrophe typically display three features: they are universal in scope, requiring a unified response; apocalyptic in effect, necessitating immediate action; and external in origin, requiring little reform of existing institutional structures to address. In this state of sustained threat, powered by the "continuous invocation of fear and danger, the spectre of ecological annihilation or at least seriously distressed socio-ecological conditions for many," (Swyngedouw, 2010 p.217) there is neither the time nor the political capital to expend upon investigating alternative societal trajectories. Instead, the argument runs, we must act now, and decisively, if we are to avoid disaster, using the resources closest at hand.

Supporters of shale gas have long mobilised threat rhetorics to support their arguments in favour of development. It has been difficult, however, for them to substantiate these claims given the multiple uncertainties which permeate the issue (section 2.2.2.1). In England, early arguments in favour of development invoked the threat of climate change, positioning shale gas as a low carbon solution for power generation, an approach which had previously succeeded in gaining guarded public support for nuclear power (Bickerstaff *et al.*, 2008). Government documents dubbed gas the "cleanest" (DECC DCLG, 2015) and "greenest" (DECC, 2014) fossil fuel, while discourse analysis revealed a prominent framing of shale gas as a bridge to a low carbon future (Cotton *et al.*, 2014). While still apparent in official documents, these framings had diminished in prominence by the time of this study, following on from a Committee on Climate Change (2016) report suggesting large scale exploitation of shale gas was incompatible with UK carbon budgets in the absence of other mitigating measures. Alternative rhetorics of energy insecurity arose. Ministers and industry members warned about the urgent need to "keep the lights on" (e.g., Ratcliffe, 2016; Rudd, 2015) and avoid catastrophic supply disruption, as declining North Sea gas production hit the headlines (BBC, 2016b). One industry member summarised his position on the issue thus:

> *The industry that we are proposing to develop [is] … designed to ensure that as a nation we have some sort of energy continuity. Rather than we suddenly go black, which nobody would like. We'd all kill one another.*
>
> Oil and gas industry veteran

Other industry supporters agreed. In the context of declining domestic gas production, they argued, shale gas had the potential to provide a consistent and reliable source of energy to bolster intermittent renewables, saving the country from either plunging into darkness or relying on geopolitically risky imports. Whether this potential would be realised however, was a matter for debate. While industry and government documents were guardedly positive, amongst the petroleum geologists interviewed for this study, there was considerable scepticism about how much shale gas English geology and infrastructure could deliver in practice. As one interviewee explained, although he supported the shale gas industry in principle, optimistic predictions about future productivity were part and parcel of the hydrocarbon commercialisation process, not a cast-iron guarantee of output:

> *If they [exploration companies] have borrowed money from the stock market they talk it up. They drill eight, or ten, or even fifteen wells. They talk it up. Then what they do is they farm it out [...] A farm-out is when you say, "Okay, I've got this fantastic resource, do you know it's really wonderful? I've got a simulation which shows this will produce 15 bcf per well, under certain circumstances. Are you very interested?" So, they had guys like me - I have done this, not on shale gas, I have been like a real estate guy for oil and gas prospects - [...] They talk it up. And then a bunch of lawyers in some companies say, "Hey, this looks great! Look at this forecast!" Of course, it's built on a house of cards.*
>
> Retired industry professional

This intrinsic uncertainty about how much gas was present meant industry efforts to minimise dissent by stressing the urgent need for shale gas development gained limited traction. In the absence of data, it was difficulty to manufacture a consensus on the inevitability of disaster should the industry stall. As one Lancashire campaigner observed:

> *The only reason for not being a NIMBY would be that there is a greater national interest at stake here and that somebody has to have it and therefore it has got to be us. Which is an argument I'm susceptible to, but only as long as somebody can explain to me what this over-arching benefit might be. And nobody can.*
>
> Anti-shale gas blogger

The broader rhetorical failure of the energy security argument to convince the general public was reflected in national attitude trackers which showed only six percent of respondents believed it was a good reason to support shale gas (BEIS, 2019). In the absence of data to support this argument, the industry communications strategy shifted to concentrate upon more imminent concerns about the geopolitical risks of relying on foreign gas.

> *We did for example a cold snap video focussing on the fact that 84% of UK homes are heated with gas. We've done a couple on New Year's Resolutions. "What's actually keeping you warm? How your New Year's Resolutions involve oil and gas-based products." We made one for the gas supply failures also, around the Beast from the East, when we saw Russians shipments of LNG hitting UK shores.*
>
> Oil and gas communications professional

While the invocation of danger remained consistent, the scope of the predicted risk diminished from apocalyptic scenarios. Importing four LNG tankers of Russian gas did not, after all, appear to have resulted in any great disaster. Policy documents similarly tempered their claims about shale gas's potential to deliver energy security. They began to focus instead upon how shale gas might contribute to supply diversity, noting it was unlikely to improve overall security of supply (BEIS, 2017). Neither approach, however, succeeded in generating a national consensus in favour of shale gas, instead fears about the potential environmental effects continued to dominate public concerns (BEIS, 2019). From the Government perspective, this fear permeated into the planning process, politicising what should have been an evidence-based decision. The Government's subsequent response is discussed further in section 4.4.3, but first I address the civil society campaign.

4.4.2. The 'properly' political response

Drawing upon Rancière, Swyngedouw sets out three ways in which embryonic political movements can falter, leaving the protest vulnerable to the countervailing post-politicising tactics of the authorities. These are firstly, failing to name their members as political actors and the field of their conflict as a political dispute. Secondly, addressing calls for change to the elites rather than calling to change the elites. Thirdly, failing to articulate an alternative imaginary, that is: "a positive and named socioenvironmental situation, an embodied vision" (Swyngedouw, 2007a. p.34) which challenges the dominant regime. According to Swyngedouw, it is only when actors go beyond the parameters of their particular case to articulate broader claims about democracy and equality that a protest can be termed 'properly' political. That is, "no longer actually just about that demand but about the universal dimension that resonates in that particular demand," (Žižek, 2000b p.204). The following sections analyse how the civil society response to shale gas performed against these criteria.

4.4.2.1. A political protest?

The question of how political the anti-shale gas campaign was, or indeed should be, was a question which occupied many interviewees as direct action gathered momentum over the course of 2017. In common with other high-profile environmental campaigns, by the time of data collection the protest had transcended local concerns and 'scale shifted' (McAdam *et al.*, 2001) to incorporate a broad range of actors with more and less explicitly political aims. Interviewees from direct action networks were very clear about the political nature of their activity.

> *Aims of Reclaim the Power? It's a direct action network fighting for economic, social and environmental justice and to challenge the economic forces behind climate change.*
>
> Activist, Reclaim the Power

Members of local campaign groups, by contrast, generally said the aim of their group was to give their communities a voice in the planning process, although several interviewees noted how their personal aims had changed over the course of their involvement. Previous research (e.g., Bomberg, 2015; Short and Szolucha, 2019) has revealed how concerns about democratic deficit have become a potent force in mobilising opposition to shale gas in Lancashire. These concerns were clearly

apparent in this study. In interviews, local campaigners cited the apparent attempt in June 2015 to constrain local councillors' decision-making on shale gas (section 4.2.3) as the pivotal moment which had revealed the true dynamics at play.

> *I think that single event is what made Councillors rebel, and say, "You know what? We're democratically elected. We will make this decision democratically, and you can stick that where the sun don't shine."*
>
> Campaigner, Frack Free Lancashire

The Government's subsequent overturning of the Council's decision only confirmed local beliefs about the democratic principles at stake.

> *Democracy means a lot to me and it seems to me entirely wrong that the people have said, "No" to this, repeatedly, at every level, and the Council has been strong enough to say, "No" as well, and the Government has just disregarded that. That's a very painful and very personal thing for me. That is* wrong. *And that is why it is worth fighting for.*
>
> Local campaigner, Roseacre Awareness Group

4.4.2.2. Challenging the elites

Concerns about democratic deficit had therefore become a powerful transformative force for some local campaign members, who often characterised themselves as 'normal people' who had never previously taken part in a political protest. However, while these concerns were personally important, they were not the issue which they concentrated upon in their campaigning. This work they characterised as predominantly focussed upon delaying development at Preston New Road, while building support and awareness amongst Fylde residents. The Government's actions over the previous years had left few with any interest in engaging directly with policy-makers, either to challenge their decisions or engage with them. As chapter six, #WeSaidNo, reveals, this lack of interest was reflected in online activity which for the most part was directed at regional media, and local and regional supporters. The main aim of local campaigners was to reach the 'missing middle'- the 50% of the public who were undecided about shale gas, in the hope they would register their dissent at the ballot box. A local Councillor summarised the campaign's strategy thus, "the only way in which you can influence decision-makers who are determined to continue with

their course of action is to threaten their ability to retain power."

As a number of local campaign members reflected, this approach required careful managing to ensure it neither diluted the campaign's message nor appeared too extreme. The problem was twofold. Being too critical of government policy might limit access to potential supporters in the politically conservative, Tory heartland of Fylde, where public officials were already reluctant to sanction activities with a specifically anti-shale gas focus.

> *Once we veer back to being more Friends of the Earth, we're acceptable, and they don't even mind Frack Free material. But the feeling towards Frack Free is: "it's political" and they are afraid to be involved. "We don't want you advertising it."*
>
> Campaigner, Central Lancashire FoE and Frack Free Lancashire

Furthermore, it risked alienating existing supporters too. While Conservative voters are more likely to hold favourable attitudes towards shale gas (Andersson-Hudson *et al.*, 2016) the correlation is far from absolute. Conservative supporters played an active role in the local anti-shale gas campaign, as one regional campaigner reflected:

> *Being anti-fracking isn't a party-political issue. Now we know that, in general, the Labour Party, more left wing generally are more anti-fracking. Conservative Party, more right wing, are generally more pro-fracking. But 'generally' is the main word here. I've met many Labour people who are ardently pro-fracking and I have met Conservative people, ardently Conservative people, even councillors, who are very passionately anti-fracking. But you'll find that the people who are on the right who are anti-fracking will not join the protest. And the people on the left who are pro-fracking won't join the business groups.*
>
> Renewable energy activist

Hence, while climate justice networks like Reclaim the Power openly called for radical change, local campaigners were more circumspect in their messaging. This tension between maintaining a sufficiently broad appeal to retain community support while staging disruptive protest has also been noted in previous work (Luke *et al.*, 2018). It was an issue which interviewees frequently referred to over the summer of 2017 as direct action gathered pace and forms a major theme in chapter six, #WeSaidNo.

4.4.2.3. New imaginaries

Similar tensions presented difficulties to campaigners hoping to articulate the type of positive future imaginaries which might provide a mandate for a more overtly political struggle (Routledge, 2017). Born out of existing personal networks and civil society organisations, the Lancashire anti-shale gas campaign was a shifting coalition made up of single-issue campaign groups, climate activists, environmental NGOs, local councillors, celebrities, and prominent individual campaigners, united behind the call to stop hydraulic fracturing. Many campaign members considered this diversity a strength: the networked, leaderless character of the protest making it difficult to dismiss as solely the work of self-interested NIMBYs on the one hand, or a cynical screen for NGO politicking on the other. However, the diverse nature of the campaign also made it difficult for its members to articulate a positive unifying message, even though some acknowledged the campaign might need it if it were to achieve lasting change. As one interviewee observed, "We want a better world but this [shale gas] is not part of it. If you just say, 'no fracking' well, that's a very different message," (Scientist and campaigner, Preston). Another campaigner had set up an initiative encouraging renewable energy use. In interview, he elaborated upon his reasons for so doing:

> *We want to give a positive argument, a positive alternative rather than just saying, "No, we hate fracking. Simple as that. We hate fossil fuels." Because it's all well and good but some of the public will say, "No, you are just being NIMBYist." And that has been a problem*.
>
> Renewable energy activist

The disparate nature of the campaign, however, meant there was little general agreement about how to frame these positive messages. As a result, both on and offline the main focus of the campaign remained fighting shale gas development, and the most common hashtag used when tweeting about protest was #WeSaidNo (chapter six).

Civil society organisations have played an essential role globally in mobilising public opposition to shale gas Vasi *et al.* (2015). Post-political theory provides further insights into the dynamics of these groups. Such organisations are neither homogenous nor monolithic and neither are the communities within which they are

situated. The anti-shale gas campaign achieved national prominence, but despite its universalising claims about democratic deficit, it has not (as yet) fully articulated itself as a political movement, an ambivalence which is reflected in an unwillingness to directly challenge the elites and difficulty in defining a shared imaginary. The reason is not a lack of insight on the part of its members about the nature of their protest. Rather it reflects their understanding of their locality and the need to maintain broad support to legitimise their campaign. Maintaining this balance may have muted the more radical transformative potential of the campaign but it has also sustained it for over eight years.

4.4.3. Imposing a techno-managerial framework

According to Swyngedouw, a third way in which post-politicising tendencies may manifest in policy is through processes which operate to depoliticise contention. In particular, by mobilising "the vast apparatus of experts, [...] to reduce the overall demand (complaint) of a particular group to just this demand, with its particular content," (Žižek, 2000b p.204). Within environmental politics Swyngedouw argues, such tactics are rife within public engagement exercises. The result is a hollowing out of political debate. The matters open to discussion are limited to technical questions of implementation while questions of policy are placed off limits, consigned to "a terrain beyond dispute, to one that does not permit dissensus or disagreement," (Swyngedouw, 2010 p.217). Within spatial planning, post-politicising tendencies have been identified within the discourses of sustainable development which serve as a unifying objective for planning policy (Allmendinger and Haughton, 2012). The National Planning Policy Framework (DCLG. 2012) states the overall aim of the system is to empower local people to shape their surroundings in a sustainable way. However, the logics of economic growth which underpin the policy remain unchallenged. The depoliticised, technocratic grounds for debate which remain provide little room for participants to deliberate upon the underpinning values which they embody (Allmendinger and Haughton, 2012).

Drawing upon these insights, the Government's proposed planning reforms of 2018 (section 4.2.3) can be viewed as an attempt to stifle dissent through the imposition of an expert-led process with limited public engagement. The Community Secretary's justification for the proposals was that, "no one benefits from the uncertainty caused by delay," (Brokenshire, 2018). However, accounts from interviewees on all sides of

the debate were unanimous that the delays in the planning processes had, indeed, benefitted the anti-shale gas movement significantly and worked to the detriment of the industry. As one industry member observed:

> *For us as a business, the thing that has affected us most is probably- Well, it has been actually, I will be more clear. The thing that has affected us as an operator the most has been the legal challenges.*
>
> Oil and gas professional

Unsurprisingly therefore, UKOOG, the industry body for onshore oil and gas companies, welcomed the written ministerial statement. The proposed changes would, it argued, remove the time-consuming and costly task of determining planning applications on shale gas from local authorities and offer communities greater certainty over timescales. Furthermore, public engagement would continue to be undertaken as part of the consultation process, and local people would still have a chance to be involved (UKOOG, 2018). However, as one interviewee, a specialist on public engagement in large scale infrastructure projects, noted, to conflate operator engagement exercises with local planning consultations was to conceal some important differences between the two processes:

> *The fracking companies, they are less vulnerable to challenge than the decision-makers are, i.e. the planning authority… If government were doing the consultation and a decision was being taken by a local authority, it's much, much more rigorous.*
>
> Planning consultant

An industry veteran was more forthright about the effects of the proposed changes, and where the ultimate decision-making power would lie in the new system: "it's not that you take it away from the local community, it's just that the ultimate decision is not theirs."

As the opportunities for formal public participation in the shale gas consenting process appeared to be under increasing pressure, some commentators were doubtful whether the anti-shale gas campaign would endure. Others, however, were more sanguine about the opportunities available to them outside of the formal processes,

arguing that engaging within the techno-managerial framework had only ever been the starting point for the campaign.

> *When we first started to fight fracking, we were working in that system [planning] and that framework. Some of us said, "You can't win in that world because that's not our world, no social justice movement has ever won in that world." But the people in the movement believed they could win in that world. Now we're fighting in a different world where we believe that we can make a change.*
>
> Campaigner, Frack Free Lancashire

Rather than depoliticising the debate, therefore, attempts to impose a techno-managerial framework of decision-making may instead have generated an impetus towards further protest. The dynamics of this particular process are investigated in more depth in the next chapter, Google fracking. For now, the discussion turns to how the different processes of post-politicisation apparent in the English shale gas debate may have interacted with each other. It takes as its starting point one of the key tenets of post-political theory; that dissent can never be permanently excluded from politics and attempts to do so may only act to galvanise its return (Žižek, 2000b).

4.5. Discussion: mapping the evolution of dissent

Section 4.4 discussed how three processes of post-politicisation manifest in the case of shale gas development in England between 2015 and 2018. This section considers how these processes may interact, identifying for each interaction the central points of conflict. In doing so it addresses research question 1c) what do these findings reveal about the conflicts over shale gas? Figure 4-1 provides a schematic to illustrate this discussion. Since the interactions between techno-managerial frameworks of decision-making and embryonic political movements has received the most academic attention (section 4.2.1) this interaction is addressed first.

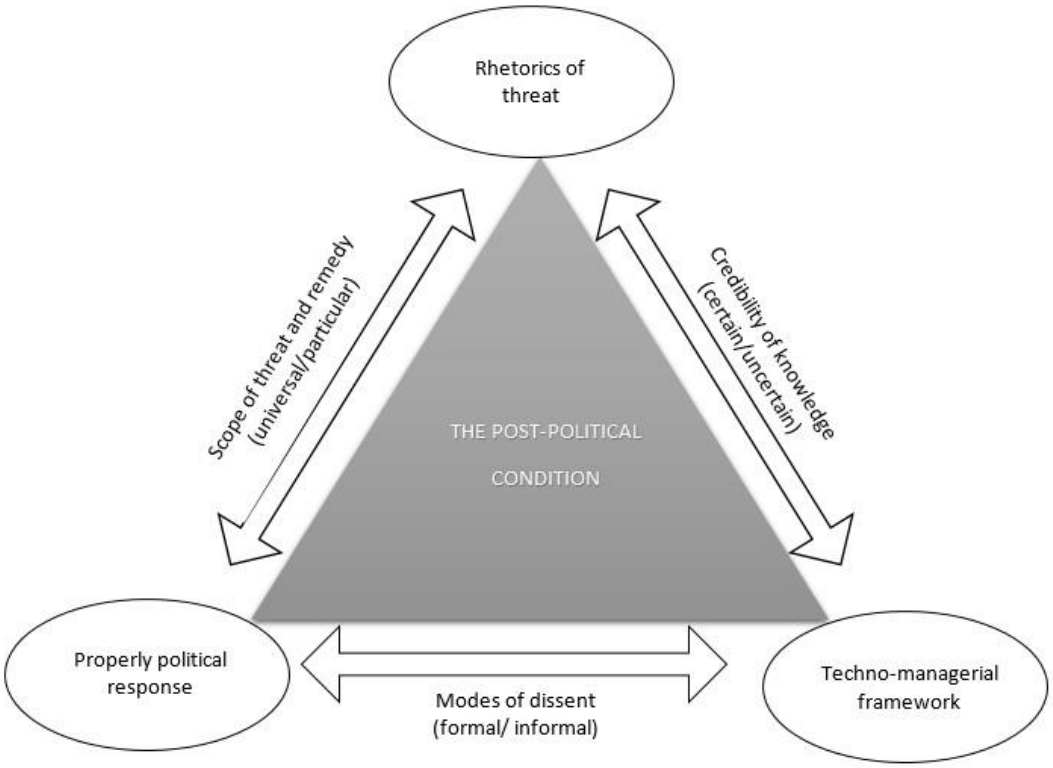

Figure 4-1: Processes of post-politicisation and their interactions as they have manifest in conflict over shale gas

4.5.1. Modes of dissent

The interaction between processes which attempt to impose a techno-managerial framework of decision-making upon a contentious issue, and the dynamics of a protest movement endeavouring to identify and articulate a core message can be theorised, in the case of shale gas, as a conflict over the 'appropriate' ways in which to register disagreement. Modes of dissent therefore refers to the variety of ways in which dissent can be articulated and the subsequent disputes over the efficacy and legitimacy of these approaches. Formal modes (also known as invited participation) includes officially sanctioned routes for engagement including planning and industry consultation events, e- petitions, and contacting policy-makers. Informal modes (also known as uninvited participation) includes direct action, online activism and civil disobedience. Žižek (2000b) argues that the techno-managerial framework acts to rob protest of its momentum, acting as a baffle upon dissent, but empirical studies suggest this outcome is not inevitable. Where a protest is small, being drawn into debate on technicalities may indeed dissipate its energy, as Haughton *et al.* (2016) argue in their study of a protest over tree-felling in a Manchester park. However, in a

longer-running, larger-scale controversy over a proposal by international logistics company, DHL, to increase night flights at Brussels airport, the authority's attempts to reduce the issue to a technical discussion on how to mitigate the effects did not dissipate protest. Rather, it provided the impetus towards further antagonism, entrenching differences between business interests and campaigners. The result was a political deadlock, eventually causing DHL to relocate its operations elsewhere (Oosterlynck and Swyngedouw, 2010).

The adequacy of the English planning and regulatory systems on shale gas have been examined in depth and found to be either flawed, or biased in favour of development (Evensen, 2018; Hilson, 2015). Nonetheless, as section 4.2.3 reveals, despite this bias dissent continued to manifest, to an extent which eventually gridlocked the consenting process. The Community Secretary's proposals to reduce or remove local input into spatial planning, appeared to represent an admission from government that conflict could not be contained by the existing arrangements

The legitimacy and efficacy of the different modes of dissent was a question which occupied many interviewees over summer 2017, as direct action at Preston New Road gathered pace. Those who supported or were neutral about shale gas emphasised the importance of formal modes of engagement, and the stringency of the decision-making processes which underpinned them. By contrast, they viewed informal modes of dissent as less fair and less democratic – governance by those who could shout the loudest. Amongst anti-shale gas campaigners, opinions were more divided. For some, direct action was a necessary step, given they felt they had exhausted all other options. Others were concerned they risked alienating local support and were uncertain whether the campaign could endure in the face of growing police intervention. More seasoned environmental campaigners were frequently sanguine about operating outside the techno-managerial framework. Having never rested much faith in engaging via formal modes, they believed the shift to informal modes of dissent offered new opportunities for the campaign to register its opposition on its own terms.

4.5.2. Scope of threat and remedy

The interaction between the dynamics of a protest movement endeavouring to identify and articulate a core message, and the use of rhetorics of threat by incumbent actors to stifle debate on the issue can be theorised, in the case of shale gas, as a

conflict over the nature and relative scope of the threat and its corresponding remedy. There is already a substantial body of work on the discourses and rhetorics underpinning the UK shale gas debate (see Williams and Sovacool, 2019 for a review). However, Evensen (2018) argues that there is little consensus amongst these works about which framings have achieved discursive dominance, and little academic consideration of whether, or how, achieving discursive dominance might influence policy. A post-political analysis allows us to move beyond characterising discursive conflicts as a competition between opposing world views to examine how and why these various framings may operate to sustain or dispel dissent.

Swyngedouw's analysis of post-politicisation expressly states that both rhetorics of threat *and* a 'properly' political response require the making of universal claims. Less apparent is the converse point: that in order to succeed, these claims position the remedy or threat to which they relate as specific in scope. Proponents of shale gas argued that there was a universal threat of energy insecurity, which had to be addressed to prevent the lights going out, or of catastrophic climate change, which had to be addressed by switching to lower carbon energy sources. Their proposed remedy was specifically shale gas development, rather than any broader solution to address the institutional failures and policy decisions which caused these threats to emerge. Opponents argued the threat was specifically shale gas, and centred much of their campaign messaging on the specific process of obtaining shale gas i.e. hydraulic fracturing. While, as this and previous studies reveal (e.g, Bomberg, 2015) anti-shale gas campaigners' concerns can, and have, scale shifted to encompass broader issues such as democratic legitimacy and climate change, it is this specific threat of hydraulic fracturing which unites the campaign. Post-political theory suggests that campaigners must make universal claims to disrupt the post-political consensus. However, as this analysis reveals, there was little agreement amongst Lancashire campaigners about what these claims should be.

Framing the issue in this manner generates new insights into why dissent has persisted in the case of shale gas in England. In essence, neither side has successfully established its universal claim. Calls to ban hydraulic fracturing, have become the campaign's rallying cry but in post-political terms this specificity limits its disruptive power Conversely, supporters of shale gas have been unable to convince a sceptical public that failing to develop the industry will result in universal calamity, in part because they have no data to substantiate these claims. As discussed in section 4.2.3,

this lack of data is due to disputes over planning permission gridlocking the spatial planning process. In the absence of data, shale gas supporters were forced to narrow the scope of their claims. This requirement for data to substantiate post-politicising rhetorics of threat leads to the final element of the framework, conflicts over the credibility of knowledge.

4.5.3. Credibility of knowledge

The interaction between the use of rhetorics of threat by incumbent actors to stifle debate and the processes which attempt to impose a techno-managerial framework of decision-making upon a contentious issue can be theorised, in the case of shale gas, as a conflict over the reliability, neutrality and sufficiency of the evidence. While decision-making upon shale gas relies on expert-led processes of risk assessment which limit the matters upon which the public can contest the issue, it also mandates that the decisions be scientifically sound and evidence-based. It is here that disagreements over the extent of domestic shale resources played a key destabilising role in the debate (Kama and Kuchler, 2019). In the absence of data on the commercially recoverable volumes of gas which hydraulic fracturing might produce, rhetorics of threat were difficult to sustain. In their place, disagreement flourished, and in doing so gridlocked the planning process.

Previous research on shale gas reveals contesting the credibility of evidence has been a successful tactic of resistance in several jurisdictions, including New York state, the Netherlands and Scotland (e.g., Dodge and Lee, 2015; Metze, 2014; Stephan, 2016). Such campaigns take on the techno-managerial framework on its own terms, highlighting the scientific uncertainty around shale gas to deny a shared discursive space within which consensus can be generated. In the English case, directly contesting the evidence on shale gas has not been possible since these concerns are expressly excluded from the spatial planning process (Rattle *et al.*, 2018). Nonetheless, perceptions of risk and uncertainty remain a prominent reason why the public does not support the shale gas industry (BEIS, 2019) and is the reason for the present moratorium (BEIS OGA, 2019).

Ministers hoped that disquiet would fade once the public was more familiar with the technology (Hope, 2016). However, this confidence was misplaced and attempts to exclude dissent can have unexpected consequences. Work on UK perceptions of shale

gas reveals how concerns about procedural and distributive injustice contribute towards public scepticism about the benefits of the industry (Bomberg, 2015; Short and Szolucha, 2019). Attempts to side-line local voices was unlikely to ameliorate these concerns. Instead the public looked elsewhere to inform themselves and drew their own conclusions about the industry, as the next chapter will reveal

4.6. Conclusion

This chapter provides the first analysis of the dynamics of the English shale gas debate through a post-political lens. In doing so, it has identified three conflicts which underpin the issue and how these can be characterised as interactions between processes of post-politicisation. In particular it has highlighted how the multiple uncertainties which permeate shale gas development, in particular over the amount of resource present, have played a critical destabilising role in the debate. By making it impossible for industry to substantiate their claims that shale gas development was vital for national energy security this uncertainty opened up the space for continued dissent. In the conflict which followed, the process of gaining the planning permission needed to resolve the uncertainty became in itself a political act (Kama and Kuchler, 2019). These three disputes: about credibility of knowledge; legitimate modes of dissent and the scope of the threat and the remedy, provide the starting point for an analysis of the influence of online activity on this debate.

There is a balance, however, between clarity and complexity, and there are acknowledged limitations to framing the debate in this way. Firstly, this work applies its analysis and draws its findings about how the debate evolved over a limited time period. Shale gas is a fast-moving issue (section 3.2.2.2). An analysis applied at a different point in time might reveal different processes at play. This is the challenge of researching current issues, and any findings must be understood as contingent.

Secondly, and more fundamentally, in collapsing a broad body of philosophical and empirical work on the operation of post-political theory into a single schematic, there is a risk - indeed a near certainty - that conceptual richness is lost. In the process of making complex ideas easier to apply there is a risk of oversimplifying them: nuanced analysis is replaced by more binary distinctions. If dissent is by its very nature irrepressible, uncontainable and uncontrollable, how can any analytical framework ever be placed upon it? Is attempting to do so misunderstanding the fundamental premise of post-political theory which is the absent ground of the political upon

which society rests (section 2.5.2). Such criticisms are not unfounded, and perhaps they are inevitable, after all, "what would be more absurd than a critique of post-politics in which everyone agreed?" (Wilson and Swyngedouw, 2014 p.17). Nonetheless, post-political theory is notably abstruse (Routledge, 2017) and this presents a challenge to researchers attempting to apply it as a methodological approach. Articulating some form of structuring principles is a first step towards making the analytical process both more transparent and more accessible. The benefit of methodological codification of social research methods is to open them up to a wider field of researchers. Gamson had the following observations to make about frame analysis, but they are equally pertinent here:

> *Can one use this framework to do systematic social research? […] The question of whether we can train people to do frame analysis really boils down to how well the enterprise is codified. If it remains a sociological art form, then only certain talented individuals with inclinations in this direction will grasp the underlying principles intuitively and be able to perform.*
>
> (Gamson, 1975 p.605)

There is, I argue, a place both for approaches which apply post-political theory as a 'sociological art form' and the more codified and applied form of analyses used in this thesis. I do not claim that the processes of post-politicisation drawn here from previous theoretical and applied work are the only ways in which processes of post-politicisation can be conceptualised. Rather, they have been developed in conversation with the data and the broader literature on shale gas, in accordance with the realist paradigm, to delineate the post-political dynamics apparent in this case. Other scholars might find other processes with which to structure their analysis, or choose to focus predominantly upon one, as has been the case in previous published works (section 4.2.1). Whatever the specifics, conceiving of post-politicisation as made up of multiple processes which have the potential to interact with each other provides the opportunity for a deeper interrogation of these dynamics. In addition, articulating the particular processes being used in the analysis provides a conceptual clarity which is not always present in works which undertake a more abstract application of the theory. These works may always form the main part of post-political research, but without some form of codification there is a risk the theory remains predominantly the preserve of those talented individuals who can apprehend and apply the concepts

in their entirety, and outside of the scope of those who might nonetheless usefully apply its insights to their research.

Post-politicisation is not a binary state whereby the post-political condition is either imposed or it is not. Rather, it is a fluid and ongoing process unfolding according to context (Ruming, 2017). This chapter reveals the extent to which processes of post-politicisation are interlinked, working in concert to re-enforce and counter each other. The post-political thesis insists dissensus can never be excluded from politics; the next two results chapters consider how online activity has acted to both constrain and perpetuate dissent, in the light of these overarching processes.

5. “Google fracking:” The online information ecology of the English shale gas debate

5.1. Introduction

A strong online response has marked the conflict over shale gas from the outset, with now controversial footage of flaming tap water from the documentary *Gasland* (Fox, 2010) credited with precipitating the opposition movement (Vasi *et al.*, 2015). Chapter four applied a post-political analysis to the English debate on shale gas and identified disputes over the availability and credibility of knowledge as a key destabilising element which had prevented a post-political consensus from being established. The role which online information might have played in shaping these disputes is therefore an area which would reward more focussed study. Changes in information access are one of the fundamental characteristics of the Information Society (section 2.4.1). To date however, research on shale gas has predominantly focussed on online content rather than the effects of digital technology use (section 2.2.3). Furthermore, while recent studies using a post-political framework to study contentious issues have noted activists’ use of the internet in passing (e.g., Haughton *et al.*, 2016; Ruming, 2017) the effect of this activity has yet to be subject to a post-political analysis (section 2.5.2).

This chapter applies a post-political lens to online activity in the case of the Lancashire shale gas debate. In terms of the schematic introduced in chapter four, it can be viewed as focussing predominantly on the interactions between the two highlighted processes, considering how disputes over information credibility came to shape the ways and means by which dissent on the issue was expressed (Figure 5-1).

