Love Leitrim/Hate Fracking: The Affective Technopolitics of Environmental Controversy in Ireland

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Thesis submitted for the award of PhD

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Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of PhD is entirely my own work, and that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

Signed: _____

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Abstract

Fracking is an emotive issue. That is the starting point for this thesis which explores public engagement in the context of environmental controversy in Ireland. Love Leitrim, an anti-fracking community campaign, opposes fracking. They do so not just through scientific knowledge practices, but through a felt and meaningful performative imaginary. This thesis aims to explore the richness of this anti-fracking imaginary by paying attention to the affective practices involved. This is with a view to considering what value this understanding might have for public engagement.

The empirical work involved unstructured interviews, participant observation, and image and video analysis. The findings explore what affective practices are evident in the anti-fracking imaginary, detailing love, hate, positivity, enchantment, anger, fear, and more. The analysis examines how emotions such as shock and fear unsettle the community, opening a fracking future that produces distinct orderings of time, space, and society. It looks at the settling of temporal, spatial and social order in an affectively-charged counter-imaginary whereby fracking is imagined as absent. It uncovers a politics of violation and consent, ownership, and healing that deal with traumatic memories of Troubles-era violence, hopeful sustainable futures, and the protection of community, place, and a way of life.

The thesis ends by examining these issues in more detail, suggesting that affectively charged imaginaries provide unique opportunities for engagement. I argue that the creative capacity of affect could allow us to imagine together in playful, performative, and participatory ways which foster care, trust, sensitivity and empathy. I suggest that this kind of engagement constitutes a politics that is just and in which collective visions can be reimagined and resettled in ways that embrace and value difference.

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Introduction

> What? The aim of science should be to give men as much pleasure and as little displeasure as possible? But what if pleasure and displeasure were so tied together that whoever wanted to have as much as possible of one must also have as much as possible of the other
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> —Nietzsche, *The Gay Science* (1974 [1882], p.85)

1.1 Introduction and Research Context

This research has two chief aims: to examine the emotional dimension of public responses to hydraulic fracturing (known popularly as 'fracking') in Ireland and to explore how emotion operates within the theory of sociotechnical imaginaries (Jasanoff 2015b). These aims are driven by an overarching goal to better understand what benefit a consideration of emotion might have for science communication. These concerns arose from a question posed by the Environmental Protection Agency (EPA) in a funding call for doctoral research. The EPA sought to understand how its scientists could better communicate environmental science in Ireland.[1] This is a hugely rich topic to focus on, with many potential avenues of investigation. The path that I've chosen is to examine public engagement within the context of environmental controversies, and, specifically, to try to understand how the publics involved in those controversies make sense of where they're at. The assumption here, is that communicating science, or engaging with the public about science, involves a lot more than scientific or technical information.

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[1] My research is supported by this EPA funding.

A controversy such as fracking, which this research takes as its object of study, involves knowledge and technologies that are thoroughly entangled with social, political and cultural contexts. To what extent the knowledge and technologies underpinning fracking come into play in actual lived life depends on a long and complex network of technopolitical decisions involving a diverse range of social actors including politicians, investors, geologists, policymakers, campaigners, and journalists.[2] That is not to mention the vagaries of the not-so-human actors involved, and what they have to say about the matter: the beautiful landscapes of north Leitrim which evoke such passion in its inhabitants, the financial markets determining the price of oil and gas, or the geological data hinting at how much shale gas might actually be available for capture.

Fracking does not exist in a vacuum, it is integrated into the social and material relations between governments, industries, communities, and individuals, complete with their diverse and often contradictory ways of making sense of their environment (Jasanoff 2004a). The technical information relating to fracking – including geological data, risk calculations, baseline environmental data, and public health research – sits alongside other modes of meaning-making – cultural, moral, legal, and aesthetic. In acknowledging the diverse ways that people might make sense of fracking I am straight away removing the privilege that scientific knowledge enjoys in some traditional approaches to science communication. The thoroughly critiqued 'deficit model' approach in dealing with the public has been largely discredited at this stage as the primary means by which scientists should communicate with the public (Davies and Horst 2016). Instead of assuming that successful communication involves addressing the public's apparent deficit in scientific information, scientists are urged to listen to what the public have to say about a given issue. Quite often, as the literature frequently shows, the source of controversy is not scientific information per se, but the institutions and practices of governance, control, decision-making, and representation in which it is embedded (Irwin and Michael 2003). As the field of STS has been successful at demonstrating, nowhere in actual life can we find scientific knowledge shorn of its social or political contexts. As Bruno Latour put it: 'no one has ever observed a fact, a

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[2] Technopolitics refers to a broad political context that is driven by science and technology. It involves links between 'people, engineering and industrial practices, technological artefacts, political programs, and institutional ideologies' (Hecht, cited in Felt 2015, p.104).

theory or a machine that could survive *outside* of the networks that gave birth to them'
(1987, p.248, emphasis in original).

If productive dialogue is going to happen between scientists and the publics who gather around controversial issues, then scientists need to learn how to listen. In Ireland, at the level of government (SFI Discover), third level institutions (research centre outreach and education activities), and industry (advertising), resources have been spent communicating scientific facts and processes to a patiently listening public. The starting point that my research takes is to try and understand how engagement might happen if we listen to what the public have to say – in this case about fracking – and not just at the level of science and technology, but right down to how people feel and make sense of the issue at an individual and community level. This will involve paying attention to how people envision fracking and its alternatives – how they speak about it and what their emotional responses are. This is an attempt to understand the meaning that is made of fracking as opposed to the knowledge that is made of it. This conceptual distinction will be explored further in the literature review. I believe that understanding how we make sense of environmental controversies like fracking – on an emotional and discursive level – will necessarily bring about a better context for engagement. Relating to how people feel about an issue – in its meaningful embeddedness in everyday life – can, I suggest, provide a fluent, realistic, and receptive starting point from which to engage with those people.

Before outlining the development of the research questions, I would like to provide a little contextual information about fracking and its relationship with Ireland.

1.2 Fracking and Ireland: Some Context

Hydraulic fracturing is a technique used for gas exploration and extraction. It has been introduced relatively recently as a way to mine for unconventional gas, that is, gas that comes from unconventional sources such as 'shale gas deposits, coal seams, and tight sandstone' below the surface of the ground (Hooper et al 2016, p.ix). A bore hole is drilled and filled with fluids – generally water, sand, and other chemicals (Chen and Gunster 2016, p.310) – until enough pressure builds to cause the rock to fracture and allow trapped natural gas flow back up to the surface well head for capture (Healy 2012, p.4).

Figure 1.1 Overview of case study areas of the EPA research project. North Leitrim, the area I am studying, is situated in the green area. Source: Hooper et al 2016.

Fracking is not a new technology but is instrumental in accessing unconventional gas. Changes in market values of oil and gas, the introduction of improved techniques for horizontal drilling, and the ability to inject high volumes of fluids have allowed fracking of unconventional gas to become a profitable enterprise, resulting in an increase in exploration and extraction (Lang 2014). This has particularly been the case in the US, the UK, Canada, Poland, and Ukraine.

In Ireland, onshore petroleum licensing options were awarded in 2011 to three companies who sought to assess the shale gas potential within the Northwest Carboniferous Basin and Clare Basin (Hooper et al 2016, p.1). These exploration areas are indicated in Figure 1.1, above. So-called "options licences" constitute the first stage of exploration and allow companies to do desktop and seismic studies but do not permit deep drilling (beyond 200 meters) or hydraulic fracturing. On completion of the

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necessary work accompanying the options licence, companies then have first option to apply for a full exploration licence. Part of the work companies must carry out is an Environmental Impact Assessment (EIA) where the firm propose a phase of development and write an Environmental Impact Statement which is assessed by the EPA. Granting of the full exploration licenses was halted in 2014 by the Department of Communications, Energy and Natural Resources pending the outcome of a research project 'looking at the potential impacts on the environment and human health from UGEE projects/operations' (Hooper et al 2016, p.1).

Before the licensing process could resume, legislation to ban fracking in Ireland was brought forward through a Private Members' Bill and passed in both houses of the Oireachtas (Irish Parliament). The *Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017* prohibited the exploration and extraction of petroleum by means of hydraulic fracturing. Deputy Tony McLoughlin, a Fine Gael *Teachta Dála* (TD, member of Irish Parliament) for Sligo-Leitrim, who brought forward the Private Members' Bill, spoke during the final stages of the passing of the legislation. He said that his Bill 'will ensure the environment and communities in the west and north west will be protected from the harmful and damaging effects of hydraulic fracking' (Petroleum and Other Minerals Development [Prohibition of Onshore Hydraulic Fracturing] Bill 2016: Report Stage [Resumed] and Final Stage 2016). He went on to state the reasons for banning fracking:

> Hydraulic fracturing is an extraction and exploration process that has been scientifically proven to be bad for the environment. It would damage our fresh groundwater, affect our agricultural output, damage our tourism industry and, most important, have a detrimental effect on public health. If it was ever permitted to take place in the Republic of Ireland, counties such as Sligo, Leitrim, Roscommon, Donegal, Cavan, Monaghan and Clare could experience damaging effects similar to those experienced by cities and towns in the United States, many of which have decided to implement bans similar to that proposed in the Bill. On that basis, unconventional hydraulic fracking must be considered a serious public health and environmental concern for tens of thousands of people in the Republic of Ireland. This is the key reason the Bill is necessary and the importance of its passage has been recognised by the majority of parties in the House.

At the same debate, Deputy Eugene Murphy, a Fianna Fáil TD, said that 'the people who have us here [are] the people from Leitrim and north Roscommon who started this campaign […] the real reason we are here is that those people brought it to our attention

and have fought very hard to get this done'. This is a reference to campaign groups such as Love Leitrim who are a central focus of my research.

The legislation to ban fracking reflects common concerns connected with fracking. These include: groundwater and well water pollution, the release of chemicals contained in fracking fluid, greenhouse gas emissions through the burning of natural gas and the broader carbon footprint of drilling, negative effects on public health from water, air, noise, or light pollution, negative economic impacts on farming and tourism, and increased seismic activity (Davies 2011; Jackson et al. 2011; Ellsworth 2013; Lang 2014; New York State Department of Health 2014). Many of these are contested and debates continue about the effectiveness of regulation in addressing them (Lang 2014).

Fracking is not the first environmental controversy in Ireland. Barry and Doran have written about the history of environmental issues in the country, suggesting that there has been a longstanding tension between the state's values and policies regarding the environment and business interests, and between 'the environmental movement and farming interests and some rural local community interests' (2009, p.337). There have been several flashpoints. The first major popular environmental movement in recent times developed in opposition to a proposed nuclear power plant at Carnsore Point, in County Wexford in the 1960s and 1970s. Resistance to nuclear power has remained a major concern for Irish people since that time (Motherwell et al 2003). Leonard (2008) identifies a second phase of environmental movements, after the Irish economy had begun to improve in the late 1980s. This brought with it major infrastructural projects such as roads, incinerators, and gas pipelines which campaigners felt threatened communities, environment and heritage. Controversies arose in the 1990s at the Glen of the Downs in County Wicklow, Carrickmines in County Dublin, and near the Hill of Tara in County Meath where road construction threatened to harm areas of natural beauty and heritage. Anti-incinerator campaigns arose in Counties Galway, Meath, and Cork around the same time.

More recently, the Corrib gas project sparked massive controversy as Shell E&P Ireland and other energy companies attempted to bring a pipeline of offshore gas through the communities in Erris, County Mayo on the west coast of Ireland. Protests grew through the 2000s as the Shell to Sea campaign gathered pace, calling for gas processing to take place offshore. Concerns were raised about the proximity of the high-pressure pipeline to residences, collusion between the Gardaí (Irish police force) and Shell, and a lack of involvement in decision-making, among other issues (Siggins 2010).

While Shell were eventually successful in routing their pipeline onshore, albeit by an alternative route to that originally planned, the decade-long controversy has had 'a very powerful resonance around the world' (O'Toole, in Siggins 2010, p.xii). The alignment of the government with Shell's interests, both in acquisitioning land and mounting police operations, has led to 'a legacy of mistrust of multinationals and the state' (Leonard 2007, p.80). This connects to a longer history of community-based collective action in the West of Ireland.

The historian F.S.L. Lyons writes of the late 19th century 'land wars' where peasants responded to starvation and evictions with collective destruction of property and threats against the lives of landlords (1985 [1971], p.165). The Irish National Land League emerged also during this time, a rural social movement which aimed to prevent tenants from being 'rack-rented', unjustly evicted, and eventually making them owners of their farms in the long-term (Lyons, p.167). The Land League was founded by Mayo-native Michael Davitt, whose 'radical and emotional' view of the land question was successful in creating a resistance movement of farmers and peasants that mobilised rural dissent. The Land League 'gained rates and tenure rights' for Irish farmers and was responsible for the emergence of other cooperative social movements such as the *meitheal* system that pooled labour resources (Leonard 2007, pp.80-81). Leonard traces Davitt's Land League through other groups such as Muintir na Tíre and the Irish Farmers Association (2007, p.81). He suggests that 'with the commencement of the laying of a gas pipeline through the heartland of the Erris coastline in North Mayo the underlying psyche which has its roots in prior rural collective action was resurrected' (2007, p.81).

County Leitrim sits just to the east of Mayo, in the northwest of the country. It is one of the smallest counties on the island and is the least populated. Leitrim is a border county, sharing a border with County Fermanagh in Northern Ireland. Carrick-on-Shannon, the largest town in Leitrim has a population of 4,062. The region has seen many different industries pass through it such as iron ore and coal mining, linen weaving, and charcoal production. Leitrim County Council describes the county as having 'a rural character' and enjoying 'the quality of its environment and landscape, the welcoming nature and endeavour of its people, growing indigenous and foreign-owned businesses, and a widely dispersed, successful and supportive diaspora' (2015, p.1). According to Leitrim Tourism Network, 'with small traditional towns and villages and miles of unexplored hills, lakes and forest Leitrim is a place to turn back time and

experience traditional Irish hospitality' (2017). Love Leitrim, a member of this network was formed in 2011 with the purpose of 'preserving and promoting the quality of life in our part of the world' (Love Leitrim 2017).

Love Leitrim are the largest campaign group in the northwest of Ireland who oppose fracking. They state that the 'biggest threat to our way of life is UGEE (unconventional gas exploration and extraction); the process commonly known as fracking' (Love Leitrim 2017). The group's vision statement touches on many themes which will emerge throughout this thesis. The vision explains how Love Leitrim was formed 'to promote all the positive aspects of our beautiful unique county and its contribution to national wealth and heritage' (2017). It describes 'vibrant creative inclusive and diverse community', stating that the county is 'a leader in renewable energy, with a sustainable local economy and is a model of good practice for Ireland and beyond that can be expanded further to contribute to the nation's well-being' (2017). One of the arguments that this thesis will make is that this anti-fracking imaginary is worth engaging with in planning and enacting a future for the country.[3] I will also suggest that emotions play an important role in this vision. Love Leitrim has a central aim: 'to ban fracking on the island of Ireland' (2017). This is to be achieved through three objectives:

1. To undertake public awareness.
2. To lobby decision makers to meet our aim.
3. To celebrate positive unique aspects of Leitrim in partnership with others.

This research will explore Love Leitrim's vision in detail, examining how its emotional dimensions might be valuable to our understanding of public engagement.

The communities and individuals described in this research are understood differently than our conventional conceptions of the public. Rather than imagining a static public sitting "out there" waiting to react to fracking, they are conceived here as being 'sparked into being' (Marres 2005) by the controversy. The research will demonstrate how Love Leitrim produce a community and its identity through their intervention into the fracking issue and their imagination of alternatives. The trade off

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[3] An imaginary is a collective societal vision of a desirable or feared future. A sociotechnical imaginary is one that is driven by science and technology (Jasanoff 2015b).

with this approach is that attention tends to focus on those doing the most work, with the "general public" fading into the background. However, the benefit is a clearer view of the productive and influential collectives, feelings, and visions shaping the imaginary.

Love Leitrim are a relatively small group; their membership rises and falls as different events unfold. The research suggests that there are multiple scales to the anti-fracking imaginary, from the local to the national, and on to the global. Even within this local scale – the communities of north Leitrim – there are layers of involvement. Some campaigners attend almost every meeting, contribute abundantly to policy, meet frequently with politicians, and speak regularly in the media. Others lend a hand at fundraising events, sporadically attend talks, or share content on social media. The categories of campaigner and community employed here are flexible – updated and changed by the ongoing actions of those involved. Less important for this analysis is a stable conception of who populates Love Leitrim or the Leitrim community. Instead, attention is paid to how these identities come about and how they are used by particular groups of people (such as those participating in this research).

Even less attention is paid to the specifics of actors working at the macro scale. The research does not focus on media outlets discussing fracking, government agencies involved in its licencing or regulation, private enterprises seeking to undertake exploration, or the research consortium tasked by the EPA with assessing its safety. It should be noted that these are powerful actors whom each play important roles in the controversy. However, they are not part of the story being told here, which seeks to illuminate how affect and emotion are involved in local resistance to fracking and how it contributes to a powerful anti-fracking imaginary.