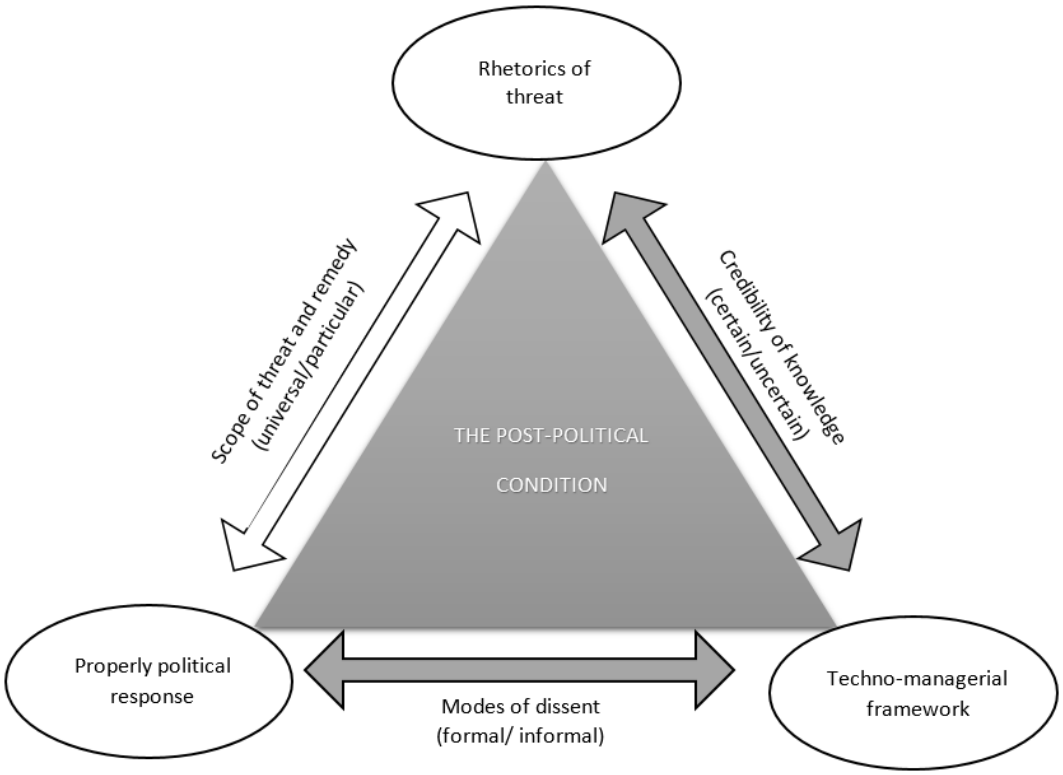

Figure 5-1: Dominant processes of post-politicisation and their interactions as they manifest in relation to online information and shale gas

Focussing particularly on the role of online information in the debate, and characterising shale gas as an issue beset with uncertainty (section 2.2.2.1) it addresses research questions two and three of this thesis. Working within the realist paradigm (section 3.3) which builds theory in conversation with empirical data (section 3.5.2.2), it introduces two chapter specific sub-questions to structure its analysis.

2) How are actors in the English shale gas debate using online activity to engage with the issue?
    a) How did different stakeholder groups use online information to engage in the shale gas debate and what did they believe the effects of their own and others' activity to be?
    b) What were the challenges of engaging online with an information-intensive issue and how did this affect different groups' activities?
3) What is the influence of this activity?

In doing so, it reveals the role which online information played in shaping the dynamics of a protest marked by unprecedented levels of public opposition and billboards urging passing motorists to “Google fracking” (Figure 5-2).

Figure 5-2: Roadside signage outside Preston New Road, July 2017.

It argues that the seismic events of 2011, in combination with the Government framing of public scepticism as a matter of information deficit led to an information divide which constrained how effectively the dominant institutional actors could engage online. Between 2011 and 2018, three challenges of online information: complexity, overload and loss of gatekeepers, served to perpetuate this division. Anti-shale gas campaigners were less constrained in their activity but the substantial burden of online activism contributed towards their perceptions of disempowerment and bad governance, as improved information access failed to deliver policy influence. The ultimate consequence was to contribute towards the turn to direct action.

The discussion takes four parts. Section 5.2 provides the background to the case, showing how the Government in England framed public concern about shale gas as primarily a matter of information deficit. Section 5.3 provides a summary of the data and methods, previously discussed in chapter three. Section 5.4 presents the results and discussion in three parts, addressing each research question in turn. Section 5.5 presents the limitations of this work, conclusions and suggestions for future research.

5.2. Shale gas as an information-intensive conflict

Shale gas is an issue characterised by scientific uncertainty and mistrust (section 2.2.2.1). Unsurprisingly therefore, contests over what counts as legitimate knowledge have come to the fore in the public debate (Jasanoff, 1987). Highlighting the scientific uncertainty which permeates the issue has proved a successful tactic of resistance for anti-shale gas campaigners across parts of Europe and the United States, as they invoke the precautionary principle to gridlock development and use the internet to access alternative sources of information to those preferred by the political mainstream (Dodge and Lee, 2015; Metze, 2014; Stephan, 2016).

In England, where debates over contentious scientific issues have long been marked by an institutional belief that public scepticism is a matter of information deficit which can be addressed by the populace becoming better informed (Millar and Wynne, 1988), the official presumption in favour of shale gas has been more difficult to disrupt. The Government position remained that opposition was predominantly due to information deficit (Williams *et al.*, 2017) and that public disquiet would ease once development was underway, a stance justified by reference to attitude trackers showing almost half the public remained undecided on the matter, primarily because they did not think they knew enough to judge (BEIS, 2019). The belief that development was a necessary pre-requisite to public acceptance was made explicit in a leaked 2016 cabinet letter:

> *One of the hurdles to overcome to develop a more favourable public attitude is that nobody in the UK has seen or experienced a shale fracking operation in their area [...] We need some exploration wells to clearly demonstrate that shale exploration can be done cleanly and safely here.*
>
> Quoted in Hope (2016)

By framing the issue as one where only UK-specific, expert-generated, technical information would be sufficient to ease the public mind, it appears ministers hoped to distance themselves from the worst of the American experience (section 2.2.2). However, this approach contained within it two implicit assumptions. Firstly, that the exploration work needed to demonstrate this position would go ahead. Secondly, that those opposed to the industry would accept government-generated information rather than looking elsewhere to inform themselves. As this chapter will show,

neither of these assumptions proved correct, leading to a widening online information divide.

5.3. Summary of data and methods

As for chapter four, this chapter draws from 37 semi-structured stakeholder interviews conducted between March 2017 and August 2018, corroborated by attendance at supporting events. The interviews were recorded, transcribed and analysed using NVivo 11. The transcriptions were coded using thematic analysis, working from the specific to the general in a series of iterative steps. For the purposes of this chapter, interviewees were categorised by their stance towards shale gas and their relationship with online content (Table 3-5). Analysing interviewees' accounts through this dual lens allowed the identification of the commonalities underpinning a highly polarised topic (section 3.5.2.2). These commonalities generated the categories discussed in section 5.4.1. Details of the data collection and analysis processes which underpin this work are provided in section 3.5.2.

5.4. Results and discussion

The results are presented in three parts. Section 5.4.1 addresses research question 2a), showing how different stakeholder groups used online information to engage in the shale gas debate. In doing so, it reveals how the tortuous progress of shale gas development in England led to a phenomenon which has been termed an 'online information divide' whereby the dominant institutional actors were heavily constrained in their online activity, while anti-shale gas campaigners were not. Section 5.4.2 addresses research question 2b) and identifies how the particular challenges of engaging online with an information-intensive issue affected different stakeholder groups. Section 5.4.3 addresses research question 3) and considers the influence of this activity for the political contestation of an information-intensive issue.

5.4.1. Evolution of an online information divide

5.4.1.1. Industry inaction: a vacuum in the communications space?

The seismic events caused by Cuadrilla's initial drilling in spring 2011 were the initiating event in the information divide, which was only beginning to be closed by summer 2017, as development activity gained pace. While these initial quakes were not high in magnitude, they catapulted shale gas into the headlines, raising public

awareness about the issue. From the perspective of those in favour of the industry the resulting debate was poorly informed, to the extent that some had felt compelled to act.

> *This was back in two thousand and eleven-ish I guess, and the quality of the public debate around shale gas was very poor. You'd see reports in the news and online newspapers, and things that I read, and kind of just pulling my hair up [...] So I started the blog to try and vent some frustration and correct some of what I saw.*
>
> Academic geoscientist

Operators, however, were slow to respond. Interviewees suggested there were historical, institutional and cultural reasons for this inaction. Historically, the UK oil and gas sector had operated uncontroversially onshore for decades at conventional hydrocarbon sites such as Wytch Farm in Dorset. Many industry members, seeing little practical difference between conventional and unconventional hydrocarbon extraction techniques, expected similar public indifference to shale gas, failing to apprehend they were operating in a very different media environment from that which had applied during the development of these fields, forty years previously.

> *The companies were coming out of that older perspective of how the oil and gas industry had worked in the 20th century [...] I don't think they had really engaged with, or thought about, the online discourse.*
>
> Academic geologist

This failure to take account of the changed information environment was in part due to the staff profile of shale gas companies which, with the exception of multinational INEOS, were small entrepreneurial businesses made up of a few dozen technical specialists who had limited focus on public engagement. As one veteran industry member reflected, "we'd rather not think about it, because it's much easier to design a pipeline than to try and keep a village happy." As a result, operators reported being unprepared for the significantly more hostile operating environment which greeted them once the moratorium lifted.

> *Within two years it was like we had never done this before, and it was a whole new thing, and it was super-scary. It was amazing to see how that awareness had gone absolutely to a negative side from our point of view.*
>
> Oil and gas industry member

Four years of legal disputes followed, as local campaign groups fought development through the planning system and courts. With exploration work stalled, operators had little new information to share and little spare capital to invest in publicity campaigns. Acutely aware of the newly contentious nature of their work and disinclined to expose themselves to further criticism, they believed the prudent response was to retreat from the public debate until they had something concrete to say.

> *There was no flow of information coming from industry because we didn't want to say something that we might not end up doing and be seen as being irresponsible or not sharing the facts.*
>
> Veteran industry member

In the interim, the operators, UKOOG, and their respective consultants concentrated their online activity on websites, using them predominantly to share brochureware (section 2.4.1.2). Nationally, the majority of communications activity focussed upon shoring up government support through "extensive behind the scenes lobbying" (Appendix 9) with minimal social media activity to support it. Locally, operators reported focussing on face to face engagement and public drop-in sessions. In retrospect, some wondered how well this online reticence had served them.

> *There was a vacuum in the communications space and it was completely taken up and controlled by NGOs and anti-groups, and I think the industry was not prepared for that and they just had no response [...] [there was] very little counter-narrative.*
>
> Oil and gas industry member

By summer 2017, drilling was underway and concrete information on the progress of the industry became available. Operators experienced a resurgence in confidence and UKOOG began a Facebook campaign in recognition of the industry's need for a broader social media presence. However, even those positive towards development

questioned whether it was by now too late to make substantial inroads into public opinion. As one industry supporter commented in 2018:

> *They have been very slow to get off the bat. They have spent, individually, a fortune all these different companies on PR instead of clubbing together and putting out information [...] they never seemed to get their act together in that sense, and of course it grows legs because of social media.*
>
> Local business owner

5.4.1.2. The regulatory conundrum: nothing's happened for six years

Given the lack of information flowing from industry prior to 2017, the task of informing the public about shale gas predominantly fell to government agencies. Here again, officials were constrained, both in what they could share and the extent to which they felt able to promote this content. The Environment Agency (EA), the English environmental regulator, led on public engagement for government while supporting web content, including fact sheets and blog content was produced by the Department of Energy and Climate Change (DECC), the Oil and Gas Authority (OGA), the Office of Unconventional Gas and Oil, the British Geological Survey (BGS) and the Health and Safety Executive. However, once general information on shale gas had been made available, the lack of on-the-ground activity meant regulators had little substantive new information to add. As one EA official commented in spring 2017, "For shale gas, more so than for conventional, there genuinely isn't anything happening [...] Nothing's happened for six years," (Environment and Business Advisor B).

This comment reveals the extent to which framing the issue as one of technical information deficit circumscribed the official discourse. Politically, a great deal had happened in the previous six years. Significant events included the Balcombe anti-shale gas protests of 2013; the Infrastructure Act 2015, which removed the right of landowners to veto drilling beneath their property; Lancashire County Council refusing planning permission to Cuadrilla in 2015; the Lancashire planning inquiries of 2016 and the Communities Secretary's subsequent decision that exploration should go ahead at Preston New Road. These events all generated extensive media coverage but did not provide the type of content which regulators could share.

The place-specific nature of geology, and ministers' insistence that the UK had a world-leading system of oil and gas regulation (DECC DCLG, 2015) compounded this issue, since once the UK had been positioned as an exceptional case, it was difficult to plug the information gap using case-studies of good practice from abroad. The task was further complicated by the complexity of the subject matter, which did not lend itself well to engaging online content. Recognising this issue, BGS, the organisation tasked with advancing geoscientific knowledge in the UK, took steps to make their website content on shale gas more "iPad-friendly" (Senior Scientist, BGS) but, as he acknowledged, this content was not intended to address the broader policy question of whether shale gas development should proceed. EA interviewees concurred and added that shale gas's contentious nature limited the extent to which they could promote their own online content while maintaining public trust in their impartiality. In addition, the resource implications of producing high quality content and engaging online were significant and had to be balanced against core regulatory functions.

5.4.1.3. The anti-shale gas campaign: do you want to know more about fracking?

Unlike the incumbent actors, who were constrained in their internet activity, for those opposed to shale gas, going online was often an important first step in becoming involved in the campaign. Most local residents reported hearing about shale gas through pre-existing community networks in the aftermath of the 2011 seismic events. Almost invariably, having had their interest piqued, their next action was to go online to find out more.

> *I saw a thing about, "do you want to know more about fracking?" Yes, I did. So, I went along to a meeting and heard enough there that I wanted to go away and draw my own conclusions. And that's actually what [the speaker] said [...] having had your interest prompted perhaps, go and do some research. So, I did, and in the process, I set up the website [...] to log some of the things that I had found.*
>
> Anti-shale gas blogger

Information painting shale gas in a negative light was ubiquitous, but information from the industry was not so easy to find. While operators portrayed their reticence as sensible prudence in the face of uncertainty, anti-shale gas campaigners were more likely to perceive it as indicating they had something to hide.

> *I looked at the Cuadrilla website a long time ago, in the early days, and I thought it was very slick. What was interesting about the content of the website wasn't what they were telling you, it was what they weren't telling you and how they framed the arguments. I thought it was very interesting. They are very careful about the information that's on there and they don't say too much, which is also very acute because if you don't say anything, then you can't be accused of anything.*
>
> Campaigner, Frack Free Lancashire

Government websites were more informative but campaigners tended to use these selectively. Supporting web content such as videos and information sheets, which government officials were most likely to refer to when discussing their online engagement strategies, were mostly disregarded or bypassed.

> *We use the reports and things that are on there. I wouldn't say we always go directly to the website. It's often that one person has found the report, and then sends it by email to their network.*
>
> Renewable energy activist

Interviews with campaigners confirmed the extent to which information-sharing was a major motivation behind their online activity. Just as some industry supporters reported feeling obliged to provide information about shale gas, so many of those who opposed it also perceived a moral obligation to share what they knew. The target of this activity was variously described to me as the 'missing middle' 'the 'undecided' or the 'fifty percent', in reference to government polls which consistently showed half of the public to be undecided about shale gas (BEIS, 2019). Few local campaigners had any interest in trying to engage with politicians directly, believing government support of shale gas was entrenched. Having themselves gone online to find out about shale gas, their hope was that their neighbours too would read, and having learned more, be persuaded to act.

In contrast to the dominant institutional actors, most local campaign groups considered websites tangential to their efforts, particularly given the absence of funds to pay for eye-catching design and search engine optimisation. Campaigners, on the whole. did not consider themselves to be expert internet users - rather the contrary. Social media, in particular Facebook, which was free to access and familiar to many already, became the movement's platform of choice. While dictated more by

pragmatic considerations than any strategic imperative, one effect was to move the local debate about shale gas onto a platform where the speed and informality of interaction made it difficult for the incumbent actors to follow, as one commentator reflected:

> *I think one of the contrasts between government and industry and the rest is that they're just slow, cumbersome. [...] UKOOG did this with questions about shale - I don't think they really understand how people use the online and how people use social media. And it always comes across as your parents trying to dress like you. It's a bit clumsy and not quite there.*
>
> Reporter on oil and gas

Compared to the incumbent actors therefore, anti-shale gas campaigners were less constrained in their choice of online platform, could draw from a wider variety of information sources domestically and abroad, and could share a wider variety of content. This relative freedom, however, did not mean engaging online with an information-intensive issue was straightforward, as the next section will detail.

5.4.2 Challenges of navigating the information age

5.4.2.1. Complexity

There was a common understanding amongst interviewees that shale gas was a notably complex topic. This complexity arose from two main sources: (1) the technical and operational uncertainties associated with extraction and regulation, in many cases unanswerable unless or until the industry began commercial operation; and (2) the range of potential effects: on local environment, health and amenity, on climate change and on local democracy. For the academics, public officials and industry consultants tasked with public engagement, the effect was to increase the number of tangible threats or 'mobilisation targets' (Rudig, 1992) around which public concern condensed.

Complexity was an issue for all those tasked with creating and commissioning online content on shale gas: "What we actually realised after a while was that some of the research papers you could not simplify to a point that was understandable by everybody," (Academic Geoscientist). It made engaging on social media particularly taxing since the rapid-fire nature of the medium and low character limits left little

room for nuance, with exchanges often dissolving into acrimony. Anti-shale gas campaigners, by contrast, had less need to engage with the technical and operational uncertainties of extraction, since they were not required to justify why the industry should proceed. They dealt with the range of potential industry effects by dividing issue areas amongst themselves and focussing their research upon the aspects of shale gas which their experience and education best equipped them to address. Even so apportioned, their task was not straightforward. The available material was highly technical, sometimes conflicting and on occasions incomplete. Facing a polarised and sceptical public, interviewees from across the board expressed a strong preference for face to face communication when discussing the issues. However, public meetings could become heated, putting off more moderate groups from attending, and in any case were only accessible to those with the time, motivation and means to attend.

Despite these challenges, local campaigners believed that engaging with this complexity was a necessary evil in order to be recognised as legitimate participants rather than NIMBYs or scaremongers. The burden of participation was exacerbated by a complex regulatory system, involving multiple government agencies and policies (Appendix 1). Being able to go online and find out this information for themselves was a necessary first step in being able to participate, but the complexity of the subject matter made it a time-consuming, frustrating and often thankless task.

> *You're not just fighting with getting to know well integrity, and what shale gas fracking is, and the volumes, and health and safety, you're trying to fight with all the Government and the bureaucracy and the administration.*
>
> Resident, Lytham

5.4.2.2. Loss of gatekeepers

This complexity was compounded by the variety of sources available online, leaving anti-shale gas campaigners with little need to access company and government websites other than for the purpose of engaging in the planning process, or to monitor the general tenor of official communications. For those undertaking public engagement, the effect was twofold. On the one hand, the prevalence of negative online information about shale gas, combined with a lack of quality control led to polarised views about the industry which were difficult to address. However, as a general principle those running public consultations also expressed the belief that the

public was informed about shale gas to an extent which would not have been possible without access to online information. Their concern was how lay people might best navigate the increased variety of sources in the absence of gatekeepers. This stance differs somewhat to that revealed by previous research where officials have characterised public resistance to shale gas as a matter of information deficit (Williams *et al.*, 2017). Here, it was framed instead as a matter of information literacy:

> *It is good to have diversity of information but you need to have authority. Otherwise, how are people going to make any decision? How are they going to become informed? They can't.*
>
> Senior scientist, BGS

Amongst the anti-shale gas campaign, NGOs also perceived their role shifting from a more hierarchical model of information dissemination to a less formal, networked approach, reflecting previous work on the effect of digital technologies on social movement organisation (Bennett and Segerberg, 2012).

> *We are not the information provider that perhaps we were on some campaigns. [...] people are finding out the information for themselves and we are working out what our role is in this new, relatively new, online campaigning world.*
>
> National campaigner, Friends of the Earth

This dual loss of gatekeepers presented challenges for the anti-shale gas campaign. The ability to access alternative sources of information empowered members to build their own community of experts. However, this more equal access came at a cost. This was partly logistical: with no intermediary layer to filter information the burden of undertaking quality control fell onto individuals, increasing the chances of overload and the risk of spreading misinformation. Other effects were more emotionally draining: having access to information about the dangers of shale gas but without any apparent means to halt the industry's progress added to the stress and anxiety already prevalent in communities facing shale gas development (Short and Szolucha, 2019).The failure of government to acknowledge it was now only one online voice amongst many, and adjust its approach accordingly, contributed to local alienation and re-enforcing the narratives of bad governance which have become a powerful motivating force in local opposition (Bomberg, 2015).

5.4.2.3. Abundance

Complexity and a lack of gatekeepers led to information abundance as online content about shale gas proliferated, affecting different stakeholder groups in different ways. Government officials had little need to go online to seek information, believing they were kept sufficiently informed by merit of their position. From their perspective, information abundance predominantly manifest via mass responses to online consultations which regularly numbered in the tens of thousands. While campaign members believed these activities had a broader role to play in registering the strength of opposition, those involved in the consenting process downplayed their importance. Responses were often template letters with limited relevance to decision-making and their sheer quantity led to so-called 'cheap-talk' effects, whereby the volume of response weakened the overall message (Bimber, 2003). In the early stages of development, the unprecedented volume of online response placed regulators under significant strain, but by the time of data collection it was perceived as the new norm. As one EA official commented: "It did attract a lot of attention certainly internally to the project. But I think it's- I think it's starting to be a lot more normal now [...] I don't know if it would necessarily do that in future," (Environment and Business Advisor A).

Industry members, likewise, reported little need to seek information online. From their perspective, the effects of information abundance were twofold. First, the sheer volume of online information made it possible to find content which supported almost any view of shale gas. "They'll say, 'Google fracking' but if you Google 'toothpaste' you can find enough reasons it will kill you," (Production Manager, oil and gas industry). This issue was compounded by the negative connotations of the term 'fracking' (Evensen *et al*., 2014). A second, linked effect was the increased regulatory scrutiny which the subsequent public concern engendered. This added to their costs, and once underway tended to perpetuate itself, leading to further delay.

> *Everything is as it should be but it creates a massive amount of noise and nuisance and you then open yourself up to the next level of argument which says, "Well, there have been all these objections, and there's no smoke without fire."*
>
> Veteran industry member

By contrast, anti-shale gas campaigners were directly affected by online information abundance and the aligned expectation that they would remain abreast of developments. Information came from four main sources. Firstly, official planning documents. Without these residents would have been unable to engage in formal consultations however, the volumes of information involved were significant and online access led to unrealistic expectations of local groups.

> *There's no way normal residents can wade through four and a half thousand pages of documentation, understand it and come up with comments on it, and respond in four weeks.*
>
> Member of local residents' group

Secondly, the campaign generated significant volumes of in-group electronic chatter which members, particularly those responsible for curating information, needed to monitor. Thirdly, there was a constant supply of newly published academic and grey literature to digest and share. Finally, there were postings from pro-shale gas groups to consider. The volume of data placed a significant burden on campaigners, and their personal relationships, and a number expressed the opinion that information acquisition was a process subject to diminishing returns.

Compounding this issue was the problem of misinformation which added to the volume of information and increased the effort required to manage it. Poor information quality has long been a defining feature of internet content (Lash, 2002) and campaign members were acutely aware of contemporary debates about fake news, realising that distributing incorrect content had the potential to delegitimise their claims. The requirement to undertake quality control on the information they were sharing - to act as digitally literate citizens - increased the burden of participation, and the networked leaderless nature of the protest meant they had no way to reign in those who were less circumspect. Many industry supporters believed that the anti-shale gas campaign knowingly spread incorrect information in order to increase fear and distrust, referencing *Gasland* as one obvious example of falsehood. Those who were neutral about the industry reserved judgement, observing that making unsupported claims was not the sole preserve of either side. Whatever the motivation behind its spread, however, all parties agreed that the proliferation of online misinformation about shale gas was almost impossible to address.

5.4.3. “Google fracking” online information and the post-politics of shale gas

Online information may have the potential to level the political playing field but the dynamics in this case appear more complex. Government strategy on shale gas sought to frame public concerns as predominantly due to unfamiliarity with the technology, rather any more fundamental doubts about the injustices of development or the desirability of a future societal trajectory based upon fossil fuels. Arguably, similar dynamics are apparent in accounts from industry supporters which positioned opposition to shale gas as a result of the industry’s initial failure to get to grips with online engagement rather than any broader concerns about the industry itself. But no matter how they were framed, the combined effect of this technical focus and organisational inaction, was to constrain how effectively the dominant institutional actors could engage online. However, more favourable online conditions did not deliver immediate offline dominance to the anti-shale gas movement. Rather, it appeared as though the official presumption in favour of development had prevailed when Cuadrilla began hydraulic fracturing at Preston New Road in October 2018, shortly after data collection concluded.

Post-political theory provides two means with which to interrogate these dynamics. The first is to focus our attention upon the insuppressible nature of dissent (Metzger, 2011; Rancière, 1999; Žižek, 2000b). Accepting that conflict can never be entirely excluded from politics leads us to examine the multiple and sometimes unexpected ways in which it may reappear. From the operators’ perspective, the most obvious consequence of the heightened public awareness engendered by online activity was an increase in regulatory oversight incommensurate with the risk they believed their activities entailed. The increased scrutiny led to increased costs, gridlocking development and causing some to wonder if the industry would ever take off.

> *You know that everything is going to be scrutinised to the nth degree. Unfortunately, what it means is you put a rocket or airline investment into what is probably a family Escort. […] And at some point you think to yourself, "the project won't support this, I can't do it."*
>
> Veteran industry member

In the interim, operators retreated from the online and focussed their effort on shoring up support from potential supporters. For the Government, the consequence was six years of delay as the planning process ground to a halt. Unable to demonstrate shale gas's safety until development was underway, ministers began a consultation on a raft of planning reforms including making development a Nationally Significant Infrastructure Project (BEIS, 2018) and therefore subject to less extensive public consultation than the existing regime. Such responses reflect findings from previous work on the post-politics of planning (Johnstone, 2014) which reveal an institutional retreat to more easily controlled arenas when public dissent cannot be contained (see also chapter 4).

Campaign members had a more ambivalent relationship with online information. On the one hand, going online to become informed had been a necessary prerequisite to being recognised as legitimate participants. On the other, it contributed to their feelings of disempowerment by revealing the extent to which the decision-making framework excluded some voices and privileged others. Having access to a range and depth of information previously only available to policy elites raised expectations that those in power would be responsive to their concerns but delivered little in the way of substantive influence, leading eventually to disenchantment. The unwillingness of the dominant institutional actors to engage online heightened perceptions of a lack of transparency and democratic deficit.

Perceptions of bad governance and procedural injustice have been a potent force in motivating opposition to shale gas in Lancashire since the outset (Bomberg, 2015; Cotton *et al.*, 2014; Short and Szolucha, 2019; Whitton *et al.*, 2017). The official retreat from online interaction added another layer to these dynamics, appearing to substantiate the belief that there was little local people could do to influence policy. Having failed to halt development through officially sanctioned routes, many campaigners concluded that direct action was, if not something they personally wanted to engage in, nonetheless the only remaining option to express opposition.

> *The industry with its lobbyists can cruise the corridors of power, have meetings that we know nothing about, have their voices heard right at the heart of government. The only place that people who oppose it can have their voices heard is out on the streets.*
>
> Campaigner, St Anne's

The most immediate effect of the online information divide therefore was not to give greater political prominence to dissenting voices but rather to expose the extent to which they were excluded from official arenas. The result was to galvanise the turn to direct action, with protesters at Preston New Road demonstrating under the banner 'you left us no choice.' In terms of the schematic provided in Figure 5-1, therefore, as debates over the credibility of exisiting knowledge failed to deliver political effect, so action shifted from formal (planning) to informal (direct action) modes of dissent. As Žižek argues, the "suffocating closure" (Žižek, 2000b p. 204) of the politics of consensus does not foreclose dissent, rather by precluding the expression of dissenting voices it generates the impetus towards further antagonism.

The second insight offered by post-political theory is its ability to alert us to the deeply political ways in which governance arrangements may operate to exclude dissenting opinions, and the consequences of structuring decision-making in this way. In this instance, the official position that resistance to development was predominantly a matter of information deficit proved fundamentally flawed. Once Cuadrilla resumed hydraulic fracturing in October 2018, the seismic events returned at increasing intensity. Rather than demonstrating the process was safe, first-hand experience of shale gas exploration re-enforced public concerns that the process was dangerous. Opinion polls showed opposition increasing amidst particular concerns about earthquakes (BEIS, 2019). Direct action continued throughout 2019, but it took a combination of financial unprofitability, political expediency, and technical infeasibility to disrupt the presumption in favour of development. Within a period of ten days, a National Audit Office report on the high costs and limited progress of the shale gas industry (National Audit Office, 2019) was followed by the announcement of a snap General Election to break the Brexit deadlock and an OGA report concluding it was not possible to accurately predict the magnitude and likelihood of future tremors at Preston New Road (OGA, 2019). In response, the Government announced a moratorium on hydraulic fracturing in November 2019, "until compelling new evidence is provided," (BEIS OGA, 2019) and shelved the proposed planning reforms.

Does this signal the death knell of shale gas in England? A post-political reading urges caution. Development has not been suspended because the Government accepts continued fossil fuel development is incompatible with desired future societal trajectories. While the UK Parliament has declared a climate emergency and passed legislation to achieve net zero greenhouse gas emissions by 2050, the Executive's approach to shale gas remains fundamentally unchanged. The matter continues to be adjudicated upon within narrow technical frameworks of expert knowledge and risk calculation, specifically related to the seismic events. Ministerial statements on the moratorium reiterate shale gas's potential to provide a bridge to a low carbon future a motif which dates back to the first moratorium (Cotton *et al.*, 2014) and which is typically post-political in its use of discourses of sustainability to cloak the substance of a policy focussed upon economic growth (Swyngedouw, 2007a). In response, Cuadrilla have undertaken "to work constructively with the OGA to provide further detailed data [...] to address concerns so that the moratorium can be lifted," (Cuadrilla Resources, 2019). Ongoing public opposition, as expressed on and offline, has played an important role in delaying development to date and making shale gas politically unacceptable in the run up to a General Election. The ongoing uncertainty will doubtless unnerve potential industry investors. The underpinning ideologies which provided the impetus towards development, however, appear unaltered, and while they remain, the industry's fate hangs in the balance.

5.5. Limitations and conclusions

This chapter provides the first assessment of online information use in the English anti-shale gas campaign. It addresses a to-date under-researched aspect of the issue, but contains a number of acknowledged limitations. Firstly, the highly charged nature of the topic meant several key individuals were unwilling to be interviewed, or would only speak off-the-record. This was a particular issue for Lancashire residents in favour of shale gas. Secondly, while interviewees' accounts covered 2011-17, data collection took place towards the end of period and their recollections may be incomplete. A study of website and social media content relating to shale gas over the same timeframe would help elaborate upon and substantiate this account of an online information divide. Thirdly, shale gas is a fast-moving topic; the political context changed over the course of the research and continued to do so during write up. This chapter is accurate as of November 2019 and the passing of the second moratorium

but the long-term outlook for shale gas in England remains unclear. As a result, the influence of online information use on the debate cannot yet be definitively stated.

As with all issues within the energy-environment nexus, shale gas is a complex topic and online information only compounds this complexity. Contestation over which knowledges count as legitimate and who has the right to interpret them have a long history in disputes over contentious issues (Jasanoff, 1987) but with the increasing ubiquity of online information, the dominant institutional belief that a better informed citizenry will necessarily become a more acquiescent one appears increasingly untenable. Nascent industries, in particular, are likely to find themselves in the position of English shale gas operators, unable to engage effectively in an online environment where they hold no privileged position and their voice is only one amongst many. Governments may find that their attempts to depoliticise an issue have unintended consequences (Wolf and Van Dooren, 2018) and that conventional tactics aimed at reducing conflict no longer work as they did in the pre-internet era. Conversely, the ubiquity of online information cannot be assumed to operate straightforwardly to the benefit of citizens attempting to influence public policy. While it may enhance their status as legitimate participants it may also increase their challenges, as they seek to navigate an increasingly complex information ecology. New areas of conflict are likely to emerge as knowledge disputes expand to incorporate claims and counterclaims about information literacy. Post-political theory alerts us to the nuances of these arguments and how they too may be operationalised to bypass dissent.

Social conflict is a characteristic of all energy projects (Cuppen, 2018). As internet use increases globally, and particularly in the global South, research on contentious technology and resource development will benefit from considering the political effects of this changing information environment. Useful avenues for further research include comparative work across jurisdictions to assess how specific features of the resource, in combination with local histories, technologies, political and cultural contexts influence how changes in information access shapes the development of these conflicts. The post-political thesis argues that dissensus can never be permanently excluded from politics but as this article shows, neither does internet activism provide a straightforward channel for its return. Online activity did not level the political playing field for the anti-shale gas campaign, although it may have highlighted to campaigners the extent to which it was uneven, galvanising a turn to

direct action. Understanding the varied ways in which internet use influences the expression of dissent will become an increasingly important aspect of the study of contentious energy issues in the twenty-first century.

6. #WeSaidNo: a social media analysis of the Rolling Resistance

6.1. Introduction

Chapter five, Google fracking, revealed how an online information divide on shale gas evolved between 2011 and 2018. It argued that while the long-term outlook for the industry in England remains unclear, the immediate effect of the divide was not to give greater political prominence to dissenting voices but rather to cause the incumbent actors to retreat from online engagement, perpetuating gridlock and, ultimately, fuelling the turn to direct action. This chapter turns its analytical focus onto the use of digital technologies in mobilising the subsequent protest. The use of alternative media channels and networked forms of organisation are well-established features of protest in the Information Society (section 2.4). Moreover, research suggests that the use of digital technologies to mobilise offline protest may influence the type of claims which participants subsequently make (section 2.4.2.2). To date however, there has been limited research on the use of digital technology in mobilising protest on shale gas or on what the broader influence of this activity may be (section 2.2.3).

This chapter addresses that gap through a two-step process. Firstly, it undertakes a collective action frame analysis of social media posts made before, during and after a month of protest on shale gas in July 2017, known as the Rolling Resistance. It uses this analysis to understand how online activity may contribute to motivating offline action. Secondly, it applies a post-political analysis to these findings to consider the broader implications of the influence of this activity. In terms of the schematic introduced in chapter four, it can be viewed as focussing primarily on the interactions between the two highlighted interactions (Figure 6-1) modes of dissent and scope of threat and remedy. It considers how the use of digitally mediated technology came to shape the ways in which dissent on the issue could be expressed, and the consequences for the protest and broader campaign. The most commonly used hashtag within the Twitter data was #WeSaidNo. This was in response to the broader concerns about democratic deficit which have dominated the local campaign, but also, as this chapter will reveal, is indicative of how the direct action became framed as a protest opposed to shale gas development rather than one which was for any positive alternatives.

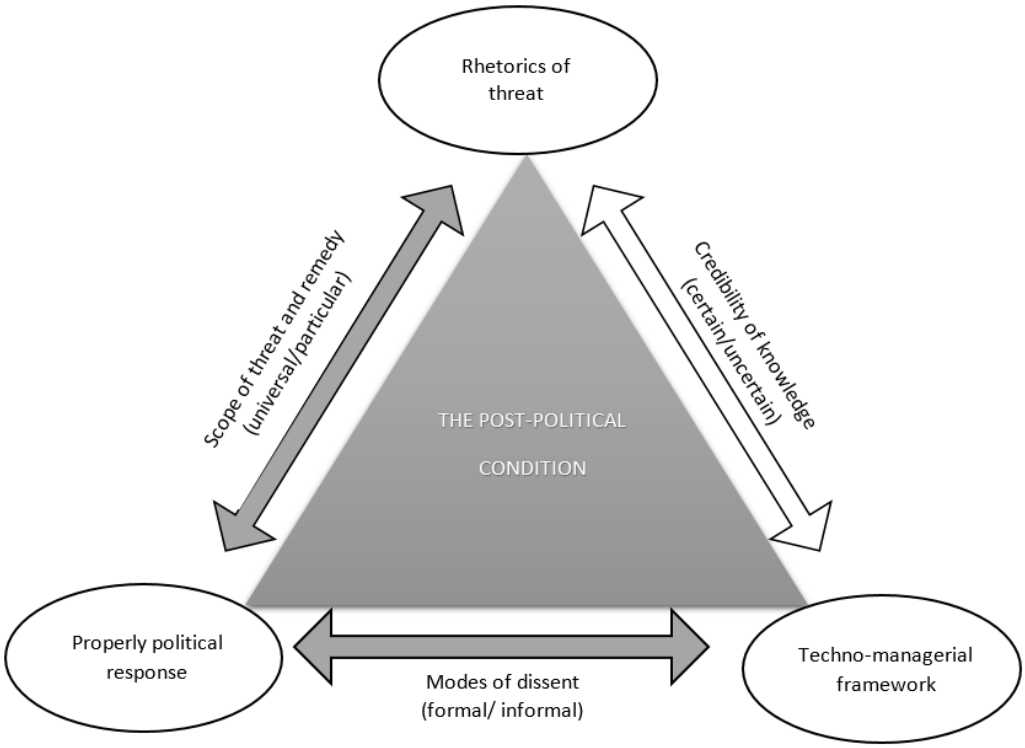

Figure 6-1: Dominant processes of post-politicisation and their interactions as they manifest in relation to online mobilisation and shale gas

Focussing particularly on campaigners' use of social media to mobilise protest over the summer of 2017 it addresses research questions two and three of this thesis. Working within the realist paradigm (section 3.3) which builds theory in conversation with empirical data (section 3.5.2.2), it introduces two chapter specific sub-questions to structure its analysis.

2) How are actors in the English shale gas debate using online activity to engage with the issue?
    a) How were collective action frames employed during the Rolling Resistance and how were these given salience?
    b) What framing disputes emerged?
3) What is the influence of this activity?

In doing so, it documents the challenges that emerge as campaigners seek to frame messages acceptable to potential allies, in-group members, and a sometimes-critical public while negotiating the tightrope between social acceptance and political effect. It shows how social media activity, while opening up the actions of institutional actors to intense scrutiny, also reflected scrutiny back onto the protest. It argues that

while digitally enabled protest may enhance the ease of mobilisation, it may also dampen its disruptive power.

The analysis takes six parts. Section 6.2 summarises the data and methods. Section 6.3 provides an overview of social media activity over the course of Rolling Resistance, in order to contextualise the following discussion and provide a descriptive answer to research question 2. Section 6.4 addresses research questions 2a) and 2b) through a framing analysis of the social media data. Section 6.5 addresses research question 3) discussing the key findings and applies a post-political analysis to them. Section 6.6 discusses limitations and provides suggestions for further research. Section 6.7 concludes.

6.2. Summary of methods and data

This chapter undertakes a collective action frame analysis of 1997 social media texts collected from seven community accounts between June to August 2017. These data form the basis for the empirical analysis in this chapter. The findings are then discussed in conjunction with the findings from the interview data to corroborate and interrogate them. The background to the Rolling Resistance is provided in section 3.4.3. Details of the interview data collection and analysis methods are provided in section 3.5.2. Details of the social media data collection and analysis methods are provided in section 3.5.3. For the purposes of this chapter, social media post types have been defined as follows. For Twitter data, tweets indicate content posted by the account administrator(s). Retweets indicate content shared from another Twitter account by the account administrator(s). Comment indicates a response from another Twitter account to either a tweet or a retweet. For Facebook data, post indicates content posted by account administrator(s) onto the community page. Comment indicates a response posted from another Facebook account onto the community page to either a post or another commenter's comment.

6.3. Overview of social media data

This section provides an overview of the social media data posted during the Rolling Resistance in order to provide the context for the subsequent framing analysis. The Rolling Resistance was a month of intensified protest outside Cuadrilla's Preston New Road shale gas site. It was a joint undertaking between members of climate justice group, Reclaim the Power, and local Lancashire anti-shale gas groups (Figures 6-2 and

6-3). This analysis focusses particularly upon posts made to seven community accounts belonging to four local anti-shale gas groups. One group (RAG) did not run a Twitter account but were correspondingly more active on Facebook (Figures 6-4 and 6-5).

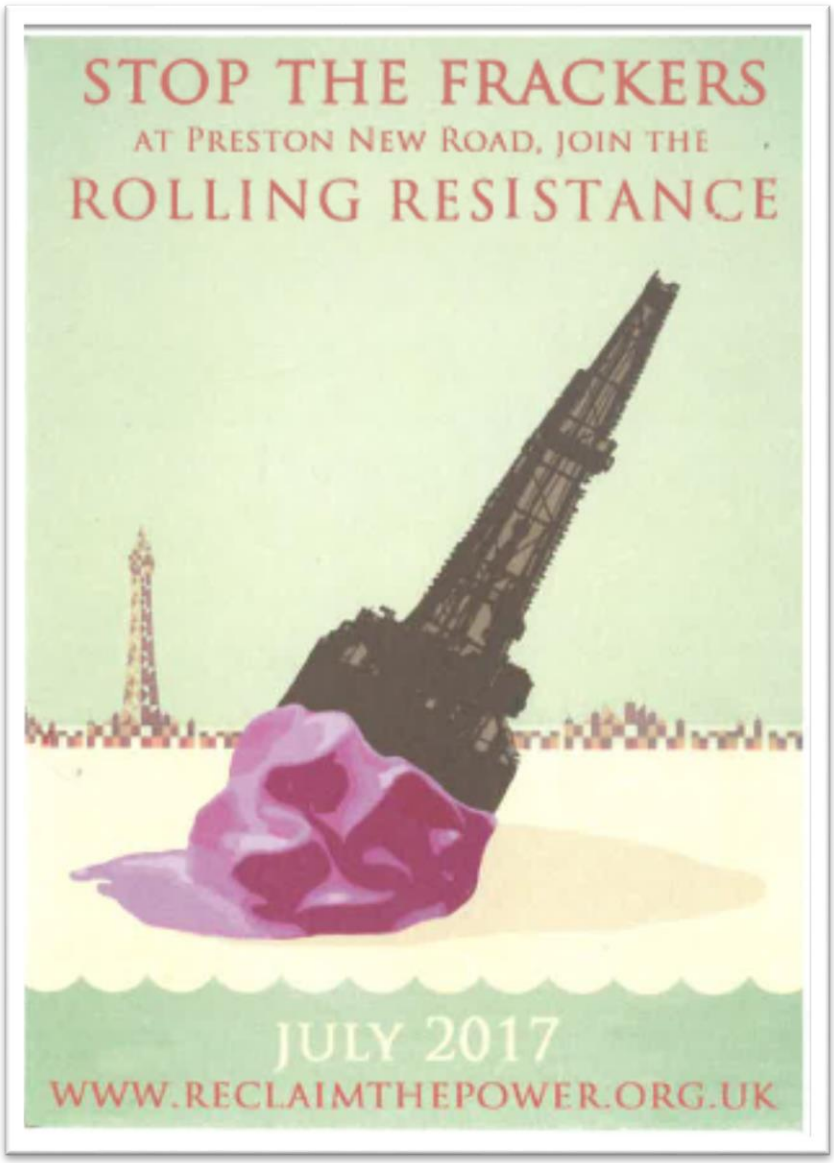

Figure 6-2: Reclaim the Power flyer for the Rolling Resistance (front)

Figure 6-3: Reclaim the Power flyer for the Rolling Resistance (back)

Overall, activity on Twitter on these accounts was higher than on Facebook (Figures 6-4 and 6-5). The majority of this activity, however, was retweets of supportive content rather than new content (Table 3-6) and tweets frequently contained links to Facebook posts, often without further comment. While Facebook activity was lower in volume, the platform's higher character limits allowed more substantive posts more likely to attract comment and debate (Table 3-7). By contrast, Twitter's capacity to act as a rapid source and distributor of breaking news came to the fore during the Rolling Resistance, where updates about direct action and the authorities' responses dominated social media content. This difference in focus reflects previous work on activists' use of social media platforms, which suggests Facebook is used before and after protest events to mobilise and consolidate support, while the real time, micro-blogging capabilities of Twitter means its use peaks during the protest (Earl *et al.*, 2013; Gerbaudo, 2012).

This shift in focus is apparent in the higher overall volume of tweets during July and their subsequent drop in volume once the month of intense direct action was complete (Figure 6-4). Facebook posting generally also showed an increase in July and a subsequent decrease in August, but both increase and decline were less marked (Figure 6-5). Buoyed by the impetus of the Rolling Resistance, direct action continued throughout August but without the presence of Reclaim the Power the forms of action tended to be less confrontational, lowering the volume of social media response.

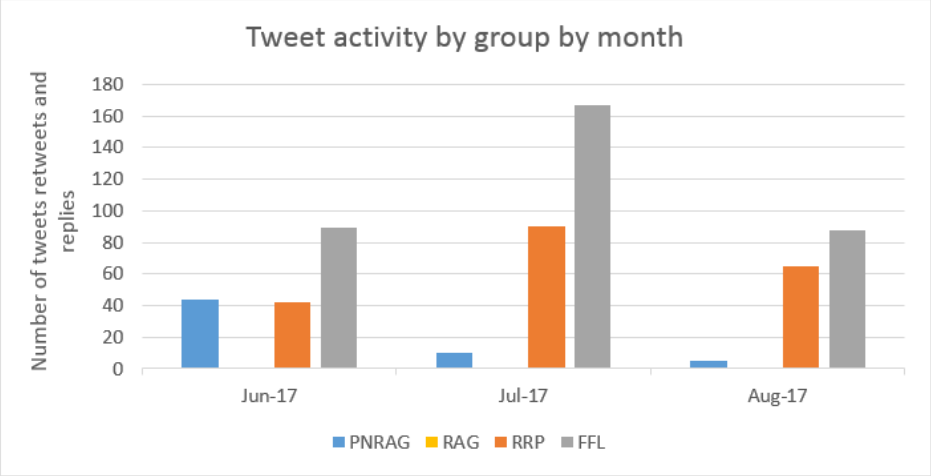

Figure 6-4: Twitter activity by account, Jun-Aug 2017

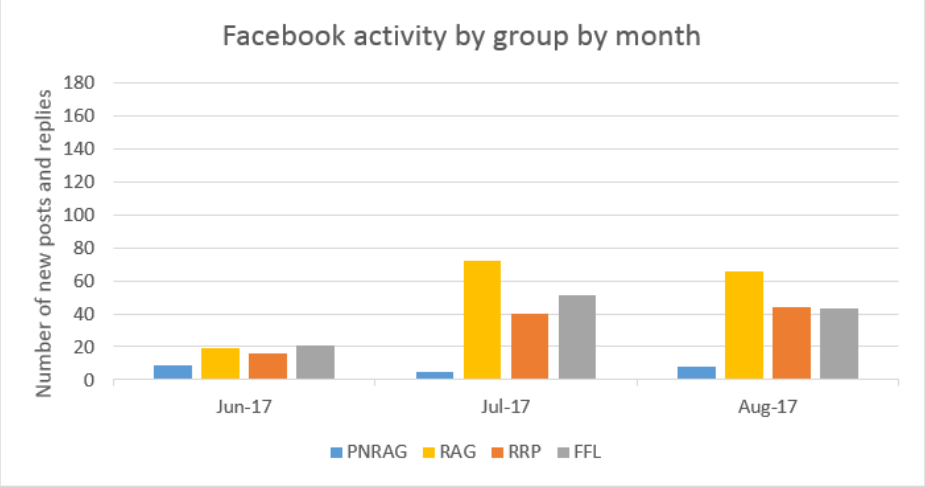

Figure 6-5: Facebook posts by account, Jun-Aug 2017

Social media activity in June was relatively low despite the 2017 General Election on 7 June. A Labour victory would have led to a ban on shale gas development outright, but despite this potential end to the issue, the possibility generated relatively little chat within the groups under study. Individual commenters urged readers to vote

Labour, but content posted by account administrators was generally more circumspect. This apparent omission does not preclude the possibility that such posts were being made elsewhere or occurred before the timeframe of the analysis. However, when read in conjunction with the interview data (section 4.4.2.2) it appears likely the lack of overt electioneering was a pragmatic decision based upon the heavily Conservative leaning political views of the Fylde electorate. Those opposed to shale gas were assumed to be already aware of the main parties' manifesto pledges and so an overtly political stance could only serve to alienate potential supporters.

The relatively low priority given to national politics, reinforces accounts from interviewees that many were disenchanted with government and had little interest in engaging directly with policy-makers (section 4.4.2.2). These were social media accounts, and by extension groups, with a specifically local and regional focus. The debates and conflicts which emerged upon them during the course of the analysis mostly occurred within these parameters.

6.4. Framing analysis

This section provides an overview of the findings of the framing analysis. Diagnostic, prognostic and motivational frames are then considered in turn. Detains of any framing disputes are interwoven with the analysis.

In common with previous work using collective action frames to analyse social media mobilisation (e.g., Goh and Pang, 2016; Harlow, 2012) motivational framings were the most frequently employed. This is in accordance with previous empirical work which suggests mobilisation is the most important reason for social movement groups to undertake online activity during protest (Kavada, 2015; Mercea, 2012; Rane and Salem, 2012; Tufekci and Wilson, 2012). Diagnostic frames, identifying and defining problems, were the next most common, and prognostic framings were the least frequently employed. The relative lack of prominence given to prognostic frames is unsurprising. As Gerhards and Rucht (1992) note, protest movements do not occupy positions of power and therefore the provision of solutions is not their main purpose.

6.4.1. Diagnostic frames

Diagnostic framings centre on problem identification and attributing blame and causality in order to integrate and coordinate agreement between a diverse set of individuals and groups (Snow and Benford, 1988). Two overarching diagnostic frames

emerged from this analysis (Appendix 10). The first was a major and highly integrated frame which focussed upon shale gas and its associated issues as symptomatic of corporatocracy. The second was a minor, less developed, framing which focussed upon unsustainable patterns of consumption and the personal responsibility, or otherwise, of commenters for replicating them.

6.4.1.1. Corporatocracy

Defined by economist Jeffrey Sachs as "a political system in which powerful corporate interest groups dominate the political agenda" (Sachs, 2011 p.105), corporatocracy refers to a system of government according to vested interests rather than moral, party political, environmental or even economic principles. Within the data, systems of finance and subsidy that benefitted corporations, apparent instances of institutional and regulatory capture and failure of political parties to represent their constituents were framed as symptomatic of this broader issue. Hence corporatocracy provided an overarching frame which united the complaints of bad governance (Bomberg, 2015), injustice (Cotton *et al*., 2014), regulatory insufficiency (Hawkins, 2015) local environmental and social harm (Short and Szolucha, 2019) and democratic deficit (Hilson, 2015; Whitton *et al*., 2017) which have come to characterise the English debates on shale gas.

Corporatocracy was presented as manifesting in numerous ways and at different scales. Nationally, through systems of finance and subsidy which gave preferential treatment to fossil fuels, and its presumed influence on the Community Secretary's decision to overturn Lancashire County Council's 2015 ruling against shale gas. Locally, through the lesser standards which the industry appeared to be held to, both in operation but also in the policing and media reporting of the protests. There was clear evidence of alignment between the frames used by supporters in their comments and those made by account administrators, although the areas of focus differed. Commenters were more likely to focus upon broader issues such as the financing of the oil and gas industry, positioning these as symptomatic of the privileging of corporate interests. They were also more likely to describe named politicians as corrupt and lay the issue directly at the door of the Conservative party.

> *The industry [...] are the largest lobbyists against anything renewable! There are other ways if the Government were to put the billions they give to nuclear, gas and oil into renewables instead.*
>
> RRP Facebook comment (115)

> *We should offer Sajid Javid the opportunity to buy a holiday home in Lancashire! Perhaps he'll buy one when he takes up his future post with Cuadrilla.*
>
> FFL Facebook comment (2967)

Posts made and shared by account administrators were more circumspect, reflecting comments made during interviews that too overtly political a stance could alienate potential supporters (section 4.4.2.2). In addition, it was common knowledge that the industry was undertaking social media surveillance (see also Ahmed, 2018), and that libellous remarks could leave the campaign open to legal challenge. Nonetheless, a corporatocracy framing could be easily inferred from the tenor of account administrators' posts. These often highlighted the extent to which the oil and gas industry's interests were promoted, and the absence of definitive information about the industry's safety and financial viability.

> *It is important to remember local democracy has been dismantled and denied in Lancashire to allow Cuadrilla and this fossil fuel industry to press ahead.*
>
> PNRAG Facebook post (53)

> *RT @RealMediaGB 'It's putting the whole nation at risk' - fracking and dodgy data #GE2017*
>
> RRP Retweet (13)

> *RT: BBC News - #Fracking: Shale rock professor says UK gas reserves 'hyped'*
>
> FFL Retweet (45)

The use of broad-based and inclusive framings is essential to movement mobilisation, particularly for those attempting to appeal to a diverse audience (Benford, 2013). However, while a broad framing of an issue increases its potential audience, specificity may be needed in order to increase its salience. Account administrators achieved salience by focussing upon specific instances of corporatocracy and its local effects. These included apparent instances of media bias and police collusion, and the

lesser regulatory standards to which Cuadrilla appeared to adhere, despite repeated official reassurances that the industry would be held to 'gold standard' regulation. Twitter was used extensively in this respect, to highlight this issue to supporters while simultaneously challenging the perpetrators by tweeting 'at' them, an example of synopticism discussed further in section 6.4.2.1.

> *BBC Northwest seems less 'balanced' in last few yrs. In interests of transparency how many times did Cuadrilla complain @BBCNWT? Affected editorial?*
>
> FFL Tweet (67)

> *Looks like @LancsPolice choice to close whole road today - to cause traffic probs or facilitate Cuadrilla lorries?*
>
> FFL Tweet (209)

> *RT Have @CuadrillaUk bust up ANOTHER well? Rumour is they hit a water well and fracked it up. Gold standard?! Idiots.*
>
> RRP Retweet (41)

These messages were given additional impact through the use of pictures and videos showing the site at Preston New Road and the surrounding countryside, emphasising both the proximity of the threat and the industrialisation which shale gas development entailed. Drone footage of the site and videos of police actions provided the context from which their audience could draw their own inferences.

> *The police should be protecting the public and not facilitating a fossil fuel corporation based in offshore tax-havens. Let Cuadrilla use private security instead.*
>
> RRP Facebook comment (785)

> *I do believe Lancashire County Council are allowing the movement of vehicles outside of the planning conditions and aiding in breaking laws. #WeSaidNo*
>
> FFL Twitter comment (74a)

The power of the corporatocracy framing to identify and make sense of the dynamics that shaped shale gas development was evident from the way that dissenting comments did not attempt to address it directly. Indeed, on occasions they seemed to endorse it. The argument of those opposed to the protest was not that corporatocracy

did not exist, rather that corporate interests were so entrenched and powerful that protesting was futile, more disruptive to local life than acquiescence.

> *They're all on crack if they think they're going to beat an unbeatable system. The Government backed this, do they really think MPs in Westminster give a shit about what they're protesting about? Money talks louder than they ever will. I expect this thunderstorm is all down to fracking too, is it? Wish they'd all just fuck off.*
>
> RAG Facebook comment (1166)

Other dissenting comments countered the corporatocracy framing by arguing that other gas-producing countries had more damaging systems of government and therefore, by implication, production under a corporatocratic system was the preferable option.

> *Russia is not perfect: opposition leaders have been killed in the last couple of years and election rigging is rife. We're not dependent on them but we are dependent on oil from gulf state dictators. If we invest in fracking we won't be dependent on gulf state dictators with awful human rights records.*
>
> FFL Facebook comment (2569)

The majority of dissenting comments, however, did not address the corporatocracy framing at all but simply expressed approval development was going ahead. When these commenters elaborated on their points they often used framings of energy security, growth and jobs familiar from previous discursive analyses (e.g., Cotton *et al*., 2014; Helvaci, 2017; Matz and Renfrew, 2015).

> *Great to see drilling has begun and money is being invested* 🙌🙌🙌
>
> PNRAG Twitter comment (4a)

> *You've lost the fight so go home and get a hobby! Let's bring energy and jobs to the northwest. Modern fracking is safe so bring it on!* ☺
>
> FFL Twitter comment (67b)

The corporatocracy frame is somewhat broader than the diagnostic framings revealed in analyses of the English shale gas debate that took place prior to extended direct action (e.g., Bomberg, 2015; Cotton, 2016; Whitton *et al*., 2017) which tended to focus upon the distributional injustices being inflicted upon local residents. However, in

providing a generalized critique of the current political and economic regime, there are clear similarities to the frames used during the anti-IMF and anti-Reagan demonstrations in Germany during the 1980s; during the anti-globalisation protests of the 1990s (Van Aelst and Walgrave, 2002) and during the more recent *Indignados* (Castañeda, 2012) and Occupy (Bates *et al*., 2016) movements. The value of providing a diagnostic frame broader than distributional injustice is its increased relevance to a wider audience of potential adherents. Attributing 'blame' for shale gas development to the system, however, may have diminished some of the other consciousness-raising aspects of the campaign, as the following section details.

6.4.1.2. Unsustainable behaviour

The conflict over shale gas has been argued to encapsulate a broader societal struggle between the perpetuation of a fossil-fuel based economy on the one hand and the transition to a lower carbon, more equitable social order on the other (Metze and Dodge, 2016). By exposing new, previously unaffected, communities to the environmental injustices inherent in energy production, (Willow, 2014) the industry has been credited with engendering a new environmental consciousness acting as a mobilisation target (Rudig, 1992) around which campaigners' environmental concerns may condense. The 'scale shift' (McAdam *et al*., 2001) in their personal concerns from NIMBY (not in my backyard) to NIABY (not in anyone's backyard) was one which several campaigners reflected upon during interview. On social media however, it was a framing which emerged in response to only one post.

The discussion was prompted by a shared video claiming previous generations had acted in environmentally sustainable ways even if they had not necessarily conceived of their actions as being 'green.' The high volume of response this post generated suggested the idea had particular resonance for its audience, perhaps reflecting the predominant demographic age group of local anti-shale gas campaigners who were often newly retired. Some commenters accepted the video as it was presented, agreeing with its general message and using the opportunity to reminisce. Others, however, took a more sceptical view, questioning the self-congratulatory tone of the video, which presented current generations as primarily responsible for environmental crisis and previous ones as virtuously exempt. In response, they debated the extent to which their generation could absolve themselves of

responsibility for the current unsustainability crisis, and the true environmental cost of their past, purportedly low consumption, lifestyles.

> *All of us, even those oldies, wanted to make things easier, all pushed for and applauded those changes and they were good but there should have been foresight at the obvious waste. [...] Plastics should have been obvious from the start and regulated.*
>
> FFL Facebook comment (2514)

> *That's all well and good, but it was the coal deliveries that were the actual problem... not the occasional bottle of pop!*
>
> FFL Facebook comment (2522)

> *I can remember how things were before the disposable society and I'm in my early sixties (though not past it yet!). That's not to say I haven't been guilty of contributing to it but since I became an "activist" at the age of 59, I'm trying to mend my ways.*
>
> FFL Facebook comment (2515)

The thorny question of personal versus societal responsibility for current sustainability issues, and the extent to which they as individuals may have unwittingly contributed towards them, appeared to have no easy answers. In framing terms, blame and causality were difficult to attribute and no coherent diagnostic framework emerged which could satisfactorily identify a single cause. The uncomfortable questions raised by this discussion, and the limited diagnostic power of this framing, may explain why it appeared only once in the three-month period under review, and then only on one account. Its salience to Fylde residents was limited, when compared to the corporatocracy framing which provided a unifying explanation for many of the locally apparent impacts of shale gas development and placed fault for them firmly elsewhere.

Framing processes are dynamic (Dugan, 2004) and frames may be expected to wax and wane in prominence as a campaign develops. Undoubtedly, concerns about sustainability formed an important factor in mobilising local opposition to shale gas, both in England and globally (Steger and Milicevic, 2014) but, as this analysis suggests, their ongoing salience cannot be assumed. The role, if any, of digitally mediated activism in influencing this particular shift is difficult to state. However,

social media is known to magnify the role of audience feedback. This is particularly the case on Facebook, where posts with general appeal generate a positive response, increasing their visibility, while posts containing difficult or challenging material are often passed over, since they are difficult to 'like' or address adequately through comments (Gaby and Caren, 2012; Tufekci, 2017). In the short term, this can lead to unpopular posts being less visible to site visitors, as in 2014 when posts about the ice bucket challenge displaced coverage of the Ferguson riots from Facebook newsfeeds. In the longer-term Gaby and Caren (2012) suggest, it may reduce the power of social movements to shape their own frames, since popular and unchallenging content becomes more visible.

6.4.2. Prognostic frames

Prognostic framings "articulate a proposed solution to the problem, or at least a plan of attack, and the strategies for carrying out the plan," (Benford and Snow, 2000 p. 616). Alignment between diagnostic and prognostic framings may strengthen a movement's mobilisation capacity by providing a conceptually coherent rationale for action. Conversely, poor alignment may be expected to weaken it (Gerhards and Rucht, 1992).

Prognostic framings were the least developed of the three collective action frames. In summary, they took two main approaches, reformist solutions that operated within the current socio-economic regime and radical solutions that challenged dominant societal norms (Appendix 11). Despite a broad consensus within the diagnostic framings that shale gas development was the result of a corporatocratic system of government, the majority of proposed solutions did not call for radical change. Rather, they focussed upon reforming the existing regime and the ways in which this could be achieved.

6.4.2.1. Ban fracking

Unsurprisingly, the most developed prognostic framing related to the means by which shale gas development could be halted. Despite direct action being ongoing, stopping development through the application of due process remained an important option, either through ongoing court action against Cuadrilla or the electoral process. Given the Labour party's manifesto support for a moratorium on shale gas, the answer appeared simple to some:

✋✋✋#BanFracking #VoteLabour 💔 💔 💔

PNRAG Twitter comment (45b)

Stop fracking by voting Labour on June 8th

FFL Facebook comment (2991)

However, as many campaigners noted in interview, a constituency that was the fifth safest Conservative seat in the country, was unlikely to vote out the incumbent Conservative MP on the basis of shale gas, or any other issue. Posts made by account administrators therefore made fewer party-political statements and tended to frame the solution to halting development as increased public awareness. The framing of the issue as one of information deficit was not dissimilar to the arguments used by national government (section 5.2). According to this prognosis, all publicity for shale gas was bad publicity and once the public knew about the industry they would inevitably oppose it. Mass responses to official consultations and e-petitions were presented as an important means through which supporters could demonstrate their opposition. For example, in the case of a petition to the Secretary of State for Business, Energy and Industrial Strategy.

Nearly 13,000 people now. Please keep sharing. We need big numbers to show Greg Clark how strong the opposition really is.

RAG Facebook post (1142)

The logic behind this prognostic framing depended on two implicit assumptions. Firstly, that increased knowledge would lead to opposition. Secondly, that demonstrating mass opposition would change policy. The first step appeared self-evident to those who were already members of the campaign, many of whom had followed this pathway themselves.

The way forward is raising awareness on all levels because most people are just getting by trying to raise a family. Fracking has opened my eyes to what's happening to democracy, the planet, you name it.

FFL Facebook comment (2515)

It is not, however, a position necessarily supported by academic research which shows support for shale gas is predicated on pre-existing factors (Evensen and Stedman, 2017) in particular political conservatism (Whitmarsh *et al.*, 2015; Choma *et al.*, 2016; Andersson-Hudson *et al.*, 2016; Davis and Fisk, 2014), and sex (Davis and Fisk, 2014;

Heuer and Yan, 2017; Andersson-Hudson *et al.*, 2016) rather than degree of knowledge.

The second step, linking mass opposition to policy change was also less self-evident than it might first appear. In interview, campaigners acknowledged that force of numbers had exerted only minor influence on policy-makers to date, leading perhaps to minor adjustments but failing to halt shale gas development. The limited, and possibly negative consequences of mass electronic responses to environmental consultations has been previously documented. The evidence suggests these avenues of engagement reproduce existing problems with participatory processes and risk lowering regulators' opinion of the value of public consultation (Shulman, 2007; Zavestoski *et al.*, 2006). In practice, campaigners saw the value of such mass actions not primarily as a means to affect policy but as a means by which potential adherents, who might otherwise be unable to act, could register their views. As such, they provided a first step in recruiting new people to the cause..

In online discussions, however, the possibility of effecting change through increased public awareness and force of numbers was never questioned. Comments focussed instead upon how the dominant institutional narratives could be challenged so that awareness could be increased. Proposed solutions included more scientific research to understand the effects of shale gas development, and peaceful direct action to increase press coverage. The most frequently proposed solution, however, was the use of social media and campaign-generated footage to shine a light upon opponents' activities.

> *I think because of social media a lot of people are seeing through the bullshit reporting of the mainstream media on behalf of politicians and mega-corporations who are, almost without exception, enemies of the planet and all its inhabitants*
>
> FFL Facebook comment (2529)

The particular dynamics of the surveillance techniques afforded by social media use are one example of synopticism, a term coined by Thomas Mathiesen as a counterpoint to Jeremy Bentham's panopticism. Whereas the Panopticon provided a model for a prison and associated system of control which allowed the few to survey the many, the rise of mass media, Mathiesen argues, enabled "the many to see and contemplate the few" (Mathiesen, 1997 p. 219). The extent to which mass media has

truly empowered the public remains open to question but as Tai (2015) notes online practices are subject to different dynamics. The rise of internet use and associated technologies like smartphones have enabled a rise in synoptic practices whereby "private individuals observe, record, and share an assortment of information about the select few," (Tai, 2015 p. 125).

This synoptic lens was turned upon all those who appeared to be supporting the shale gas industry: regulators, police, media and Cuadrilla themselves. Footage from drones and mobile cameras were used to document and share instances of malfeasance. The ease of electronic communication made it very easy to contact the police, MPs, and local councillors to highlight this behaviour. The regional press was often tagged in these tweets, suggesting the continued importance of mainstream media coverage in this debate. However, the apparent paradox of relying upon the institutions which the dominant diagnostic frame insisted were subject to corporatocratic capture, to address this behaviour remained unaddressed and, apparently, unacknowledged.

6.4.2.2. Act on climate change

A second prognostic frame focussed upon ways to address climate change, focussing particularly upon those solutions that also provided alternatives to shale gas. Renewables were presented as the obvious alternative, but these arguments were relatively undeveloped, reflecting the lack of elaboration around environmental issues in the diagnostic framings. Account administrators shared news stories about the growth in renewable energy generation that emphasised the technology's maturity and, by inference, undisruptive nature. Posts about renewables often used similar language of energy security and economic benefits to that which shale gas supporters applied to shale gas, but emphasised, in addition, the environmental advantages.