1.3 Developing the Research

In its attempt to explore the affective dimension of the anti-fracking imaginary of north Leitrim and what value this might have for public engagement, this research straddles a number of disciplinary boundaries. In particular, the work draws on scholarship in the areas of science communication, Science and Technology Studies (STS), and sociological perspectives on affect theory. To make matters more complicated, the method draws its inspiration from a range of anthropological sources. As a result, the

following research is not able to provide an exhaustive analysis of the scholarship across science communication, STS, the politics of fracking, and affect studies. Instead, what it aims to do is present a targeted review of relevant material guided by a specific research query, or 'puzzle' in more formalised language. This puzzle is prompted by the EPA in the funding call that ultimately became this PhD, namely: *How can EPA scientists better communicate environmental science in Ireland?* This is an unfeasibly broad and open-ended question upon which to base empirical research, but it captures something of the exploratory spirit with which this PhD is largely driven. How *can* EPA scientists better communicate environmental science in Ireland? In stereotypically Irish fashion, I referred to the well-worn response: 'Well, I wouldn't start from here'.[4]

Here, in this case, is the often-vilified deficit approach to communicating science which has been largely discredited in science communication scholarship as the primary means by which scientists might communicate with the public. While the deficit/dialogue narrative does an injustice to the full 'ecosystem of science communication' (Davies and Horst 2016, p.221) practices which take place globally, the format of the above research question is reminiscent of the traditional deficit view of public engagement. Much work in STS has unearthed the complex relations of power involved in science/society relations in a bid to explore the best means of facilitating dialogue between scientists and the public which is simultaneously open, responsive, and reflexive (Macnaghten and Chilvers 2014; Stilgoe et al. 2014; Chilvers and Kearnes 2016a; Davies and Horst 2016). This approach to science communication sees science/society relations as 'emergent and in the making' where diverse 'publics of science and democracy are actively brought into being through matters of concern' (Chilvers and Kearnes 2016a, p.4). This model of public engagement, configured within the field of STS, provides the starting point for considering how EPA scientists can better communicate with the public.

To narrow the inquiry further in order to generate some practical research questions, I focused on environmental science *controversies*. This was done for several reasons. Firstly, controversies offer vivid sites in which to explore the politics of science/society relations (Marres 2005, 2007, 2012; Latour 2007a; Whatmore 2009;

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[4] Terry Eagleton (2011, p.71) has observed that this comment is not as illogical as it appears, writing that it basically means 'You'd get there quicker and more directly if you weren't starting from this awkward, out-of-the-way spot'. The awkward Irish person might say the same thing when looking at contemporary deficit approaches to public engagement which position all-knowing scientists telling the public what concerns them about the science and technology that impacts their lives.

Venturini 2010). In times of controversy, the meanings and knowledge relating to science or technology have not yet been settled, allowing researchers to see, in 'real time' the technopolitical decision-making which leads to the realisation of some sociotechnical worlds over others. Secondly, controversy indicates that the environmental issue matters in some way. There is an abundance of environmental science that the EPA could communicate with the public; choosing what science warrants communication requires insight into what is relevant. As Irwin and Michael (2003, p.43) point out, in a democracy, the public are best placed to decide what is relevant. Controversies are socio-political flashpoints – they flag issues of social or cultural relevance where dialogue between scientists and the public is required. Lastly, the literature suggests that controversies-in-action best illustrate the actual formation of public responses to the issues which organisations such as the EPA might want to communicate about (Latour 2004a, 2007a; Stengers 2005; Whatmore 2009; Venturini 2010; Jasanoff 2012; Venturini et al. 2015). This contrasts with other policy approaches, which imagine the public as some vague, pre-existing homogeneous mass (Whatmore 2009; Chilvers and Kearnes 2016a). Controversies provide an insight into what people actually care about and thus, in what ways they seek to be engaged.

To find a suitable controversy, I had to go no further than the EPA itself. Perfectly timed with the start of my research was an announcement by the then Minister for Communications, Energy and Natural Resources, Pat Rabbitte, that the EPA had been instructed to conduct a study on the effects of fracking in response to widespread concern in the northwest of Ireland regarding its impact. I read in the *Irish Times* (Carroll 2011) that more than 500 people had recently gathered in north Leitrim at a public meeting about fracking. This shifted my research question more specifically towards examining public engagement in the context of fracking in Ireland: *How to engage with the fracking controversy in Ireland?* I believed this would provide a rich analytic window through which to view the live and unpredictable political negotiation of science/society/environment relations that I sought to uncover before they were black-boxed (Latour 1987) by the narratives of history.

As the literature review will shortly clarify, getting at the ongoing and constantly updating relations in a controversial issue is a central concern for STS (Felt et al. 2013) as they reveal the contingent, and hence political, nature of sociotechnical affairs. This contrasts with our tendency towards teleology in historical narratives of innovation, where particular outcomes are explained as the result of a linear chain of cause and

effect (Latour 1987; Sismondo 2010). Instead, STS sees outcomes as somewhat overdetermined (Lash 2012; Pickersgill 2012) – cause is understood as a function of your frame of reference as well as the actual happenings in the world. Importantly, from the perspective of criticism, it maintains space for the idea that things could always have been different (Haraway 1994; Latour 2007a; Law 2008; Alcadipani and Hassard 2010). Law suggests that this politics is tied to the fundamental ontological insight of STS: 'since the real is relationally enacted in practices, if those practices were to change *the real would also be done differently*' (2008, p.635, emphasis in original). Sociotechnical relations can occur in any number of ways depending on the complex deictic of the structures and agencies involved.[5] Further, as I will be arguing with Jasanoff and others, many of these pathways depend on uniquely human conditions such as affect, imagination and decision-making, that create their own issues of political relevance (Mouffe 2000; Morton 2013; Wetherell 2014; Jasanoff 2015b).

At this juncture it is worth clarifying that I will be using the terms 'affect' and 'emotion' interchangeably along with other words like 'feelings' or 'sense'. While each of these terms has its own unique history within academic scholarship, there is unfortunately no space here to address them.[6] I hope to substitute for this a clear explanation of the tradition I am drawing from. This is the theory of affective practice (Wetherell 2014), a framework which views affect as a 'nexus of doings and sayings' (Schatzki, cited in Wetherell et al. 2015, p.60) that assembles and recruits memories, subjectivities, neurobiological processes, discourses, materialities, and shared repertoires of interpretation. Wetherell et al. (2015, p.59) argue that 'any epistemological and ontological distinction between affect (as a non-representational hit of the world on bodies) and emotion (the application of conventional cultural categories) becomes difficult to maintain'. The position taken by Wetherell is that emotions are not located in one place but are distributed across the social field and are, as such, not distinct ontological entities, but rather 'mark a relation' (Wetherell et al. 2015 p.62) between various actors, both human and nonhuman. As such, the theory of affective practice makes no *a priori* distinction between affect or emotion, preferring instead to focus on the specific iteration of a given example. I am also following Davies

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[5] A deictic is a word or phrase whose meaning is derived from the context in which it is used.
[6] Plamper's (2017) *The History of Emotions: An Introduction* provides a thorough overview of these different histories.

(2014) here, whose work examining affect in the context of public engagement with science avoids making the distinction for the purpose of methodological clarity.

As the literature review will demonstrate, affect, imagination and decision-making are key issues of interest for this research in terms of public engagement. It is arguably here, if anywhere, that we find the unique character of human agency and its convergence with politics, practice, and materiality (Jasanoff 2004a, Davies 2014; Wetherell 2014; Chilvers and Kearnes 2016b; Davies 2016). Raising the notion of the human in STS research might strike some as odd, given the discipline's hard work uncovering the wonderful contributions to social life made by our nonhuman companions. However, as Section 2.1.1 argues, there is a danger that STS studies, particularly Actor-Network Theory (ANT) can stray too far in the nonhuman direction, emptying society of important concepts such as meaning, justice, fairness, and equality (Jasanoff 2004b, 2010, 2015b; Navaro-Yashin 2009, 2012; Ngai 2012). Rather than swaying too much towards either idealism or materialism, this research will join the long line of projects that attempt to balance themselves in the middle of this imaginary distinction (Latour 1993). By focusing on the material technopolitics of affect, imagination, and decision-making, I hope to shed light on the political issues at the heart of the fracking controversy in Ireland, and how a public came together to choose some forms of sociotechnical life over others.

Within the field of STS, a productive place to look to in order to understand the politics of choosing some futures over others is the developing area of sociotechnical imaginaries (Jasanoff and Kim 2009, 2013; Jasanoff 2015b, 2015c;). This concept seeks to reveal the cultural visions underpinning the decisions to go down certain technoscientific routes rather than others. Nuance is needed here, which will be added in the review itself, particularly in avoiding the notion that these visions are purely cultural or primarily visual. Sociotechnical imaginaries are embedded within social, material, and technological contexts, conceptualised through Jasanoff's (2004a, 2004b, 2004c) idiom of co-production. Simply put, co-production asserts that 'the ways in which we know and represent the world (both nature and society) are inseparable from the ways in which we choose to live in it' (Jasanoff 2004a, p.2). Sociotechnical imaginaries are visions which are informed by past knowledge and social order and have an impact on future ones. Furthermore, they are thoroughly embedded in practice – they are performative and always subject to revision or challenge (Levidow and Papaioannou 2013; Chilvers and Kearnes 2016b; Tutton 2018).

This approach to science-society relations places power in a position of analytical prominence: it draws attention to the ways that collective visions about how the world works and how it ought to work involve political decisions that result in particular orderings of nature and society (Jasanoff 2004a, 2015b). What knowledge do we believe is worth pursuing? What kinds of technology do we choose to develop? Where do we position ourselves morally in relation to nature and wildlife? How we choose to answer these questions co-produces different sociotechnical futures. The political questions that follow, are: Who gets to make these decisions? According to whose understanding of the common good? What analytic space is there for issues such as justice, fairness, equality? (This last question: Jasanoff 2015a, 2015b).

These questions will become central to discussions about fracking in Chapters 6 and 7. If the concept of sociotechnical imaginaries offers a rich framework for understanding the kinds of technoscientific choices social groups make, it does not come without its problems. This is where some of the concerns underpinning the literature review begin to take shape and start directing the research. For a start, the literature on sociotechnical imaginaries is largely dominated by coverage of discursive practices in the form of legal and policy documents, speeches, and historical archive documents.[7] In some very recent contributions, scholars in the sociotechnical imaginaries space are starting to look beyond these domains, with Lupton (2017, 2018) looking at the role of embodiment in sociotechnical imagining and Smith and Tidwell (2016) and Tidwell and Tidwell (2018, p.103), calling for attention to 'the collective values of citizens as they live their daily lives'. Both moves are addressed by this doctoral research; particularly given to what is already present in some foundational work on sociotechnical imaginaries around emotion and affect.

Jasanoff (2015b, p.4) states that the driving motivation behind imaginaries theory is to illuminate the 'desirable futures' and 'shared fears of harms' that underpin technopolitical decision-making. If desire and fear and 'the emotive registers of adherence and belonging' (Jasanoff 2015b. p.23) are at the heart of imaginaries theory, they have been sorely undertheorised up to this point. This is particularly relevant given its implications for public engagement. In 'A New Climate for Society', Jasanoff (2010, p.233) contrasts the impersonal facts of environmental science that 'arise from

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[7] See the following for investigations of this kind: Jasanoff and Kim (2009); Levidow (2013); Levidow and Papaioannou (2013); Dennis (2015); Miller (2015); Moon (2015).

impersonal observation' with the more context-sensitive notion of 'meanings' which 'emerge from embedded experience'. In this article, Jasanoff argues that successful engagement must seek to integrate these disparate forms of sense-making (or 'knowledge practices') so that the 'deeply value-laden' (Felt 2014, p.392) nature of reality 'may eventually be better integrated into the dynamics of the world's unimaginably diverse forms of life' (Jasanoff 2010, p.249).

What strikes me about this perceptive approach to public engagement is the potential richness of the term 'meaning'. When Jasanoff uses this term, I do not believe she is reducing meaning to discourse, particularly when she trenchantly describes the 'dispassionate statistical gaze' of modern biopolitics (2010, p.239) or states that 'by turning to sociotechnical imaginaries, we can engage directly with […] people's hopes and desires for the future – their sense of self and their passion for how things ought to be' (2015b p.22). Meaning, as I will be using it here, encompasses the range of ways that people encounter, make sense of, and produce the world. This includes a correspondence between the impartial and the intimate and involves ways of knowing which go beyond the discursive that are bodily, felt, and situated (Dixon and Condor 2011; Blackman 2012; Wetherell 2014). The review suggests that despite frequent references to affect (in the shape of relations of desire and fear, emotive registers of belonging) in sociotechnical imaginaries literature, the role of emotion remains largely understudied.

Initially, my research had explored controversy mapping (Venturini 2010, 2012; Latour et al. 2012; Venturini et al. 2015) as a method to research the fracking issue, but I gradually became unconvinced by it as it became more and more clear that online digital approaches to mapping controversies missed so much of the affective content I was witnessing in my reading about the topic and in my initial meetings with campaigners. Sociotechnical imaginaries seemed to me to get much closer to an account of how the community in north Leitrim envisioned alternatives to the technological innovation of fracking and set about making it happen. All it was missing, it appeared, was an acknowledgement of the affective dimension. I decided to pursue this line of investigation during the literature review and it prompted me to question whether there might be additional public engagement value in considering the emotional aspect of imaginaries. This led me to refine my central, exploratory, research question to: *What is the value for science communication of considering the role of affect in the anti-*

fracking sociotechnical imaginary in Ireland? This would be broken down further into three sub-questions as the literature review progressed.

This research question is somewhat awkward in that it seeks to simultaneously tackle descriptive (the role of affect) and normative (the value for science communication) dimensions of the fracking controversy. However, I believe that a co-productive approach to science-society issues necessarily invites this kind of awkwardness. Resisting the separation of the descriptive and the normative – questions of 'is' and 'ought' (Jasanoff 2010, p.248) – is at the heart of co-productive analysis. They employ rich and detailed case study descriptions – 'the bread and butter of STS' (Sismondo 2010, p.viii) – to follow the entanglements of knowledge and norms. This is already a political manoeuvre. Concerns about justice, fairness, equality, and decision-making drive co-productive analyses. Uncovering relations of power through case study descriptions is itself a political act in that it seeks to expose how society is ordered (Foucault 1984, p.50). This is with the aim of producing better ways of 'going on well together in difference' (Verran, cited in Law 2017, p.49). My work follows a similar path, examining, in detail, the affective practices which relate to fracking and the various ways that they co-produce a sociotechnical imaginary. The goal of the analysis, then, is to explore the politics constitutive of that imaginary. The framework I use to examine those politics is the field of STS-influenced science communication. Here, engagement between science and society is conceived as a political relationship where the aim is to provide 'ethically and/or politically better (productive of more flourishing lives, achieving a more nuanced or richer kind of procedural or other justice)' (Groves 2017, p.412). Establishing what this 'better' might be requires further processes of engagement involving openness, reflexivity, and humility. In this thesis, the aim is not to isolate affective practices to then apply them to public engagement, instead, it is to explore how affect constitutes the conditions of possibility for public engagement in the first place.

In the EPA's original research call, they ask: How can EPA scientists better communicate environmental science in Ireland? The use of the word 'better' frames the research question, but it is left open to interpretation in the call document. 'Better' science communication could mean more effective communication of environmental science in the deficit model sense, i.e., more clearly and memorably conveying information pertaining to environmental issues. As the literature review will demonstrate, this approach is regarded as insufficient in many academic studies of

science communication. Certainly, within STS-oriented approaches to science communication. Here, 'better' is interpreted politically, as outlined in the previous paragraph. The EPA's research call provided a normative frame for the research but one that was open enough to be figured politically through insights from STS. The prescriptive format of Chapter Seven, and its emphasis on engagement, is not simply a consequence of the EPA research call. Instead, it results from broader concerns in my own research, inspired by the work of Jasanoff (2010) among others (Felt et al 2013; Chilvers and Kearnes 2016a; Davies 2016; Law 2017), to not only reveal how power functions in science-society relations, but to explore how they might be reconfigured "for the better".

My combination of affective practice with sociotechnical imaginaries is novel in the field, and as such demands an exploratory approach. This requires seeking out whether affective practices might be identified in an imaginary at all. The first question, thus, asked: What affective practices are evident? It was supported by several further questions: What doings and sayings take place that mark relations of bodily meaning-making? How are they figured? What are they connected to? Answering these questions occupies Chapters 4 and 5. The second question, asked: What do they do? This was supported by asking: What role do they play in the anti-fracking imaginary? How do affective practices produce a shared normative order across time, space and community? How do affective practices gain and retain power and how does this contribute to campaigners' collective visions? These questions were addressed in Chapter 6. Finally, the third question asked: How can we engage with them? This was an open question which depended on the findings and insights of Chapters 4, 5 and 6. It constitutes the bulk of Chapter 7.

My strategy has been to look for a suitable place in the STS literature where I could contribute original scholarship while answering the EPA's broad question about how best to practice science communication. I believe I have found that in the emerging area of sociotechnical imaginaries – contributing by theorising on the affective dimension, while exploring what value a greater understanding of this dimension might have for public engagement. 'But why STS?' one might ask. The literature review will outline why STS is best-placed to understand the relationship between science and society and hence what communication looks like within that relationship. There are also subjective reasons for using STS which go beyond the appeals of validity and objective measurement. These have to do with the way that STS captures something of

the enchanting reality of everyday life – how science and technology are actually lived with in the real world. Its attention to contingency and possibility, its radical questioning of modernity, its methodological experimentalism, and its commitment to working out how we can develop fairer, more just societies through a sensitivity to how we live in the material world have certainly captivated me and provoke in me something of the wonder and awe that I touch on in Section 7.3.4. I do not see this as an academic failing, however. The pursuit of knowledge is surely underpinned by affective drives in any academic discipline: the love of the subject, the curiosity to question, the pleasure of succeeding, tempered by self-doubt, anxiety, frustration, boredom, and everything in between.

The neuroscientist Antonio Damasio writes:

> the questions that philosophy and science aimed at answering were prompted by a large range of feelings. Suffering was prominent, no doubt, but so was the perturbation and worry caused by chronic puzzlement over the enigmas of reality […] There were other feelings, too, not least the pleasant feelings that resulted from the very process of attempting to solve the enigmas of the cosmos and the anticipation of the rewards that their solution would bring (2018, p.182).

As this research is firmly grounded in the STS epistemological tradition, it carries with it a number of ontological commitments. Among them are: that knowledge is not an objective entity existing outside of the institutions and practices which produce it; that knowledge is subject to revision and therefore political; and that knowledge is to be understood more as a verb than as a noun – it is something which is practiced and performed. These are the commitments that come from working in this tradition – this research could always have been otherwise, taking perhaps a positivist quantitative view of communicating science, but I have taken the decision not to go down that route. Instead, we will journey through the messy and complex path of imagination and feeling, asking what possible value this might have for understanding the technopolitics of the anti-fracking imaginary.

2

Imagination and Affect: Public Engagement and the Affective Dimension of the Sociotechnical Imaginary

> In the end, human creativity is rooted in life and in the breathtaking fact that life comes equipped with a precise mandate: resist and project itself into the future, no matter what
>
> —Antonio Damasio, *The Strange Order of Things* (2018, p.31).

2.1 Sociotechnical Imaginaries

2.1.1 Symmetry in STS

Defined broadly, STS is an interdisciplinary field of academic enquiry that examines the social, political, cultural, epistemological, and material dimensions of science and technology (Sismondo 2010). It investigates the relationships between science and society, suggesting that these relationships are heterogeneous, context-dependent and are in continuous co-evolution (Felt et al. 2013; Chilvers and Kearnes 2016a, 2016b, 2016c). The modernist split between science on one side and humanity on the other is elided in favour of the assumption that science and society are mutually co-produced (Latour 1993; Jasanoff 2004b). This assumption has a particular history within STS,

travelling from Robert Merton's (1973) sociology of science, through its transformation via the sociology of scientific knowledge (SSK) (Barnes 1974; Collins 1981; Bloor 1991 [1971]; Barnes et al. 1996), and encompassing the developments of Actor-Network Theory (see, for example: Callon 1986, Latour 2007a; Law 1999), the social construction of technology (Pinch and Bijker 1984; Akrich 1992), feminist science studies (Keller 1985; Haraway 1988; Harding 1992; Martin 1999; Wajcman 2015), and more recent concerns with public engagement, citizen science and responsible research and innovation (Davies et al. 2009; Owen et al. 2012; Irwin 2014; Stilgoe 2015; Chilvers and Kearnes 2016a; Davies and Horst 2016). This is not a linear history where one development has usurped the others. Rather, many of the sub-disciplines within STS continue to inform the development of the field. Additionally, other fields which can be seen to stand alone outside of STS such as philosophy of science, science communication, and the history of science are in constant dialogue with STS. Nonetheless, there are identifiable turns and shifts within the field which help to structure an understanding of its development. One such shift involves the move from traditional sociology of science to the sociology of scientific knowledge.

Critics viewed Merton's Sociology of Scientific Knowledge as focusing too much on institutional frameworks of reward and communication at the expense of the technical aspects of scientific activity itself (Barnes et al. 1996, p.114). In response, SSK extended the analysis of science to other social and cultural conditions. This move, as Bloor explains (1991 [1976]), was intended to bring a symmetry to the social analysis of science; rather than looking for the social reasons behind scientific theories or experiments that failed, sociological analysis should symmetrically seek out the social dimensions of all scientific activity. With this insight, any scientific practice could be investigated sociologically; it meant that it was not just failed science that was 'compromised' by social processes, but successful science too. This opened the door for numerous researchers to investigate the contributions of various social, political, and cultural mechanisms to the establishment of scientific facts. This includes the influence of simplification and popularisation within the research process (Hilgartner 1990; Lynch 1985), the idiosyncratic nature of tinkering and preparation of "pure" samples in laboratory work (Knorr-Cetina 1981; Hacking 1983), the centrality of inscription devices in assembling facts (Latour and Woolgar 1986), the connection between the physical space of the laboratory and the power dynamics of gendered narratives (Traweek 1988), and the impact of rhetoric (Gilbert and Mulkay 1984).

A second move in the interests of symmetry developed with the establishment of Actor-Network Theory. This time, a radical ontological symmetry was called for in an effort to dispense with the modernist grand narrative that split science from society, human from nature, and subject from object (Latour 1993; Schaffer and Shapin 1985). Scholars such as Michel Callon (1986) and Bruno Latour (2016 [1996]) have argued that the principle of symmetry established in SSK needs to be radically extended in sociological analyses of science. Callon (1986, p.3) asks: '[w]hat would happen if symmetry were maintained throughout the analysis between the negotiations which deal with the natural and the social worlds?' That is to say, instead of shifting epistemological register when moving from analysis of the natural world to the social world, what would happen if sociologists were to think about these domains in the same way? This would mean, that, rather than analysing the natural world through matters of fact and the social world through matters of value, we would treat them both with the same analytic language. This is due to the actor-network theorist's belief that the 'ingredients of controversies are a mixture of considerations concerning both Society and Nature' (Callon 1986, p.4).

This was the breakthrough method used by Michel Callon in his study of fishermen, scientists and scallops in Saint Brieuc Bay. Callon examined the decline of the scallop population in the area and the attempts of scientists to work with local fishermen to understand and stem the decline. Rather than shifting analytical register to study the scallops, the fishermen, and the scientific researchers (from nature to sociology), Callon reduces everything down to the level of the political, treating every entity equally as an actor with their own sets of interests and strategies for stabilising reality in their favour. This is the ANT principle of symmetry. The fishermen have an interest in their livelihood, the scallops have an interest in surviving, and the scientists have an interest in producing knowledge. The interaction between these actors and their attempts to influence one another through a range of strategies are what actor-network theorists argue constitute reality. Callon and Latour (1992, p.349) 'take as progressive any study that simultaneously shows the co-production of society and nature'.

This ontological approach has been enormously influential in the social sciences and humanities (Sismondo 2010, p.87).[8] It has also received widespread criticism.[9] One author who has criticised the work of ANT and who offers an alternative is Jasanoff (1996, 1997a, 1997b, 2012, 2015b, 2018; with Pickersgill 2018). Jasanoff argues that ANT's distributive analysis of agency ultimately 'depoliticize[s] power' (2015b, p.17) by: eliding what is characteristic of the human ('it is still humans and their collectives who can imagine a world' [ibid.]); flattening morality, responsibility, and politics in their diffusion through networks (2004b); and by being unable to see beyond the naturalising effects of power. The symmetry of ANT, in flattening everything to the level of interrelated action, loses sight of the true dynamics of power – it is through asymmetries of power that politics functions (Mouffe 1999, 2000). ANT, in Jasanoff's critique, can only follow the lines of power, never rise above it analytically to make a judgement about it (2004b, 2015b)[10]. This is one of the reasons why issues such as justice, fairness, and equality, for Jasanoff, are key to STS analyses (2001, 2010, 2015b, 2018). As such, she argues for a different kind of symmetry – the symmetry of co-production.

2.1.2 Sheila Jasanoff's Theory of Co-Production

Jasanoff's theory of co-production (Jasanoff 1996, 2004a2007Chilvers and Longhurst 2015; Chilvers and Kearnes 2016b, Pickersgill and Jasanoff 2018) sets itself apart from Actor-Network Theory by offering 'symmetry in attention to and methods used to explicate the emergence, stabilisation, maintenance, and transformations of natural and social order' (2015b). It pays attention to the diversity of forces that co-produce and order societies. Jasanoff identifies two powerful mediating forces in contemporary societies: culture and technoscience.[11] These forces shape our ideas about 'what makes

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[8] The following publications outline the influence of ANT in numerous disciplines outside of STS: Walsham (1997) in information systems; Lee and Hassard (1999) and Alcadipani and Hassard (2010) in organisation and management studies; Harman (2009) in philosophy; McGee (2014) in legal studies; Rydin and Tate (2016) in planning; Lee (2017) in literary theory.

[9] See the following for a range of critical perspectives: Collins and Yearley (1992); Pickering (1995); Bloor (1999); Jasanoff (2004), (2015b); Harman (2009); Bowker (2012); Ngai (2012); Toscano and Kinkle (2015).

[10] See also Bowker (2012) on this point.

[11] Technoscience is the term used by STS scholars to indicate that science and technology are not separate entities but are mutually co-produced. See Latour (1999, pp.202-215) for an extended discussion.

life worth living' (Jasanoff 2004b, p.14) and the material ways we go about making that happen. These are not the only forces at play in social life but are particularly important because of their capacity to stabilise or destabilise order. Her critique is that a large proportion of scholarship in STS has tended to focus on technoscience at the expense of cultural forces like identity, ideology, and discourse (Jasanoff 2004b, 2012). In 'Genealogies of STS', Jasanoff (2012) makes this point explicitly in her 'genealogy' of the discipline. Taking Thomas Kuhn's *The Structure of Scientific Revolutions* and Latour's *Science in Action* as identity-forging exemplars of STS, she takes both authors to task for their limited characterization of the interplay between science and society. Kuhn pays too much attention to the abstract ideas and language games of scientists, while Latour places too much emphasis on the texts, instruments, and laboratories of scientists in the political settlement of controversies.

While this is an accurate portrayal of Latour's earlier work, he has since conceded Jasanoff's point. In a 2007 article for *Social Studies of Science*, he writes: 'as Sheila Jasanoff has been arguing all along […] it's about time that political practice receive the same attention that we have devoted to science and its laboratories' (2007b, p.812). His recent work has taken a somewhat politico-cultural turn (2004a, 2010a, 2010b, 2013, 2018).[12] Other projects, related to climate change and the Anthropocene, explicitly include an aesthetic and political dimension. These include, *Make it Work*, a pedagogical theatre event aimed at engaging publics with the politics of climate change, and a co-written play entitled, *Cosmocoloss: A Project of Gaia Global Circus*, which explores similar issues. Jasanoff, however, believes that Latour's political problems run deeper than the issues he chooses to focus on. She argues that Latour's actor-network approach itself precludes his research from an adequate analysis of power (Jasanoff 2015b). It is in Latour's insistent command to 'follow the actors themselves' (2007a, p.12) as they work their way through powerful 'centers of calculation' (Latour 1987, pp.215-256) that Jasanoff identifies the political shortcomings of ANT.

Co-productive analysis pays symmetrical attention to social and material ordering, 'revealing the topographies of power' (Jasanoff, 2015b p.18). Jasanoff states that '[r]aw power has little overt place in actor-network narratives, which tend not to disrupt science's own self-presentation as gentlemanly, civilized, and civilizing' (2015b, p.18). As in the flattened-out lines and nodes of digital controversy maps, the

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[12] See Harman (2014) for a take on Latour's political philosophy.

rich and textured politics of sociotechnical relations are reduced to a point where the dynamics of power are no longer visible. 'If networks diffuse responsibility' across humans and nonhumans, argues Jasanoff, 'they can also depoliticize power by making its actions opaque or invisible' (2015b, p.17). Political dynamics such as hegemony, inequality, and injustice go missing in Latour's actor-network analyses which struggle to account for a politics of change (Noys 2010).[13]

Here, as in Jasanoff's analysis of politics, close attention will be paid to the function of power. I understand power, in the Foucauldian sense, as a generative force circulating through, and configuring, material social relationships: 'a productive network which runs through the whole social body' (1984, p.61). Power is not conceived as a static repressive and hierarchical force, but as a performative series of relations which are constantly negotiated at a local level, what Foucault refers to as the 'micro-physics of power' (1991 [1977], p.26). Visualising how these power relations operate is what I interpret to be Jasanoff's goal in 'revealing the topographies of power' (2015b, p.18). Topographies of power can be understood as the terrains which are produced by the structuring effects of power. This might be the uneven political relationship between a worker and a boss, or, as is the case in this research, the relationship between politicians, community members, and the fracking industry. The anti-fracking imaginary is a consequence of the way that these relationships play out. Rather than accepting government or industry visions of energy production, groups of people contest them through counter-imaginaries. Foucault views power as anterior to social phenomena like subjective agency, norms and politics. The latter three are effects of the 'defining trait of power' which is to '"lead" individuals in agreement and cooperation with a truth that power itself produces' (Lemke 2019, p.22). The research that follows will explore how affective practices produce power relations in their configuration of temporal, spatial, and social order. The research will examine how affective practices produce agency, identities, and norms which drive, direct, and value imagined alternatives to fracking through relations of violation and consent, ownership, and healing in the ordering of an anti-fracking imaginary.

It is this normative space that Jasanoff seeks to explore with co-production, located at the nexus of cultural and political theory and the constitutive metaphysics of

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[13] Others have made similar points in criticism of ANT. See: Collins (2002, p.240); Harman (2009, pp.132-134); Noys (2010, pp.80-105); Bowker (2012); Mouffe (2013, pp.77-82).

STS. She draws from work in the Humanities and Social Sciences - Foucault's theory of power (Jasanoff 2007, 2012, 2015b), Anderson and Taylor's notion of social imaginaries (Jasanoff 2004b, 2010, 2015b), Ezrahi's democratic theory (Jasanoff 2003a, 2004b, 2015b) – to argue for a better correspondence between STS and other disciplines. Jasanoff points out that 'generally STS has been less successful than political science in finding places for human beliefs and imagination' (2004b, p.28), crucial well-springs of action in the co-production of certain worlds over others. In the end, Jasanoff contends, STS must be able to link with the humanities and social sciences in a meaningful way and draw from their experience in dealing with powerful instruments of social and natural order such as identities, institutions, discourses, and representations (see also Felt 2014). To do so, co-production must avoid the Scylla and Charybdis of structure and agency in thinking about the capacity of influence of knowledge and power. If one leans too heavily on structure, then there is little capacity for change from below, despite history demonstrating that old orders can suddenly transition. Conversely, if one leans too heavily on the idea that power is 'fluid, immanent, and constantly renegotiable' (Jasanoff 2004b, p.36), then the fact that certain formations do maintain their structure over time is not acknowledged. The answer, for Jasanoff, is to view 'certain "hegemonic" forces not as given but as the (co-)products of contingent interactions and practices' (ibid.).

These instruments of co-production undoubtedly look human-centred to a large degree, seemingly going against the STS principle of symmetry between human and nonhuman in the analysis of social and natural order. However, this is a conscious move on the part of Jasanoff, whose goal is to develop 'explanatory projects that conform more accurately to the lived experience of modern societies' (2004b, p.38). This is an interpretive move which resists the ANT principle to 'just follow the actors' providing analytic space for those issues of power and justice. It is not enough to 'just describe' a state of affairs as Latour (2007a, p.144; see also Venturini 2010) insists. To do so, according to Jasanoff, would be to be to resort to an impoverished theory of power, where it 'side-steps the very questions about people, institutions, ideas, and preferences that are of greatest political concern' (2004b, p.23). In this mode, STS struggles to explain *why* we opt for some worlds rather than others (Jasanoff 2015a). Understanding how and why certain technologies and social arrangements order the world through the ideologies, discourses, and representations of cultural life is central for Jasanoff. This is unreservedly about two things: generating a normative framework with which STS

can talk about what kind of world we want to live in and returning a sense of the human to STS analyses, acknowledging that it is a human political-cultural world we are examining. Jasanoff writes that 'this is a fundamentally humanistic inquiry that recognizes the capacity of individuals and groups to see and think things differently from what was previously seen or thought' (2015c, p.322). It involves providing 'normative guidance' and the facilitation of 'critical interpretation of the diverse ways in which societies constitute, or reconstitute, themselves around changes in their apprehension of the natural world' (2004b, p.23).

Recognising the interdependence between science and society is an important step towards understanding environmental controversies, placed as they are at the nexus of scientific, cultural, technical, and political concerns. Environmental issues such as fracking – alongside climate change, nanotechnology, biotechnology, and resource extraction more generally – are complex phenomena which demand a nuanced approach that can take account of their heterogeneous nature. However, this acknowledgement by itself is not enough. As Jasanoff states, '[a] theoretical enterprise that seeks to explain why the world is ordered in certain ways has to promise more than the line from the popular children's song "Everything hangs together because it's all one piece"' (2004b, p.17). Where Jasanoff arguably breaks with other branches of STS such as SSK and ANT is in her commitment to offer robust political and normative dimensions within her analyses. This normative space allows us to 'imagine the pathways by which change could conceivably occur [and illuminates] new possibilities for *human* development' (Jasanoff 2004b, p.42, emphasis added). This capacity to imagine future pathways is absolutely central for Jasanoff in how we understand and deal with natural and social order. The capacity to imagine alternative futures, in her view, is what distinguishes humans politically.

2.1.3 Imagining the Future

There is growing concern within European innovation policy about how to shape and control the future through technoscientific developments (Adam and Groves 2011; European Commission 2010, 2011, 2015; Felt et al. 2013; Groves 2013; Felt 2016). This is also the case in Ireland as the state increasingly relies on research and development to provide economic stability and social progress (SFI 2012; ICSTI 2015; DBEI 2018a, 2018b). Ireland's statutory science-funding body, Science Foundation

Ireland (SFI), has as its vision: 'Ireland will be a global knowledge leader that places scientific and engineering research at the core of its society to power economic development and social progress' (2012, p.2). The Irish government's Department of Business, Enterprise and Innovation (DBEI) states that, 'we are determined to ensure that Ireland achieves its ambition of becoming a Global Innovation Leader' that aims to build 'excellence in strategically important research areas of relevance and impact to the economy and society' (2018b, p.2).