> *Clean energy is future for Lancashire jobs, our national energy security & the safety of our climate and environment #FrackFree*
>
> FFL Tweet (126)

> *Trade unions know that renewables are the real solutions for good jobs and energy security not fracking! So happy to have so much support at PNR.*
>
> FFL Retweet (171)

Solutions to climate change were also proposed by commenters, but these most often took the form of 'silver bullet' solutions, whereby simple answers were offered without explanation or elaboration about how these solutions might work in practice.

> *Plant more trees, quite simple.*
>
> FFL Facebook comment (2672)

> *We should just invest in green technologies which are getting cheaper day by day!*
>
> PNRAG Facebook comment (154)

Such comments did not generate any dissenting responses. However, neither did they generate any feedback or discussion. This absence of response may indicate the framing had little salience to their target audience when they were not directly linked to preventing shale gas development.

6.4.2.3. System change

A final set of prognostically-framed comments called for regime change but, once again, these frames were not significantly developed. Some commenters called for radical actions that challenged the social contract, such as withholding taxes or taking violent action against the police. These suggestions, however, gained little traction and were either mocked, as the posturing of armchair warriors, or ignored. Comments calling for more democracy using hashtags such as #WeSaidNo received a more positive response. But while they received general agreement, strategies for achieving greater democracy were not detailed, other than through suggestions that the Government respect the decisions of local councils. Though corporatocracy was generally agreed to be the problem therefore, the solution, once more, was that the current regime should be reformed to function 'correctly', rather than being radically overhauled.

> *Being against fracking does not mean being anti-capitalism. I'm ok with a capitalist system as long as it's not corrupt and not making money from death and destruction. People have had their rights taken away by corporations and now the whole system is rigged.*
>
> FFL Facebook comment (2568)

Research on grassroots protests against shale gas have characterised the movement as one which contains the potential to become radically disruptive in its aims (e.g.,

Olofsson, 2014; Thomas, 2019). Kinniburgh, (2015 p. 50) claims, "the fight against oil and gas is inextricable from the struggle for a more just, democratic, and sustainable economy and while the industry's relentless rush to drill tends to put activists on the defensive, this affirmative vision is increasingly evident." In practice, the anti-shale gas movement spans years and continents and incorporates groups from across the reformist-radical spectrum. In the case of the Fylde campaign, which represented the more reformist side of the movement, it is perhaps unsurprising that frames containing affirmative visions and solutions aimed at radical disruption of the existing regime were noticeably few and underdeveloped.

In a digital era, this omission cannot be placed solely on a lack of exposure to such ideas. The horizontal, decentralised networked structures of the internet allow for the easy sharing of oppositional discourses, and indeed content from direct action groups which espoused such ideologies and identities were shared on the community accounts. However, the shared posts did not contain content on regime change. Rather, the omission can be seen as representative of framing dynamics in operation, whereby the ideological positions which a group adopts are those which are consistent with their values but also shaped by interactions with other stakeholders and reflective of the factors they consider to be most salient to their community (Ladd, 2014).

6.4.3. Motivational frames

Motivational framings involve "a 'call to arms' or rationale for engaging in ameliorative collective action" (Benford and Snow, 2000 p. 617) alongside the development of appropriate motivational vocabularies to galvanise and sustain this engagement. In a study of the nuclear disarmament campaign (Benford, 1993b) identifies four generic vocabularies of motive: severity, urgency, efficacy and propriety. All four types of motivational vocabulary were apparent within the data (Appendix 12) but their respective prominence varied according to whether a post was solely a call to arms or sought to enhance its motivational power with reference to other factors. Motivational posts that focussed upon the dangers of shale gas or affirmed belief in the campaign were generally uncontested: unsurprisingly since these were the common threads that united campaign participants (section 4.4.2.3) Motivational framings that referred to the Rolling Resistance however, took on two distinct variants, highlighting different facets of the protest as they called for greater

participation. The following sections expand upon these four subtypes of motivational framing: the dangers of shale gas, calls to arms, protesters as protectors and protesters as warriors.

6.4.3.1. The dangers of shale gas

Posts on this issue emphasised the severity of the threat by sharing news reports which emphasised shale gas's adverse consequences and the uncertainty of the surrounding science, both in terms of the local environmental effects and the climate change consequences. These arguments were given salience and urgency by stressing the proximity of shale gas development in both temporal and spatial terms. Motivational frames frequently rely on negative emotions such as anger, outrage and fear. Images are used to emphasise these features (Halfmann and Young, 2010). In this case, posts about local dangers were often illustrated by pictures of the drilling rig at Preston New Road, surrounded by the Fylde's flat agricultural scenery. These allowed viewers to contrast the industrial nature of shale gas extraction with the semi-rural character of the local area. While hydraulic fracturing had yet to take place, these posts urged action by highlighting development to date had already had deleterious consequences on residents' wellbeing and that without immediate action worse was to come.

The stress and uncertainty inflicted upon communities anticipating shale gas development has formed a prominent part of recent academic work (e.g., Partridge *et al.*, 2018; Szolucha, 2018a; Williams and Sovacool, 2019). Short and Szolucha (2019) have characterised the process as one which inflicts 'collective trauma' upon the local area. The anxiety which the prospect of shale gas development engendered was clear within the data.

> *Rig is an absolute monstrosity. Can be seen from all over the Fylde. Lit up at night too, just to add insult to injury #frackoff*
>
> FFL Retweet (40)

> *Help us all, just waiting now for the first earthquake and poisoned water.*
>
> FFL Facebook comment (2388)

> *It sticks out like a massive cancer in the beautiful countryside.*
>
> RRP Facebook comment (683

While vocabularies of severity and urgency were also applied to the climate change effects of further fossil fuel extraction, these comments were made in less emotive terms and the line of argumentation was not well developed.

6.4.3.2. Calls to arms

Calls to arms were made both in relation to the roadside protest and the broader anti-shale gas campaign. They took three main forms, all of which sought to motivate action but in different ways. Declarations and affirmations stressed that action was worthwhile by expressing faith in the eventual success of the campaign; logistics and actions detailed practical steps adherents could take to become more involved; testimony and counter-narratives provided personal accounts which emphasised the legitimacy of the protest, and often called upon potential adherants to take part.

Declarations and affirmations

In contrast to the anxiety and outrage which often permeated posts about the dangers of shale gas, declarations and affirmations were optimistic in tone. They expressed confidence in the eventual success of the campaign and affirmed belief in its participants.

> *Together we can and will make a difference! #NoLNG #NoFracking #NotforShale!*
>
> RRP Retweet (12)

> *We've had a fantastic month with our friends RTP and it's not over yet! Hundreds of groups pledging #OngoingResistance. Watch this space.*
>
> FFL Tweet (92)

Such postively framed content inevitably received a warm response and generated comments expressing solidarity and reaffirming the protest was legitimate, both in terms of representing local opinion and in its attempts to prevent environmental harm. Often commenters added personal details to their responses to increase the salience of their contribution, for example highlighting the global nature of resistance to shale gas, emphasising their links to the area, or making it clear that they too considered themselves to be part of the campaign.

Warm wishes from Brisbane Australia. Please continue to protect country and planet.

RAG Facebook comment (1244)

Hello to all you good people - we drove past today and honked loudly to show our support! When you are standing in the rain getting wet and cold, please remember you are doing this for us all, not to mention the planet! Thank you so much. We know the area well and used to live just outside Wesham. Keep it up. Amazing.

RRP Facebook comment (813)

Good luck all. You're taking a stand for democracy and the will of the people. I hope we win.

PNRAG Facebook comment (165)

Passed the site this morning, great crowd. If Cuadrilla think they have won they need to have a rethink. Keeping everything crossed for PNRAG legal challenge next week.

RAG Facebook comment (1139)

Some commentators have been dismissive of the value of such low effort forms of online engagement, famously characterised as 'slacktivsim' and 'clickticism' by Evgeny Morozov (2011). Such acts, Morozov argues, might relieve individuals' sense of political powerlessness, but in practice require minimal investment of time and effort and deliver zero political or social impact. Worse, in providing the illusion of action, they may displace other, more politically-effective, activity. Nevertheless, as Tufekci (2017) notes, while not necessarily politically puissant such acts do serve to provide important cultural signals. In interview, many campaigners expressed the belief that the reassurance they gained from perceiving themselves as part of a broader, global resistance had contributed to the campaign's longevity. In addition, in a dispute where it was often difficult to assess whether their activity was having any impact, a high social media response provided one metric through which to measure the salience of their messages. While aware of the possibility of becoming trapped in online echo chambers (Sunstein, 2009) where they heard only positive comments, such feedback helped them to refine their own online content. In addition, it could be usefully compared to the low response to activity undertaken by pro-shale gas groups:

> *Goodness! Only 300 signatures to support @LancsPolice in their corporate security guarding 4 @backingfracking*
>
> RRP Tweet (124)

Other interviewees however, were more sceptical about the value of a high social media response, likening then to a sugar high: pleasant in the short term but not necessarily good for the health of the movement, particularly if they substituted for other forms of action. For these interviewees, the commerical logics shaping the invisible algorithms which underpinned the operation of commercial platforms like Facebook and Twitter meant social media popularity was something of a sham, part of the broader corporocratic system which had favoured shale gas development rather than the likely architect of its demise. Such reflections were most likely to come from those with a background in environmental activism and reflect previous work on the ambivalent attitudes of those within the environmental (Pickerill, 2003) and anti-capitalist movements (Kavada, 2015) towards digital technologies. Few interviewees, however, advocated for abandoning online platforms entirely. Those who had disengaged from the online, admitted that they relied on others to keep them up to date with developments via text message. Those tasked with sending the text messages expressed mild exasperation at this state of affairs, since it doubled their digital workload.

Logistics and actions

The second set of calls to arms were instrumental in focus, lowering the cognitive burden of taking part in the campaign by giving examples of, and links to, a range of ameliorative actions which interested viewers could take. These actions included attending the roadside protest, and information was provided about free parking, bus routes and liftshares, but direct action was far from the only choice. Being more specific in nature, these suggestions tended to be less positive in tone and focussed less on the efficacy of the protest and more on the urgency of the action.

> *Dear all, please support this thunderclap #DontFrackLancs & show support for Preston New Road Action Group in court on Weds, standing up for Lancashire's decision!*
>
> FFL Tweet (15)

> *RT: Anti-frackers in Lancs urgently need support from Legal Observers. Come and join us on Sunday for legal training.*
>
> FFL Retweet (226)

> *With the arrival of the drilling rig imminent, there is no better time than now to come and show your support at Preston New Road.*
>
> RRP Facebook post (761)

In interview, several campaign members expressed the view that while online activity had been more than a facilitator of offline protest for the anti-shale gas campaign, it was the significantly reduced logistical costs of event organisation via social media which had benefitted them the most. Events could be organised with very little effort on Facebook, and advertised on Twitter to a far more extensive pool of potential participants than could have been achieved pre-internet. Furthermore, once the process was underway, participants could and would organise amongst themselves to attend, reducing the organisational burden still further. Such comments are not surprising. They reflect the extensive body of empirical and theoretical work on the affordances offered by online activism, which shows they allow protest movements to organise and mobilise supporters rapidly and at minimal cost (e.g., Bennett and Segerberg, 2012; Castells, 2010b; Eltantawy and Wiest, 2011; Gerbaudo, 2012; Hara and Estrada, 2005; Scott and Street, 2000; Van Aelst and Walgrave, 2002; Van De Donk *et al.*, 2004).

Testimony and counter-narratives

A final form of calls to arms challenged mainstream narratives of protest participants as 'professional protesters' by emphasising the legitimate concerns of those who had taken part. Digital technologies have increasingly emerged as powerful tools for protest movements seeking to create and distribute counter-narratives to mainstream representations of protest (Cammaerts, 2012; DeLuca, 2005; McCurdy, 2010). Here, these tools were used to share testimony from campaigners, connecting stories about their personal journeys to broader political ideals. In particular, these accounts focussed upon the right of local communities not only to be recognised as rightful participants in debates about their future, but also to have influence on the outcomes of these discussions. When such rights were not recognised, they argued, direct action was a legitimate option of last resort.

> *Brilliant interview with local woman explaining when community's wishes are ignored at every turn, peaceful direct action is all that's left*
>
> FFL Tweet (195)

> *'The gov. repeatedly ignored my voice…I chose to continue the fight in the only way left to me' - Nick #WeSaidNo*
>
> FFL Tweet (74)

Though direct action was undertaken by both Reclaim the Power and local campaign groups over the course of the summer, the focus of these posts was upon the actions of local residents. Frequent updates were given about direct action, emphasising protest was underway. The legitimacy of participants was emphasised by reference to their status as Lancastrians, their professions, or past professions if retired, and demographic factors of age, sex and disability.

> *RT: Three generations of one Lancashire family have just locked on at Preston New Road. Today is Families Against Fracking day.*
>
> FFL Retweet (206)

> *RT: Huge RESPECT to this lady. 31 hours wheelchair lock-on at PNR and still hanging in! Go Sister. Her message: Join in.*
>
> FFL Retweet (243)

> *RT: Three Lancashire councillors join 13-person anti-fracking lock-on protest at Cuadrilla's shale gas site*
>
> FFL Retweet (246)

Personal narratives have been shown to be powerful tools in engaging new supporters in protest. This is particularly the case when, as in the examples above, they are provided by those who Gaby and Caren (2012) term 'unlikely adherents', or people who do not fit the stereotype of a 'normal' protester. Further, Goh and Pang (2016) argue, one means by which mobilisation via online platforms makes participation in protest more accessible, is by making visible multiple others' decision to participate. Doing so, they argue, lowers the perceived individual cost of support, by making apparent the burden of taking part in potentially transgressive action is one bourne by many.

6.4.3.3. Documenting direct action

The final subset of motivational frames also sought to make visible the progression of direct action to potential participants. However, in this instance they focused upon events rather than individual narratives. Two very different pictures of the Rolling Resistance emerged through these posts. In the first set of frames, protest was portrayed as embodying positive values of community, family, creativity and inclusivity. The second set of frames used the language of battle to describe and define the debate, portraying protesters as beleaguered warriors and Preston New Road as the 'frontline' of the fight against shale gas. Protest was portrayed as dangerous and woefully unsupported by the local community.

Protesters as protectors: community, creativity and cake

In this framing, protesters were portrayed, and often referred to, as 'protectors' of the site, a terminology frequently used in protests on shale gas (see e.g., Gilmore *et al*., 2016) and which accords with work on the motivating power of place protection in galvanising opposition to locally unwanted development (Devine-Wright, 2009; Usher, 2013). These posts, often made by account administrators, were illustrated by pictures of smiling campaigners in colourful clothing, often against a background of unsmiling police officers in black riot gear. While direct action was mentioned it was generally in the context of the positive and human values which the protest embodied. The implicit contrast with the inhuman and impersonal logics of the corporatocratic frame, were left to the audience to infer.

> *What lovely, friendly people in this movement. We had visitors all the way from Stroud today as well as from many other places near and far.*
>
> RRP Facebook post (655)

> *Following on from 3 more lock-ons (thank you) it was another very successful Green Monday down at Preston New Road with nearly 100 people. Great support and speeches from the Green Party, Friends of the Earth, Greenpeace and others. Roadside singing too. All in all, an upbeat day. Green Mondays will continue and hopefully we will get lots of renewable energy companies to come along and speak too. Do try and come along.*
>
> RAG Facebook post (1126)

> *Every day is a good day to get down to Preston New Road and support community against fracking because #WeSaidNO… But today there's added* 🤛
>
> FFL Tweet (271)

In addition to lock-ons and lorry surfing, the Rolling Resistance also played host to mass bike rides, peace marches, carnivals and food stalls (Figure 6-3). These non-confrontational activities nonetheless served to block the road to Cuadrilla's convoys, whilst also modelling environmentally and socially conscious values. Alongside this repurposing of a major road as a site of community action and creative endeavour, a programme of family days, talks and training events ran at the neighbouring Maple Farm Community Hub. Such events embody a form of prefigurative politics, whereby group members strive "to create and sustain within the live practice of the movement, relationships and political forms that prefigure and embod[y] the desired society" (Breines, 1980 p. 241). Rising to prominence in the student movement of the 1960s, for direct action groups this form of politics may manifest in horizontal forms of organisation and consensus-based decision-making which symbolise a rejection of unrepresentative forms of politics and embrace instead power from below. Alternatively, values may be modelled through providing public facilities such as meeting and educational spaces, kitchens and libraries as was the case at the Maple Farm Hub. Such facilities are a pragmatic response to the challenges of catering for large numbers of people but also have symbolic meaning in representing values of solidarity, community and equality

In the case of the Lancashire anti-shale gas campaign, which did not conceive of itself as a radical movement, it was this second form of prefigurative politics which were most in evidence. Such values are, as Bates *et al*. (2016) note, often ethical in nature, rather than representing a particular political position and may be regarded as empty signifiers "that is, they can be filled in with a range of differential contents from across the ideological spectrum" (*ibid*. p. 351). As such, the events and facilities provided at Maple Farm fitted well with the campaign's broadly apolitical stance (section 4.4.2.2). They also served a useful additional function in providing potential adherents with a relatively painless introduction to the camp and to the protest itself. As Tina Rothery, a prominent local campaigner observed in a contemporaneous newspaper interview, organising supporting activities had been a necessary step to give people a way into

the Rolling Resistance, "so they don't just feel like they're turning up to a warzone," (Sewell, 2017).

Protesters as warriors: the frontline of fracking

As the summer progressed, and the policing of the protest became increasingly heavy-handed, this second framing of the Rolling Resistance as a warzone became increasingly prominent in the social media data. Often posts using this framing were accompanied by calls for support, in the hope that the presence of further observers would deliver safety through the power of numbers. This framing frequently showed protesters under attack, fighting against shale gas but also bearing the brunt of the state-endorsed violence being wielded against them.

> *RT: We're not asking you to stand with us at PNR gates and get walloped we're just asking you to help tell our story by following @RealMedia #fracking*
>
> RRP Retweet(183)

> *RT: Help needed please bearing witness at Preston New Road #fracking site. Less danger when there are more of us. You can make a difference.*
>
> FFL Retweet (241)

> *RT URGENT: Please could MPs attend Preston New Road? Daily assaults on protesters by Cuadrilla's security and police not intervening*
>
> RRP Retweet (62)

Such posts echo the observations made by Tufekci and Wilson (2012), that the value of assembling mass numbers via digital media is not solely in signalling capacity to those in power but also in decreasing the risk of violence to individual participants. Sharing posts about the negative aspects of the protest in an attempt to rally support, however, was a strategy which came with attendant risks. Facebook discussions became downbeat, as participants used the space to voice disappointment about the lack of local support for their cause, inadvertently undermining accounts which presented the protests as being locally popular .

> *It's pitiful the low number of people at the roadside watching what Cuadrilla are up to. I attend to share information. Please do the same.*
>
> RAG Facebook comment (1099)

> *I've been at the gates peacefully protesting all day and night. It's disgraceful just how few of the locals are getting involved. With enough of us we can beat this. Get yourselves down there.*
>
> FFL Facebook comment (2827)

The possibility of opening up digital spaces to allow individuals the autonomy to produce their own accounts of events causing a subsequent loss of coherence in an organisation's message is a recognised risk of digital media use (Kavada, 2012). The risk is particularly marked in fluid and rapidly moving protest events and can lead to conflicts over who speaks for the movement and what its message is (Kavada, 2015). One organisational response to this cacophony of voices is for campaigning organisations to limit the use of interactive online features, (Gillan *et al.*, 2008). However, there are also risks to this approach. Becoming too insulated within an information cocoon (Sunstein, 2006) may result in group think and stultification. In addition, limiting or preventing online interaction reduces the flexibility of individuals to interact and organise autonomously, limiting the mobilising capacity of a campaign. In this instance, account administrators left social media accounts open to all comments. Posters who simply expressed approval that a protester had been hurt or used the opportunity to call names could be easily dismissed as trolls, but as the Rolling Resistance continued, a second cadre of voices emerged which were more difficult to ignore.

Here the synoptic potential of digital media proved a double-edged sword for the movement, as those who were watching found themselves in turn watched and judged. Footage of a van driven by one of Cuadrilla's contractors apparently hitting a protestor before driving away provided a particular case in point. Those who supported the protest saw the incident as a clear-case of hit and run, and criticised the police for not intervening. More sceptical viewers however, questioned protesters' motivations and drew their own conclusions from the shared footage.

Watch the video! He literally ran into the side of that truck while the driver swerved away. What a fuckwit.

You weren't even there! So rude.

If "you weren't there" is a valid argument, why even show the video? From what I can see, he ran at speed into the side of that wagon while the driver swerved to avoid him.

FFL Facebook comments (2765-7)

I'm starting to think some people are watching a different video. Regardless of your views on fracking, surely we can all see a man deliberately run across the road and into the side of a truck. He then proceeds to roll around on the ground like a professional soccer player.

Sorry, but this hasn't aided the protesters as all. It's just made them look even more nuts.

FFL Facebook comment (2780)

Research suggests that in a saturated media and communications environment, the use of striking images is one reliable means by which to gain media and public attention (DeLuca, 2005; McCurdy, 2017). Images of brutality, in particular, can have significant motivational power (Halfmann and Young, 2010; Tufekci, 2017). However, the relationship between attention and support will not always be positive. A focus upon spectacle may serve to obscure the underlying message of the protest and coverage of violence can diminish public support if protesters are perceived to be troublemakers (Cammaerts, 2012). In the case of the Rolling Resistance, the motivational power of footage showing apparent assaults upon protesters proved ambivalent. On the one hand, they attracted the attention of high-profile campaign supporters, and led to calls for a review of policing procedures, but framing the protest as a battle was not a guaranteed means to rally support. Indeed, the case of the apparent hit and run left several commenters expressing more solidarity with the individual driving the trucks than with the person he hit.

> *I rarely post on social media but I'm disgusted by this. A working man, possibly driving home to his family, and people on here want him charged with attempted murder because some idiot throws himself into the side of his lorry!*
>
> FFL Facebook comment (2760)

> *They're not Cuadrilla's [convoy]. Those trucks go where their subcontractors tell them. Don't hate the drivers, hate the fucking company. Oh, and they're driving like that because the protesters keep jumping on their cabs.*
>
> FFL Facebook comment (2646)

Forms of action seeking to bring about political change must strike a balance between peaceful and institutionally approved acts, which gain higher public approval, and more radical acts of protest which gain greater publicity (Cammaerts, 2012; Della Porta and Diani, 2006). As this section reveals, digitally mediated protest has the potential to complicate these processes. Disputes over collective action frames form an integral part of social movement dynamics, but understandably movement members are reluctant to air those disputes in public (Benford, 1993a). Open internet fora, however, remove this choice. In this instance, Facebook disputes both opened up the movement's internal debates to outsiders and also provided a means by which those who disagreed with the protest to express their opposition directly to those involved. The result was that over the course of the Rolling Resistance, debates about the activities at Preston New Road grew to dominate the social media content, and broader diagnostic and prognostic frames about what the campaign stood for and what it was attempting to achieve became increasingly obscured.

6.5. Discussion

The following section addresses research question 3) and discusses how social media use may have influenced the mobilisation of the Rolling Resistance. First, it considers what the framing analysis reveals about the contentious politics of shale gas, and how social media use may have influenced its expression. It then turns to consider the possible broader consequences of digitally mediated activism for post-political understandings of protest.

6.5.1. Online framings of the contentious politics of shale gas

An initial observation apparent from this analysis is that while in theory, diagnostic, prognostic, and motivational collective action frames perform three distinct tasks, in practice, as Moussa (2013) notes, they are often deeply interwoven. Hence, while the corporatocracy frame provided an explanation for the Government support of shale gas, it also, by presenting local people as pitted against an uncaring establishment, endeavoured to mobilise support against the industry. Comments which identified synoptic surveillance as a solution to regulatory capture, also sought to mobilise supporters to share and publicise content detailing industry malfeasance. Motivational posts sharing pictures of the drilling rig to emphasise the dangers of shale gas, concurrently made the point that the industry had been forced on residents because of corporatocracy. These interconnections do not represent a deficiency in the analytical approach, rather they serve as a reminder that any given utterance may perform multiple functions (Goffman, 1974), and that consistency between collective action frames enhances their motivational power (Snow and Benford, 1988). In any vibrant and active campaign therefore, some overlap can be reasonably expected. The value of a qualitative framing analysis is that it allows us to distinguish between the different collective action frames without divorcing them from their context.

This chapter's use of collective action frames to analyse social media content has revealed several novel facets of the local protest on shale gas. The first is the presence of the diagnostic corporatocracy master frame that unites the concerns of democratic deficit, bad governance, environmental injustice and regulatory insufficiency which have characterised conflict over shale gas in Lancashire over the last seven years (Bomberg, 2015; Cotton, 2016; Cotton *et al.*, 2014; Szolucha, 2018a). Whilst it shares clear similarities with the anti-capitalist ideologies of more radical climate justice networks, the corporatocracy master frame can be distinguished from them by its reformist character, which diagnoses the problem not as capitalism *per se* but as capitalism done 'wrong' (section 6.4.2.3). The corporatocratic framing usefully assigned blame for environmental crisis to external parties, but in doing so may also have displaced the expression of more environmentally-focussed diagnostic frames. Certainly, the broader concerns about sustainability which many local campaign members reported as important personal motivators (section 4.4.2.3) emerged only peripherally in this selection of social media data, most often in the accounts given by protesters (section 6.4.3.2). Likewise, despite academic work identifying climate

change as the master frame which has enabled the environmental movement to link local to global concerns (Rootes, 2013) in this case, climate change was referenced only as an example of corporatocracy in action. Perhaps this relative absence is unsurprising; the difficulty of giving salience to climate change has been discussed by Nyberg *et al*. (2020) who note that the vast societal and environmental upheaval which the issue entails makes it almost impossible to comprehend. However, taken in sum, these findings suggest that claims that conflict over shale gas is emblematic of the broader societal struggle concerning the transition to a more equitable, low carbon society (Metze and Dodge, 2016) should be treated with caution. The apparent disparity between interviewees' personal concerns about sustainability and the relative absence of these concerns within the data also reveals how achieving salience on social media may influence a movement's message. I will return to this point in the second part of this discussion.

A second novel finding is the predominantly reformist nature of the prognostic framings, in contrast to previous work which has made claims for the potentially radical nature of the online campaign on shale gas (Simonelli, 2014). Luke *et al*. (2018) note the tension for local campaigners between protesting against shale gas and maintaining a socially conservative place identity. This chapter reveals how these tensions manifest online. It was particularly apparent that the ways in which the actions suggested on social media - sharing videos, signing e-petitions or attending the protest - would deliver reform, were never fully expressed. This absence of elaboration did not prevent adherents acting, reflecting previous work suggesting that fully articulated prognostic frames are not a necessary pre-requisite for mobilisation (Gerhards and Rucht, 1992; Goh and Pang, 2016; Harlow, 2012). Their apparent absence, however, poses broader questions about the long-term efficacy of the campaign.

In reality, as campaigners observed during interview, the strategies available to them were limited and the actions they proposed were those that were feasible for them and their audience of potential adherents. This gap between what is desirable and what is reasonably possible, can limit the transformative power of grassroots movements. As Dodge (2018) notes, local actors may challenge dominant institutions and offer alternative visions of the future, but political power is required to embed these visions into the alternative infrastructures necessary for change. Without power and capital, local groups lack the capacity to make their visions a reality and must

make the best of the tools available to them. In the case of shale gas, these tools often involved the use of social media since it was both free and widely available, but the application of social media's synoptic lens proved something of a double-edged sword for the movement.

A third novel finding relates to the ways in which posts seeking to mobilise support by publicising the negative aspects of direct action opened up a space for those opposed to the protest to make their views known. In the online spats which followed, some of the movement's key messages became lost. In cases such as Occupy Wall Street, which attracted over 400,000 Facebook supporters (Gaby and Caren, 2012), such direct criticisms may be immaterial to adherents. For the Lancashire anti-shale gas campaign however, where online supporters numbered in the thousands and the movement's legitimacy was heavily rooted in its claims to represent local opinion, negative voices, particularly those claiming also to come from local residents, were more difficult to ignore. To a degree, this exposure to opposing ideals can be seen as a form of the agonistic interaction which Mouffe (1999) argues is necessary for a well-functioning democracy. The findings are consistent with research suggesting concerns about online echo chambers (Sunstein, 2009); may be overstated, at least for groups occupying the centre ground. Rather than dividing them, social media can provide a space for opposing groups to encounter and scrutinise each other's ideas (Bright, 2018; Kang, 2012).

The consequences of this scrutiny for movement mobilisation, however, is less apparent. In this case, there appeared to have been two consequences. The first was that posts emphasising forms of prefigurative politics which emphasised positive values were better received than posts which portrayed the realities of direct action. However, public acceptability is not the sole, nor best, measure of movement effectiveness: as protest becomes more conventional it also becomes less noteworthy (Cammaerts, 2012). The second was that comments upon posts sharing details of the direct action tended to dissolve into arguments about minutiae, serving to obscure the broader concerns which had motivated the protest. The result was less agonistic interaction and more ill-tempered name calling. Research on mainstream media reporting of contentious issues (Iyengar and Simon, 1993) has identified the extent to which a focus on episodic, concrete events, whilst providing 'good pictures' can crowd out thematic, interpretative content. This can influence public opinion. Viewers of the former type of content are more likely to assign responsibility for problems to groups

and individuals, while viewers of the latter are more likely to ascribe responsibility to societal or structural factors. While digital technologies allow protest movements to produce counter-narratives to the mainstream media representation of their actions (Cammaerts, 2012), there is a risk that in doing so, they may reproduce some of the same dynamics.

6.5.2. The consequences of digitally mediated activism for post-political understandings of protest

The mass occupation of public space has been presented as one means by which to destabilise the post-political consensus (Rancière, 1999; Routledge, 2017; Swyngedouw, 2011). Through staging practices of equality and freedom as alternatives to the current order, this argument runs, protesters make visible the wrongs of the current system. Over time this may lead to the making of more generalised demands. Such universal claims may be made both through activity aimed externally - strategic politics - but also through practices of prefigurative politics, whereby groups strive to embody within their modes of organisation the values of their desired future society (Breines, 1980). More recently however, post-political theorists have argued that it is strategic politics, and in particular the making of unified and universal claims, which are the key element in a protest scaling up from a localised issue into a more broadly political movement with radical disruptive power (e.g., Haughton *et al*., 2016; Swyngedouw, 2007a). Routledge (2017) characterises the Occupy movement as one which privileged prefigurative politics over strategic politics and which therefore did not transmute into a broader political movement. Juris (2012) and Tufekci (2017) provide further insights into the prefigurative-strategic politics relationship through the application of a digital politics lens. They argue that the rapid mobilisation afforded by digitally mediated activism provides insufficient time for a movement to develop the capacity which would allow its members to agree and articulate unified messages. The result is a phenomenon which Tufekci terms 'tactical freeze.' According to her analysis, the ease of mobilisation afforded by online activism may serve to rob a movement of its disruptive power, since speed of assembly outpaces growth in capacity.

This chapter contributes to understandings of the consequences of digitally mediated activism for protest by suggesting it is not only the speed of assembly afforded by internet activism which may limit a movement's disruptive power. The Lancashire

anti-shale gas campaign had, by the point of the Rolling Resistance, six years to develop capacity and articulate its claims. The core members were organised and experienced campaigners and claims of democratic deficit and bad governance had become a prominent part of their discursive strategy. Nonetheless, while claims about democracy were present within the social media data, they were not the diagnostic master frame, merely one aspect of it. In a similar, although less marked fashion, the need for a transition to a more sustainable society formed only a minor part of the diagnostic framings despite concerns about systemic unsustainability being an important personal concern for many campaigners during interview (section. 4.4.2.3). Arguably, the move from participating in formal modes of dissent via the planning process, to informal modes of dissent via direct action, led to the movement's overarching claims becoming less, rather than more radical. In terms of the schematic provided in Figure 6-1, therefore, claims about the scope of the remedy shifted from radical and universal (more democracy) to reformist and specific (less corporatocracy, ban fracking) as action shifted from formal (planning) to informal (direct action) modes of dissent. The pressure to moderate the movement's claims came not from the incumbent actors but from the local community .Post-political theory insists that dissent cannot be excluded from politics. The expression of dissenting opinions, however, is not the preserve of any one group.

The need for local anti-shale gas campaigners to stress their identity as 'regular people' rather than 'activists' in order to maintain local approbation has been noted in previous work (Luke *et al.*,2018). This chapter reveals how mobilisation via social media, while an essential part of the Rolling Resistance, contributed to this pressure by opening up the actions of activists and campainers to public scrutiny. While the public has had the opportunity to express its opinion on the legitimacy of protest since the advent of newspapers, if not before, open social media accounts allow for these opinions to be expressed directly to the protesters themselves. The result in this instance was a pushback against the more disruptive forms of protest with a potential two-fold effect on the movement's messaging. Firstly, the broader underpinning claims made about the movement's aims and tactics tended to become obscured in debates about details, suggesting that a shift to direct action cannot be assumed to increase a movement's cohesion. Secondly, through pressure to adopt more prefigurative forms of politics, possibly weakening the campaign's overall message.