Recently, the government of Ireland has dedicated resources to Project 2040, a national planning framework 'which recognises that economic and social progress go hand in hand' (Government of Ireland 2018, p.1). Economic progress is 'supported by enterprise, innovation and skills' (ibid., p.6). As part of Project 2040, the DBEI (2018a) has published *Investing in Business, Enterprise and Innovation*, a policy document that emphasises the societal dimensions of research and innovation. Rather than focusing on business and innovation as the means *and* the end of scientific research, the 'overarching plan', here, is 'a better country for all of us, a country that reflects the best of who we are and what we aspire to be' (2018a, p.5). This contrasts with older research and innovation policy documents that make scant reference to the societal aspects of research and innovation (Forfás 2004; Government of Ireland 2006; DETE 2009; SFI 2012). In these older documents, social improvement is a tacit, but unreferenced, driver of research and innovation, with all evaluative effort spent on assessing the inputs and outputs of enterprise. It is simply a given that this would lead to a more prosperous, and hence better off, society. Notably, Project 2040 policy (DBEI 2018a, 2018b) puts more work into envisioning what kind of social world that research and innovation will create, imagining, for example, that it will 'build a comprehensive social, economic and cultural infrastructure for all our people and all parts of the country to flourish, so that together we can create a better Ireland' (2018a, p.5).

From an STS perspective, this acknowledgement of the co-production of a social world through technoscientific development is to be welcomed. However, we must go one step further, as Jasanoff suggests, and not merely trace the outline of these imaginaries – we must critically engage with their political and normative dimensions. Policy documents such as *Project 2040: Building Ireland's Future* and *Investing in Business, Enterprise and Innovation* essentially operate as maps, directing how Irish society, through its commitment to science and enterprise, will be co-produced in the future. The claims are bold. Project 2040 will create 'a society in which every person

counts, and in which all our people are served by the advances of science and technology – a creative and just society in which the human dimension is always paramount' (Government of Ireland 2018, p.2). The vision of Ireland outlined in the plan reflects 'the best of who we are and what we aspire to be' (DBEI 2018a, p.8). One might ask, whose vision is this? In whose interest is it imagined? How is justice understood? Through what means will it be achieved? Grand, generalising statements like those above are pliable and can be moulded to shape any number of different material processes. Reading on, we can begin to see the outline of these processes. Project 2040 'recognises that economic and social progress go hand in hand' (2018a, p.8.). As such, 'the best of who we are and what we aspire to be' will be shaped according to this powerful originary assumption. The idea that economic and social progress go hand in hand will be central to how the future of Ireland is imagined and will be enacted. To perform this future, Project 2040 (2018a, p.8) envisions achievements in ten key areas:

1. Compact Growth
2. Enhanced Regional Accessibility
3. Strengthened Rural Economies and Communities
4. Sustainable Mobility
5. A Strong Economy, Supported by Enterprise, Innovation and Skills
6. High-Quality International Connectivity
7. Enhanced Amenity and Heritage
8. Transition to a Low Carbon and Climate Resilient Society
9. Sustainable Management of Water and other Environmental Resources
10. Access to Quality Childcare, Education and Health Services

Here, we can begin to see the shape of Ireland's 'sociotechnical imaginary', defined by Jasanoff as 'collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology' (2015b, p.4). Sociotechnical imaginaries are figured in the literature as powerful visions that serve as the ends and means of the legitimization and justification for certain sociotechnical futures rather than others (Jasanoff and Kim 2009, 2013; Pickersgill 2011; Jasanoff 2015b, 2015c). They encode 'visions of what is attainable through science and technology but also of how life ought, or ought not, to be lived; in this respect they express a society's shared understandings of good and evil' (Jasanoff 2015b, p.24). Sociotechnical imaginaries explicitly refer to those shared societal visions that embed science and technology - or its absence (Felt 2015) - in imagined futures.

Science and technology are understood as 'key sites for the constitution of modern social imaginaries' (Jasanoff 2015b, p.10) integral as they are to contemporary cultural life in the West. It is this distinction that Jasanoff uses to delineate sociotechnical imaginaries from other work on imaginaries.

Sociotechnical imaginaries stem from earlier scholarship in the humanities and social sciences on social imaginaries (Lacan 2006 [1949]; Appadurai 1990; Taylor 2002; 2004; Anderson 1991; Ezrahi 2012). Rooted in anthropological readings of non-modern societies as ordered through imagined realities (Jasanoff 2015b, p.6), the genealogy of imaginaries shifted towards analysis of Western societies with Benedict Anderson's *Imagined Communities* (1991). Anderson's contribution was to convincingly define a nation as 'an imagined political community' (1991, p.6). Nationalism, according to Anderson, is an imaginary construct gathering together people, institutions, land, cities, histories, technologies, and ideology. Appadurai subsequently extended this beyond nations to entire worlds (1990). Such collections of heterogeneous meanings, institutions, and material objects are tied together, in part, through the powerful imaginary work of diverse actors. Anderson's insight was to take these imaginaries seriously rather than dismissing them as an irrational problem for political philosophy to overcome.[14]

Charles Taylor (2002, 2004) advanced Anderson's insights, extending the analysis of imaginaries to include other grand patterns in modern history. Taylor looks to modernity and its

> historically unprecedented amalgam of new practices and institutional forms (science, technology, industrial production, urbanization), of new ways of living (individualism, secularization, instrumental rationality), and of new forms of malaise (alienation, meaninglessness, a sense of impending social dissolution) (2002, p.91).

He argues, similarly to Anderson, that collective imaginaries are central to this massive social reorganization. Newly established imaginaries such as the economy, the public sphere, and the polity enable these new forms of life. Taylor's definition of the modern

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[14] Miller (2000) argues that this philosophical approach stems from two main objections to nationalism, the liberal belief that nationalism is 'detrimental to cultural pluralism' (ibid., p.33) and the notion that nationalism 'leads to endless political instability and bloodshed' (ibid., p.36). Miller suggests that a more productive political philosophical approach is 'to start from the premise that people generally do exhibit such attachments and allegiances, and then try to build a political philosophy which incorporates them' (ibid., p.25).

social imaginary is 'not a set of ideas; rather it is what enables, through making sense of, the practices of a society' (2002, p.91). He refers to an interpretative 'background', to social practices defined as 'that largely unstructured and inarticulate understanding of our whole situation, within which particular features of our world show up for us in the sense they have' (2004, p.25).[15]

It is important not to make the mistake of reifying imaginaries. They are not free-floating independent ideas but are dynamically connected to the societies which produce and draw from them. Strauss emphasises this point, arguing that it is not enough to talk of 'the imaginary', we must ask: 'Whose imaginaries are these?' (2006, p.339). Further, Strauss identifies the need to incorporate both the social and the subjective in thinking about imaginaries, which means 'recognizing that there is complexity at both the social and psychological levels, and in the interaction between them' (2006, p.339). This point will be addressed in my own use of the concept of imaginaries, identifying the potential for a similar lack of subjective-social relationality in sociotechnical imaginaries. However, rather than look to psychoanalysis as Strauss does, I will use Margaret Wetherell's theory of affective practice (2014). Regardless of the approach taken, the key point for Strauss is that 'we are talking about the imaginaries of real people, not the imaginaries of imagined people' (2006, p.339). This attention to the everyday, lived realities of individuals and collectives is a key concern for my own work. For this reason, my use and analysis of sociotechnical imaginaries will emphasise how they are practiced in the lives of those who imagine them (Tidwell and Tidwell 2018). This is connected to political concerns – how certain imaginaries are maintained or disrupted and how they are performed and resisted in their full affective-discursive dimensions (Wetherell et al. 2015; McConville et al. 2017).

The politics of imaginaries does not consist simply of purposeful rational action (Taylor 2002, p.106; Jasanoff 2015b, p.7). Collective imaginations importantly involve 'the emergence of grand patterns of moral and political thought' (Verschraegen and Vandermoere 2017, p.3). Taylor writes that imaginaries are 'much broader and deeper than the intellectual schemes people may entertain when they think about social reality in a disengaged mode' (2002, p.106). Rather, they involve 'the ways in which people imagine their social existence, how they fit together with others, how things go on

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[15] It is in this sense that Kim (2015, p.153) refers to sociotechnical imaginaries as 'an interpretive framework for understanding and analysing […] debates on science and technology issues in a wider social and political context'.

between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations' (2002, p,106). Jasanoff argues that this conception bridges 'without explicitly saying so, the epistemic and the normative, the objective and the subjective' (2015b, p.7). Bridging the epistemic and normative is central to Jasanoff's political conception of public engagement, whereby influential and durable representations of the world emerge 'through constant, mutually sustaining interactions between our senses of the *is* and the *ought*: of how things are and how they should be' (2010, p.236, emphasis in original).

This echoes Ezrahi's notion of 'imagined democracies' (2015) which spans the gap between the constructed and actual configurations of societies. The imaginaries organising contemporary Western societies are, for Ezrahi, not the systematic and ordered visions of Enlightenment political theory, but a 'patchwork of half-baked programs' (2015, p.ix). '*A democracy*,' he claims, '*like any other political regime, must be imagined and performed by multiple agencies in order to exist*' (2015, p.1, emphasis in original). Likening this performance to a symphony, Ezrahi argues that democracy needs to be performed 'reasonably well' if it is to work (2015, p.1). Here, again, we see that imaginaries do not obtain their validity from the accuracy of their correspondence with universally-established facts, but in relation to their politics, how well or badly they are performed. This is the same move made by Anderson in relation to national identities – yes, we can accept that they are imagined, but that does not mean that they are any less real or any less powerful. Jasanoff uses the term 'civic epistemology' (2003b; 2007) to describe these processes of 'public knowledge-making and argumentation' (Jasanoff 2010, p.239).

This collective work is demonstrably political in that it involves processes of inclusion and exclusion, competing interests, and choices about what knowledge and values are deemed legitimate, and which technoscientific innovations ought to be pursued. The value of engaging with alternative sociotechnical imaginaries is in opening technoscience to the collective visions of a nation's citizens and the futures that they believe worth attaining (Felt et al. 2013, p.16). However, despite the insights of these theorists on imaginaries, Jasanoff contends that 'the startling, almost inexplicable omission from all of these classic accounts of social imaginaries is a detailed investigation of modernity's two most salient forces: science and technology' (2015b, p.8). Where Anderson and Taylor, for example, explore the social dimensions of modern imaginaries in depth, little space is given to the role played by science and

technology in collective visions of the future. The concept of sociotechnical imaginaries aims to do just that - they 'are at once products of and instruments of the co-production of science, technology, and society in modernity' (2015b, p.19).

Sociotechnical imaginaries theory addresses a difficulty identified by Jasanoff in her own work whereby co-production struggles to account for differences in how certain values 'attach to new scientific ideas and technological inventions' (Jasanoff 2015b, p.4). Imaginaries better articulate the normative dimension of science/society relationships in that they 'encode not only visions of what is attainable through science and technology but also of how life ought, or ought not, to be lived' (ibid.). They do so by drawing attention to the powerful cultural values and identities driving technoscientific decision-making, revealing the influential role played by discourse, representation, social norms, and institutions. That these are contingent and negotiable opens imaginaries analysis up to the dimension of the political (Mouffe 1999). Collective visions are powerful, but not all-constraining; they might 'condition and constrain the sense of justice that binds a community' (Jasanoff 2015b, p.14) but can potentially be overturned through 'widespread resistance to the status quo that makes the projected alternative appealing, believable, and worth attaining, even through immense struggle and sacrifice' (Jasanoff 2015c, p.330). In this way, sociotechnical imaginaries are dynamic and could always be otherwise. That is not to say, however, that they are entirely open-ended. Jasanoff points out that 'nature does not manifest itself in infinitely varied forms across human societies. Its plasticity is limited' (2010, p.245). Imaginaries are durable, involving an interplay of fixity and change.

Jasanoff identifies a series of stages which characterises the origin, development, and durability of imaginaries. She draws attention to the origin of new scientific or technological innovations and the social orders which they co-produce. These might come from individuals or small groups and involve the dreaming up of new futures reliant on or resisting science and technology (Felt 2015; Hilgartner 2015; Jasanoff 2015c). There is still a gap between these visions and 'on-the-ground social and technological realities' (Jasanoff 2015c, p.326). Imaginaries are made durable through 'embedding', where the originating ideas 'must latch onto tangible things that circulate and generate economic or social value', such as commodities, cultural repertoires of meaning-making, legal instruments, discourses, or institutional infrastructure (ibid.). Sociotechnical imaginaries may also pass through a realm of resistance, 'sometimes raising impediments to the spread of new ideas and at other times

crystallizing the dissatisfactions of the present into possibilities for other futures that people would sooner inhabit' (2015c, p.329). This aspect of the imaginary will be explored closely in relation to the public response to fracking in north Leitrim. Lastly, Jasanoff identifies the phase of extension, whereby sociotechnical imaginaries become firmly established. Extension details how new ideas 'gain traction, acquire strength, and cross scales, for example, by persisting through time or by overcoming geopolitical boundaries' (Jasanoff 2015c, p.323). These stages, she argues, constitute 'an account of collective belief formation in scientifically and technologically engaged societies' (2015c, p.322).

Jasanoff and Kim provide a clear example of sociotechnical imaginaries with their account of the different trajectories of nuclear power in the US and South Korea (2009). Exploring nation-level imaginaries and their relationship to national identity, state power, and its resistance, the authors demonstrate how the promotion of the same technology (nuclear power) in each country created very different technopolitical outcomes. After having used nuclear weapons to such devastating effect in WWII, and in a position of global economic dominance, the US's policy towards nuclear power was underwritten by an imaginary of 'peaceful containment' (ibid., pp.141-142). The South Korean imaginary of 'atoms for national development' drew instead from a national agenda that viewed science and technology as 'instruments to achieve a strong and wealthy nation' (ibid., p.142). Here, we see how different sociotechnical formations are co-produced through diverse applications of the 'same' technology, whereby risks and benefits, among other values, are navigated differently in separate cultural contexts. Jasanoff and Kim trace this difference in the varying flows of power occurring in each state; differences between the roles of regulators, courts, and the function and practice of identity, democracy, and public protest. The authors point out how the differing imaginaries of 'peaceful containment' and 'strong and wealthy nation' created different responses to the seemingly objective scientific phenomenon of risk, with the US enacting a moratorium on 'an uncontainably hazardous technology' and South Korea tolerating the risk in the face of the risk of 'failing to develop' (Jasanoff and Kim, p.142).

So far, I have outlined how sociotechnical imaginaries exist in the literature as a way of understanding a collective's vision of their social circumstances. But a few questions might still be asked: Are sociotechnical imaginaries real? Are they empirically observable in the same way that other social phenomena like discourses or

ideologies? How does one recognise a sociotechnical imaginary when they encounter one? Where are its edges or boundaries? These are no doubt important questions, which I shall address in sequence. First – what is the ontological status of an imaginary? I understand a sociotechnical imaginary to itself be co-produced. By this, I mean that an imaginary has:

- Material correlates – groups of people really do share normative visions about the world that have neurocognitive bases (Strauss 2006).
- Epistemological correlates – imaginaries are theoretical devices which 'format' (Law 2017, p.32) and shape how we make sense of these shared visions.
- Technical or political correlates – sociotechnical imaginaries are generative; they enable the analyst themselves to imagine societies capable of collectively envisioning in ways that are contingent, open to dispute, and valued as fair or just.

Yes, imaginaries are real, but no more so than other analytical social phenomena such as identities, discourses, or ideologies. In order to "point" to an identity, gender, say, and observe it, one must draw from a variety of sources to validate the empirical data. References to culture, memory, language, and knowledge are required alongside visual or auditory references to a person's face, voice, or clothes. In a similar way, imaginaries require reference to a corpus of knowledge, or theory, alongside empirical observations in order to validate their existence and individual qualities. One important factor to consider is that, within the co-productive epistemology employed here, references are not understood as universal and unchanging. Rather, they are seen as dynamic, context-dependent and performative, factors which constantly redefine their meaning, in however subtle a way. That is not to say that imaginaries are entirely fluid, resisting any correspondence with established reference points. Patterns and stabilities are recognisable within the shifting contours of their arrangement. These patterns and durabilities allow us to observe collective visions as they are shared among groups or communities.

What are imaginaries made of? Do they have a neuroanatomical basis? A cultural basis? A political basis? I view imaginaries as existing at multiple scalar levels – operating psychologically, intersubjectively, and at broader social and cultural scales.

They include material elements like human brains and nervous systems, certainly; legal documents, video documentaries, artworks, and physical spaces. Likewise, they include social and cultural elements: identities, agreements, orders, norms, and policies. This study works inductively to trace the various ways that the anti-fracking imaginary is constituted amongst campaigners in north Leitrim. I am particularly interested in the intersection of these elements in affective practices – how embodied meaning-making draws together and orders shared visions of the future as they appear in a diversity of cultural forms. For this reason, the research involves a range of qualitative methods which seek to uncover the multiple ways that the anti-fracking imaginary is constituted, using affect as its constitutive lens. This lens has the effect of 'formatting' (Law 2017) the object of inquiry, influencing its interpretation and analysis. In this case, the research formats imaginaries by focusing on their emotional dimension. This formatting takes place in the development of the research questions, where the multiple, intersecting concerns of the study are worked out. My research is interested in addressing the under-theorisation of affect in sociotechnical imaginaries literature while considering how this understanding might shape public engagement. Section 2.3.2 provides justification for the belief that the affective dimension of imaginaries is worth exploring in more depth. Section 2.3.3 outlines why this is relevant to public engagement. It is here that the research process becomes sensitive to what is taken to be the relevant aspects of imaginaries. The research instruments are "tuned" to detect the affective dimension of imaginaries through an exploration of the literature in combination with the concerns of the research questions.