6.6. Limitations and suggestions for further research

This chapter has considered the framings used on two social media platforms by a subset of local anti-shale gas groups over the course of a three month period. As such, it contains a number of acknowledged imitations. These are detailed below, alongside some suggestions for further research.

The first limitation applies to the completeness of the data. Social media formed part of a complex communications ecology within the anti-shale gas campaign. The posts made on public open accounts must be read as superimposed upon existing social ties between friends, neighbours and campaign members and supplemented by invisible back-channel communications on email, text message, and chat applications. The research approach was guided by ethical considerations, but the empirical data will under-represent the amount of actual social media activity undertaken at the time. In addition, it is likely to have been sanitised for public consumption. Sanitisation will have stemmed from two main sources. Firstly, Facebook[2] page moderation by account administrators, as overtly hostile comments or troll posts were deleted and barred. Secondly, through self-moderation as commenters either deleted their posts or censored themselves in the knowledge that their comments might reflect badly on the movement. Both activities have the potential to affect the results of the framing analysis; in particular participants may have chosen to be more radical in private than they were in public. Nonetheless, the content analysed is that which account adminstrators and commenters chose to make available to the public. The data have been analysed as representative on those terms. Incorporating a greater number of local accounts, or undertaking ethnographic research which considered participants' use of all digital platforms, public and private, would broaden and deepen this work. However, it would also bring with it its own set of ethical challenges (section 3.2.2.1).

The second limitation applies to the timescale of the analysis. As for all social media analyses, it provides a snap shot of practices at a particular period of time. Social movements, as Mattoni and Treré (2014 p. 256) remind us, are "ongoing and evolving processes" which develop over years or even decades. Any research which focusses on pivotal protests may therefore detract from the understanding of the broader political dynamics of the issue (Pavan, 2017). For this reason, this chapter on social media

2 Twitter does not allow the deletion of third party comments

content has been incorporated into a broader analysis of the influence of online activity in the English shale gas debate. An extended longitudinal analysis or a comparison of online content posted over different time periods during the campaign, would undoubtedly yield further insights into how the movement has evolved.

6.7. Conclusion

This chapter adds to the growing body of academic literature examining the influence of digital technologies on activism. It has used collective action frames to analyse social media content for seven group accounts belonging to members of the Lancashire anti-shale gas campaign, over the course of a three month period. In doing so it has revealed that the campaign presented itself primarily as a reformist movement rather than one seeking to bring about radical change. It has further identified some ways in which online activity may have contributed to these reformist leanings. Applying a post-political lens reveals that while digitally mediated activism has been essential in organising recent mass occupations, it may also have the potential to mute their symbolic messages. In chapter seven, the implications of these findings are discussed in the context of the previous results chapters to address the final research question, and determine what this thesis has revealed about the influence of online activity on the contestation of environmental issues:

7. Discussion and conclusion

7.1. Introduction

This thesis set out to explore the effects of online activity on the English shale gas debate, posing four research questions:

1) How can contention over shale gas be conceptualised?
2) How are actors in the English shale gas debate using online activity to engage with the issue?
3) What is the influence of this activity?
4) What are the implications of these findings for understanding the influence of online activity on the contestation of environmental issues?

A review of the literature (chapter two) revealed that while the uncertainty underpinning shale gas development and the environmental injustices of the industry's effects were well characterised, there was a lack of research on how internet use was affecting the dynamics of the conflict. Post-political theory was identified as a useful theoretical lens through which to view this question, but had yet to be applied to digital politics. Understanding that online activity cannot be understood separately from the broader context of its use, this thesis is comprised of conceptual and empirical work which seeks to address this dual gap. Firstly, by analysing the shale gas controversy in post-political terms to provide a framework for analysis (chapter four). Secondly, in applying this framework to the English shale gas debate to explore how actors are using online activity to engage with the issue and the potential influence of their actions (chapters five and six).

This chapter provides a synthesis of results, discussing cross-cutting themes and their broader implications in order to address research question four: what these findings tell us about the influence of online activity for the contestation of environmental issues. To structure the discussion, I return to the schematic developed in chapter four, Contesting fracking, which characterises how processes of post-politicisation may interact to counter and reinforce each other (Figure 7-1). The chapter is structured as follows. Section 7.2 recaps the main findings of each results chapter and how these address research questions one to three. Section 7.3 discusses the implications of their findings for practice. Section 7.4 discusses the implications of their findings for theory. Section 7.5 discusses the limitations of the thesis and

provides suggestions for future work. Finally, in section 7.6, I summarise the overall conclusions and contributions of this thesis.

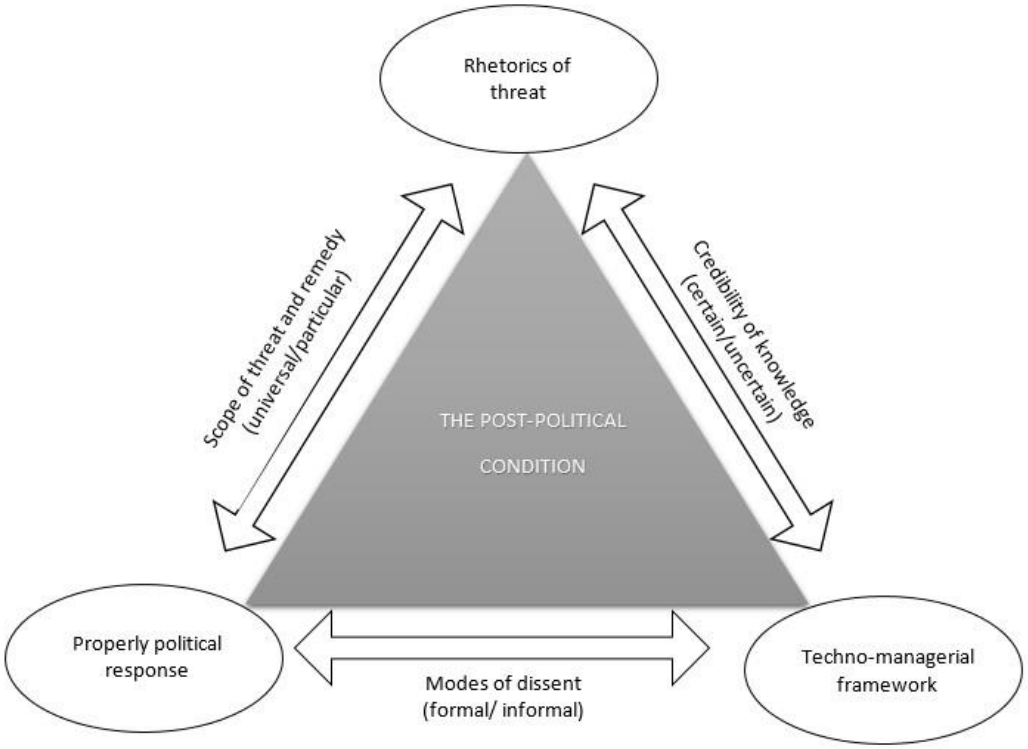

Figure 7 - 2: Processes of post-politicisation and their interactions as they have manifest in conflict over shale gas

7.2. Summary of findings

Chapter four addressed research question one by showing how conflict over shale gas could be understood in post-political terms. It distilled from the literature three processes which operated to either re-enforce or disrupt how the incumbent actors had constructed debates on the issue. It applied this analysis to the development of conflict over shale gas in England and showed how interactions between these processes underpinned some of the core disputes which had come to characterise the debate. In particular, it identified how disputes over the credibility of knowledge had become a key element of the conflict in the English case (section 4.4.3). Such disputes are not unusual in the contestation of knowledge intensive issues (Jasanoff, 1987) applying a post-political lens however, revealed how these disputes interacted with the other processes which had operated to amplify or curtail the expression of dissent.

Having identified the contribution which disputes over credibility of knowledge had made to sustaining the conflict over shale gas in England, **chapter five**, Google

fracking, narrowed its empirical focus to consider the particular effects that access to online information may have had on these dynamics. It addressed research questions two and three from the position that the proliferation of online information about shale gas had led to the issue being one characterised by a complex information ecology. It argued that while changes to information access are a process imbued with political significance (Dahl, 1989) campaigners' access to online information in this case had not disrupted the post-political consensus. This was despite the dominant institutional actors being heavily constrained in how they could engage online due to a lack of domestically-generated data. Instead, the overarching effects for campaigners operating within a complex information ecology was to have increased the burdens of engaging in formal participatory processes while delivering little in the way of political influence. The result was to expose to them the extent to which the official arenas for participation were structured to exclude any outcomes which were not officially sanctioned. The effect was to assist in galvanising the movement's turn to direct action.

Chapter six #WeSaidNo narrowed this focus once more to concentrate particularly on the use of social media to mobilise direct action. It addressed research questions two and three from the position that this activity had been an important part of the mobilisation process. Using a collective action frame analysis of online content to bridge between the empirical data and the post-political framework, it documented the disputes which had emerged on social media and the ways in which this activity may have influenced the the movement's messages

Table 7-1 sets out the focus of each of the results chapters. It shows which debates they focus upon, according to the schematic in Figure 7-1, and the research questions which they address.

Chapter	Focus of inquiry	Primary interactions between post-political processes	Research question
4	How contention over shale gas in England can be understood in post-political terms	• Scope of threat and remedy • Credibility of knowledge	1
5	The use and influence of online information in the Lancashire shale gas debate	• Credibility of knowledge Modes of dissent	2 and 3
6	How social media use influenced how protesters' claims were framed during protest at Preston New Road	• Modes of dissent • Scope of threat and remedy	2 and 3

Table 7-1: Focus of empirical chapters

Chapter four addressed research question one through the following steps:

1. Using post-political theory to identify three processes which have shaped the ways in which the conflict over shale gas in England has evolved. These are: the use of rhetorics of threat by both for those and those against the industry; the emergence of a civil society response based partly upon claims of injustice; and the Government's reliance upon a techno-managerial framework for decision-making on the issue (chapter four).
2. Developing a novel framework with which to understand how these processes have interacted to disrupt and reinforce each other. Three main areas of dispute are identified as characterising the English debate on shale gas: disagreement about the appropriate arena in which to express opposition to the industry ; disagreement about the scope of the threat which shale gas represents; and most critically, disagreement about what counts as credible knowledge on the issue (chapter four).

Chapters five and six applied this framework to address research questions two and three and revealed the following empirical findings about how online activity has influenced the English shale gas debate:

1. The dominant institutional actors were constrained in how effectively they could engage online due to a lack of domestically-generated information about shale gas. The result was an online information divide, whereby anti-shale gas

campaigners were highly active online while the incumbent actors were not (chapter five).

2. By providing access to a variety of sources of expertise, access to online information revealed the extent to which decision-making within the techno-managerial framework served to privilege business interests over those of community (chapter five).
3. The ease of access to official information online led campaigners to perceive they were expected to engage with and master this information. This expectation served to make participation in formal decision-making processes increasingly burdensome (chapter five).
4. Simultaneously, the ease of mobilisation via social media lowered the barriers to participating in informal modes of dissent such as direct action (chapter six).
5. Mobilising direct action through social media, had the potential to mute the disruptive power of protest by limiting the types of claims protesters could make while maintaining local approbation (chapter six).

Digital technology use has the potential to reduce the costs of participation in terms of time, pecuniary costs, and emotional toil (Earl and Kimport, 2011) but may also have unintended, unforeseen and emergent consequences (Emejulu and Mcgregor, 2019). This thesis demonstrates the importance of considering all effects of digital technology use both positive and negative. The following sections address research question four and set out the broader implications for practice and theory.

7.3. Implications for practice

Section 2.2.3 argued that the conflict over shale gas incorporated four key societal trends which are likely to increase in prominence as the twenty-first century progresses. These are the decentralisation and consequent increased spatial impact of the energy system, which will bring more people into contact with energy infrastructure; the need to transition from a fossil-fuel based economy to a more sustainable low carbon energy system; the 'scale shift' of protest whereby local campaigns transform into broader movements; and the changing spatiality of protest enabled by digital technology use. While the subsequent chapters revealed that the scale shift of protest and the sustainability concerns of participants had ebbed and flowed in prominence as the Lancashire campaign had evolved, these four trends

continue to drive the dynamics of the overall debate. This section considers what the findings of this thesis reveal for these broader societal shifts.

The practical implications of this research fall into three main categories. Firstly, for the role of information in environmental governance, an area which has particular relevance for those tasked with engaging online with the public on information-intensive issues. Here, it appears that the role of institutional actors tasked with informing the public will only become more complex over the next decades, and that there are no ways for them to easily alleviate this issue. Secondly, for who participates in political action, an area which has particular relevance for citizens engaging in information-intensive issues. The findings of this thesis suggest that digital technology use may broaden who feels motivated to participate in direct action. However, it may also discourage participation in formal modes of public engagement with possible adverse consequences for the demographic legitimacy of the subsequent decisions. Thirdly, for how digitally mediated activism may shape the messages of protest. This thesis suggests that is apparent that their messages may be muted. However, it is not yet clear what this may mean for their political effect. The underpinning argument which unites these three points is that it is no longer possible to think about how environmental issues are contested without also considering the online context and how this may be shaping the debate.

7.3.1. The role of information in environmental governance

Information plays an important role within the governance of environmental issues, in part because of the environmental movements' innate orientation towards information-based campaigns (Bimber, 2003), in part amidst hopes that information disclosure will empower the weak and hold accountable those in power (Gupta, 2010). For better or for worse, the dominant institutional actors now operate within an information ecology which incorporates both on and offline activity. Even those who choose not to engage online operate within this reconfigured societal architecture (Tufekci, 2017). In the case of shale gas in Lancashire, the implications of this change did not appear to have been fully acknowledged by the incumbent actors. Both regulators and industry seemed to have been left on the 'back foot' by the scale of the online response and the extent to which the public would look beyond national boundaries for other sources of information. Endeavouring to dictate which knowledges 'count' in policy-making and limiting permitted knowledges to officially

sanctioned sources has long been a process fraught with difficulty, frustration and the covert exercise of power (Jasanoff, 1987; de Saille, 2015; Wynne, 1996). Nonetheless, businesses and public officials have a duty to provide information to the public about their activities. How then, are these actors to engage on information-intensive issues when public scepticism over their impartiality is high, alternative sources of information are widely available, and any perceived foot-dragging by those in power may increase suspicion that they have something to hide? Three insights emerge from this research but none provide a complete answer to this question.

The first insight relates to information provision. No matter how well-intentioned, the secret to successful public engagement is not simply to provide more information, even in cases such as shale gas where polls repeatedly suggest that the majority of the public feel they don't know enough (BEIS, 2019). Research shows that the public do not come to shale gas as a blank slate, and attitudes are predicated on pre-existing demographic factors and personal assessments of risk (Evensen and Stedman, 2017). Under such conditions, more information will not eliminate public uncertainty since the acceptable level of risk is a value judgement and values vary according to individuals (Hays *et al.*, 2015; Bistline, 2014). What this research adds to these already well-characterised fields is the insight that providing more information to citizens is not only a process subject to diminishing returns, it may actively contribute to dissatisfaction and dissent if the additional effort required to engage is not matched with a commensurate increase in policy influence. Conversely, neither is withdrawing from online engagement a viable long-term option for controversial industries, a position Cuadrilla finally appeared to accept in 2019 when they opened up their social media accounts to public posts (Maguire, 2019). Those attempting to inform the public about an information-intensive issue in the internet age therefore have a difficult balance to strike. The move towards more 'internet-friendly' forms of information delivery in the form of videos, summaries and fact sheets undoubtedly plays a role in opening up policy to public scrutiny. However, in the absence of supporting information it may also leave information providers open to charges of dumbing down.

The second insight relates to digital literacy. Given online information provision appears to be here to stay, how are citizens to best navigate, assess and engage with this increasingly complex information ecology? Digital skills training is a stated government priority and incorporates elements of digital literacy (Department for

Digital Culture Media & Sport, 2017). While a broad term, in the context of engagement with information, digital literacy is generally used to mean the ability to search through and evaluate unstructured information (Jones and Hafner, 2012). By equipping citizens to winnow out information which is clearly biased, malicious or incomplete, this argument runs, we allow them to focus more readily on credible sources, even if they are not the ones which we would agree with. However, while such approaches have a place in assisting the public to engage with policy, characterising the challenges of navigating online information solely in terms of a skills deficit is to risk reproducing the information deficit narratives which have characterised policy-makers interactions with the public on information-intensive issues for decades (Welsh and Wynne, 2013). Moreover, 'digital literacy' is not a neutral concept; it embeds within it certain values and focusses upon particular aspects of digital technology use at the exclusion of others (Emejulu and Mcgregor, 2019). If 'good citizens' are digitally literate ones, then those who are not digitally literate whether due to lack of access, lack of interest or conscious choice, risk being excluded from public deliberations.

Given the challenges of both providing and engaging with online information, a third approach is a greater use of deliberative mechanisms, such as citizens' juries and assemblies, to allow the public to engage with complex and multi-faceted policy issues supported by expert advice. Such mechanisms appear to provide one arena for the forms of agonistic dissent which Mouffe (2013) argues are a necessary counter to the post-politicising tendencies of government. Over recent years they have entered increasingly into public awareness and the creation of a national Citizens' Assembly on climate and ecological justice forms one of Extinction Rebellion's three demands to the UK government (Extinction Rebellion Citizens' Assemblies Working Group, 2019). Such institutions, however, require a commitment from government to be led by their conclusions if they are to have a more than symbolic significance. The Lancashire citizen's deliberation on shale gas provides one case in point (Shared Future, 2016). While incorporating deliberative mechanisms, the role of the inquiry was advisory only and it appears government paid scant regard to its recommendations. The eventual 2019 decision to impose a second moratorium on hydraulic fracturing was taken on the basis of the risks of induced seismicity rather than any of the points raised by the inquiry (BEIS OGA, 2019). If citizen's juries and assemblies are not to become further post-politicising exercises, imposing a heavy

burden upon participants whilst operating to baffle and curtail dissent, a transformation in government practices is required, rendering them more responsive to citizens' concerns. The irony, of course, is that if such a transformation occurred it would render the need for such deliberative mechanisms less urgent.

In summary, though there are means through which public engagement in information-intensive issues can be facilitated, and processes through which this might occur, online information provision is not a silver bullet that will solve the broader crisis of public mistrust in official information. Public trust in officialdom is no longer – if it ever was – something which is automatically granted. As argued in section 2.2.3, people now look beyond national boundaries if they distrust the information they are receiving from official sources. Whether this trust can be regained remains to be seen, and the means by which this occurs are likely to be context specific. The consequences of failing to address this issue, however, to continue to insist that only official information 'counts,' are likely to be a growth in public dissatisfaction and increased instances of protest in conflicts over environmental concerns.

7.3.2. For who participates in political action

Just as the dominant institutional actors operate within this new societal architecture, so are the citizens attempting to influence public policy. There are clear synergies between the rights and identity-based struggles which characterise many modern social movements, among them environmentalism (Melucci, 1980), and the personalisation of collective action which digital technology use offers. However, as collective action becomes more personalised, the task of mobilisation shifts from organisations to individuals (Bennett and Segerberg, 2011). This shift offers both opportunities and challenges to members of the public seeking to engage in political action (Castells, 2007). As this thesis has revealed, the opportunities afforded by online activity to members of the anti-shale gas campaign included: better access to alternative sources of expertise; the building of local and transnational networks of support; the rapid mobilisation of protest; and the ability to share their narratives online. Such findings accord with previous research on digital technology use (e.g., Castells, 2010b; Gerbaudo, 2012; Kavada, 2015). The specific ways in which more personalised forms of collective action may shape the debate, however, have been less extensively characterised. Two main findings emerged from this research.

The first is that the increased effort required to become involved in political activity risks further skewing engagement in politics towards certain demographic groups and away from others, with consequences for justice and legitimacy. Chapter five, Google fracking, set out the challenges of navigating the information age when contesting an information-intensive issue such as shale gas. Amongst the campaigners interviewed, the largest single group were the recently retired. Campaigners who were still working were often self-employed and able to dictate their own hours. While the sampling strategy did not seek to achieve a demographically representative sample of campaign members, several retired interviewees noted that they would not have been able to participate if they had had caring commitments or full-time jobs. Older age groups are already over-represented in local politics in England and Wales, in part because lack of time and money prevents younger people from becoming involved. In addition, research suggests that, as a cohort, older age groups are more likely to oppose local development than younger people (Leach and Kingman, 2012). NIMBY-ism is not the primary reason for local opposition to shale gas (Boudet, 2011; Cotton, 2013; McLaughlin and Cutts, 2018). Nonetheless, it is apparent that the expectation that local people will, by reason of their access to online information, become fully informed about the issues facing them may further skew participation in local development issues towards those with the most time to engage. As argued in section 2.2.3, the decentralisation of energy production is not a phenomenon unique to shale gas. Disputes over the siting of renewable energy projects are likely to incorporate similar dynamics and involve social conflict. The need to mitigate climate change through a transition to a low-carbon energy system is becoming increasingly urgent. The over-representation of certain groups within the land use planning system has the potential to impede this transition. The expectation that participants will inform themselves by accessing online information may therefore exacerbate the issues of intergenerational inequity which already permeate UK public policy (Select Committee on Intergenerational Fairness and Provision, 2019) and debates on how to address climate change more generally (Moellendorf, 2009).

The second finding, as argued in chapter six #WeSaidNo, is that the personalisation of collective action enabled by social media use has contributed towards the mobilisation of a new cohort of activists. In 2015, Telegraph journalist, Geoffrey Lean, argued that the alliance between middle Britain and the Green movement "colonels and crusties" as he termed it, which the anti-shale gas movement had generated,

might be sufficient to halt the industry's progress (Lean, 2015). While this binary characterisation of the movement is an oversimplification, it contains a kernel of truth. In itself, this broad membership base is not unprecedented. Local people's involvement in disputes over locally-unwanted land use has a long history (McAdam *et al.*, 2001); an alliance between local residents and members of the green counterculture formed a notable part of the 1990s anti-roads protests (e.g., Butler, 1996; Wall, 1999). However, one striking aspect of the Rolling Resistance was the degree to which previously-moderate local activists were prepared to engage in direct action. Historically, moderates have been reluctant to attend protests (Bimber, 2003). In this instance, while the more physically demanding forms of direct action remained the preserve of Reclaim the Power, over the course of the Rolling Resistance a significant number of lock-ons were carried out by 'first-time' protesters.

The internet, and in particular social media use, was not the catalyst for their action. However, the significantly reduced logistical costs of organisation; the ability to publicise the action; and the motivational influence of social media support is likely to lower the barriers to participation when compared to 'traditional' forms of collective action (Goh and Pang, 2016). Research on the use of digital media in protest often takes the stance, implicit or otherwise, that such activity is the preserve of youthful "super-activists" (Van Laer, 2010), often technology first-adopters (Tufekci, 2017). In the UK at least, this position can no longer be substantiated. The online generation gap, although still extant, is rapidly shrinking (Office for National Statistics, 2019). This enables a broad range of participants to engage in direct action if they so choose. While the symbolic power of such actions may become muted by repetition, local residents' participation makes it more difficult for those in power to dismiss their legitimacy by characterising protesters as non-local troublemakers. This, coupled with the apparent hollowness of engaging in formal participation exercises, seems likely to lead to more extensive and more diverse participation in direct action over locally unwanted developments. The "displacement and delegation of politics into other realms of society than the formal spaces of politics," (Metzger, 2011 p. 191) is one effect which attempts to impose a post-political consensus has been theorised to have. This thesis reveals how digitally mediated activism may influence this process of displacement and the sections of society which may be involved.

7.3.3. For messages of protest

Chapter six, #WeSaidNo, suggested mobilising on social media may weaken the messages of protest due to pressure to maintain local approbation. The potential for digital technology use to mute the message of activism, even while it increases the ease of engaging, has been discussed in previous work (e.g., Harlow and Guo, 2014; Morozov, 2011; Van De Donk *et al*., 2004). However, this discussion has primarily centred on concerns that low-effort online activity (clicktivism) might substitute for the building of the face-to-face relationships which form the bedrock of political activity (Morozov, 2011); that cheap talk effects might weaken the signals of activism (Bimber, 2003); or that the speed of online mobilisation might outpace the movement's deliberative capacity (Tufekci, 2017). While social movements are heterogeneous, and general statements about their relationship to digitally mediated activism difficult to substantiate (Diani, 2000), this research suggests there are other ways in which it may operate as a baffle upon dissent.

One means is to impose a form of self-censorship upon movement messages. Recent research by Steger and Drehobl (2018) on newspaper framings of the Irish anti-shale gas movement revealed how the credibility of activists was challenged through three 'frame wars' of peaceful vs violent action, reasonable citizens vs hippies and locals vs non-locals. The protectors vs warriors divide discussed in section 6.4.3.3, contains many similar framings and shows how pervasive these pressures can be. It also reveals that such frame wars are not solely the result of mainstream media reporting but may also be internalised into a movement's representation of itself. A tension between the messages of mainstream environmental groups and those of more radical direct action networks is not new (Bimber, 2003). What this research shows is that digital technology use allows protest movements to produce counter-narratives to challenge mainstream media representations of their actions (Cammaerts, 2012), it also provides the potential for these frame wars to be produced within a movement's own media.

The potentially moderating effect of online scrutiny upon the anti-shale gas movement's claims may provide one explanation for the lack of prognostic framings relating to systemic change, as discussed in section 6.4.2. Understanding that this data provided only a snapshot of the protest at a particular time, and that offering solutions is often not the main purpose of a protest (Gerhards and Rucht, 1992), it is nonetheless instructive to consider why this might be. For Žižek and those who follow

him (e.g., Haughton *et al*., 2016; Winlow *et al*., 2015), the absence of broader systemic critiques is simply indicative of post-politics in operation: "today's predominant form of ideological "closure" takes the precise form of a mental block which prevents us from imagining a fundamental social change in the interests of a "realistic" and "mature" attitude," (Žižek, 2000a p. 34). This, he argues, is a crisis which has engulfed prominent thinkers on the political Left since the fall of communism in Europe.

Upon this reading, expecting radical systemic critiques to emerge from social media postings on a handful of community accounts relating to locally unwanted land use is to place an impossibly high expectation upon local campaigners. If prominent theoreticians have been unable to develop this framework over a period of decades, why should we expect more from the anti-shale gas campaign? To do so, risks re-producing one of the most criticised aspects of post-political theory: that its criteria for designating a protest 'properly' political are so stringent that few, if any, protest movements can achieve it (Aiken, 2017; North et al., 2017). However, previous work applying a post-political lens to conflict over shale gas in Barton Moss, Manchester (Thomas, 2019) characterised that protest as one which had the potential to be radical in its aims. Further, research on shale gas in England (Bomberg, 2015; Cotton et al., 2014; Cotton, 2016) has repeatedly documented the importance of discourses of poor governance and environmental injustice to mobilising local opposition. Such broader political concerns also emerged as prominent themes within accounts from interviewees (section 4.4.2.1), several of whom were administrators for the community pages which provided the data for chapter six. This suggests there may be something about posting upon social media which has muted these broader messages.

The precise dynamics of this process are outside the scope of this thesis, but three possible answers emerge. Chapter four, Contesting fracking, showed how the Lancashire anti-shale gas campaign mobilised under the 'no fracking' banner primarily because this was the unifying claim for a disparate movement (section 4.3.2.3) expressed in the hashtag #WeSaidNo. One answer is that online activism amplifies this tendency for simplification. Universal claims argue for the radical restructuring of society but the internet is better suited to the diffusion of simple ideas (Chadwick, 2006). Complexity suffers amidst the pressure for ideas to collapse into 140-character tweets and soundbites. The second is that the online dynamics reproduced offline dynamics, but to a greater extent due to their greater reach. Perceiving the need to remain palatable to the local, predominantly Conservative-

voting population may have led to posters censoring themselves. Finally, it may be that in incorporating 'first time' activists into the protest, in part through the successful use of social media (section 7.3.1.2), the campaign diluted its message. Increased heterogeneity may increase legitimacy but at the cost of ideological cohesion.

Section 2.2.3 argued that conflict on shale gas incorporated four societal trends including increasing conflict over the need to transition to a low carbon energy system and the 'scale shift' of protest, whereby local campaigns transform into movements which express broader societal concerns. This thesis suggests that the influence of online activity on the contestation of environmental issues may be, at least in the case of locally unwanted land use campaigns, to mute some of these messages. Concerns about broader societal issues, such as the need for an energy transition, may diminish in prominence within a campaign's messaging due to the need to maintain local support. Scale shift, therefore, should not be seen as a one-way process whereby concerns transmute from specific to general. They may also transmute from general to specific. The low carbon transition, while having the potential to act as an environmental master frame, may not have much salience to a campaign group's local community.

Arguably however, in the case of conflict over shale gas in England, ideological cohesion and the scale shift of protest appears to have been less important to political effect than sheer weight of numbers. At the time of writing, hydraulic fracturing is once again under moratorium. As section 5.4.3 argues, this does not indicate a government U-turn on shale gas; the underlying arguments in favour of development remain unaltered. However, the political unpopularity of the industry appears highly likely to have contributed to the decision to impose the moratorium. If so, the heterogeneity of the campaign membership may well have worked to its benefit. Ultimately, unless or until there is a decision to halt shale gas development permanently, it remains too early to say.

7.4. Theoretical implications: are we post post-politics?

In this section I consider the role of post-political theory in the era of 'post-truth' where, fuelled by online activity, debates about information credibility have come to the fore. First, I position post-political theory in its historical context, developed before internet use became ubiquitous, and show how its predictions about the

stifling effects of consensus-based politics proved prescient. Next, I discuss how, over the past five years, public scepticism about the role of expert-led decision-making has come to dominate mainstream political debate in Europe and North America, amidst the rise of populist right-wing politics. As internet-promulgated fake news and alternative facts undermine public trust in techno-scientific knowledge, I outline the dilemma facing academics who wish to critique the dominant institutional modes of expert-led decision-making, without necessarily contributing to their collapse. I conclude by arguing that while the core messages of post-political theory remain as relevant as ever, the societal context has evolved and the theory may need revision.

Post-political theory emerged from a political context which was substantively pre-internet. The dissolution of the Soviet Union in 1991 and the subsequent collapse of communism in Europe, came alongside the transformation of society and the workforce in post-industrial economies and growing economic and cultural globalisation. This led to traditional political identifications beginning to break down. In the UK, political mobilisation moved away from grassroots organising towards central control. The subsequent vague messaging, professionalisation of campaigning and increased party funding led to blurred lines between centre right and centre left (Chadwick, 2006). The result was political apathy for mainstream parties with voter turnout collapsing from almost 78% in 1992 to under 60% in 2001. Alongside these developments, the broader shift in the institutional arrangements of government to incorporate new agencies, quangos and civil society organisations, the so-called 'governance turn' raised concerns that the exercise of power was being transferred further away from public control (Swyngedouw, 2005).

From the collapse of the Soviet Union to the 2008 financial crash, Mouffe's (2005) argument that when there is little to distinguish centre-left and centre-right the only way citizens can register their dissent is through protest movements, appeared to have been borne out by events. In place of engagement in formal modes of politics there was an outpouring of antagonism to instituted forms of governing (Wilson and Swyngedouw, 2014). While these were often centred upon single issues such as rises in tuition fees (Hensby, 2017; Cini, 2019); the impacts of austerity (Rüdig and Karyotis, 2013; Peterson *et al.*, 2015); the bail out of financial institutions following the 2008 crash (Gerbaudo, 2012; Juris, 2012; Kavada, 2015), and the privatisation or development of symbolic public spaces (Haciyakupoglu and Zhang, 2015; Tufekci, 2017; Haughton *et al.*, 2016), many grew to incorporate broader critiques of the apparently

incontestable market logics which worked to protect the interests of political elites and prioritised economic growth above all other societal goals.

While social movement scholarship generally focusses on left wing movements with egalitarian aims, rather than their reactionary right-wing counterparts (Muis and Immerzeel, 2017) populist right wing groups have also seen a resurgence. The American Tea Party defies easy categorisation but has at its heart a deep scepticism about the value of expert opinion and a populist ideology which pits the values of 'ordinary Americans' against a corrupt and arrogant political elite (Madestam *et al.*, 2013; Mead, 2011). Europe, likewise, has seen a rise in populist right wing parties which invoke nationalist notions of citizenship alongside anti-establishment values (Muis and Immerzeel, 2017; Norris and Inglehart, 2016). In the UK, where the existing institutional configurations are generally unfavourable to political newcomers (Kitschelt, 2007), the populist rhetoric of the UK Independence Party was nonetheless sufficiently politically potent to induce the Conservative Party to call the Brexit referendum. In the run up to the vote, Conservative cabinet member and prominent Leave campaigner, Michael Gove, famously claimed "the people of this country have had enough of experts," (Gove, 2016). Arguably, therefore, post-political scholars have been proven correct; the public is in revolt against a quarter century of consensus-based politics, and the technocratic forms of decision-making which it favoured have been called into doubt. In response, and powered by online activity, post-truth politics has come to the fore. In this new world, "facts have become a stake in adversarial political contests rather than a generally agreed aspect of a shared reality," (Law, 2017 p. 61). Indeed, the conflict over shale gas could be seen as part of this trend, with the veracity of the key footage from *Gasland* (Fox, 2010) now called into question (section 2.2.2).

What are the implications for post-political theory of the rise of post-truth politics? If dissent is constrained through the imposition of expert-led decision-making, will dismantling this apparatus provide us with a more democratically vibrant society, open to agonistic deliberation? STS theorist, Sergio Sismondo, thinks no,: "If the post-truth era starts by blowing up current knowledge structures, then …[the result] isn't very likely to be democratization, and in fact most likely leads to authoritarianism," (Sismondo, 2017 p. 3). Further, he argues, there is a central tension at the heart of critiques of expert-led culture, "embracing epistemic democratization does not mean a wholesale cheapening of techno-scientific knowledge in the process," (*ibid.*).

Post-truth politics therefore presents a conundrum to scholars attempting on the one hand to critique how expert-led decision-making operates to curtail dissent, while on the other hoping to avoid furthering populist authoritarian agendas by dismantling the edifice in its entirety. Scholars within the critical political ecology field have suggested one way to navigate this dilemma is through greater academic attention to the interactions between knowledge and authority (Neimark *et al.*, 2019). Post-political theory might also usefully apply this approach. Rather than conceiving of expert-led decision-making as a means to exclude dissenting voices, in the post-truth era we might better ask how expert-led decision-making is operationalised, or not, to whose benefit, and in which ways. The key contributions of post-political theory, as a lens to alert us to the ways in which governance processes may be constructed to exclude dissent, and to the ineradicable potential for its return, remain as pertinent as ever. However, the use of technology cannot be assumed to deliver social or political emancipation (Bimber, 2003). Societal architecture has shifted since the first development of post-political thought, meaning the means by which dissent is amplified or curtailed have also evolved. In this thesis I have illustrated some of the consequences of this evolution using the conflict over shale gas as my case.

7.5. Limitations and future work

Chapter-specific limitations have been provided in sections 4.6, 5.5 and 6 .6. In this section, I discuss the limitations of this thesis in relation to the generalisability of the findings, and its positioning of the digital. I then make recommendations for future work.

7.5.1. Generalisability of findings

7.5.1.1. Empirical generalisability

As discussed in section 3.4, the case of shale gas in England has particular features which make it suitable for use in examining the influence of online activity upon a contentious environmental issue. This unique set of circumstances, however, also has implications for this study's generalisability. The empirical generalisability of research is "concerned with whether certain characteristics of a case or sample are typical of the population from which the case or sample was drawn or of another population" (Tsang, 2014 p. 371). For case studies, this is achieved by identifying patterns in common between cases. In this instance the nascent status of the shale gas industry and the relatively small number of dominant institutional actors undoubtedly

influenced their online strategy (sections 5.4.1.1 and 5.4.1.2). In this respect, therefore, the case may be atypical of locally unwanted land use disputes, or conflicts over resource extraction more generally. The empirical generalisability of this case, therefore, lies in the broader themes of political contestation over information intensive issues in the internet age, and the challenges this presents to stakeholders engaging in both invited and uninvited forms of participation. These have relevance beyond disputes on shale gas and incorporate broader societal trends (section 7.3).

7.5.1.2. Theoretical generalisability

By contrast, theoretical generalisation requires researchers to develop an explanation of how the variables in their study relate to each other (Tsang, 2014). While it is unlikely that new theory can be derived from single study, one aim of theoretical generalisation is to refine or revise existing theories. Post-politics has provided a lens through which to identify the underpinning dynamics at play in this case and theorise how they may interact. In developing the schematic in Figure 7-1, I have articulated the interactions so that others may investigate how these processes might operate in different cases. However, as for a number of studies which apply post-political theory to an empirical case (section 4.2.1), this study has drawn upon particular elements of a broader body of scholarship to guide its analysis. As discussed in section 4.5, other researchers might give different weight to these elements and draw alternative interpretations from their data.

7.5.2. Theorising the digital

This thesis has taken a predominantly instrumental approach to online activity, considering the affordances and constraints offered by the medium and how these may contribute to re-enforcing or destabilising the post-political condition. In doing so, it has provided the first study of its type and shed new light upon the development of the conflict over shale gas, but the focus on what people 'do' online may obscure other important dynamics.

First, concentrating on the use of technology, without considering its broader political and environmental context, risks obscuring the political economy of the internet which, outside of the Sinosphere, is predominantly shaped by the 'big five' Silicon Valley based corporations: Apple; Amazon; Alphabet; Facebook and Microsoft (Van Dijck *et al.*, 2018). Technology provides opportunities to force change upon

incumbent actors, but this activity must always be understood as taking place within wider configurations of institutional power (Chadwick, 2006). Incumbent power structures are tenacious and shape digital technologies in a way which enhances this power, re-enforcing existing inequalities. If we accept, as Emejulu and Mcgregor (2019) argue, that "dominant digital and communication technologies embody an exclusionary capitalist ethos," (p. 142), then a post-political analysis might usefully consider how the systemic aspects of the culture, design and operation of digital technologies might operate to curtail or perpetuate dissent.

Second, in focussing upon use, this thesis arguably contributes to the naturalisation of digital technologies within everyday life, providing an example of Žižek's characterisation of post-politics as a mental block which prevents us from seeing how things could be radically different (Žižek, 2000a). Recent scholarship within the digital politics field has focussed upon 'digital disengagement' i.e., the reduced or non-use of digital technologies as a form of resistance to the increasing ubiquity of internet use (Kuntsman and Miyake, 2019). The possibility of digital refusal remains, to date, under-examined within the sustainability field despite the apparent and increasing environmental damages of digital technology use (Kuntsman and Rattle, 2019). As internet use continues to grow, with a consequent shift 'digital by default' way of being, disengagement has the potential to provide a far more radical challenge to the post-political condition than any online activism can.

This thesis, therefore, provides a first step to considering the interactions between post-political theory, digital politics and environmental politics, but alternative theoretical approaches would yield further insights. Suggestions for further research are provided in the next section.

7.5.3. Future research

Any research on digitally mediated activism takes place upon a constantly shifting terrain. Future research will be moulded by a yet-to-be determined technical context which makes identifying specifics challenging. However, certain avenues of research have emerged from these findings. Chapter-specific recommendations have been made in sections 5.5 and 6.6. Six general recommendations are detailed below.

First, as discussed in section 7.3.1.2, it is no longer sufficient to conceive of digitally mediated activism as the sole prerogative of young 'super-activists.' While significant

media attention has been paid to the recent school strikes for climate, we should not neglect the activities of other cohorts. Different demographic groups are likely to engage online on environmental matters in different ways, however, and closer attention to these differences may give an insight into how politics will develop in the 2020s and beyond.

Second, as discussed in section 7.2.1.3, the potentially muting power of mobilising on social media requires further research. Three potential explanations were suggested: the tendency of social media to collapse complexity; pressure to maintain local approbation manifesting online; and the increased heterogeneity of the movement reducing its transformative potential. Alternatively, the results may reflect the choice of accounts analysed and of a particular moment in the protest. Further case study research on this aspect of digitally mediated activism will help illuminate these dynamics. Methodological approaches which incorporate online activity into interviews, allowing activists to discuss and demonstrate how they engage online, as "co-analysts" of their own activity (Robards and Lincoln, 2017) could provide a useful method through which to investigate this question further.

Third, as discussed in section 7.3.2, post-political theory would benefit from engaging more actively with the politics of the post-truth era, and particularly with regards to the means by which dissent may be excluded. The body of work on post-political theory is extensive and I have drawn upon particular strands of it for this work. Undoubtedly, there is the opportunity for a broader and more theoretically developed conceptualisation of the issues. As I have argued, the key messages of post-political theory remain as pertinent as ever. With further development, they could provide a useful means through which to study post-truth politics.

Fourth, as discussed in section 7.4.3, this thesis has taken an instrumental approach to theorising the digital. Turning a post-political lens upon the political economy of the internet would further illuminate how dissent may be curtailed or enabled by online activity. It might further yield insights into whether alternative approaches such as digital disengagement, a rejection of the 'digital by default' mode of being, provides a more radical challenge to structures of power than digitally mediated activism does (Kuntsman and Miyake, 2019).

Fifth, it is apparent a shift in social networking is underway. The ascendancy of social media platforms, in particular Facebook, is beginning to fade as messaging

applications like Snapchat, WhatsApp, Telegram and Periscope take their place (Morris and Murray, 2018). In March 2019, Facebook CEO Mark Zuckerberg signalled the death knell of 'traditional social media' when he announced the company's mission change to a 'privacy-focussed' model for social networking:

> *"Over the last 15 years, Facebook and Instagram have helped people connect with friends, communities, and interests in the digital equivalent of a town square. But people increasingly also want to connect privately in the digital equivalent of the living room."*
>
> (Zuckerberg, 2019)

In truth, neither analogy is accurate. Social media is not, and never has been, the digital equivalent to a town square: a public space where all voices have equal opportunity to be heard, if not equal standing. Algorithms, data mining and advertising form part of these platforms' very fabric. As Tufekci (2017) notes, a better analogy would be social media as a shopping mall: privately owned, heavily guarded, and designed and built for the purpose of commerce. Nonetheless, the shift to more hidden, if not more private, forms of social networking has implications for research. Activists are already using these tools during protest (Haciyakupoglu and Zhang, 2015; Lee and Chan, 2016) and will continue to adapt and update their strategies as they seek to avoid state surveillance. These alternative digital modes of protest will operate according to different dynamics and will empower and constrain different groups. And, unlike Facebook and Twitter, they will be more or less invisible to researchers not employing deep ethnographic methods. Understanding how activists use these new forms of social networking, is likely to form a rich strand of research but one which must be balanced by significant ethical considerations.

Finally, a caveat. The age of social media enabled protest is not yet over. The global popularity of Facebook, in particular, provides the platform with a degree of stability which goes beyond that offered by more niche applications. It will, however, increasingly be the platform of protest used by older generations - grandparents rather than grandchildren - and is likely to represent the more 'palatable' faces of protest. Future research on this platform should bear these features in mind.

7.6. Conclusion

This thesis has explored the influence of online activity in the English shale gas debate. In doing so, it adds to the growing body of literature examining what digitally

mediated technology means for the contestation of political ideals. It considered both what people did online and also how they viewed the influence of this activity. It drew upon interviews with stakeholders from all sides of the debate to inform its analysis. Drawing upon multiple perspectives provided novel findings about the influence of online activity in this case and provides new insights into the issue area. Theoretically, the thesis drew upon post-political theory to generate a framework for analysis, positioning the use of digital technologies as an activity which might both enable and constrain the expression of dissent, in sometimes paradoxical ways. This framework provided further insights into the contestation of shale gas, not just describing how injustices manifest but also explaining how they arose. While post-politicising dynamics will express themselves differently according to context, articulating and analysing these dynamics in relationship to each other has the potential to shed further light upon the development of contentious issues.

Online activity in the English shale gas debate, unsurprisingly, affected different stakeholders in different ways. The consequences for anti-shale gas campaigners, the industry, and those tasked with informing the public will now be addressed in turn.

The research showed that online resources had been used extensively by the anti-shale gas campaign. Empirically, it revealed this activity had provided new opportunities and new pitfalls for campaign members. It provided them the opportunity to become highly informed about shale gas, but at significant personal cost and with little, if any, commensurate effect on their political influence. The outcome was to make engaging in invited forms of participation, such as planning hearings, inquiries and judicial reviews, highly burdensome. In response, some local campaigners concluded that uninvited forms of participation, such as protest and direct action, were more politically potent activities. Engaging in these activities, as organised, publicised and facilitated by social media was relatively straightforward. However, engaging on social media also brought its own pitfalls, opening up campaigners' actions to criticism from outsiders and potentially collapsing the broader messages of the protest into disputes over the legitimacy of particular events. Theoretically, these findings expand upon the previous literature in three ways. Firstly, by showing how digitally mediated activism both contributed towards and potentially supressed the expression of dissent through informal processes. Post-political theory had not previously been applied to digitally mediated activism and this research shows that doing so yields new insights into the contestation of

environmental issues. Secondly, by suggesting that the lack of strategic political demands made during recent digitally-assembled protest events, may not be because the protest members are prioritising instead prefigurative forms of politics; experiencing tactical freeze; or are outfaced by the authorities. It may be instead due to pressure to retain public approbation. Thirdly, by arguing that digitally mediated activism is no longer the preserve of youthful 'digital natives', and that future research on this issue should take a broad view of who might be participating online.

For the companies engaged in shale gas exploration, this research revealed that online activity had formed a much smaller part of their work. Unused to interacting with the public via digital technologies, their initial response to the seismic events of 2011 was to retreat from online engagement, fuelling perceptions the industry had something to hide. From this group's perspective, the main effect of online activity was to open up their actions to extensive, unwarranted, criticism, and increase opposition to the industry. This slowed the process of obtaining planning permission, further limiting the information they could share online and contributing to the phenomenon which I have termed an online information divide. This empirically novel finding sheds new light upon the development of the conflict over shale gas. It suggests that future research on contentious resource development should consider both offline and online activity. Even those who do not engage online operate within a reconfigured societal architecture. This has the potential to both enable and constrain how they can act.

Finally, for the academics, consultants and public officials tasked with engaging online with the public on shale gas, this research revealed how providing information, while an inherent part of their role, has the potential to contribute towards further dissent by increasing the burden of participation placed upon citizens. Further, it showed how officials were constrained about what they could share online due to a decision-making framework which prioritised locally generated knowledge about shale gas. This framework operated to exclude alarming accounts about the industry's operation in other countries from official decision-making, but in the absence of any domestic activity contributed to the ongoing online information divide. The Government's reliance on techno-managerial forms of decision-making therefore benefitted neither the anti-shale gas campaign nor the industry. This, I have suggested, raises broader questions about how post-political theory might engage with techno-scientific forms of decision-making in the post-truth era.

This thesis therefore makes both an empirically and conceptually novel contribution to the literature. Its findings relate to shale gas, but in addressing questions on the political effects of online activity, post-truth politics and the resource extraction debates entailed by the shifting geographies of energy production, its conclusions have broader applicability. The research contains a number of limitations, which have been acknowledged, and embodies a particular positionality, which has been detailed. Suggestions have been provided for further research to address some of these deficiencies. The core message of post-political theory is the ineradicable and irrepressible potential for things to be otherwise. In a time of increasing environmental and political turmoil, this thesis reveals some of the underpinning dynamics at play.

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Appendix 1: Shale gas development in England: A tale of two mineral planning authorities

Imogen Rattle, Tudor Baker and James Van Alstine

Introduction

The summer of 2016 was a tumultuous one for the United Kingdom. The vote to leave the European Union, after a campaign which many found both confused and confusing, revealed deep societal divides. The ramifications will take decades to manifest, but even as the national drama plays out, the wheels of the land use planning process continue to turn. Over the course of the year, two companies received planning permission to undertake exploratory hydraulic fracturing (fracking) for shale gas. These are the first planning consents for fracking in England for over five years. But even with favourable geological conditions, commercial production remains some years away and events to date suggest progress is unlikely to be smooth. The UK is a unitary state, retaining sovereignty and regulatory authority within central government, and this feature, combined with a property regime which vests hydrocarbon ownership in the Crown, gives national government a particularly prominent role in the national debate. The inherent contradictions between the centralizing tendencies of English shale gas policy and the Conservative Government's Localism Agenda is noted by Matthew Cotton (2016) in his review of the ethics and environmental justice issues of UK fracking policy. In this chapter, we expand upon this theme and show how the national systems of policy, planning and practice place communities opposed to shale gas development (SGD) in direct conflict with central government, a battle made manifest in the planning process. Drawing on an analysis of public submissions to two planning hearings, we find local identity and perceived democratic deficit form prominent themes in motivating local opposition. Analysis also reveals differences in the ability of communities to resist the centralizing tendencies of planning consultations, specifically highlighting direct historical experience with fossil fuel industries; the role of local MPs; and pre-existing civic capacity as factors which condition citizen responses and the ability of activists to mobilize citizens. We then undertake a comparative international analysis which illuminates how the systems of government and hydrocarbon ownership have shaped the evolution of national debate and conclude with some remarks about the future prospects for shale gas in England.

Shale gas

Shale gas is predominantly methane, extracted via horizontal drilling into a shale bed followed by high volume slick-water fracturing. Alongside coal bed methane and tar sands, it forms one

part of the trifecta known as ‘unconventional hydrocarbons’. Large-scale discovery of shale gas in America was heralded as a game-changer for US energy policy (Gény, 2010), however, reports of damage caused by the industry are widespread. Local and global environmental concerns are well documented (Jackson et al., 2014; Newell & Raimi, 2014) and as the industry matures, there is a growing body of evidence documenting negative health (McCoy & Munro, 2016) and social-psychological impacts (Jacquet & Stedman, 2014) on local communities. As a result, there is increasing local resistance to the industry and SGD is presently banned or under moratoria in parts of Canada, the USA and Australia, and in the entirety of France, Germany and Bulgaria. In the UK, Scotland, Wales and Northern Ireland have likewise imposed moratoria leaving England the sole home nation pursuing SGD. Here, activity is focused primarily on the Bowland shale, a geological formation running beneath the north of the country.

Development of the English debate

Cuadrilla Resources undertook the first fracking in England at Preese Hall, Lancashire, in 2011. The process caused two minor seismic events (Green, Styles, & Baptie, 2012), following which the Government imposed a moratorium. An independent review concluded the process was safe if adequately regulated (Green et al., 2012) and the following month then Prime Minister, David Cameron, announced his intention to ‘go all out for shale’ (Watt, 2014), a policy predicated on the national needs for energy security, economic growth and lower carbon emissions (DECC DCLG, 2015). While leaving the EU alters the institutional and legislative frameworks surrounding delivery of this ambition, as of 2018, the policy is unchanged. It is a stance increasingly at odds with public opinion, as support for shale gas dwindles, in part due well-publicized local protests against development (O’Hara, Humphrey, Andersson-Hudson, & Knight, 2016). Ministers hope opposition will ease once the industry is established, a position made explicit in a leaked Cabinet letter:

> One of the hurdles to overcome to develop a more favourable public attitude is that nobody in the UK has seen or experienced a fracking operation … We need some exploration wells, to clearly demonstrate that shale exploration can be done cleanly and safely.
>
> (reported in Hope, 2016)

Obtaining approval for exploration wells, however, is no easy task. The first step in the process is for gas companies to obtain the appropriate consents from the regulatory authorities. The following section outlines the approval process for SGD, shows how the characteristic features of the English system of central government limit opportunities for public engagement on this issue, and in doing so reveals why the planning process has become the main site of contention in the English debate.

Planning and regulation

There are four main bodies involved in the regulation of shale gas. In brief:

1. The Oil and Gas Authority (OGA), a government-owned company, assesses operator competence and financial capacity.
2. The Environment Agency (EA), a non-departmental public body under the Department for Environment, Farming and Rural Affairs, issues permits for emissions to air, soil and water.
3. The Health and Safety Executive (HSE), a non-departmental public body under the Department for Work and Pensions, considers well integrity and borehole legislation compliance.
4. Mineral Planning Authorities (MPAs) adjudicate on local issues, such as noise, transport and dust, using guidance issued by the Department for Communities and Local Government (DCLG).

These arrangements present several challenges to citizens seeking to influence national policy. First, there is the complexity of the system, neither easily understood nor navigated by those unfamiliar with the structures of Whitehall. Each of the regulators falls under a separate parent department and at present there is no central body to coordinate work. Perhaps counterintuitively, the Department for Business, Energy and Industrial Strategy – BEIS – plays no part in the day-to-day regulation of shale gas. This is a deliberate omission intended to ensure safety is not compromised by the political imperative to maximize energy production (Cullen, 1990), but also removes any obligation from BEIS to consult on the issue. The vertical division of responsibilities between parent departments, which deal with policy, and regulating bodies, which deal with implementation, provides a second barrier to citizens seeking to engage with policy-makers. This structure is intended to allow staff to focus upon core tasks but also serves to distance policy-makers from the effects of their policies (James, 2001). Finally, of all the regulatory bodies involved in SGD only MPAs, usually county councils, are locally situated and elected. Again, this is not a feature unique to shale gas; the UK has a century-long culture of centralism, of an extent unusual even among unitary states (Hestletine, 2012). It was in recognition of this imbalance of power that the Coalition Government of 2010–15 introduced the Localism Act (2011), with the stated intention of empowering local communities. As this chapter will detail, the progress of the shale gas debate is causing campaigners in the affected communities to express scepticism about the strength of this commitment.

Effectively barred from engaging at the national level, the public are left with three officially sanctioned routes to participate on SGD. These are illustrated in Figure 15.1.

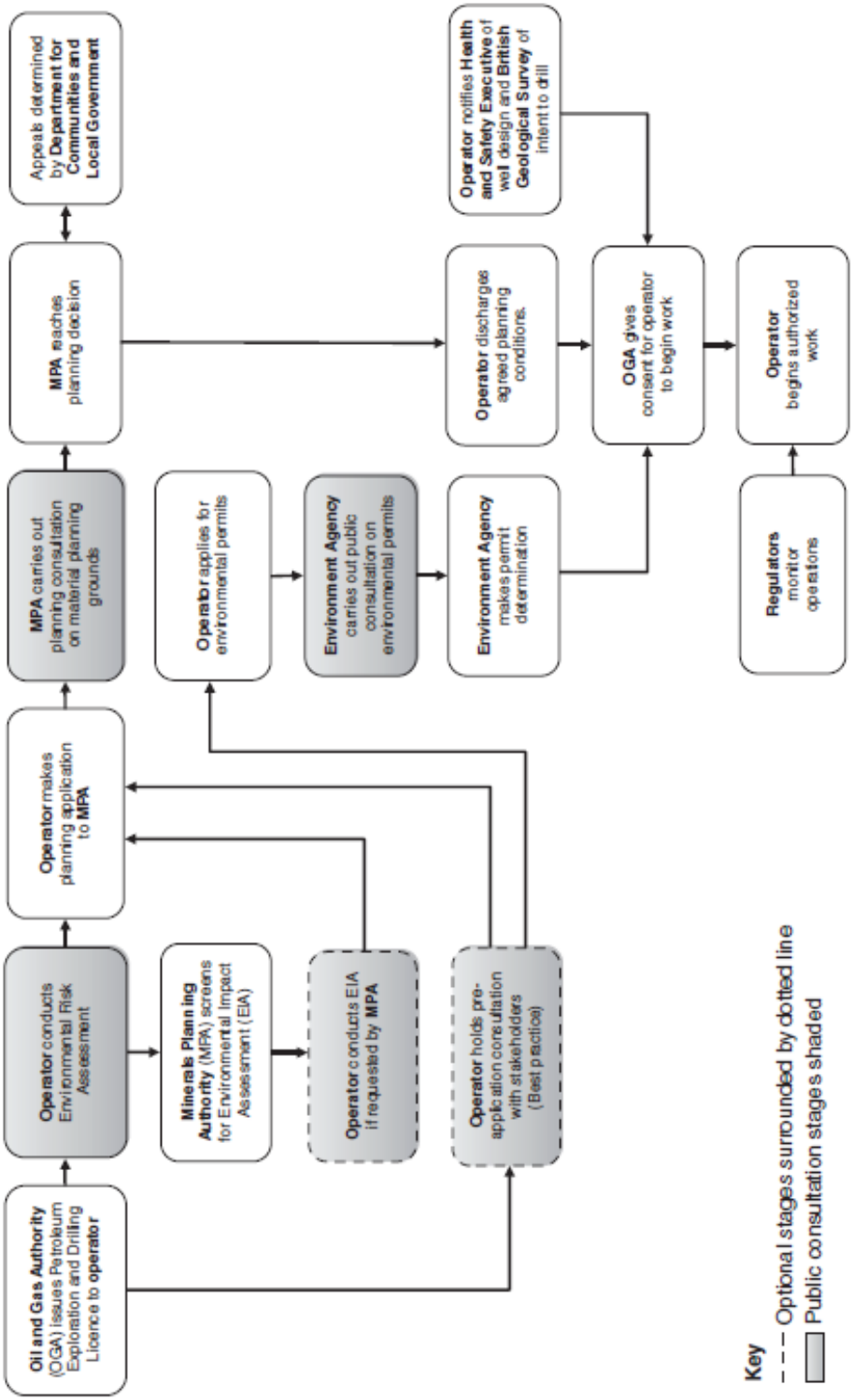

Figure 15.1 Opportunities for public engagement within the approval process for shale gas operations.

Fig 15.1: opportunities for public engagement within the approval process for shale gas operations. Adapted from DECC (2013)

The first is via operator-led consultation. The industry body, UKOOG, requires its members to 'identify and proactively address local issues and concerns' (UKOOG, n.d.), but the outcomes of these consultations have no binding force and the perceived vested interest of industry leaves their impartiality open to question. The second route is via EA consultation on the environmental permits issued to operators. Permits are issued following consideration of the specific characteristics of each well site, but the consultation is constrained to technical issues of pollution prevention (EA, 2015) which provides limited scope for layperson input. This leaves the planning process as the main forum for local communities to voice their concerns, but the scope of this consultation is tightly defined by nationally-issued planning policy.

Overarching planning policy for England is set out in the National Planning Policy Framework (NPPF), the stated aim of which is to empower local people to shape their surroundings in a sustainable manner. Ancillary to the requirement for sustainable development, however, the NPPF also advises MPAs to place 'great weight' on the benefits of mineral extraction (DCLG, 2012, p. 34). In further guidance specific to onshore oil and gas, DCLG advises MPAs to assume the regimes for regulating health and safety, and environmental issues will be implemented effectively and reminds them they 'should not consider demand for, or consider alternatives to, oil and gas resources' (DCLG, 2013, p. 15). Read in sum, therefore, planning guidance on SGD limits the role of MPAs to assessing material planning considerations, broadly defined as matters 'relating to the use and development of land' (DCLG, 2015 p. 14) and excludes matters of health, and local and global environmental effects, three of the areas where SGD is most controversial.

Even operating within these parameters, MPAs face no straightforward task. The complexity of the issues surrounding SGD means it is commonplace for gas companies to submit extensive documentation to support their case, and for opponents to submit a high volume of representations in response. The size and complexity of applications leave MPAs struggling to determine the cases within statutory timeframes. Frustrated by the continued delays, in August 2015 the Communities Secretary announced he reserved the right to determine shale gas applications in place of MPAs which repeatedly failed to meet deadlines, and would consider calling in appeals against planning decisions to refuse applications for SGD (DECC DCLG, 2015). It is against this backdrop of planning gridlock and increasing ministerial frustration, that the public hearings which form the subject of this chapter, took place.

Method

We undertook a qualitative thematic analysis of the public representations made to two planning hearings, through an inductive analysis of the webcast proceedings. These were the first planning determinations on fracking in England since the lifting of the moratorium in

2012. Details of the sessions are provided in Table 15.1. Members of the public had 3–4 minutes to present their views or have their submissions read to the hearing. We further contextualized our analysis with participant observation, and a review of publicly available documents, including local newspapers and government reports.

Mineral Planning Authority	Lancashire County Council	North Yorkshire County Council
Applicant	Cuadrilla	Third Energy
Nature of application	To construct well pads, drill and frack up to eight wells at two sites - Preston New Road and Roseacre Wood	To frack one existing well at existing production site near Kirby Misperton
Nature of hearing	Appeal against decision to refuse planning permission	Planning hearing
Public sessions	17, 25 Feb; 8, 10 March 2016	20, 23 May 2016
Speaking In support of application	15	6
Neutral	3	2
Against	123	81
Total	141	89

Table 15.0-1: Details of planning hearings

Planning decisions in context

The Fylde

Lancashire is a county shaped by extractive industries, once home to an extensive coal-mining industry, it has since undergone deindustrialization. The Fylde is a coastal plain to the west of the county. It is an affluent, semi-rural area and a popular tourist and retirement destination. The first fracking in the UK took place in Lancashire in 2011, and local opposition is becoming increasingly entrenched as the debate matures (Bomberg, 2015). In July 2015, the MPA, Lancashire County Council (LCC) refused planning permission for a new exploration site near Preston New Road. The decision was hailed by campaigners as a victory for local opinion,

since it was made against the recommendation of the council's Planning Officer and despite legal advice that refusal could be appealed (LCC, 2015b).

In spring 2016, the Planning Inspectorate held an inquiry into the decision. It was clear from the outset the hearing was primarily symbolic since the Communities Secretary had previously announced he would call in the appeal on the grounds the decision had more than local significance (Boulton, 2015). Nonetheless, the public sessions were well attended. Those speaking in support of SGD were comparatively few in number. They focused on economic benefits, energy security, and the missed opportunity for Lancashire if it failed to adopt the industry. Those speaking against SGD often took a precautionary approach, focusing on the uncertain, and sometimes unknowable, risks of shale gas exploitation and the potentially serious consequences should an accident occur. Frequently mentioned concerns included health and local environmental effects; the stigma fracking would place on the local industries of farming and tourism; fears for future generation; visual impacts; and disruption to the rural way of life. In common with previous studies on locally unwanted land use (Devine-Wright, 2009), disruption to place attachment and place identity was a commonly cited factor prompting opposition. Concerns about energy policy, regulatory capacity and climate change also featured, but these were less frequently mentioned.

As the inquiry continued, two overarching themes emerged. One was the distributive justice implications of siting SGD in Lancashire, far away from London and the more affluent South. 'We're almost like disposable assets it seems to me, when I hear what's coming out of government. We're not considered. We're up North for starters so we're disadvantaged there,' one business owner observed. The second was lack of democratic legitimacy. Residents expressed a profound sense of injustice that SGD would be forced on them despite the decision of their locally-elected councillors and contrary to the principles of localism. The chair of the Planning Committee which refused the original application, was forthright about the apparent double standards at play:

> The most important element for us councillors … is that we do not pre-determine the outcome of any application … I note that there is no such impartial approach within central government … [the Communities Secretary] has already made clear his views in support of fracking.

It was an observation which appeared justified when in October 2016 the Communities Secretary ruled to allow the application.

Ryedale

Across the Pennine Hills to Yorkshire, Kirby Misperton is a small village in the district of Ryedale. More sparsely populated than the Fylde, Ryedale is a rural, agricultural area and

likewise home to an older population. Conventional gas wells have operated in Ryedale since 1995 and in May 2015, Third Energy, owner of the Kirby Misperton gas field, applied to the MPA, North Yorkshire County Council (NYCC), for planning permission to undertake exploratory fracking of its existing KM8 well. The final determination took place in May 2016.

Since the scope of both hearings were limited to material planning considerations, it is unsurprising that many of the arguments presented followed similar lines to those heard in Lancashire, however, there were some notable differences in emphasis. Speakers supporting SGD expressed scepticism about the motivations of anti-fracking groups, claiming their campaign would do more damage to Ryedale's reputation than fracking itself. A common theme was that much local opposition was due to misinformation rather than factually based. Several speakers referred to the uncontentious operation of the local gas field in support of this belief: 'What a difference the word "fracking" makes,' one industry consultant observed. Speakers against SGD focused on the effects on health, local businesses and the visual impacts on the countryside. They also expressed scepticism about the trustworthiness of government regulators, with the local MP receiving particular criticism for his perceived bias towards the industry. Themes of local empowerment were also present, but played a less prominent role than in Lancashire. The potential climate change effects of shale gas, however, formed a significant theme and the submissions included testimony from a former climate change diplomat. These arguments did not persuade the committee, whose chair had noted at the outset, 'it is not for us to decide county policy or even national policy on fracking', and they voted in accordance with their Planning Officer's recommendation to approve the application.

A tale of two mineral planning authorities

While these hearings provide only a snapshot of local concerns, a comparison between them nonetheless yields a number of insights into the progress of the English shale gas debate. It was apparent that while the 'bad governance' storyline identified by Bomberg (2015) was an important factor in motivating people to speak, particularly in Lancashire, many of the frames and narratives referred to by opponents to SGD were less like those detailed in the national level studies of Cotton, Rattle and Van Alstine (2014) and Hilson (2015) and more akin to the place-attachment narratives which frequently surround planning proposals (Vorkinn & Riese, 2001). Significantly, local people in favour of SGD, while fewer in number, also referenced place attachment in their arguments; in fact both groups shared a goal: to improve, or protect, the local area. What differed was how they perceived SGD would help or hinder this endeavour. Age, sex, education, political affiliation and environmental attitudes all influence perceptions of SGD (Andersson-Hudson, Knight, Humphrey, & O'Hara, 2016; Boudet et al., 2014; Veenstra, Lyons, & Fowler-Dawson, 2016) but the role of place identity appears complex and multilateral. An online survey of UK attitudes to SGD finds higher place attachment is correlated with a more positive assessment (Whitmarsh et al., 2015), while a

more recent survey of residents of the Marcellus shale in the US suggests different in perceptions of SGD may be explained by differences in approach rather than values: those opposed seek to maintain their community in its present state, while supporters believe in using resources to promote the overall well-being of their community (Evensen, Stedman, & Brown-Steiner, 2017). The role of competing perceptions of place identity in influencing attitudes to SGD is at present under-explored in the English context, and we suggest it merits further study.