That is not to say that imaginaries are entirely conceptual or theoretical. Case studies in the literature provide examples of what to look for, allowing us to recognise one when we've encountered it. Government policies (Levidow and Papaioannou 2013), public debates (Felt 2015), laws (Pickersgill 2011), and local discourses (Tidwell and Tidwell 2018) are examples of the kind of forms which sociotechnical imaginaries take. Of course, not every policy constitutes an imaginary and not every imaginary involves a policy. An imaginary must also include some kind of shared alternative vision to how things currently stand. In this way, the concept approaches something closer to our intuitive notion of imagination, where an individual or group creatively reflects on novel or fantastical scenarios. Collective imaginaries hold together in patterned and durable ways through various media: representations, identities, discourses, and institutions. While they are not reducible to these media, the latter

provide traces of the networks which constitute imaginaries. In the same way that discourses are more than individual words or utterances (Foucault 1991), imaginaries are composed of a broad web of rhetorics, cultural texts, and social technologies (e.g., laws, regulations, or policies), co-produced by the knowledge practices of STS. It is through the theory of sociotechnical imaginaries that they are made relevant, meaningful, and operational as future-oriented technopolitical visions.

So, where are their edges and boundaries? As mentioned, imaginaries operate at different scalar levels. They rely on individual brains and nervous systems for their durability and maintenance but also wider sociomaterial technologies like laws, regulations, and methods of accounting (Kuchler 2017). Jasanoff and Kim's (2009) investigation of national scale imaginaries national agendas and economic policies which played a powerful role in producing and sustaining country-wide visions of the future. These established narratives can be contested by smaller counter-imaginaries which are developed at local scales. These have the potential to grow and transform national imaginaries (Hilgartner 2015). This research is interested in exploring how affective practices contribute to the development of these counter-imaginaries, specifically, the anti-fracking imaginary in Ireland. Here, again, it is helpful to remember that imaginaries operate at multiple scales and that it is the intervention of the analyst which effectively decides which scales are relevant or worthy of analysis.

For the purposes of this research, I wanted to examine the local iterations of the imaginary. My decision to focus on the resistant anti-fracking imaginary stemmed from the political commitments of the STS approach to engagement which values bottom-up, local participation in sociotechnical affairs. Certainly, there is a case to be made for a study of the broader national-scale fracking imaginary in Ireland, as originally constituted by licensing laws and energy policies, or, indeed, the subsequent shift to a national anti-fracking imaginary, materialised in the Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017. Each of these iterations of the fracking imaginary in Ireland would no doubt provide a fruitful avenue of research. Equally, a more comprehensive tracing of the local, affectively charged anti-fracking imaginary in north Leitrim and its influence on the broader national imaginary would be an interesting line of analysis. However, my ambition here has been more modest: to assess what role affect plays in the locally produced imaginary and how it might provide opportunities for engagement. The knowledge that this imaginary did have an impact at the national scale no doubt reassured me that this imaginary, in

particular, was salient and worth studying, but the actual influence it had on government legislation is not followed in much detail.

"Real" politics is not separated in this analysis from local negotiations of power. Indeed, following Jasanoff (2004, 2007), I see them to be co-produced. Other social practices outside of affective ones no doubt had a powerful impact on the anti-fracking imaginary. Knowledge practices, technologies of governance (licencing, regulation, legislation), rationalities of safety and risk were all evident. I have focused, instead, in an exploratory way on how local practices of affect have contributed to a counter imaginary that grew in scale – extended into these other networks of power (knowledge, governance etc.). As we follow how affective practices produce an anti-fracking imaginary, we will explore how they intersect with other political formations – identities (loving campaigners, hateful frackers), spatialities (valued landscapes), and temporalities (traumatic memories of violence and hopeful visions of the future). This is certainly not exhaustive of the political relations involved. Using affect as a lens, however, has brought *these* political issues into focus.

So far, I have elucidated the normative aspect of sociotechnical imaginaries and the political tendency in their analysis towards legitimising the everyday civic epistemologies of citizens. I have also outlined Jasanoff's unique contribution to more general theories of social imaginaries in the specific attention she pays to technoscience and materiality more broadly. In order to contribute to these dimensions in work on sociotechnical imaginaries, while addressing a gap in the literature, I would like to suggest that more attention needs to be paid to the affective dimension of imaginaries. This line of investigation forms the backbone of the current research. It does so by questioning what role affect plays in the imagining of sociotechnical futures, and further, examining what politics this imagining produces. The research asks what value this information might have for STS approaches to public engagement. The reasons for this will be explored in more detail in Section 2.5. For now, I wish to outline the gap that currently exists in the sociotechnical imaginaries literature in relation to affect.

The emotional dimension of imaginaries is referenced frequently in the literature, particularly in relation to desire and fear (Jasanoff and Kim 2009; Felt 2015; Jasanoff 2015b, 2015c Pfotenhauer and Jasanoff 2017; Schelhas et al. 2018; Tozer and Klenk 2018; see Lupton 2017, 2018 for an exception). However, this emotional dimension is seldom investigated in theoretical or empirical depth. Jasanoff's frequently cited definition of sociotechnical imaginaries explicitly references 'desirable futures'

(2015b, p.4) as the kind imagined by collectives. She goes on to say that this also implies its obverse, 'shared fears of harms' (ibid., p.5) and 'resistance against the undesirable' (ibid., p.19). This connects with what Felt terms an 'imaginary of the absent' (2015, p.104) whereby the *absence* of innovations is imagined, by, for example 'keeping a set of technologies out of the national territory'.[16] Jasanoff also describes imaginaries in affective terms as 'hopes' (2015b, p.27). She writes that the central question that the analysis of sociotechnical imaginaries addresses is: 'why, at significant forks in the road, societies opt for particular directions of choice and change over others and why those choices gain stability or, at times, fail to do so' (Jasanoff 2015b, p.14).[17] Imaginaries do this by teasing apart 'the relationship between collective formations and individual identity' (ibid., p.23). This explicitly involves an affective dimension: 'joining a collective does matter to the actors who join it; and those who form and manage collectives are often intensely (if unconsciously) aware of the need to control the *emotive* registers of adherence and belonging' (ibid, emphasis added.). Attention is paid to the aesthetic-affective 'theatricality' of statecraft, 'monarchical pomp and pageantry', and the use of 'artistic and cultural heritage' in the performance of national identity (2015b, p.9), for example.

Welsh and Wynne have also acknowledged emotion when considering imaginaries. They write that 'there is a need for analytical work which addresses the affective collective dimensions of imaginaries' (2013, p.546). Affect arguably also plays a role in Jasanoff's definition of 'meaning', the 'embedded experience' required for contextualising scientific knowledge (2010, p.235). She writes that, 'when it comes to nature, human societies seem to demand not only objectively claimed matters of fact but also subjectively appreciated facts that matter' (2010., p.248). I would suggest that navigating what matters involves the realm of emotion and affect. Exploring the affective dimension, I believe, would better get at the everyday 'meaning' that Jasanoff argues is constitutive of the civic epistemologies powered by sociotechnical imaginaries.

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[16] Absence is an important issue which Actor-Network Theory and its method of controversy mapping arguably fail to adequately address (Ngai 2012) with their emphasis on a metaphysics of presence (Latour 2007a; Müller and Schurr 2016). See also Law (2004 pp.83-85) for an alternative perspective which argues that issues of presence and absence are suitably theorised by ANT.

[17] This question is also raised by Levidow and Papaioannou (2013, p.38) when they ask: 'How do actors link sociotechnical imaginaries and technological pathways in some ways rather than others?'

Despite this attention to the locally navigated affective registers of desire, hope and fear, empirical work in sociotechnical imaginaries tends to focus on broader-scale discourses. Tidwell and Tidwell (2018, p.103) argue that 'sociotechnical imaginaries require a new methodological framework for designing research in order to examine the collective values of citizens as they live their daily lives, rather than focusing on experts and the state'. The concept started out referring only to nation-scale imaginaries (Jasanoff and Kim 2009, 2013) but has since become increasingly focused on the local as the resistant dimension of imaginaries is explored (Hilgartner 2015; Jasanoff 2015b; Smith and Tidwell 2016). However, attention is still largely focused on imaginaries as discourse, notably despite their linguistic reliance on tropes of visuality ('*imag*inary', '*visions* of desirable futures'). Even Lupton's feminist materialist analysis of the emergence of wearable technology (2018) and 3D printed food (2017), which incorporates sociotechnical imaginaries, distinguishes the 'imagining' from the 'embodied' parts of the process. Elsewhere in the literature, imaginaries are generally empirically observed in discourse without explicit attention to the affective dimension. Examples include national and intergovernmental policy (Jasanoff and Kim 2013; Levidow 2013; Levidow and Papaioannou 2013; Eaton et al. 2014; Miller 2015; Bergman et al. 2017;), law (Jasanoff and Kim 2009; Pickersgill 2011; Hurlbut 2015), historical documents (Dennis 2015; Moon 2015; Storey 2015), and public debate (Kim 2014, 2015; Felt 2015).

I believe that sociotechnical imaginaries scholarship could benefit from increased attention towards the affective component of shared public visions of desirable and feared futures. I believe it might help us better understand imaginaries as they play out at the local, embedded level where affect and emotion are fundamental aspects of life. This will arguably provide a richer, more nuanced picture detailing why collectives choose some sociotechnical futures over others. I would suggest that paying attention to the role played by affect could help to shed light on these processes, contributing to our understanding of the political dimension of controversial issues like fracking. With a better understanding of their politics comes a better understanding of what engagement might look like.

Before examining the literature on public engagement, I would like to turn to the issue of fracking itself. As outlined in the introduction, this thesis explores public engagement in the context of environmental science in Ireland. To do so, I have chosen the empirical site of fracking. This is to reveal the 'topographies of power' (Jasanoff

2015b, p.18) which must be attended to in order to conceptualise public engagement according to issues of fairness, justice, and equality. The next section will review the relevant STS literature on fracking, outlining how it is imagined and contested.

2.2 Imagining Fracking

2.2.1 The Co-Production of Environmental Controversies

Recently, a group of STS scholars have come together to write a policy document for the Swedish Foundation for Strategic Environmental Research in which they propose a re-framing of environmental communication where 'environmental topics be studied from a co-productionist perspective' (2018, p.11). They argue that knowledge-creation about the environment never involves only 'the sciences or specific technologies (e.g. measuring devices such as satellites or environmental models and so on)' but that it also 'brings into play new institutional actors or social movements and with it new argumentative repertoires and value structures' (2018, p.11). Further, in line with the work produced in this thesis, they call for attention in STS-influenced science communication to 'how values and affect are communicated and how these play a role within environmental discussions' (2018, p.11). Environmental communication, they argue, should ask questions such as: 'how are emotional and aesthetic connections to the environment represented?' These are questions addressed by this thesis.

Fracking may be understood in terms of co-production. It is a continuously evolving heterogeneous assemblage of norms, institutions, knowledges, and materialities. The shape and constitution of 'fracking' is influenced by legislation (Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017); protest (Ferguson and Smith 2012); policy (Miller et al. 2013; Williams et al. 2017); media discourses (Jaspal and Nerlich 2014); local understandings of place (Mando 2016); environmental impact assessments (Hooper et al. 2016); public health assessments (New York State Department of Health 2014); citizen science (Kinchy 2017; Zilliox and Smith 2018); documentary film (Mazur 2016), growth paradigms (Metze 2017b); social understandings of space (Kroepsch 2016); corporate profit motives (Chen and Gunster 2016); social media (Hopke and Simis 2015); seismic activity (Ellsworth 2013); methane migration (Davies 2011; Jackson et al. 2011); and

future estimates and projections (Kuchler 2017); among many other factors. In her Copenhagen lecture, Jasanoff states that numerous attempts to frack in the US have generated 'their own complex alignments and associations' (2016b). She observes that science features prominently on both sides of the fracking controversy, but that decisions regarding whether or not fracking will take place 'will be driven by who gets to control the narrative of extraction' (Jasanoff 2016b).

The STS literature on fracking places a heavy emphasis on this point with many recent articles focusing on discourses and framings of fracking and their negotiation between publics, policymakers, and industry (Hopke and Simis 2015; Kroepsch 2016; Mando 2016; Metze and Dodge 2016; Dodge and Lee 2017; Molinatti and Simonneau 2017). Jasanoff is also frequently cited in the literature, with several articles using sociotechnical imaginaries as an interpretive framework for understanding how fracking is taken up or resisted in different contexts (Miller et al. 2013; Bellamy 2016; Williams et al. 2017; Zilliox and Smith 2018).

In this vein, Dodge and Metze (2017, p.9) describe fracking as an 'interpretive problem', whereby competing discursive frames shape governance approaches. A number of studies have outlined the various ways that fracking is framed and imagined. Lis and Stankiewicz (2017, p.53) describe three such frames: 'shale gas as a novel economic resource, as a strategic resource for energy security and as a threat'. Jaspal and Nerlich, in their examination of the UK press, found that fracking discourse also involved a 'threat dynamic' (2014). In this instance, optimism shifts towards pessimism, followed by a re-construction of fracking as a threat and a subsequent entrenchment of positions as newspapers defended their views. Also looking at the UK, Bomberg (2017, p.72) similarly identifies the competing discursive frames of 'opportunity' and 'threat' and the impact these have on understanding and meaning. She argues that anti-fracking campaigners in the UK have enjoyed greater success because 'the pro-shale coalition lacks trustworthy messengers' and because they have 'successfully expanded the debate beyond economic or environmental concerns to include potent issues of local power and democracy' (2017, p.72).

Metze (2017b) describes fracking in the Dutch example as a 'boundary object' with contested meanings. Competing frames such as 'business as usual' versus 'precaution', 'a newly 'conquered' source of trade' versus 'a drop in the ocean for the energy market' and 'shale gas as a transition fuel' versus 'gas addiction' generate uncertainty about the economic and environmental impact of fracking. Within this

discursive space of contestation, the governance of fracking shifts from that of standard economic practice to planning, bringing with it a precautionary imaginary of the future. Elsewhere, Metze (2017a, p.1737) outlines how pessimistic 'futurity framing' opens up space for alternative sociotechnical imaginaries to neoliberal capitalism such as 'degrowth'.

Rich (2016, p.293) examines oil and gas company responses to protest, where corporate narratives 'renew the jobs versus environment dichotomy by romanticizing labor identities in the region' thus excluding 'alternative possibilities for working, living, and being without fossil fuel industries'. Chen and Gunster analysed the website of the British Columbia Ministry of Natural Gas Development and the discursive strategies used to 'legitimate particular economic and industrial practices' (2016, p.315). These include a narrative marshalling the symbolic values of natural gas as '"clean" […] colourless and odourless' which are contrasted with '"dirty" fossil fuels' (2016, p.305). This is presented in a 'a linear and simplified "storyline" of the generation of LNG which emphasizes the simple, "clean" process of liquefaction to distract attention from the ecological and health risks of hydraulic fracturing' (2016, p.305). Chen and Gunster also draw attention to narratives of the future such as economic benefit imagined in terms of employment and tax revenues.

Kuchler (2017) outlines how discourse functions within a co-produced fracking imaginary. In a fascinating study, she uses Jasanoff's sociotechnical imaginaries framework alongside a Foucauldian governmentality analysis to identify the visions of shale gas contained in resource estimates and the impact these have on governance. Kuchler uncovers the twin roles of arrangement and designation at work in making the shale gas imaginary visible. She points to the production of estimations of a global space of unconventional natural gas reserves that is driven by the 'mutually reinforcing narrative of abundance and scarcity' (2017, p.35). These calculated resources are designated with meaning through discursive techniques that render natural gas valuable as an alternative to fossil fuels and as a key commodity in the geopolitics of energy security. Kuchler outlines how specific geological measurements become salient as the economic relevance of gas recoverability shapes technological development and innovative calculation techniques. This work is carried out by an assortment of state and private organisations with the consequence that 'the majority of estimates for shale gas potential is not a scientifically-grounded or peer-reviewed material' (Kuchler 2017, p.38). As such, it remains, at times, 'outside the public domain' (Kuchler 2017, p.38).

Kuchler argues that making shale gas visible and calculable also makes it '*governable*' in that 'it has been made knowable, visible and intelligible for political rationalities' (2017, p.38, emphasis in original). These political rationalities are concerned with the 'securitization' of unconventional gas resources, thus 'fuelling and legitimizing techno-political hopes for certain post-conventional energy futures' (2017, p.39). This demonstrates the discursive "nuts and bolts" of co-production – how techniques of estimation and calculation merge with political rationalities to produce energy futures with real geopolitical consequences.

Others have also demonstrated the influence that energy imaginaries have on governance. Dodge and Metze identify two main tensions in the meaning of shale gas extraction: '(1) economic opportunity or environmental threat and (2) transition toward a more carbon-free energy future or perpetuation of a fossil fuel system' (2017, p.1). They suggest that environmental threat discourses presage a risk governance approach, while framing fracking in normative terms as a barrier to sustainability generates alternative modes of governance, such as outright bans. Dodge and Lee similarly argue, in the case of New York State, that 'competing discourse coalitions' produced years of political gridlock as the policy imaginary shifted from consensus about fracking's economic benefits, through negotiation of some environmental threats, to controversy over issues like public health, governance, environmental protection, and energy sustainability (2017, p.14). Kinchy and Schaffer outline how power relations are dynamic, shifting according to the differential strategies employed by pro- and anti-fracking collectives (2018). They study secrecy and transparency in the context of publics demanding information about 'the contents of fluids used in the extraction process, the routes of oil shipments by rail, and other dimensions of extraction' (2018, p.1012). Kinchy and Schaffer describe how secrecy is challenged and defended, observing that power shifts dynamically to 'conflicts over presentation and interpretation of information, the design of disclosure infrastructures, and the credibility of the various experts and agencies involved' (2018, p.1013).