Our research also provided a number of insights into how local context may influence community responses to SGD. There are demographic similarities between the two communities of Ryedale and the Fylde. Both are rural, Conservative-voting constituencies, home to an educated population, and a higher than average number of retirees (ONS, 2011). It is an age-group which has limited interests in the jobs which shale gas might offer, and the time and resources to engage in the planning process, however, while the number of speakers at each hearing was broadly similar, the total number of written submissions received by each MPA in advance of its determination varied significantly – 4,000 in total in North Yorkshire (NYCC, 2016), 18,000 in opposition in Lancashire (LCC, 2015a). The widespread use of template emails limits the value of this metric as an absolute measure, nonetheless it provides some indication of the level of success local groups achieved in mobilizing public opinion. A second indicator is the willingness of councillors in Lancashire to go against the advice of their Planning Officer to reject a shale gas application, a course of action which councillors in North Yorkshire showed no signs of imitating. Our analysis of submissions to the planning hearings suggest three factors which may have contributed to the capacity of communities to mobilise anti-fracking support.

The first factor is familiarity and comfort with fossil fuel extraction. Research from the USA shows communities draw from a history of local extractive industries to frame the impacts of SGD (Ladd, 2014) and suggests living in an area with active oil and gas development can increase support for the industry (Boudet, Bugden, Zanocco, & Maibach, 2016). Two UK-based national surveys on attitudes to shale gas also support the proposition that prior knowledge of the industry is associated with more favourable attitudes (Stedman, Evensen, O'Hara, & Humphrey, 2016; Whitmarsh et al., 2015), findings which align with the wider risk management literature showing unfamiliar risks are perceived as more threatening (Covello, 1983). In the Fylde, whose residents frame their experiences of SGD in the context of the seismic events at Preese Hall, trust in the industry appears irrevocably lost. In Ryedale, where conventional gas wells have operated for decades with little controversy, familiarity may indeed increase acceptance.

A second factor is the presence or absence of local advocates for SGD. Here the different approaches of the local MPs appear noteworthy. Caught between his party's pro-shale gas policies and entrenched local opposition, Mark Menzies (Fylde) treads a cautious

middle ground, not outright rejecting the industry but emphasizing the need for strong regulatory enforcement. By contrast, Kevin Hollinrake (Thirsk and Malton) is enthusiastic in his support for SGD, and received repeated criticism for this perceived partiality at the North Yorkshire hearing. The lack of a pro-fracking advocacy coalition is one factor noted by Dufour, Bherer, and Rothmayr (2012) in their analysis of how environmental groups obtained a moratorium on SGD in Quebec and the lack of strong local voices in favour of SGD in the Fylde makes it difficult for supporters of the industry to counter the accusations of democratic illegitimacy.

Most important, however, is likely the role of civic capacity. Obach (2015) identifies the presence of pre-existing environmental groups and networks as a key factor in mobilizing the campaign which persuaded New York State officials to pass a moratorium on shale gas. The importance of civic capacity is likewise stressed by Vasi, Walker, Johnson, and Tan (2015) in their study of anti-shale gas mobiliztion in the Marcellus Shale and used by Eaton and Kinchy (2016) to explain the lack of collective mobilization against SGD by communities in Saskatchewan and Pennsylvania. Community groups in the Fylde began mobilizing against SGD in 2011 and have since amassed significant social capital experience in navigating the complexities of the regulatory system. Anna Szolucha's comparative analysis of the Lancashire case, in Chapter 16 of this volume, documents the extent to which local residents felt obliged to tailor their representations to planning hearings so they fell within the boundaries of material planning considerations. In Ryedale, organized opposition is relatively recent, dating from around 2014. The increased prominence of the climate change narratives presented at the North Yorkshire hearing may provide one indication that residents have less familiarity with the technical content of the planning guidance, which places such matters out of scope.

International comparison

As the contention around SGD continues, the topic is generating a growing academic literature documenting the effects of the industry on communities across the Global North, and their various strategies of dissent. Research from the US, Canada, and Australia reveals striking similarities in how local people report their experience of living in areas targeted for SGD: they speak of disempowerment, uncertainty, vulnerability and a way of life under threat (Sherval & Hardiman, 2014; Szolucha, 2016b; Willow & Wylie, 2014), narratives which we too heard in our research. Such accounts do not fit easily within the framework of English planning law, which favours a technical fact-based approach. Studies of the discourses used to frame unconventional hydrocarbons in the USA (Evensen, 2015) and Australia (Espig & de Rijke, 2016) show how debates in these countries have become similarly scientized, with calls to restrict discussion to emotionless, de-politicized facts. But an over-reliance on the primacy of facts has not always proved a successful strategy for shale gas advocates. One common

finding across jurisdictions which have imposed moratoria is how anti-fracking groups used the scientific uncertainty about SGD to bring facts into question and argue for a precautionary approach (Dodge & Lee, 2015; Dufour et al., 2012; Metze, 2014; Stephan, 2016). This is not a change in emphasis which the Government in England appears prepared to countenance; at present, there is no forum where the uncertainties of SGD form a legitimate topic of discussion, with the result, as Chris Hilson notes in a review of English planning law and practice, that the 'positive government framing of fracking inevitably wins through' (Hilson, 2015, p. 157). Denied a discursive space to contest this framing, it is unsurprising the lack of democratic legitimacy is becoming a prominent concern for local communities. Such accusations of heavy-handed central control are particularly difficult to rebut in the English context, where there is no buffering state-level layer to provide an intermediary; and they provide a sticky problem for a government committed to increasing local power and whose citizens recently voted to leave the EU under a campaign slogan of 'taking back control'.

Perhaps one of the greatest ironies of the English case is that the twin features of the unitary system of government and state ownership of hydrocarbons which provide central government the means and motivation to promote SGD, may also present it with its greatest hurdles in realizing this ambition. Research from the USA highlights the importance of the American private system of hydrocarbon ownership in generating community support for SGD (Kriesky, Goldstein, Zell, & Beach, 2013). Without it, the industry provides relatively little benefit to local residents, who are nonetheless expected to bear the associated risks for the national benefit. In Australia, which operates a similar hydrocarbon property regime to the UK, there are similar accusations of a lack of democratic legitimacy in the development of unconventional hydrocarbons (Curran, 2016) and there too local government has opposed unconventional gas development on behalf of its residents, (Turton, 2015). But while in Australia, state-level governments in Victoria and Northern Territory have acted to impose moratoria on SGD, in England there is no intermediary body with the authority to interpose on behalf of communities in Ryedale and the Fylde. Instead, lacking an attractive hydrocarbon ownership regime, central government is forging ahead in the hope familiarity will generate acceptance. It is far from clear this strategy will be successful. Even in Ryedale, a community which has hosted onshore gas extraction for over 20 years, there is significant local opposition to SGD, and in the Fylde it appears the Government's actions have increased resistance rather than assuaging it – undermining trust in regulatory agencies and amplifying perceptions of risk on the part of local residents, as Anna Szolucha's work, in this volume, reveals. Further, if civic capacity is an important force in enabling communities to mobilize opposition to SGD, as our study suggests, then the national system of regulation may support them in this endeavour. A single system of law and policy allows the easy transfer of successful strategies of opposition between communities and could present central government with a national

coalition of resistance far better resourced and densely networked than those faced by its federal counterparts.

Conclusion

What next for shale gas in England? At present, the battle continues with neither side willing to concede defeat. For a government facing significant economic uncertainty following Brexit and declining North Sea tax receipts, the prospect of new source of fossil fuel appears too enticing to ignore. A recent Treasury consultation proposing direct payments to households affected by SGD made explicit the economic imperative: 'The Government is clear that local people should have greater control and say in decisions that affect them. More than this though, we are committed to delivering an economy that works for all' (HM Treasury, 2016, p. 3).

Meanwhile, having exhausted officially-sanctioned avenues for participation, campaigners are taking direct action, blockading gas companies and their suppliers. Such activities are designed to hit businesses in their pockets and ultimately the outcome may come down to brute economics. For local residents opposed to SGD, protest comes at a price – to their health and social well-being, but also in financial terms, as gas companies threaten litigation against them (Szolucha, 2016b). For MPAs too, refusing planning permission for SGD is not cheap. The Lancashire planning inquiry cost LCC more than £300,000 and this amount would have been significantly higher had the Communities Secretary not declined to award costs (Szolucha, 2016a). MPAs contemplating refusing shale gas applications in future, do so in the knowledge that he may not always be so lenient.

Given the imbalance of power and resources between local and national players, it is likely the will of national government will prevail, to the extent exploration fracking will take place during 2018. But SGD is not a done deal. The true costs of exploiting English shale gas are as yet unknown and may be considerably higher than in larger, less densely populated countries. Recent research suggests the amount of technically recoverable gas in the Bowland shale could be a quarter of original estimates due to the extent of above-ground infrastructure (Clancy, Worrall, Davies, & Gluyas, 2018). Combined with volatile world oil prices, the economic case for English shale gas remains unclear. The more expensive protesters can make it to extract shale gas, the less attractive the industry is to investors and the less likely shale gas will proceed to commercial production. Unanswered questions of poor governance and democratic legitimacy notwithstanding, SGD in England is unlikely to become politically unattractive until it becomes economically unviable. Until then, the war of attrition seems set to continue.

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Appendix 2: Ethics review form

University Research Ethics Committee - application for ethical review

Please email your completed application form along with any relevant supporting documents to ResearchEthics@leeds.ac.uk (or to FMHUniEthics@leeds.ac.uk if you are based in the Faculty of Medicine and Health) at least 6 weeks before the research/ fieldwork is due to start. Dentistry and Psychology applicants should follow their School's procedures for submitting an application.

Ethics reference (leave blank if unknown)	Student number (if a student application)	Grant reference (if externally funded)	Module code (if applicable)
	200654702	ES/J500215/1	n/a

Faculty or School Research Ethics Committee to review the application (put a 'X' next to your choice)		Arts and PVAC (PVAR)
		Biological Science (BIOSCI)
	x	ESSL, Environment and LUBS (AREA)
		MaPS and Engineering (MEEC)
		School of Dentistry (DREC)
		School of Healthcare (SHREC)
		School of Medicine (SoMREC)
		School of Psychology (SoPREC)

Indicate what type of ethical review you are applying for:	x	Student project (PhD, Masters or Undergraduate)
		Staff project (externally or internally funded)

Section 1: Basic project details			
1.1 Research title	Exploring the influence of social movements' use of online resources in the English shale gas debate		
1.2 Research start date (dd/mm/yy)	Proposed fieldwork start date (dd/mm/yy)	Proposed fieldwork end date (dd/mm/yy)	Research end date (dd/mm/yy)
01/10/2015	01/01/2017	31/08/2017	30/09/2019

Yes	No	
x		1.3 I confirm that I have read and understood the current version of the University of Leeds Research Ethics Policy. *The Policy is available at http://ris.leeds.ac.uk/ResearchEthicsPolicies.*
x		1.4 I confirm that I have read and understood the current version of the University of Leeds Research Data Management Policy. *The policy is available at http://library.leeds.ac.uk/research-data-management-policy.*
x		1.5 I confirm that I have read and understood the current version of the University of Leeds Information Protection Policy. *The policy is available at http://it.leeds.ac.uk/info/116/policies/249/information_protection_policy*
x		1.6 I confirm that NHS ethical review is not required for this project. *Refer to http://ris.leeds.ac.uk/NHSethicalreview for guidance in identifying circumstances which require NHS review*
	x	1.7 Will the research involve NHS staff recruited as potential research participants (by virtue of their professional role) or NHS premises/ facilities?

		Please note: If yes, NHS R&D management permission or local management permission may also be needed. Refer to http://ris.leeds.ac.uk/NHSethicalreview.

Section 2: Contact details	
2.1 Name of applicant	Imogen Rattle
2.2 Position (eg PI, Co-I, RA, student)	PhD student
2.3 Department/ School	SEE/ Sustainability Research Institute
2.4 Faculty	Environment
2.5 Work address (usually at the University of Leeds)	School of Earth and Environment University of Leeds Leeds LS2 9JT
2.6 Telephone number	07963 684489
2.7 University of Leeds email address	ee11ikr@leeds.ac.uk

Section 3: Summary of the research
3.1 In plain English provide a brief summary of the aims and objectives of the research. (max 300 words). The summary should briefly describe • the background to the research and why it is important, • the questions it will answer and potential benefits,

- the study design and what is involved for participants.

Your answers should be easily understood by someone who is not experienced in the field you are researching, (eg a member of the public) - otherwise it may be returned to you. Where technical terms are used they should be explained. Any acronyms not generally known should be described in full.

The use of online resources is a defining feature of modern political protest. This project will expand understanding of positive and negative effects of social movement use of online resources, to better understand its implications for the governance of environmental issues. The research will use the conflict on shale gas development in England as its subject.

To understand how social movements against shale gas are using online resources.
To assess the influence on governance actors of online resource use by social movements against shale gas.
To explore the implications of social movements' use of online resources for the governance of environmental issues.

The benefits include: a greater understanding of the strategies used by social movements and how they may help or hinder their cause; a better understanding of the dynamics of the shale gas debate which may lead to improved opportunities for participation and influence.

The research design uses a mixed methodology. Two strands will run in parallel. The first will investigate how social movement members use online resources, and how other stakeholders in the debate perceive this use, through semi-structured interview with key informants. For participants this will involve a telephone or face to face interview with the researcher, about online resources use in the shale gas conflict and what they consider the implications of this to be.

The second will consider online resource use through a review of the public social media accounts and websites operated by social movements against shale gas. This may include basic quantitative methods to explore the extent of online resource use in terms of numbers of shares/ retweets etc. This will involve non-participant observation and data collection relating to online activity on public sites

run by social movement groups. Accounts run by individuals/ private groups will not form the subject of this research.

3.2 Where will the research be undertaken?	Interviews will take place in England, potential areas are the North of Yorkshire and the East of Lancashire where shale gas activity is underway. There may also be research participants based in Bristol and London, where environmental regulators are headquartered.
3.3 Who is funding the research?	ESRC

NB: If this research will be financially supported by the US Department of Health and Human Services or any of its divisions, agencies or programmes please ensure the additional funder requirements are complied with. Further guidance is available at http://ris.leeds.ac.uk/FWAcompliance and you may also contact your FRIO for advice.

Section 4: Research data and impact

You may find the following guidance helpful:

- Research data management guidance
- Advice on planning your research project
- Dealing with issues relating to confidentiality and anonymisation
- Funder requirements and University of Leeds Research Data Management Policy

4.1 What is the data source? (Indicate with an 'X' all that apply)

x	New data collected for this research
	Data previously collected for other research
	Data previously collected for non-research purposes

x	Data already in the public domain
	Other, please state: _____.
4.2 How will the data be collected? (Indicate with an 'X)	
x	Through one-to-one research interviews
	Through focus groups
	Self-completion (eg questionnaires, diaries)
	Through observation
	Through autoethnographic research
	Through experiments/ user-testing involving participants
	From external research collaborators
x	Other, please state: through online data sources (Facebook/ Twitter/ Webpages)
4.3 How will you make your research data available to others in line with: the University's, funding bodies' and publishers' policies on making the results of publicly funded research publicly available (in compliance with UK data protection legislation)? (max 200 words)	
ESRC-funded students are strongly encouraged to offer copies of data created or repurposed during their PhD for deposit at the UK Data Service, however, this is not mandatory. The data provided by interview will be personal data: data that can be used to identify a living individual. Given shale gas is a contentious topic which has the potential to involve civil disobedience, it may also be sensitive personal data, in particular information relating to political opinions, and potentially information relating to the commission or alleged commission an offence, and data relating to physical and mental health – the health effects of taking part in anti-shale gas protest one theme which has emerged from recent literature. Further, as this is a	

small policy domain with a finite amount of participants many of whom are known to each other, anonymity cannot be guaranteed (see section 8). Therefore while the results of the research will be made publicly available, I do not plan to make interview data available to others. If data must be submitted to journals in order to support article submissions, it will be anonymised as far as practicable.	
4.4 How do you intend to share the research data, both within and outside the research team? (Indicate with an 'X)	
	Depositing in a specialist data centre or archive
	Submitting to a journal to support a publication
	Depositing in a self-archiving system or an institutional repository
	Dissemination via a project or institutional website
	Informal peer-to-peer exchange
x	No plans to report or disseminate the data
	Other, please state: _____.
4.5 How do you intend to report and disseminate the results of the study? (Indicate with an 'X)	
x	Peer reviewed journals
	Internal report
x	Conference presentation
	Publication on website
	Other publication

	Submission to regulatory authorities
	No plans to report or disseminate the results
	Other, please state: _____.

4.6 Give details of the expected impact of the research. Further guidance is available at http://www.rcuk.ac.uk/innovation/impacts. (max 200 words)

The research will have academic impact by advancing understanding of social movements' use of online resources, in particular through interviews with groups of stakeholders currently under-researched in this context, including environmental regulators. The societal impacts include increasing the effectiveness of public services and policy.

Section 5: Protocols

Which protocols will be complied with? (Indicate with an 'X'). There may be circumstances where it makes sense not to comply with a protocol, this is fine but should be clarified in your application.	x	Data protection, anonymisation and storage and sharing of research data
	x	Informed consent
		Verbal consent
		Reimbursement of research participants
		Low risk observation

Section 6: Additional ethical issues

6.1 Indicate with an 'X' in the left-hand column whether the research involves any of the following:

x	Discussion of sensitive topics, or topics that could be considered sensitive

	Prolonged or frequent participant involvement
	Potential for adverse environmental impact
	The possibility of harm to participants or others (including the researcher(s))
	Participants taking part in the research without their knowledge and consent (eg covert observation of people in non-public places)
	The use of drugs, placebos or invasive, intrusive or potentially harmful procedures of any kind
	Food substances or drinks being given to participants (other than refreshments)
	Vitamins or any related substances being given to participants
	Acellular blood, urine or tissue samples obtained from participants (ie no NHS requirement)
	Members of the public in a research capacity (participant research)
	Participants who are particularly vulnerable (eg children, people with learning disabilities, offenders)
	People who are unable to give their own informed consent
	Researcher(s) in a position of authority over participants, eg as employers, lecturers, teachers or family members
	Financial inducements (other than reasonable expenses and compensation for time) being offered to participants
	Cooperation of an intermediary to gain access to research participants or material (eg head teachers, prison governors, chief executives)
	Potential conflicts of interest
x	Internet participants or other visual/ vocal methods where participants may be identified

	Scope for incidental findings, ie unplanned additional findings or concerns for the safety or wellbeing of participants.
	The sharing of data or confidential information beyond the initial consent given
	Translators or interpreters
	Research conducted outside the UK
	An international collaborator
	The transfer of data outside the European Economic Area
	Third parties collecting data
	Other ethical clearances or permissions

6.2 For the ethical issues indicated in 6.1 provide details of any additional ethical issues the research may involve and explain how these issues will be addressed. (max 200 words)

The s**ensitive topics** discussed may include information relating to political opinions, information relating to the commission or alleged commission of criminal offences, and data relating to physical and mental health. To address these issues I will maintain confidentiality for all participants and will not share data between them. I will advise participants that they should not feel obliged to disclose anything which makes them uncomfortable.

Internet participants

Only content posted to open online communities will be considered. Given these communities also have locked groups where members may post in private, it is reasonable to assume participants are aware that content posted in open groups is public information and may not be anonymous.

Care is required however, as this awareness does not necessarily signify participants realize their submitted content could form the subject of academic study, and such study could draw further attention which they did not expect. The case in not clear-cut, since the purpose of these online fora is in part to raise awareness and some participants may welcome additional publicity.

To preserve anonymity I will avoid using identifying information in publications and not use direct quotation, instead paraphrasing, so that individual posters are not discoverable using web searches.

Section 7: Recruitment and consent process

For guidance refer to http://ris.leeds.ac.uk/InvolvingResearchParticipants and the research ethics protocols.

7.1 State approximately how much data and/ or how many participants are going to be involved.

I w estimate approximately 40-50 people will be interviewed.

For online resources I intend to review approx. 13 months' worth of online postings between September 2015 (Cuadrilla's announcement of intent to appeal planning decision) to October 2016 (announcement of planning decision). The platforms used may include Facebook Twitter, YouTube and social movement websites. The exact accounts will be confirmed during interview.

7.2 How was that number of participants decided upon? (max 200 words)

Please note: The number of participants should be sufficient to achieve worthwhile results but should not be so high as to involve unnecessary recruitment and burdens for participants. This is especially pertinent in research which involves an element of risk. Describe here how many participants will be recruited, and whether this will be enough to answer the research question. If you have received formal statistical advice then please indicate so here, and describe that advice.

The number of participants is determined by the size of field of study, which has a relatively low number of active members. For context, a year- long ethnographic study on the social impact of shale gas in Lancashire http://appgshalegas.uk/wp-content/uploads/2016/05/The-Human-Dimension-of-Shale-Gas-Developments-in-Lancashire-pdf.pdf was based on interviews from 27 local residents.

I previously worked at the Environment Agency on the shale gas regulation project, and in addition have undertaken previous research on the social movements in

Lancashire, so I have a reasonably informed view of the number of active participants in the field and who I should interview to answer my research questions.

Data from interview will be contextualized with data from online resources in order to provide further depth and breadth to the findings and compensate for the relatively low number of interviewees.

7.3 How are the participants and/ or data going to be selected? List the inclusion and exclusion criterial. (max 200 words)

To access those who work in shale gas regulation I will request interviews with former colleagues I know to be senior in the field of shale gas regulation, in particular the Programme Manager, Programme Executive for the onshore oil and gas programme. These individuals will act as gate keepers to other policy actors. A snowball sampling strategy will be used in order to speak to as many key informants as possible.

The social movement groups active in this area have been identified from attendance at the Cuadrilla Planning Inquiry in Feb –March 16 (ethics reference LTSEE-039). Once more a snowball sampling strategy will be used.

The date range for the online data has been chose to cover a particular stage of shale gas consent process. The accounts which will be reviewed belong to the social movement groups identified at the Planning Inquiry above.

7.4 For each type of methodology, describe the process by which you will obtain and document freely given informed consent for the collection, use and reuse of the research data. Explain the storage arrangements for the signed consent forms.

Guidance is available at http://ris.leeds.ac.uk/InvolvingResearchParticipants. The relevant documents (information sheet and consent form) need to be attached to the end of this application. If you are not using an information sheet and/ or seeking written consent, please provide an explanation.

Interviewees will be approached via email with the aims of the research explained via email, or asked if they would like to meet to discuss the research in person. These emails will also explain the potential issues of anonymity (see 8.3) and how participants can withdraw from the study after the interviews have been conducted.

The information sheet and consent form are in progress and will be forwarded to the ethics committee for approval when complete. Signed consent forms will be scanned and stored on the secure University of Leeds M drive. The paper copies will be shredded.

For **online resources**, I don't propose to ask for consent to collect data from either the account owner or individual posters. There are five main justifications for this approach, first because the data is public internet data posted on community accounts rather than individual accounts and therefore can be assumed to be posted to a public fora. Second because the act of asking for consent (even if refused) may dissuade participants from using the platform and/or change their behaviour and therefore in itself be intrusive. Third, because consent would need to be retrospective and therefore the extent to which it can be said to be informed consent is unclear. Fourth because it is not obvious that the community account owners would have the capacity to consent on behalf of those posting on their pages. Fifth the act of tracing individuals posting onto the account to ask for their consent is likely to be administratively time consuming, intrusive, and also has the possibility of being perceived as intimidating.

I will, however, ensure that online data is anonymized so that individuals cannot be identified, and will consider the data in aggregate to identify general themes rather than individual strands.

7.5 Describe the arrangements for withdrawal from participation and withdrawal of data/ tissue. *Please note: It should be made clear to participants in advance if there is a point after which they will not be able to withdraw their data. See also http://ris.leeds.ac.uk/ResearchDataManagement.* (max 200 words)

For interviews, participants will be informed they can end the interview at any stage and have the option of not answering any of the questions if they do not wish to do so. Participants will have up until publication of results to withdraw, and they will be made aware of this in the email arranging the interview. They can withdraw by emailing the researcher.

7.6 Provide details of any incentives you are going to use and explain their purpose. (max 200 words)

Please note: Payment of participants should be ethically justified. The FREC will wish to be reassured that research participants are not being paid for taking risks

or that payments are set at a level which would unduly influence participants. A clear statement should be included in the participant information sheet setting out the position on reimbursement of any expense incurred.
I do not intend to provide any incentives to take part in this research, however, a more nuanced understanding of the influence of online resources may provide beneficial for participants.

Section 8: Data protection, confidentiality and anonymisation *Guidance is available at http://ris.leeds.ac.uk/ConfidentialityAnonymisation*	
8.1 How identifiable will the participants be? (Indicate with an 'X').	
	Fully identifiable
	Identity of subject protected by code numbers/ pseudonyms
	Fully anonymised
X Interview	Anonymised but potentially identifiable
X Online data	Data only in aggregated form
	Other
8.2 Describe the measures you will take to deal with issues of confidentiality, including any limits to confidentiality. (max 300 words)	
Under the UoL information protection policy the data gathered will be confidential. I will not share data about participants without their prior consent. Electronic data will be stored on the University's secured servers. The hardware used to access the data will be password protected and work will be carried out in a locked office. Because fieldwork will be carried out in the UK, I intend to undertake transcription of data on University premises using University hardware.	

Manual files such as fieldwork notes will use pseudonyms or simply roles and positions rather than names. These will be kept in a locked office.
8.3 Describe the measures you will take to deal with issues of anonymity. (max 200 words)
Names and positions will be recorded from key informant interviews for future reference, however, interviewees will be assigned pseudonyms and the document with real names stored securely on a computer with password protection. Names will not be used in any publications unless prior permission is given. In some cases, the job role and organisation will be sufficient to identify the interviewee. In that case participants will be asked whether their role can be named in the research and I will discuss with them, how they would prefer to be identified. Measure to deal with issues of online anonymity are detailed in 6.1 above.
8.4 Who will have access to the research data apart from the research team (eg translators, authorities)? (max 100 words)
I do not plan to allow third parties access to the research data. Should this become necessary for any reason, I will seek further ethical approval.
8.5 Describe the process you will use to ensure the compliance of third parties with ethical standards. (max 100 words)
I do not plan to release the research data to third parties. Should this become necessary for any reason, I will seek further ethical approval detailing the process I intend to use.
8.6 Where and in what format(s) will research data, consent forms and administrative records be retained? (max 200 words) *Please note: Mention hard copies as well as electronic data. Electronic data should be stored securely and appropriately and in accordance with the University of Leeds Data Protection Policy available at http://www.leeds.ac.uk/secretariat/data_protection_code_of_practice.html.*

Since the research will take place in the UK, I do not intend to store data other than on secure University of Leeds systems. Research data will be stored electronically on my M drive in accordance with the UoL data protection policy. For interviews, this information will take the form of electronic recordings, researcher notes, interviews transcribed into Word, and the NVivo files associated with data analysis. For online data this information will include Excel spreadsheets, pdf files, data outputs from the software packages used to access twitter/Youtube/Facebook and NVivo files associated with the data analysis. Consent forms will be scanned and stored on the M drive in accordance with the UoL data protection policy. The originals will be shredded. Administrative records will be stored on the M drive in accordance with the UoL data protection. Paper documents will be scanned and the originals shredded. The data will be used to inform the PhD study design and focus in writing the PhD thesis. Any journal articles would aim to be submitted during the final year of the project. Electronic data will be retained for two years after publication or three years after the end of data collection, whichever is longer.
8.7 If online surveys are to be used, where will the responses be stored? (max 200 words) *Refer to: http://it.leeds.ac.uk/info/173/database_and_subscription_services/206/bristol_online_survey_accounts and http://ris.leeds.ac.uk/SecuringResearchData for guidance.*
I do not intend to use online surveys.
8.8 Give details and outline the measures you will take to assess and to mitigate any foreseeable risks (other than those already mentioned) to the participants, the researchers, the University of Leeds or anyone else involved in the research? (max 300 words)
Additional risks and mitigation measures will be outlined in the Health and Safety risk assessment.

Section 9: Other ethical issues		
Yes	**No**	(Indicate with an 'X')
x		9.1 Is a health and safety risk assessment required for the project? *Please note: Risk assessments are a University requirement for all fieldwork taking place off campus. The risk assessment forms and further guidance on planning for fieldwork in a variety of settings can be found on the University's Health & Safety website along with further information about risk assessment: http://www.leeds.ac.uk/safety/fieldwork/index.htm. Contact your Faculty Health and Safety Manager for further advice. See also http://ris.leeds.ac.uk/HealthAndSafetyAdvice.*
	x	9.2 Is a Disclosure and Barring Service check required for the researcher? *Please note: It is the researcher's responsibility to check whether a DBS check is required and to obtain one if it is needed.*
9.3 Any other relevant information		
9.4 Provide details of any ethical issues on which you would like to ask the Committee's advice.		
1) Please advise the extent to which I should proactively disclose to participants I used to work at the Environment Agency on the shale gas project? My employment at the EA is a matter of public record and available on my LinkedIn profile, should anyone wish to search it however, staff were advised not to disclose they worked on the shale gas project because the matter is contentious. I left the EA in 2015 and am not funded by the organisation. I wish to be as open and honest as possible with participants however, this is a highly		

polarised debate and there is a risk that being perceived as 'belonging' to one side may prejudice my results.

2) Electronic data will be retained for two years after publication or three years after the end of data collection, whichever is longer – however, I am unclear how I would ensure the data is deleted from University servers once I have left the institution?

Section 10: Further details for student projects (complete if applicable)

Your supervisor is required to provide email confirmation that they have read, edited and agree with the form above. It is a good idea to involve your supervisor as much as possible with your application. If you are unsure how to answer any of the questions do ask your supervisors for advice.

10.1 Qualification working towards (indicate with an 'X')

	Bachelor's degree	Module code:	
	Master's degree (including PgCert, PgDip)		
x	Research degree (ie PhD)		

10.2 Primary supervisor's contact details

Name (title, first name, last name)	James Van Alstine
Department/ School/ Institute	Environment/SEE/Sustainability Research Institute
Telephone number	0113 34 37531
University of Leeds email address	J.VanAlstine@leeds.ac.uk

10.3 Second supervisor's contact details

Name (title, first name, last name)	Sebastien Nobert
Department/ School/ Institute	Environment/SEE/Sustainability Research Institute
Telephone number	0113 34 31157
University of Leeds email address	S.Nobert@leeds.ac.uk

Yes	**No**	10.4 To be completed by the student's supervisor
X		The topic merits further research
X		I believe that the student has the skills to carry out the research

Section 11: Other members of the research team (complete if applicable)	
Name (title, first name, last name)	n/a
Role (eg PI, Co-I)	
Department/ School/ Institute	
Telephone number	
University of Leeds email address	
Name (title, first name, last name)	
Role (eg PI, Co-I)	
Department/ School/ Institute	

Telephone number	
University of Leeds email address	
Name (title, first name, last name)	
Role (eg PI, Co-I)	
Department/ School/ Institute	
Telephone number	
University of Leeds email address	

Section 12: Supporting documents		
Indicate with an 'X' which supporting documents have been included with your application. Wherever possible the research title on consent forms, information sheets, other supporting documentation and this application should be consistent. The title should make clear (where appropriate) what the research is about. There may be instances where	x	Information sheet(s) *Please note: Include different versions for different groups of participants eg for children and adults if applicable. Refer to http://ris.leeds.ac.uk/InvolvingResearchParticipants for guidance in producing participant information sheets.*
	x	Consent form(s) *Please note: Include different versions for different groups of participants eg for children and adults if applicable. Refer to*

a different title is desirable on information to participants (for example – in projects which necessarily involve an element of deception or if giving the title might skew the results of the research). It is not imperative that the titles are consistent, or detailed, but where possible then they should be. Supporting documents should be saved with a meaningful file name and version control, eg *'Participant_Info_Sheet_v1'* or *'Parent_Consent_From_v2'*. Refer to the examples at http://ris.leeds.ac.uk/InvolvingResearchParticipants.		*http://ris.leeds.ac.uk/InvolvingResearchParticipants for guidance in producing participant consent forms.*
	x	Recruitment materials *Please note: Eg poster, email etc used to invite people to participate in your research project.*
		Letter/ email seeking permission from host/ gatekeeper
		Questionnaire/ interview questions
	x	Health and safety risk assessment *Please note: Risk assessments are a University requirement for all fieldwork taking place off campus. The risk assessment forms and further guidance on planning for fieldwork in a variety of settings can be found on the University's Health & Safety website along with further information about risk assessment: http://www.leeds.ac.uk/safety/fieldwork/index.htm. Contact your Faculty Health and Safety Manager for further advice. Also refer to http://ris.leeds.ac.uk/HealthAndSafetyAdvice.*
		Data management plan *Refer to http://library.leeds.ac.uk/research-data-manage.*

Section 13: Sharing information for training purposes

Yes	No	(Indicate with an 'X')
x		I would be content for information in the application to be used for research ethics and research data management training purposes within the University of Leeds. All personal identifiers and references to researchers, funders and research units would be removed.