Elsewhere, Kinchy (2017) outlines how imaginaries influence how power accumulates and is distributed in anti-fracking citizen science movements. Ostensibly attempts to hold polluters accountable by gathering baseline scientific data, citizen science projects such as watershed monitoring, 'reinforce the epistemology of regulatory agencies, rather than generating alternative forms of knowledge about watershed health' (Kinchy 2017, p.2). Kinchy argues that this kind of citizen science

can be seen as an empowering anticipatory response to future pollution within a legalistic or regulative governance framework. However, she claims that it threatens to channel 'concern and action away from the roots of the problem that the participants face' (2017, p.20.).[18] It does so by encouraging 'patient data collection rather than political action to prevent pollution or to halt further gas development' (2017, p.20). Furthermore, the expansive local experience of the community who 'live, work, and play in these places' is 'treated as irrelevant to debate and decision-making' in citizen science practices which follow 'the logic of routine data gathering' (2017, p.20).

This last point is an important one in the context of the current research. To what extent have the imaginaries of those living with fracking or the prospect of fracking been examined in the STS literature? Jaspal and Nerlich (2014, p.502) argue that until 2014 there had been a lack of detailed research into public perceptions of fracking and, in particular, 'the social and psychological dimensions of fracking'. Williams et al. (2017) agree, pointing specifically to a gap in STS research. Willow and Wylie claim that in relation to the amount of scholarship dedicated to the environmental impacts of fracking, 'sociocultural consequences have been comparatively overlooked' (2014, p.223). The literature surveyed above, particularly since 2015, has certainly begun to address this. However, the emphasis is very much on the discursive dimension of fracking and its ordering of governance and anti-fracking imaginaries. This is important – discourse is a powerful instrument in co-production (Jasanoff 2004b, pp.38-39) and as such should rightly be examined. In addition to this valuable work, I want to explore, here, the dimension of fracking imaginaries which goes beyond the discursive: the realm of the emotional and the affective. Fracking is an emotive issue (Raynes et al. 2016; Davidson 2018), but sociological analysis of the affective dimension of fracking is rare and scattered. I want to examine the emotional dimension within the STS tradition by exploring how it connects to the imaginary and the politics that are produced. This will result in richer detail about how imaginaries function, providing a more comprehensive analysis of how and why publics choose certain sociotechnical futures over others. Taking the example of fracking in north Leitrim, I aim to sketch the affective dimension of the anti-fracking imaginary to see how it operates within the idiom of co-production.

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[18] This argument is supported by Zilliox and Smith (2018, p.221) who claim that citizen science practices in the form of community participation in planning and deliberation 'unintentionally reinforce scientism-based governance', shoring up scientific authority and triggering an imaginary of anti-fracking activists as an 'unruly public'.

It is important to underline that this is in no way an attempt to discount the importance of work on discourse. As the literature review will go on to show, affect and discourse are closely connected (Wetherell 2013, 2014, 2015). Meaning, as it is understood here, involves both. As argued above, emotion is an under-explored aspect of sociotechnical imaginaries, despite featuring centrally in them. I believe that empirical exploration of the affective dimension of the fracking controversy in Ireland will address two gaps in the literature: the first being the affective dimension of sociotechnical imaginaries within STS, and the second being the scant attention that emotion has received in sociological scholarship on fracking more broadly. Furthermore, I propose that a more comprehensive understanding of the political dynamics involved in imaginaries could contribute to our understanding of how to engage with controversial environmental issues. Revealing the technopolitics of the fracking controversy will shape the work which follows. It will involve examining the affective dimension of the anti-fracking imaginary, asking what role it plays in this imaginary, and asking how this might contribute to our understanding of public engagement. Together, these concerns will address the overarching thesis question guiding the research: *What is the value for science communication of considering the role of affect in the anti-fracking imaginary in Ireland?*

There is precedent for work of this nature in science communication. Research at the intersection of STS and science communication, particularly by Sarah R. Davies (2014, 2016, 2018; with Horst 2016; with Loroño-Leturiondo 2018), has begun looking at the role of affect and emotion in public engagement. I hope to contribute to this literature by examining how affect contributes to a sociotechnical imaginary and this might mean for engagement. The research that follows suggests that emotion constitutes a defining feature of the anti-fracking imaginary, creating opportunities for novel kinds of engagement The next two sections will examine the literature in affect in a broad sense and the role it plays in STS scholarship on public engagement with science.

2.3 Affect and Emotion

2.3.1 What are Emotion and Affect?

There is still no consensus in any literature I have looked at on precisely what affect is.[19] If there is a defining feature of affect, it might be the very fact that it resists a straightforward and stable definition. We do, however speak about emotion and affect quite a lot, so despite their inchoate natures, it is generally agreed that emotions or feelings are *something*. Given the plurality of definitions of affect within the literature, one is left with the task of making a pragmatic choice as to which interpretation of affect best fits one's area of research. Affect receives relatively little attention in STS (in comparison to discourse, for example), and even less so in STS-influenced science communication (Harvey 2009; Davies 2014, 2016). It is also underexplored in sociological and cultural studies of fracking, this is despite a well-acknowledged surge in sociological and cultural studies research concerned with affect, or what is known as the 'affective turn'.[20]

A large portion of this work stems from Deleuzian cultural theory that emerged in the 1990s (Massumi 2002; Sedgwick 2003; Clough 2008). While this literature shares affinities with STS in relation to ontology (Haraway 1994; Latour 2007a; Wetherell 2013, p.350), particularly ANT, it arguably suffers from the same political limitations as ANT that have been outlined above in Section 2.2.2. In its focus on form, movement, the virtual, and potential, this vein of affect theory (Deleuze 1988; Lingis 2000; Massumi 2002; Thrift 2004; Anderson 2009) arguably loses sight of how feelings sediment and solidify in recurring and identifiable patterns (Wetherell 2014).[21] This

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[19] Plamper writes that 'even in such a limited field as English-language experimental psychology, ninety-two different definitions of emotion have been counted between 1872 and 1980 (2017, p.11)

[20] Psychoanalytic work in sociology and cultural studies has remained committed to theorising feelings alongside sociocultural phenomena, notably in the area of public engagement with climate change (Lertzman 2010, 2013; Weintrobe 2013) and by Rustin (1997, 2001) in relation to STS. Psychoanalytic theory has also had an influence on the 'affective turn' and on the sociological view of emotion taken by this research (Wetherell 2014). It is still, however, distinct in many ways from affective practice, the model of affect I am working with here, in psychoanalysis's focus on internal psychic drives and a dynamic unconscious.

[21] The notion of durability is also critical to work on sociotechnical imaginaries. Jasanoff states that 'questions about the stability, durability, and coherence of social arrangements' are central to understanding 'some of the most basic elements of human welfare' (2015b, p.29). That is why some theories of affect which focus solely on affect's dynamic qualities such as difference, change, spontaneity, or chaos make a minimal contribution to the understanding of affect used here.

poses problems for analysing power in that its emphasis on flow and movement struggles to deal with duration and coherence. This is important for understanding how emotions are shared and circulated – there is no room in this kind of analysis for what it is exactly that circulates (Jasanoff 2015a). Further, recognition of durability and pattern is necessary for considering how certain imaginaries gain and retain power. This has implications for conceiving of engagement in that imaginaries recruit people as they extend through time and space.

Additionally, the distance such exotic theories of affect insert between themselves and the intuitive understanding of emotions which populate everyday life is problematic for considering usable models of public engagement that attend to everyday meanings.[22] If, as Jasanoff suggests, we need to access local meanings for successful engagement, it follows that our accounts of these meanings should be capable of recognising them. Methods looking for exotic phenomena such as virtual becomings might struggle to identify and articulate everyday emotions such as irritation, frustration, boredom, or amusement. Equally, such methods threaten to stretch our intuitive understandings of emotion entirely beyond recognition. In this scenario, emotions bear little resemblance to those experienced by publics in the everyday contexts these methods are meant to explore. To this end, retaining an aspect of the everyday will be a central concern in my conception of affect.

In keeping with these concerns, I believe affective practice (Wetherell 2014) offers the best epistemological and methodological approach to the social, cultural, and political navigation of affect. Wetherell defines affective practice as 'a figuration where body possibilities and routines become recruited or entangled together with meaning-making and other social figurations' (2014, p.19). The inclusion of 'practice' is to emphasise how affects are not 'things' that are held within individuals, but rather encompass a 'nexus of doings and sayings' (Schatzki, cited in Wetherell et al. 2015 p.60) which 'mark a relation' (Wetherell et al. 2015, p.62). They are also practices in the sense that they are repeated again and again – never fully realising their ideal Platonic potential. Emotional experiences, in this understanding, exist as an assemblage of relations between bodies, repertoires of interpretative possibility, histories,

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[22] Wetherell suggests that affect as a mode of intelligibility, indeed as an entire epistemology, is 'deeply familiar to lay participants […] every member of society possesses a wide-ranging, inarticulate, utilitarian knowledge about affective performance: how to enact it, how to categorise it, and how to assign moral and social significance to affective displays' (Wetherell 2014, p.78).

institutions, and environments. Wetherell describes how 'the relational figurations of situated affect activity include not just humans and their particular psychologies and histories […] affective practice in the situated moment extends to encompass objects, spaces and the built environment' (2014 p.88). They are at once deeply contextual and deeply personal; emotions are subjectively felt, but this does not exhaust their ontology. Wetherell describes how individuals and communities 'navigate this patchwork' of interpretative repertoires and social and material contexts, 'customising it for their own purposes, sliding from one repertoire to another' (2014, p.119). With an emphasis on practice, Wetherell's notion of affect focuses on 'the emotional as it appears in social life' and follows 'what participants do' (ibid., p.4). This is an important point when thinking about how affective practice might 'sync' with sociotechnical imaginaries. Both theories involve this attention to what is *done* as opposed to what *is* in social life.

Wetherell's work on affect emerges from an expansive body of work in post-structural discursive psychology (1998, with Potter 1988). She draws from an eclectic range of sources in developing her theory of affective practice that includes Pierre Bourdieu, Theodore Schatzki, Marjorie Goodwin, Ian Burkitt, and Raymond Williams (2014, pp.22-24), while traversing the fields of neurobiology, conversation analysis, ethnomethodology, discursive psychology, critical psychology, psychosocial studies, social psychology, cultural theory, psychoanalysis, and the history of emotions. The range and scope of her scholarship is at once intimidating, breath-taking, and inspiring. It also makes a difficult job of containing a definition of affective practice within the already crowded space of this PhD literature review. For pragmatic reasons, I will restrict an account of her academic background to a brief outline of her connection to the discursive 'ethno-sciences' and her subsequent parting from them. The reason she cites for choosing to 'move on' from these fields in the study of affect intersects with Jasanoff's concerns, outlined above, about the 'flatness' (Jasanoff 2015b, pp.15-19) of Latour's networks. By focusing on these shared concerns, I hope to shed light on how Jasanoff's and Wetherell's respective ideas might gel.

In *Affect and Emotion*, Wetherell identifies a problem within the ethno-sciences which prevents analysis that can simultaneously address 'the somatic, the semiotic and the social' (2014, p.99). The issue, she argues, is that in following Garfinkel's ethnomethodological principle, social analysis is restricted to the local. Wetherell paraphrases the ethnomethodological argument: 'research can only explicate the ways in which participants have interpreted the world. Researchers can only legitimately

study the participants' own descriptions, versions, accounts and sequences' (2014, p.99). This is a principle that Latour ascribes to. He frequently cites Garfinkel in *Reassembling the Social*, drawing similarities between his own sociology and that of Garfinkel, stating: 'it's not the sociologist's duty to decide in advance and in the member's stead what the social world is made of' (2007a, p.29n). For Wetherell, this restriction 'rules out commentary on the history of an affective practice and the power relations it might sustain or disrupt which are not obvious to the participants' (2014, p.100). In a similar move to Jasanoff, Wetherell points out that this precludes patterns related to 'demographies of social class or gender/race/class intersections; unremarked forms of distinction and inequalities in affective capital' (2014, p.100). In opposition to the narrow frames of the ethno-sciences, Wetherell calls for research that can 'examine both the broader [citing Laclau] "argumentative textures" […] constituting a social formation and interaction situated in a particular moment' (2014, p.100).

This involves the weaving of power in ways that are sometimes noticeable to participants themselves and sometimes not. The perceptions of the analyst and those of the participant are treated equally in the sense that they are both treated as ways of knowing. They may also be different, however, in that they use different epistemological technologies, or 'machineries of figuring' for interpreting that knowledge. Wetherell is seeking an acknowledgement that the epistemological and affective 'machineries' of both the participant and the observer are similar, in the sense that they are navigated with bodies and through discourse. But that they may also be different in that the sense-making of social science is a different interpretive technology than a participant's own orientations. She stresses that this does not make social science observations 'truer' in any sense, 'they simply add new and different perspectives that are often exceptionally useful' (2014, p.101). Wetherell sees the role of affective practice as acknowledging the usefulness of both the participant's and the observer's 'machineries of figuring'. This bridging between scales of knowing, I would argue, is similar to Jasanoff's vision of public engagement as outlined in 'A New Climate for Society' (2010).

Wetherell retains an important place for the discursive in her work on affect. In much of her research, she refers to it as 'affective-discursive practice' (Wetherell et al. 2015; McConville et al. 2017). I will be keeping to the shorter and less cumbersome affective practice, with the acknowledgement that affect is interwoven with the discursive. Wetherell is at pains to counter the influential theories of Massumi, Thrift,

Clough, Anderson, and Lorimer, which propose a theory of affect that 'emphasizes processes *beyond*, *below* and *past* discourse' (2013, p.350, emphasis in original). These theorists, according to Wetherell, hold that discursive research 'prioritizes representational thinking and observation' (Wetherell 2013, p.352). Leys (2011, p.436) describes this approach as a response to the assumption that contemporary critical theory has 'overvalued the role of reason and rationality in politics, ethics, and aesthetics, with the result that they have given too flat or "unlayered" or disembodied an account of the ways in which people actually form their political opinions and judgments'. Theorists such as Thrift and Massumi call for an acknowledgement that humans 'are corporeal creatures imbued with subliminal affective intensities and resonances that so decisively influence or condition our political and other beliefs that we ignore those affective intensities and resonances at our peril' (Leys 2011, p.436). Leys states that, for these theorists, 'affects are "inhuman," "pre-subjective," "visceral" forces and intensities that influence our thinking and judgments but are separate from these' (2011, p.437). She (2011), along with Blackman (2012), supports Wetherell's view that detaching human affect from discourse and reason is untenable.

Wetherell, however, is well-placed to counter this argument, coming from the very field of discourse studies that critics such as Thrift (2004, 2008) and Massumi (2002) seek to overturn. She argues that the 'rubbishing of discourse' (Wetherell 2014, p.19) in the work of these scholars is a futile exercise because 'human affect is inextricably linked with meaning-making and with the semiotic (broadly defined) and the discursive' (2014, p.20). She argues that rather than constraining affect, discourse 'very frequently makes affect powerful, makes it radical and provides the means for affect to travel' (2014, p.19). Wetherell's affective practice attempts to pull affect back to meaning, as it is through the discursive, she argues that 'affect comes to life' (2014, p.72). 'Thinking and feeling', she writes, are 'social acts taking place through the manifold public and communal resources of language' (2014, p.72).

Wetherell is also keen to avoid an over-reliance on psychologised notions of affect. This includes restrictive neurobiological accounts that reduce affect to 'basic emotions' and ignore the cultural dimension (Wetherell 2014, pp.27-50; see also Scherer 2005; Leys 2011; Shuman and Scherer 2015; Plamper 2017, pp.147-250).[23] She

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[23] Wetherell welcomes the insights of neurobiological work on affect for their contributions to our understanding of emotion, particularly fine-grained approaches by Scherer and others who maintain a balance 'between variability and pattern' that meshes well with social practice (2014, p.50). She is

is critical of psychoanalytic approaches to affect which conceive of a subject that is 'pre-packed with a raft of innate psychological processes, and with large numbers of pre-organised routes' (2014, p.139) cut off from social relations. This is not to say that individual feelings have no place in Wetherell's account of affect. She theorises a 'light relational subjectivity' which acts as an organising station 'contributing pattern and order to affective practice' (2014, p.139). Frosh and Baraitser, who work in the psychoanalytic tradition of psychosocial research, argue that Wetherell misses out on the subjective depth which psychoanalysis brings. They write that the kind of reflexivity she uses in her work would be regarded by psychoanalysis as:

> both too restricted and too general, in that it recognizes social structures and can track interpersonal interactions, but has a deeply impoverished vocabulary for describing the intersubjectivity of the research process – the ways in which each person 'uses' the other, unacknowledged and unconsciously. (Frosh and Baraitser 2008, p.360).

This is an understandable critique. However, it maintains the separation between the psychological 'inner' person and the realm of the social. Wetherell's approach instead focuses on the context of the variety of ways of 'doing' affect. Affective practice focuses on its intersubjective nature – examining how emotions emerge dynamically through the interplay of socialised groups and their environments and contexts. With McConville and others (2017, p.60), Wetherell writes that 'affective practices flexibly assemble or articulate together in patterns of activity a shifting range: embodied psychophysiological processes, subjective feelings, memories, perceptions and appraisals, contexts, institutions, spaces, histories and relationship'. This does not mean that an account of affect need capture all these aspects of emotion, indeed, they operate at different scalar levels and become more or less influential at different times and in different contexts. Wetherell writes:

> Some of the contributing modes in any particular affective practice might become more dominant and primary at some moments. They may retreat at other moments as the practice unfolds in time. Intense body actions in materialised and spatialised contexts, for instance, might arise as the dominant performative mode early in the chronology of a particular affective practice. Semiotic modes such as narrative and story-telling are likely to become more important as the body winds down, and as

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sceptical however of the 'affective turn' in cultural theory whereby 'a few spectacular theoretical edifices have been built on pretty shaky neuroscientific ground' (2014, p.10).

the moment of strong affect is carried forward as a memory or story, with new accompanying affect (2014, p.89).

Despite Wetherell's efforts to develop a social psychology of affect, Sullivan has questions about its capacity to adequately elucidate the social. He writes, 'we need to know more about how the dynamic features of collective emotions occur, for example, in places of national significance as well as whether the patterns ascribed to group behaviour and interactions are genuinely widespread' (2015, p.387).[24] With simultaneously dynamic and sedimentary affect flowing through individuals, cultures, and objects in Wetherell's account, it poses the problem of where, exactly, to look for defining emotional relations in a given situation.[25] This is arguably a methodological issue, however, which further testing of empirical methods for capturing affective practices might resolve.

For Wetherell, it is the inclusion of an emoting human body that makes affective practice defining and unique and separates it from other forms of social practice. In this way, affect must be located in 'actual bodies and social actors' with meaning emerging through 'the direction and history of affective practice over time, and the history of its entanglements with other onto-formative social practices and social formations' (2014, p.159). I think this point opens a space for thinking about how imaginaries and affective practice can work together. Sociotechnical imaginaries theory, through its connection to co-production, is equally concerned with the onto-formative capacity of social practices (Jasanoff 2015b, pp.5-10), meaning that they 'constitute subjects and objects' through assembling and recruiting (Wetherell 2014, p.159). Jasanoff is particularly focused on the assembling and recruiting capacity of technoscientific practices and how they co-produce social orders (2004a). Wetherell's point is that 'the participation of the emoting body […] makes an assemblage an example of affect rather than an example of some other kind of social practice' (2014, p.159). It is this dimension of affective practice that I am keen to explore in relation to the imaginary.

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[24] Sullivan ultimately finds affective practice to be a plausible social psychology of affect. He writes that it is 'convincing' not only in its 'discussion of possibilities for investigation circulating affects without resorting to a scientific ontology of mechanisms', but 'also because no representation of circulating emotions with a form of prediscursive and unconscious collective agency is implied' (2015, p.388).

[25] Schurr concurs with this assessment, stating 'one is left wondering how Wetherell would methodologically redeem her concept of affective practices' (2014, p.116).

2.3.2 How Else Might Affective Practice Fit with Sociotechnical Imaginaries?

Jasanoff writes that imagination is a 'crucial reservoir of power and action', which 'lodges in the hearts and minds of human agents and institutions' (2015b, p.17). This implies that understanding a phenomenon such as the anti-fracking imaginary in north Leitrim requires knowledge of the affective dimension of social relations. It raises a question about how campaigners might be tied emotionally to certain imaginaries, and further, what the politics of these ties might be. This is central for Jasanoff, who stresses the importance of the role 'science and technology play in connecting the individual's subjective self-understanding to a shared social and moral order' (2015b, p.5). However, as mentioned earlier, there is little examination of this everyday component of imaginaries and meaning-making in the literature (Smith and Tidwell 2016; Tidwell and Tidwell 2018), particularly the affective dimension. Wetherell's own work on imaginaries, while distinct and unconnected to Jasanoff's work, is helpful here.

Wetherell has conducted applied research using affective practices, where she writes that the goal is 'to examine both how communities develop distinctive and defining affective-discursive practices and how affective-discursive practices spatialise, demarcate and place communities and social groups' (Wetherell et al. 2015, p.60). She uses Anderson's notion of the imagined community to explore the production of national stereotypes and affective identities (McConville et al. 2017; Wetherell et al. 2015). Here, she addresses Jasanoff's central question regarding imaginaries: why societies choose particular futures at particular times. For Wetherell, the answer lies in the affective dimension:

> affective-discursive patterns are crucial in part because they are the material from which people select and build more global subjective feelings of interactional and relational direction and thrust. Recognitions and anticipations of normative sequences build senses of the evaluative and moral tone of an interaction, whether heading in felicitous and socially sanctioned directions or towards trouble. (Wetherell 2014, p.84)

Elsewhere, she argues that affective practice helps us to understand 'the rapid shifts that can take place in the demos as old orders cease to "feel right" and alternative fantasies of "the good life" begin to engage populations' (2014, p.141). More explicitly, Wetherell states that the affected and affecting body is implicated in 'social reproduction, encouraging and moving the individual towards some imagined futures

but muting others' (2014, p.106). Ultimately, for Wetherell, 'without emotions it is difficult to frame and resolve meaningful moral questions […] memory and imagination require an emotional commitment to develop and mark meaning, genuineness and relevance' (Campbell et al. 2017, p.610).

The connection between emotion and imagination is important. Both Jasanoff and Wetherell connect imagination to the question of human distinctiveness. Wetherell asks 'are human affective practice and human psychology literally indistinguishable from the practice and psychology of a talking parrot?' (2014, p.125). In her answer, following Whitehead, she points to 'the various occasions composing subjective experience [which] anticipate what will come next' and how they 'are guided by past "self-realising" events'. It is in this capacity to imagine that she concludes we are given 'a practical way of thinking about human distinctiveness' (2014, p.127). Jasanoff's thinking comes in the form of a question. Speaking of scholarly STS work which has animated the realm of the nonhuman she describes how mosquitos are made 'to speak'. She writes: 'maybe the mosquito can speak, or be ventriloquized by an exceptional storyteller. But can the mosquito imagine?' (2015b, p.17) This, for Jasanoff, is the defining characteristic of the human. Morton (2013) argues that this link between emotion and imagination is formative. He states that 'almost all imagining has a purpose' (2013, p.10), that imagination is the body's preparation for responses to possible situations in the form of representations. Imagination and emotion are thus linked along a continuum, with emotion being the bodily preparation for response and imagination being the representations of that preparation. For him,

> an emotion is a state which generates a range of representations on a given theme, usually with respect to particular objects. These include representations of actions towards the objects, representations of situations that might develop, and representations of results that might be produced. (ibid., p.14)

Fundamentally, the function of emotions is 'to make us search for actions […] that will address problems of particular kinds' through imagination (ibid., p.23). Seen in this light, emotional responses to fracking spark the imagination of alternatives, opening a space for the political through the consideration of alternatives to a current situation. As Damasio (2006 [1994]) suggests, loss of emotional capacity often leads to the loss of the capacity to make rational decisions:

> while biological drives and emotion may give rise to irrationality in some circumstances, they are indispensable in others. Biological drives and the automated somatic-marker mechanism [the marking of memories with positive/negative valences] that relies on them are essential for some rational behaviours, especially in the personal and social domains. (2006., p.192)

Damasio is particularly interested in how this relates to creativity and choice – the capacity to evaluate and choose what is meaningful. Quoting Henri Poincaré, he states (ibid., p.188), 'invention is discernment, choice', arguing that, alongside working memory and attention, reasoning and deciding involve affective bodily systems. We might think about how feelings produce creative potential for imagining alternatives, marking possible futures with value and guiding us towards certain forms of action over others.

2.3.3 The Politics of Affect

At this point I want to briefly discuss the politics of affective practice. As many have noted, the history of emotions is also a history of power (Eagleton 1990; Reddy 2001; Rosenwein 2006; Plamper 2017). In Dixon's (2003) history of the psychological category of emotions, he traces the dynamic flow of power through various conceptions of passions, affects, appetites, and sentiments as individuals were seen to be more or less beholden to the body, the mind, or the divine. Ahmed (2014, p.12) writes that 'emotions "matter" for politics; emotions show us how power shapes the very surface of bodies as well as worlds'. Emotion, as a social category, is incredibly powerful – it matters who emotes, how, when, and where. It is shaped by norms, through which power flows, restricting and constraining subjectivities and social groups.

Thrift has described the politics of the 'tendency towards the greater and greater engineering of affect' in contemporary life (2004, p.64). This involves technologies of governance such as 'the recognition of emotional labour, emotion management and emotional learning' in the workplace and 'the growth of new forms of calculation in sensory registers that would not have previously been deemed "political"' (2004, p.66). This involves the use of new technologies to visualise and manipulate 'small times and spaces' where 'affect thrives', which produce new flows of power in public

surveillance, organisation management, governance, and healthcare (2004, p.66).[26] Thrift locates a liberation of sorts in 'a microbiopolitics of the subliminal, much of which operates in the half-second delay between action and cognition' (2004, p.71). While I agree with Thrift's diagnosis of the problem, I will not be following him into this half-second delay. This is for the same reasons outlined by Wetherell, Leys and Blackman, above, that it ignores the discursive dimension of meaning in everyday experience.

Nonetheless, Thrift does make an important point here about the role played by new technologies in this newfound focus on affect. It is arguably lacking in Wetherell's practice account. While she does make reference to the 'multimodal' configuration of affect through the 'diverse modes of the semiotic, the material and the natural' (2014, p.89), the actual research methods she uses to research affective practice research tend to stay within the realm of the discursive, giving little room for analysis of the multimodal nature of technological modernity (2015, 2015, 2017). Schurr also makes this point in a review of Wetherell's *Affect and Emotion*, stating that 'in dismissing non-representational theories', and focusing on human agents, Wetherell 'forecloses a critical feminist engagement with the affective circulations between human and non-human actors' (2014, p.116). Schurr mentions assisted reproductive technologies as one example of how technologized everyday life requires attention to the nonhuman in studies of affect. There is the added danger, I think, that Wetherell's conception of the everyday risks eliding the technopolitics of modern life in its focus on the discursive. This is an area where affective practice could stand to gain from an association with sociotechnical imaginaries.

As Thrift, and others, have rightly pointed out, there is a powerful political dimension to affective practice. For this reason, it is important to avoid valorising emotions as if an individual's or group's perspective is valid simply because it is bodily or 'beyond discourse'. Affect is no more beyond power than discourse. Furthermore, valorising affect runs the risk of creating a conservative romanticism of everyday experiences, something that I am keen to avoid. It is also important to keep in mind when we talk about the distinctive character of the human in imagination. While the human body is unique and distinctive in how it can imagine alternative futures, it is also

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[26] One might also think of neuro-imaginaries which construct emotions through the visualisation practices of neuroscience (Burri 2013; Rose and Abi-Rached 2013).

capable of imagining destructive, oppressive, or unfair ones. As described above, the hope is to 'bridge scales' (Jasanoff 2010) between the local and the general by keeping open the 'dimension of the political' (Mouffe 1999), an idea which will be explained further in the next section. The point is to recognise the value of locally-produced meaning, particularly in its humble dimension, while still holding it up to critical scrutiny. This requires an element of reflexivity and critique which will be discussed in the next section on public engagement.

Wetherell's way of navigating the political is to encourage the analyst to recognise the diversity of ways in which affect and power are interwoven. To this end, she calls for an 'intersectional' approach to affect (2014, p.118). Working intersectionally with affective practice involves

> recognising that people are likely to mobilise (and be mobilised by) quite wide-ranging and diverse repertoires of affective practices closely linked to context. There are likely to be complicated mixes of affective repertoires available to any one individual or social group at any one moment, including some affective practices that are widespread, for instance, and which are very stable, and some which are very local and exceedingly transient, specific to particular workplaces, to some families, to a few streets for just a few months, and to quite particular historical moments. (2014, p.118).

There is an openness in this approach, where 'even the most routinized forms of affective practice need to be continually customized and reworked according to the situation, and demonstrate the "could be otherwise" logic of practice' (2015, p.147). This political feature of emotion will become important in Chapters 6 and 7 as we discuss how imaginaries are directed, driven, and valued by affective practices, creating spaces for new kinds of order. The importance of imagining alternatives will be considered in more detail in the following section on public engagement.

2.4 Public Engagement with Science in the Context of Affect

2.4.1 Moving Beyond 'Moving Beyond the Deficit Model'

Much work in science communication scholarship has been put into dispelling the deficit model from the theories and practices of public engagement with science

(Wynne 1991, 1992; Irwin 1995, 2001; Miller 1995; Davies 2008; Davies et al. 2009; Williams et al. 2017). Williams et al. (2017, p.91) write that the deficit model assumes

> public unease is caused primarily by a lack of sufficient knowledge (a deficit of understanding) and that the best way to overcome this is through the provision of accurate and didactic communication of scientific knowledge on risks and benefits, which will best engender public support and the acceptance of new technologies.

The consensus within this tradition of science communication is so firmly opposed to the deficit model of engagement that Brian Trench argues overcoming it has become something of a foundational myth for the discipline:

> The story is a straightforward one: science communication used to be conducted according to a 'deficit model', as one-way communication from experts with knowledge to publics without it; it is now carried out on a 'dialogue model' that engages publics in two-way communication and draws on their own information and experiences (cited in Davies and Horst 2016, pp.217-218).

Its 'continued reappearance', despite having 'repeatedly been declared dead' (Irwin et al. 2018, p.9), makes it a topic of continued discussion within science communication (Smallman 2014; Simis et al. 2016; Gustafson and Rice 2016; Burri 2018).[27] However, scholars are starting to look beyond it at other ways of framing the issue of public engagement (Stilgoe 2007; Welsh and Wynne 2013; de Saille 2015; Chilvers and Kearnes 2016a, 2016b, 2016c; Davies 2016; Irwin et al. 2018). Davies and Horst argue that the aim is to 'open up scholarly thinking and to point to the need for fresh analyses, new concepts, and other forms of modelling and theorising' (2016, p.218).[28] One of the STS approaches that is becoming influential in this regard is Jasanoff's co-production (Stilgoe 2013; Felt et al. 2013; Chilvers and Kearnes 2016a, 2016b, 2016c; Irwin et al. 2018). Chilvers and Kearnes (2016b, p.36) sum up this conceptualisation of the co-production of public engagement:

> participation might be understood as the always-partial process of defining objects of political concern – in which the objects of public participation, the constituency

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[27] The science communication journal *Public Understanding of Science* held an essay competition for a 2016 issue based on the question: 'In science communication, why does the idea of a public deficit always return?' See Bauer (2016) for the issue's introduction.

[28] The idea here is not the wholesale rejection of science education or the communication of scientific findings. These types of communication are still important. As Irwin has put it, deficits 'are fundamental to many forms of communication and as such can never be discarded' (2014, p.73).

of affected publics and what is legitimated as 'political' are themselves always a contingent outcome of the processes of participation.

This approach turns the critical gaze of STS towards the modes of participation which produce the publics that become involved in engagement events. Groves writes that, from this viewpoint:

> publics enter into participatory activities not as innocent individuals, but as situated subjects with particular identities, some of which are already formed and some which emerge in the course of participating as interests, concerns and aspirations come into play together. (2017, p.411)

The co-productionist approach to public engagement questions the idea of publics or their views embodying a 'fixed essence' (Groves 2017, p.410), preferring instead to conceptualise participation processes 'as both constructed through and emergent in the performance of carefully mediated, open-ended participatory experiments' (Chilvers and Kearnes 2016a, p.13). This shift in perspective involves refocusing our analysis of public engagement in order to accommodate its co-produced, emergent and relational nature. Chilvers and Kearnes (2016a, p.14-16) argue that this requires acknowledging the emergent and collective nature of publics, and the material, normative, social, and cognitive entanglement of participatory ecologies. It involves recognition that reflexivity and humility are key qualities of successful participation, owing in part to the always contingent, nonlinear, and uncertain development of engagement, and that participation is closely connected to the performance of democracy more broadly (Chilvers and Kearnes 2016a, pp.14-16).

With this understanding of engagement comes increased attention to the reflexive dimension of participation in science and technology in ways that 'attend to the inherent uncertainties, effects and experimental normativities of participation itself' (Chilvers and Kearnes 2016c, p.262). This approach favours the active involvement of diverse publics who gather around technoscientific issues, encouraging experimentation in participatory design to 'remake participation' so that it can become more 'cosmopolitan, reflexive, responsible and pluralist' (Chilvers and Kearnes 2016c, p.262). In this radically democratised science and technology 'public questioning of technoscientific innovation' is seen as 'opening up alternative understandings of the public good' (Felt 2015, p.121). In experimental reflexive participation, envisioning the

collective good is not a job reserved for policy makers or scientists but should include the broader reaches of society who will be impacted by those visions. As Felt puts it:

> public choices are not for or against technology but for or against particularly imagined forms of life – and these sociotechnical imaginaries are not given in advance but are constructed through the collective work of designing futures that seem to a nation's citizens worth attaining (2015, p.121).

It is here that STS science communication scholars nail their normative colours to the mast. Their view of participation is a democratic one that values experimentation, openness, reflexivity, and critique. It is underpinned by a powerful sense of humility in the face of the overdetermined, contingent, and unpredictable and changeable nature of science-society relations. And yet, as they argue, attention must still be paid to those places where power does accumulate, innovations become black-boxed and broader scale interpretative repertoires solidify. This wider scale – the scale of the sociotechnical imaginary – is where 'relational reflexivities' require nurturing 'in a more thoroughly systematic and distributed sense' while being continually attentive to 'the stabilities and possible forms of emergence in constitutional relations between citizens, science and the state' (Chilvers and Kearnes 2016c, p.262).