Section 14: Declaration

1. The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.
2. I undertake to abide by the University's ethical and health & safety policies and guidelines, and the ethical principles underlying good practice guidelines appropriate to my discipline.
3. If the research is approved I undertake to adhere to the study protocol, the terms of this application and any conditions set out by the Research Ethics Committee.
4. I undertake to ensure that all members of the research team are aware of the ethical issues and the contents of this application form.
5. I undertake to seek an ethical opinion from the REC before implementing any amendments to the protocol.
6. I undertake to submit progress/ end of project reports if required.
7. I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
8. I understand that research records/ data may be subject to inspection for audit purposes if required in future.
9. I understand that personal data about me as a researcher in this application will be held by the relevant FRECs and that this will be managed according to the principles established in the Data Protection Act.

	Applicant	Student's supervisor (if applicable)
Signature		
Name	Imogen Rattle	James Van Alstine

Date	4 December 2016	6 December 2016

Appendix 3: Ethical approval

Research and Innovation Service

Level 11, Worsley Building

University of Leeds

Leeds, LS2 9NL

Tel: 0113 343 4873

Email: ResearchEthics@leeds.ac.uk

UNIVERSITY OF LEEDS

Imogen Rattle

School of Earth and Environment

University of Leeds

Leeds, LS2 9JT

ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee

University of Leeds

17 March 2017

Dear Imogen

Title of study:	**Exploring the influence of social movements' use of online resources in the Lancashire shale gas debate**
Ethics reference:	**AREA 16-072**
Grant reference	**ES/J500215/1**

I am pleased to inform you that the above research application has been reviewed by the ESSL, Environment and LUBS (AREA) Faculty Research Ethics Committee and following receipt of your response to the Committee's initial comments, I can confirm a favourable ethical opinion as of the date of this letter. The following documentation was considered:

Document	Version	Date
AREA 16-072 Participant_consent_formlowrisk RATTLE.doc	1	25/01/17

AREA 16-072 Fieldwork_Assessment_Form_low_risk_final_protected_ RATTLE .docx	1	25/01/17
AREA 16-072 response v1.1 (Imogen Rattle)	1	28/02/17
AREA 16-072 New_ethical_review_form Shale gas social media 1_2.doc	2	28/02/17
AREA 16-072 Email text RATTLE v01.docx	1	28/02/17
AREA 16-072 Participant_Information_Sheet_Rattle 1.1.docx	2	28/02/17
AREA 16-072 Participant_consent_formlowrisk RATTLE v02.doc	1	28/02/17

Please notify the committee if you intend to make any amendments to the information in your ethics application as submitted at date of this approval as all changes must receive ethical approval prior to implementation. The amendment form is available at http://ris.leeds.ac.uk/EthicsAmendment.

Please note: You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two-week notice period if your project is to be audited. There is a checklist listing examples of documents to be kept which is available at http://ris.leeds.ac.uk/EthicsAudits.

We welcome feedback on your experience of the ethical review process and suggestions for improvement. Please email any comments to ResearchEthics@leeds.ac.uk.

Yours sincerely

Jennifer Blaikie

Senior Research Ethics Administrator, Research & Innovation Service

On behalf of Dr Kahryn Hughes, Chair, AREA Faculty Research Ethics Committee

CC: Student's supervisor(s)

Appendix 4: Participant information sheet

Use of online resources in the English shale gas debate

Dear Participant

You are being invited to take part in a research project, conducted by me, Imogen Rattle, as part of my PhD at the University of Leeds. I am investigating how use of online resources, such as websites and social media, is influencing the debate on shale gas in England. This information sheet is designed to help you decide whether you wish to take part. Please take time to read the following information carefully and discuss it with others if you wish. You can contact me if you would like more information. My details are overleaf.

What is the purpose of the research?

The internet is changing the way people go about their lives. While online discussion and participation will not replace other types of interaction, they have become an important way for people to engage with issues which are important to them. This research aims to develop a deeper understanding of how and why people are engaging in debates on sustainability issues online, and of the effects this activity has, both on how they view the issue, but also on how the debate has developed.

I have chosen to study shale gas in England because shale gas is a controversial topic and there is potential for shale gas development to take place in different parts of the country, and in different parts of the world. These features have led to people to using the internet to learn more about the matter The high proportion of adults with internet access in England means online activity has become a significant part of the national debate.

Why have I been invited to take part?

You have been invited to participate because my research suggests you or your organisation is active in the shale gas policy field, and/or because someone else I interviewed suggested I speak to you.

Do I have to take part?

No: participation is entirely voluntary. This also means if you decide to take part you are free to stop the interview at any time without giving a reason and without there being any negative consequences. In addition, if you do not wish to answer any particular question or questions you do not have to. If you do decide to take part you can withdraw without giving

a reason and have your data removed from the study if you email me to request this within a month of your interview.

What do I have to do/ what will happen to me if I agree to take part?

I will be conducting interviews to ask you to reflect upon your and your organisation's experience of online resources relating to shale gas: for example websites, social media, e-petition sites, online public consultation portals. In particular I will be asking about your perceptions, motivations and experiences of these sites and whether you believe they have a positive or negative role to play in the debate.

The interview will be informal and semi-structured, which means I have some set questions to ask but you will also be able to expand on the issues which you think are important. It will last up to an hour and will be conducted in a location and at a time convenient to you. It could also be conducted via phone or an online video conferencing facility such as Skype if you would prefer.

How will you use this information?

I will record and transcribe (write down) the interview and analyse it for my PhD project. As part of this process the results of my analysis may be published in peer-reviewed journals and presented at conferences. No other use will be made of this information without your prior emailed permission.

Will my taking part in this project be kept confidential? / What will happen to my data?

I will keep your participation confidential. If someone has recommended I speak to you, I cannot promise this on their behalf, but I will suggest it to them. Your name and your organisation's name will not be used in the research, nor in any related publications. If I quote you, I will describe you by your role (e.g. volunteer, councillor, technical lead) and your organisation type (e.g. NGO/ community group/ business /regulator /local council). If you would prefer to be described in some other way we can discuss this during your interview.

The recording, electronic transcription of your interview, and scanned consent form will be securely stored so that they are only accessible to the project team, and retained on University of Leeds servers for three years following the final publication from the project. After this time the files will be deleted.

What are the possible disadvantages, risks and benefits of taking part?

There is no foreseeable risk or disadvantage, nor any direct benefit, associated with participating in this research. However, the findings will provide a better understanding of the positive and negative effects of using online resources to engage in debates on sustainability issues, which may be of interest and potential benefit to you.

What other research will you be conducting?

I will also be looking at the debate on shale gas taking place on sites such as Twitter and Facebook.

Contact details

To arrange an interview or to find out more information, please email me:

Imogen Rattle, University of Leeds, School of Earth & Environment

Email address: ee11ikr@leeds.ac.uk

You can also contact my academic supervisors if you need to:

Dr Lucie Middlemiss, University of Leeds, School of Earth & Environment,

Tel: +44(0) 113 34 35246. Email address: L.K.Middlemiss@leeds.ac.uk

Dr James Van Alstine, University of Leeds, School of Earth & Environment,

Appendix 5: Consent form

Consent to take part in the influence of online resources on the English shale gas debate

	Add your initials next to the statements you agree with
I agree to take part in the above research project	
I confirm that I have read and understand the information sheet dated Feb 2017 explaining the above research project and I have had the opportunity to ask questions about the project.	
I understand that my participation is voluntary and that I am free to withdraw my data from the study by emailing the researcher within a month of the interview.	
I agree for the data collected from me to be used in an anonymised form in the PhD project and related publications	
I agree for the data I provide to be archived at the University of Leeds for three years following the final publication from the project.	
I understand that no other use will be made of the data I provide without my prior emailed consent.	

Name of participant	
Participant's signature	
Date	
Name of lead researcher	Imogen Rattle

Signature	
Date	

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be kept with the project's main documents which must be kept in a secure location.

Appendix 6: Interview protocol

Introduction

- Introduction to self.
- Confirm interviewee has read information sheet. Check if any questions.
- Confirm interviewee has read and signed consent form.
- Ask how interviewee would like to be identified – will agree at the end on interview.
- Remind interviewee they can refuse to answer any question.
- Confirm consent to begin recording.

Questions

1. **Background**
    a. Could you tell me something about yourself and how you became involved in shale gas?
    b. Could you tell me something about your group/organisation?
        i. What does it want to achieve?

2. **Your /your groups use of online**

Show visual prompt sheet. Discuss different categories.

a. Do you/ your organisation use online resources to engage on shale gas?
    - Which ones?
    - Any not on the prompt sheet?

b. Who are your audience?

c. How do you use these tools for each group?
    - Is it the same or does it differ between groups?

d. What do you use these tools for?
    Eg: fund raising/ event organisation/ information gathering/ networking/ raising profile of debate

e. Are there any big campaigns which stand out?

f. Do you think they are helping you achieve the group's goals?

3. **Other's use of online**

Are you aware of other stakeholders using online resources?

- To engage with you?
    - Could you give an example?
    - What was it like?
    - Would you say that was typical?
- To engage with other stakeholders?
    - Could you give an example?
    - What was it like?
    - Would you say that was typical?
- In other ways?

- Could you give an example?
- What was it like?
- Would you say that was typical?

Follow up, if not mentioned, with the examples of online resources from the prompt sheet. Check if any other examples.

4. **The influence of online resources on the shale gas debate**
   Shale gas is complex and contentious
   a. Has the use of the online influenced how you go about your role?
      - Could you give an example?
      - Would you describe it as positive/ negative/just different?
   b. How do online resources interact with other more 'traditional' methods of political action eg: letters/phone calls/ offline petitions/ newspapers/ op-eds/ public meetings?
      - Do they augment/ replace/ compete/other?
   c. What do think believe the influence of online resource use has been on the overall debate?
      - On other stakeholders?
      - Could you give an example?

5. **How does shale gas compare to your other public engagement experiences (if you have any?**
   a. Prompt: Is it the same?
   b. Will it change how you do things in future - how?

Are there any other points or comments you would like to add, or think I should have asked?

6. **Is there anyone else you suggest I should speak to?**

7. **Is there anything you would like to ask me?**

Conclusion

- Thank you
- How do you want to be identified?
- Possibility of follow up questions

Appendix 7: Interview prompt sheet

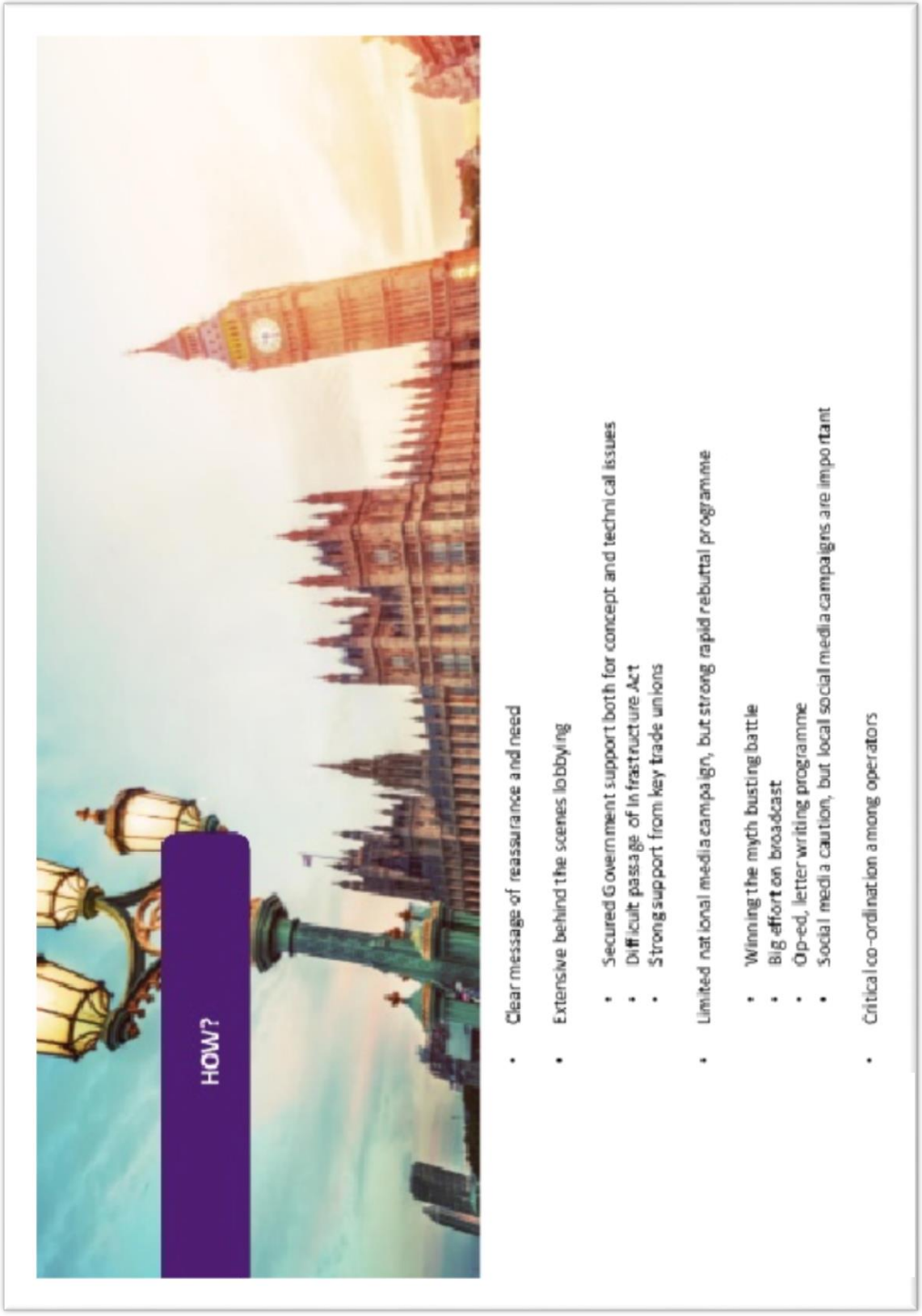
Appendix 8: Tactics of post-politicisation according to Swyngedouw

Element	Tactic	Narrative	Consequences	Manifestations	Paper using this element to analyse
Threat	Universal humanitarian threat Swyngedouw 2007 (1) Swyngedouw 2007b (1) Swyngedouw 2009 (1) Swyngedouw 2010 (1)	We will all (nature and humanity) be victims of environmental catastrophe. Nature is running out of control	Divisions are ignored. Conflicts of interest are ignored & ideological differences papered over.	References to the people Humanity Idea of only one nature Common threat We are universal victims	Bettini 2013 climate change migration narratives Davoudi 2014 changing discourses of environment
Threat	Universalising claim is socially homogenising Swyngedouw 2010 (2)	Effects will differ according to capabilities but this only strengthens the need for action	Universalising claim is socially homogenising	Geographical and social differences in terms of effects are clearly recognized but all will be victims	
Threat	Nature society dichotomy re-enforced Swyngedouw 2010 (3) (More explicit framing of consequences of 1)	While human action is acknowledged to change nature, it is nature which will bring the apocalypse	Ecological problems are externalized as are the solutions The systemic conditions causing problems are not addressed.	E.g. CO2 as a stand in for climate change Intruders which have altered the systems Addressing CO2 addresses the problem	Davoudi 2014 changing discourses of environment sustainability to resilience

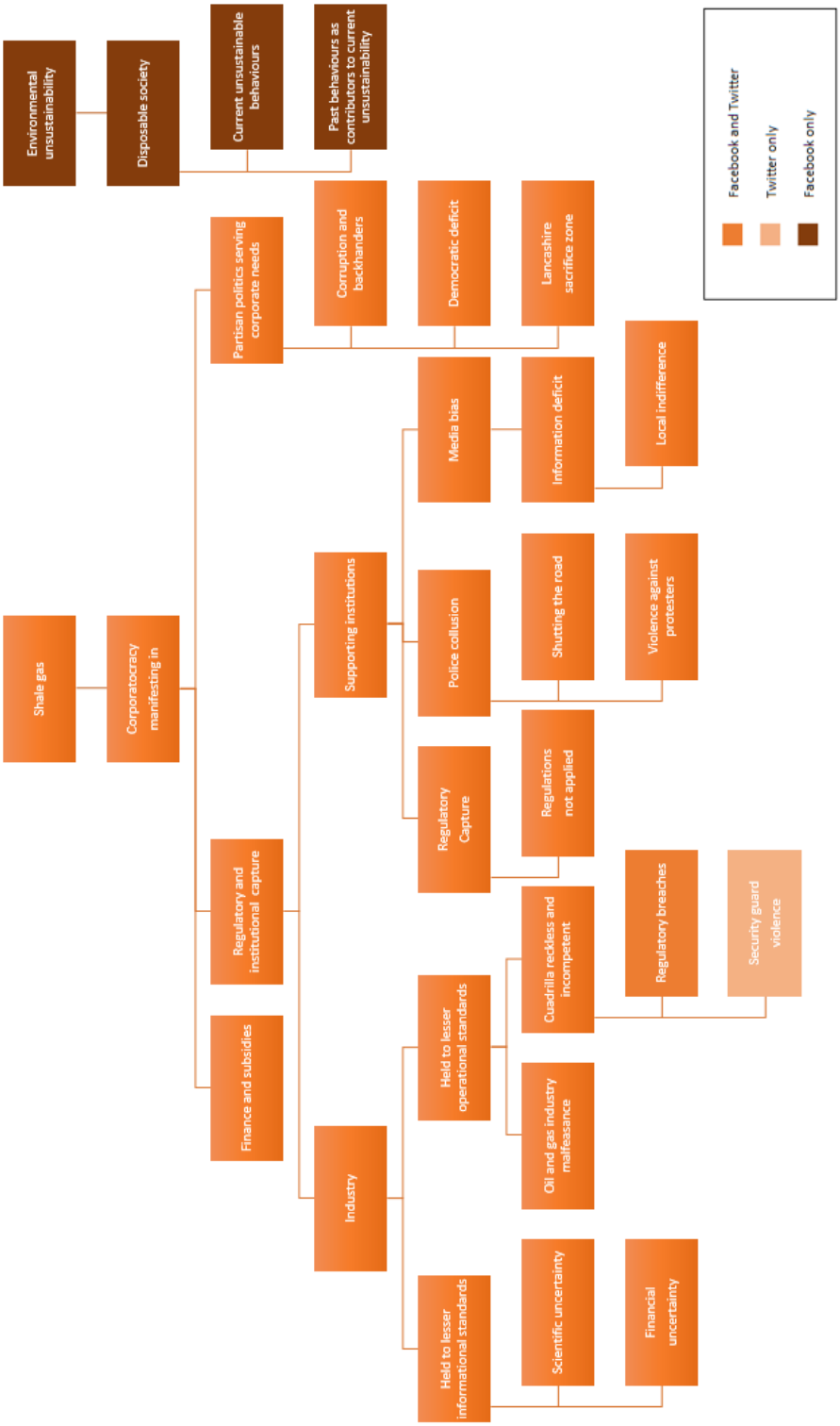
Element	Tactic	Narrative	Consequences	Manifestations	Paper using this
Threat	Apocalyptic future if immediate action is not taken Swyngedouw 2007 (3) Swyngedouw 2007b (3) Swyngedouw 2009 (3)	If we don't act (in a technocratic-managerial manner) now, our future is in grave danger	Sense of urgency ?Justification for acting in non-democratic ways (not stated but appears reasonable assumption	Apocalyptic narratives Imminent danger	Bettini 2013 climate change migration narratives Davoudi 2014 changing discourses of environment
Threat Techno managerial	Do not identify a privileged subject of change Swyngedouw 2007 (4) Swyngedouw 2007b (4) Swyngedouw 2009 (4)	Everyone is affected by an external threat. An Intruder, or group of intruders, who have corrupted the system	Denies internal tensions Differences are papered over; the political is erased Problems therefore are not the result of the system Only need technical change	The need for common humanity-wide action, mutual collaboration and cooperation. Blaming an external enemy, which can be overcome without changing the system	Bettini 2013 climate change migration narratives
Techno managerial	No proper names assigned to the field of action (esp. in relation to climate change policy) Swyngedouw 2007 (6) Swyngedouw 2007b (6)	Whereas previous political movements addressed themselves to group – here there is no named group called into being just a focus on the	The focus on the future enables the recasting of current social, political issues as future problems which can managed via techno-managerial	Use of empty signifiers like climate change policy No positive content assigned to the future No new imaginaries	Žižek

Element	Tactic	Narrative	Consequences	Manifestations	Paper using this element to analyse
Non-political Techno managerial	Demands expressed in particular terms and not universalised Swyngedouw 2007 (7) Swyngedouw 2007b (7) Swyngedouw 2009 (7) Swyngedouw 2010 (8)	More absence of narrative… Universalisation is foreclosed	No positive and named socio-environmental future Problems are moved around not solved No systemic change. Only technical change permitted Social movement cannot broaden base	Making specific articulated demands Ban fracking No wider calls for change ? We said no	Haughton 2016 Manchester protests Winlow book on EDL Indignados 2011 riots Occupy Greece
Non-political	Demands addressed to the elite Swyngedouw 2007 (5) Swyngedouw 2007b (5) Swyngedouw 2009 (5) Swyngedouw 2010 (6)	The elites must address specific instances of injustice	No question of replacing the elites. No transformation of the existing socio-ecological order Nothing really has to change	Demands to LCC; EA; Sajid Javid	Winlow book Occupy

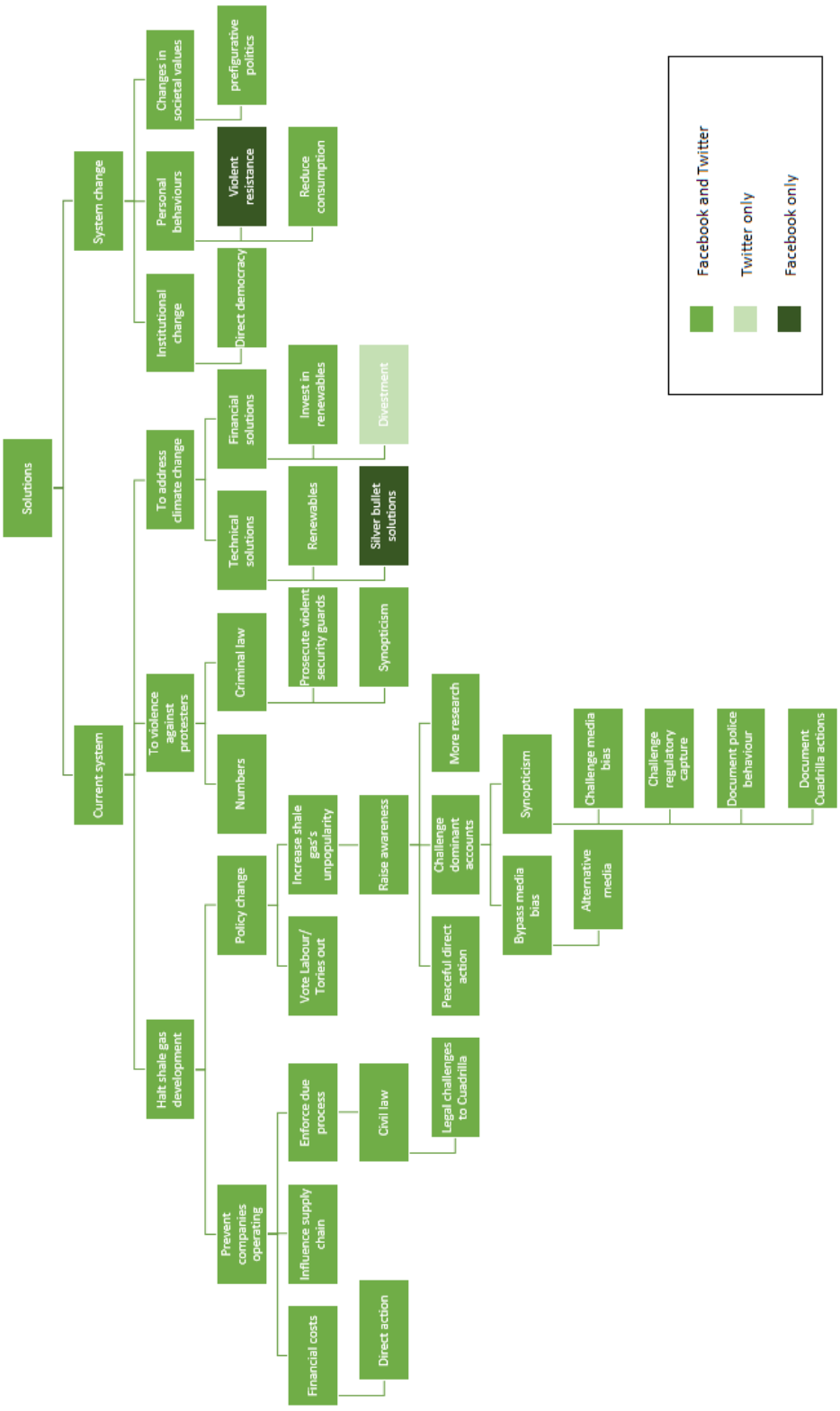
Appendix 9: Slide detailing UKOOG PR strategy March 2017



Appendix 10: Structure of diagnostic framing analysis

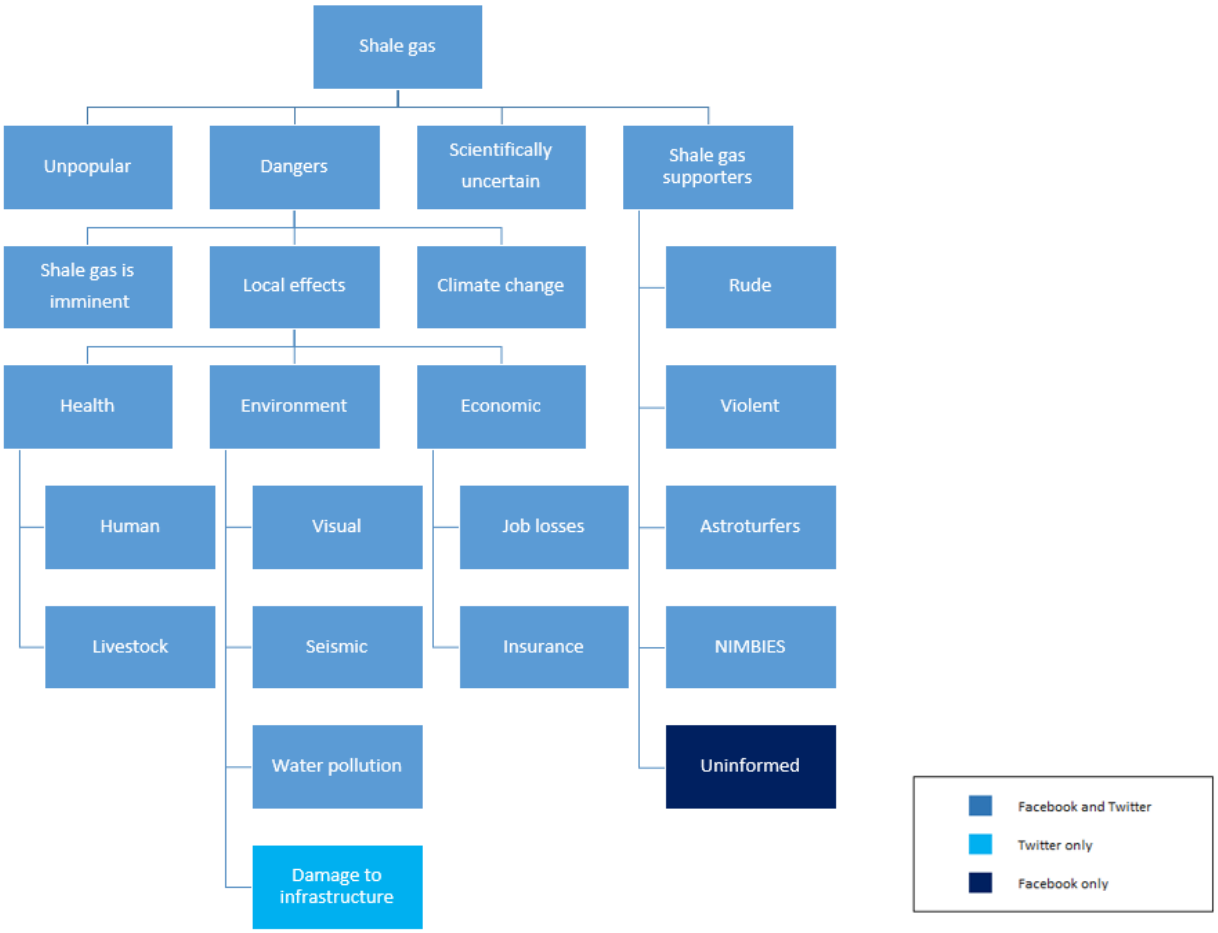


Appendix 11: Structure of prognostic framing analysis



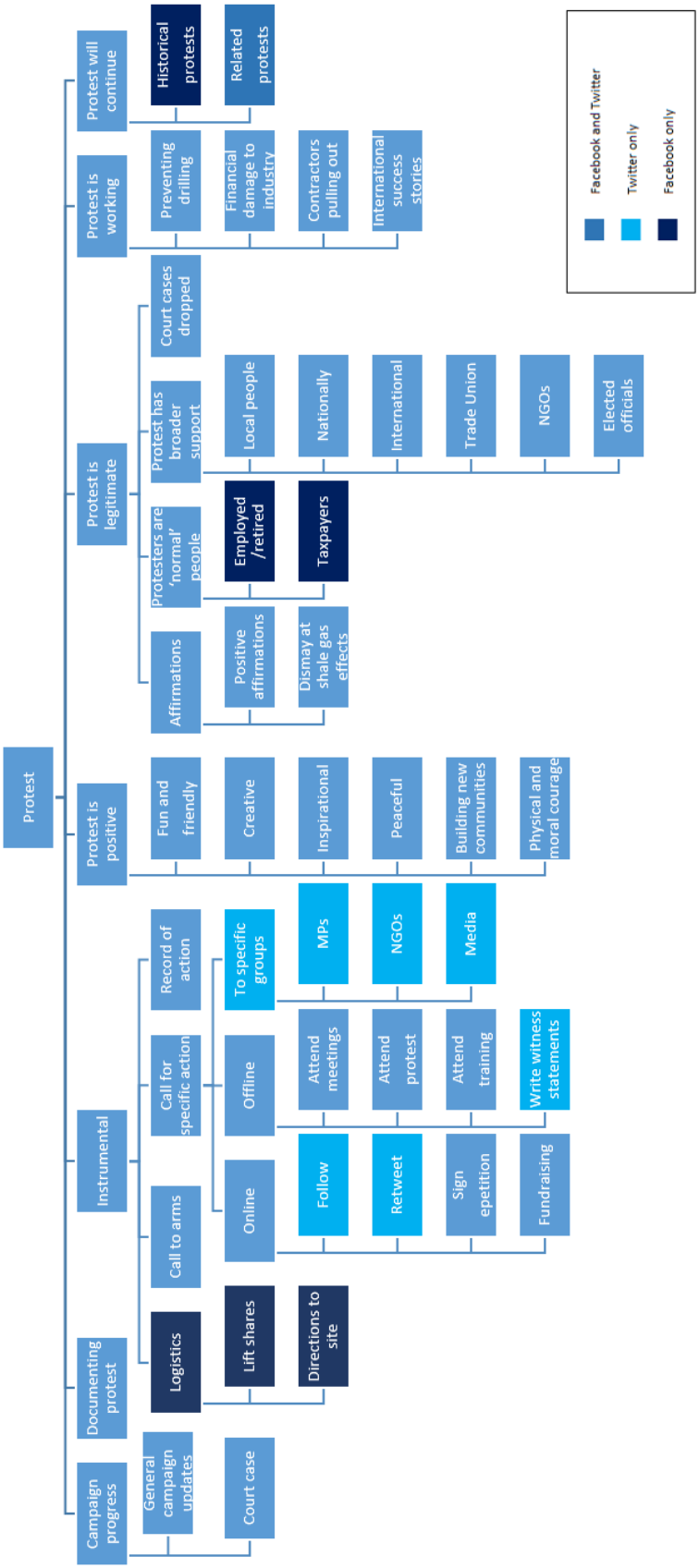
Appendix 12: Structure of motivation framing analysis

A) In relation to shale gas[3]



[3] The diagram on this and the next page are part of the same framework but have been split for ease of display

B) In relation to protest



Appendix 13: Structure of dissenting framing analysis