As such, participation must be understood 'in relation to processes and conditions operating at different spatial and temporal scales' (Groves 2017, p.411). Felt (2015, p.178) encourages exploration of 'the multiple invisible temporal textures as well as the temporal choreographies (i.e., the entanglements of different temporalities) of participatory practices' in order to better understand the plurality of ways that publics can gather around important or controversial technoscientific issues. Felt et al. (2015, p.28) suggest that this should be coupled with the development of new spaces for 'reflection and engagement' in order 'to build a governance environment that allows for deeper and broader integration of societal concerns in all their actual diversity' where participation can be 'practised in the realities of particular contexts'.

2.4.2 Public Engagement and Affect

One aspect of the realities of engagement contexts which is of interest to this research is the affective, everyday dimension. Chilvers and Kearnes (2016b, p.40) argue that affect is an important aspect of co-productionist participation. They state that an overly

'object-oriented perspective on public participation can have the effect of underplaying the role of emotions, beliefs and affective dimensions in the co-production of collective participatory practices'. As such, they encourage research that explores 'the role of emotions, feelings, beliefs and imaginaries in making participation, and the importance of embodied, emotional, imaginative, sensory and affective elements in the emergence of participatory experiments' (2016b, p.40). Irwin et al. (2018) support this view. They write that 'environmental understanding inevitably […] involves values and affect' and consequently a key research challenge in science communication is 'to examine how values and emotions are expressed in environmental communications and how they relate to actors' and organisations' sense of environmental responsibility' (2018, p.19). While still sparse, investigations of the affective domains of public engagement are beginning to appear in science communication scholarship.

Kearnes and Wynne (2007, p.136) argue that public engagement, like politics more broadly, 'is increasingly characterised by numerous attempts to engender and enlist enthusiasm, hope, fear and affection'. Specifically, they argue, science communication has become less about rational understanding and more about 'enthusiasm and confidence' (2007, p.137). In research examining natural scientists' perspectives on public communication activities, Loroño-Leturiondo and Davies (2018, p.4) found that they were concerned with creating a 'good experience' characterised by 'positive affects'. Michael explores affects of frustration in his articulation of a 'mundane PEST [public engagement with science and technology]' that involves a 'pre-public' that is 'characterized by a miasma of tacit, unarticulated affects, visceralities and pre-cognitions' (2016, p.94). Harvey's discussion of public engagement evaluation observes that the literature focuses on measuring instrumental goals of participants which consequently excludes that 'participants have an experience and that that experience can be dramatic and emotional' (2009, p.140).

Sarah R. Davies, an STS-oriented science communication scholar, has looked with some consistency at the emotional dimension of public engagement. She makes the point that 'STS-informed practice and analysis of public engagement with science has tended to focus on the discursive to the exclusion of other features, such as embodiment, materiality, affect and place'; public engagement involves 'not only spaces in which language is at play, but as processes constituted by embodied experience, objects, and emotions' (2014, p.90). This is an important insight for my suggestion that we draw attention to the affective dimension of imaginaries in general,

and the anti-fracking imaginary in north Leitrim, in particular. With Horst, Davies provides examples of the emotional dimension of science communication processes and the publics constituted through them by drawing attention to the various ways affects 'overflow expectations' (Davies and Horst 2016, p.175). They describe moments of reverence, overpowering nostalgia and boredom in engagement activities, arguing that these aspects of participation indicate 'how scientific citizenship is performed through science communication by means of material and affective engagements' (2016, p.182).

Elsewhere, Davies and Horst (2015) examine how responsible research and innovation might be better understood by paying attention to how scientists use affective skills of care and craft in their roles as research managers. This mundane, yet emotional, dimension of scientific practice sheds light on the kinds of narratives and meanings available to those in leadership in the management of research groups. Further, Davies and Horst indicate the potential for normative pressures on members of research groups to reproduce a 'culture of care' indexing who is 'cared for' and thus 'committed to the group as organization' (2015, p.388). Davies also writes about the role that affects such as 'playfulness and pleasure' play in the formation of identities and lifestyles of hackers (2018, p.184). Uncovering the affective dimension of hacking and making places the value of these activities largely in the private and leisure spheres rather than a broader social domain.

Davies also considers the wider implications of this mode of participation, considering how 'passion and outrage' are excluded from scientific citizenship which values 'rational, cool, unemotional' approaches to controversy or debate (2014, p.100). Davies argues, following deliberative theorists, that engagement processes potentially stand to benefit from opening up to 'emotional creative – even disorderly – modes of communication' (2014, p.97). Davies, following Young and Sanders, speculates there might be value in 'going beyond reasoned argument to open deliberation up to more diverse forms of interaction: storytelling, for example, or polemic' (Davies 2014, p.97) or 'pictures, song, poetic imagery' (Young and Sanders, cited in Davies 2014, p.97). By widening deliberation to incorporate the affective and creative dimensions of participation that 'overflow' traditional science communication, this vein of deliberative theory suggests we can generate 'at once more open and more equitable – though perhaps also more chaotic' modes of participation (2014, p.97). Davies addresses the normative dimension that this opens:

> If deliberation should go beyond the discursive – if it should incorporate not just reasoned argument about the technical, and its 'implications', but expression of the emotions and materialities implicated in particular technological presents and futures – then participatory instruments should foreground and normalize emotion, rather than suppressing it (2016, p.167).

This extends beyond more or less official engagement processes and their attention to affect to encompass the participation of 'uninvited' publics (Davies 2016; Wynne 2007; Welsh and Wynne 2013; de Saille 2015). Davies writes that:

> it is not only formalized processes, with invited publics and norms of fairness and disinterest, which are valuable, but other, more messy instances of engagement – those where partisan publics intervene, or where protest and activism insert themselves into decision-making (2016, p.167).

This is an important point in the current context; it is precisely this type of bottom-up participation that I am interested in exploring in the context of fracking in Ireland. Davies brings the idea of public engagement back to the diverse and everyday ways that publics interact with and respond to science, going beyond the "artificial", though no less real, formalised top-down modes of conventional science communication. As Groves points out, 'everyday life is already participation in technoscience, full of affective atmospheres' (2017, p.411). Drawing attention to these types of unscripted responses, Davies suggests, means 'we can imagine deliberation on science, and therefore scientific citizenship, as something that is spread throughout society, and thus present in sites and encounters beyond the categories of invited and uninvited participation' (2016, p.173). The STS tradition of public participation is increasingly recognising this. Chilvers and Kearnes write that 'the emergence of new participatory spaces often overflow into multivalent forms of activist, civic or citizen science and "bottom-up" grassroots or distributed innovation' (Chilvers and Kearnes, p.8). Public engagement takes on a broader meaning in this respect, incorporating not only official top-down instances of science communication, but bottom-up participation, where values, relevance, and 'matters of concern' (Latour 2004b) emerge. For STS scholars thinking about how participation might be remade, this is a site of increasing interest.

Wynne refers to the idea of an 'uninvited public' (2007) who intervene in technoscientific matters. He writes that the role of public participation 'to enforce wider social accountability of […] normative techno-scientific technical–social imaginations' should be achieved through 'the normal repertoire of spontaneous and independent,

uninvited forms of civil participatory action' (2007, p.107) in addition to conventional engagement practices. Wynne suggests that these 'uninvited' interventions are usually a response to alienating expert-led representations of technoscientific issues and the concerns, saliencies, and values tied up with them. He writes that 'uninvited forms of public engagement are usually about challenging just these unacknowledged normativities' (2007, p.107). Welsh and Wynne point out (similarly to Felt, above) that these uninvited publics 'are not rejecting science, but, rather, they are attempting to reframe and mobilise science in more constructive ways' (2013, p.558). Wynne suggests that the intervention of publics in, for example controversies over genetically-modified food or environmental innovations, do not typically involve 'a claim of competence to deal directly with specialist technical questions' but rather to social and political issues of relevance, salience, and governance (2007, p.107). This generates tension, however, in a context where 'mistrust of engaged, but uninvited, and independent publics, has become more directly significant' (Welsh and Wynne 2013, p.556). For this reason, Welsh and Wynne call for an opening up of public involvement, requiring 'a turn to participant-action research to reconfigure the STS relationship with SMS [social movement studies] in ways that are also meaningful to activists' (2013, p.546).

Taking up this mantle, de Saille has developed the concept of the 'unruly public', an official imaginary which 'disinvites' groups who wish to engage with science '*on their own terms*' (2015, p.102, emphasis in original). This might involve 'direct action protestors, bloggers, alternative journalists' who reject the terms set by conventional public engagement processes (2015, p.102). Dis-invitation happens in a variety of ways: 'dismissing dissent as 'irrational', or vetting questions so that the most contentious cannot be asked, or screening out participants with prior opinions as biased, as well as suppressing protest' (2015, p.103). De Saille suggests there is value in unruly responses and dismissing them risks losing novel or unexpected social views of technoscience.

I have engaged with these uninvited and at times unruly publics in the context of the anti-fracking campaign in north Leitrim. While the campaign was never officially dismissed as unruly by state bodies, this public certainly made interventions in the fracking controversy that exceeded the bounds of conventional public engagement processes such as public consultations. What these approaches to public participation offer for this research is an opening and humility with respect to the diversity of forms

of engagement that emerge beyond official processes. This includes sensitivity to the bodily, situated, and felt responses to technoscience as well as interventions by groups outside of conventional notions of the public. The following research will explore how relations of power are formed through embodied meaning-making and the forms of engagement that this facilitates.

3

Feeling Sensitive: Research Design

> In the social sciences today there is no longer a God's-eye view that guarantees absolute methodological certainty. All inquiry reflects the standpoint of the inquirer. All observation is theory-laden. There is no possibility of theory- or value-free knowledge. The days of naive realism and naive positivism are over. In their place stand critical and historical realism, and various versions of relativism. The criteria for evaluating research are now relative
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> — Norman K Denzin, *Qualitative Inquiry Under Fire* (2009, p.153).

3.1 Introduction

The aim of this chapter is to elucidate and justify the programme of empirical work which was employed to address the research questions developed in the literature review. The overarching question – *What is the value for science communication of considering the role of affect in the anti-fracking imaginary in Ireland?* – is supported by three sub-questions:

1. What affective practices are visible in the anti-fracking imaginary in north Leitrim?
2. What do they do?
3. How might this contribute to our understanding of public engagement?

Answering these questions required the development of robust empirical and analytical research procedures drawing from a range of theoretical and methodological sources. This chapter will outline how the empirical and analytical dimensions of this research

were organised: how they relate to the theory (section 3.2), how valid data sources were identified and the procedures put in place to ensure dependable and ethical collection of that data (3.3), and what structures were employed to ensure reliable inference of data (3.4). A reflexive account of the data collection process will be interwoven throughout.

3.2 Qualitative Tradition and Epistemological Considerations

3.2.1 Qualitative Tradition

Sometimes returning to a high-level iteration of the work being undertaken can help clarify the overarching aims and how it fits with a particular research tradition. The literature review outlined how the study responds to two interwoven concerns. The first relates to developing a better understanding of how to engage with environmental controversy in Ireland – the puzzle which 'sparked' the research into being (Marres 2005). The second relates to a gap identified in STS literature on sociotechnical imaginaries. My reading of the area has uncovered a lack of thorough empirical and theoretical attention to the roles played by affect and emotion in studies of these imaginaries. I believe that addressing the second issue can contribute to the first. As I suggested in the introduction and literature review, fracking is an emotive issue. It has also been a controversial flashpoint in Ireland, tied to powerful and conflicting visions of the future. As such, the fracking controversy offers the opportunity to explore the affective dimension of sociotechnical imaginaries while providing an insight into the politics of public engagement.

The research presented is a case study. As Stake argues, a 'case study is not a methodological choice but a choice of what is to be studied' (2005, p.443). The case study indicates that there is interest in an individual case. I am not studying cross-national anti-fracking imaginaries nor am I studying multiple imaginaries across different environmental controversies. The study is defined by its focus on the 'singular in a particular context' (Simons 2014, p.455). Of course, as STS has taught us, this singularity does not arrive fully prepared in advance (Law 2017). I do work assembling

and translating the fracking controversy: defining terms, drawing boundaries, and deciding what is relevant.

For Stake, the central epistemological question driving case study research is: 'what can be learned about the single case?' (2005, p.443). What can a study of the anti-fracking campaign in north Leitrim teach us? Answering this question depends on whether the case study is theory-led or theory-generated (Simons 2014, p.459). Theory-led means that the case study is testing a particular theory while theory-generated refers to a study that constructs a theory after interpreting the data (Simons 2014, p.459). This study is theory-generated in that it seeks to build a theory of how affect intersects with sociotechnical imaginaries. Of course, it is partially theory-led in that it makes certain ontological assumptions about the nature of affect and imaginaries and epistemological assumptions about how we can identify and know them, but this is to some extent a given in interpretivist STS inquiries (Jasanoff 2004b, 2015b).

In 'STS as Method', Law states that STS studies look at 'messy methods, scientific and otherwise, at how they get shaped, and also what they actually *do*' (2017, p.31 emphasis in original). I am exploring this question in relation to affective practices and their connection to an imagined technology and its hoped-for absence (Felt 2015). Law argues that our ways of knowing the world have a 'formatting' and 'shaping' effect on the world, moulding it to the requirements of our instruments of measurement (2017, p.32). The instruments that STS uses (discourse analysis, ethnography, genealogical analysis, case studies, comparative analysis) pay attention to the relational, practice-based nature of social reality. A consequence of these methods is the priority given to power. As Law puts it, 'it means that [realities] are not given […] [it] also means that we might imagine better alternative realities' (2017, p.43). Epistemological significance in STS becomes about how knowledge is done and what relations of power are involved. This intersects in many ways with interpretivist work in the Humanities and Social Sciences linked to Foucault's theory of power/knowledge (1984).[29]

Jasanoff points out that the best methods for studying imaginaries are those 'of interpretive research and analysis that probe the nature of structure-agency relationships through inquiries into meaning making' (2015b, p.24). Meaning is not to be confused

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[29] Foucault's work focuses attention on the distributed effects of power throughout society and its function to discipline and govern groups and individuals (1991 [1977]). Relations of power come to the fore as the unit of measurement as issues of universal truth recede. Examining social issues involves analysis of how certain realities are "done" with attention paid to the ethical dimension – who benefits? Who loses out? Who speaks? Who is excluded?

with positivist notions of truth or the quantitative imaginary whereby individuals have relatively static and coherent views which can be translated into numbers (Savage 2010). Meaning involves the local, embedded sense-making practices shared amongst people in everyday life (Jasanoff 2010). It is context-dependent and always shifting. Meaning connects to broader traditions of Humanities and Social Sciences scholarship in its relationship to the unique role played by the subjective and the cultural in understanding and interpreting social life (Weber 1970). Central to academic interpretations of meaning is representation. Wetherell's theory of affective practice shares this concern, paying attention to how communities, spaces, and moments are produced through assemblages marked by '*embodied meaning-making*' (2014, p.4, emphasis in original). Human emotion, for Wetherell, has the capacity to assemble and recruit diverse ranges of actors to 'build psychologies, identities, reputations and subjectivities as they make meaning, just as they build social orders, histories and institutions' (2014, p.90). From this perspective affect can be seen as a powerful representational instrument in knowledge practices.

As outlined in the literature review, Wetherell joins Jasanoff in exploring the contours of power in studies of meaning-making. Wetherell pays attention to how affect's production of subjectivities, interpretative repertoires and shared experiences raise 'questions about power, the regulation of affect, its uneven distribution and its value' (2014, p.16). Wetherell's account of affect is relational, emergent, and co-productive; she argues, for example, that communities do not pre-exist figurations of emotion but are 'co-constructed with the affective-discursive practice' (Wetherell et al 2015, p.60). I believe that ontologically and epistemologically, affective practice and co-production share enough family resemblances to allow their integration in the methodology which follows (see Section 2.3.2, above). Both theories emphasise the performative, co-produced nature of reality while paying close attention to the flow of power in the making of these realities. I also feel that each approach shores the other in relation to exploring the fracking controversy in Ireland. Co-production provides an account of the technopolitics of fracking and the potential for engagement, while affective practice theorises the emotional dimension. Together, they offer a robust approach to considering the affective dimension of the fracking controversy.

One issue that needs clarifying is my decision to focus on the anti-fracking imaginary and not the "pro-fracking" imaginary. There is an argument to be made that a case study analysis ought to involve a variety of viewpoints (Simons 2014). However,

this assumes that a case study is an attempt to illuminate the various perspectives which make up the entirety of an issue. STS has contested this view, pointing out that in a relational, co-productive approach to controversial issues, publics emerge over time as they perform actions in a debate space (Marres 2005; Chilvers and Kearnes 2016a; Law 2017). I am not aiming to provide an overall picture of the variety of affective relations contributing to the fracking controversy. I am interested in providing a partial account of the affective dimension of the anti-fracking imaginary. It is partial in that all knowledge is partial and provisional (Haraway 1988).

I also follow more recent trends in qualitative research methods which acknowledge the partial and fragmented nature of interpretivist inquiry, and thus the legitimacy of following certain viewpoints without having to achieve a sense of "holism" or balance (Denzin 2009). Denzin has written extensively about this approach to qualitative research. Citing Lincoln and Cannella, he writes that 'multiple kinds of knowledge, produced by multiple epistemologies and methodologies are not only worth having but also demanded if policy, legislation, and practice are to be sensitive to social needs' (2009, p.16). He writes that qualitative inquiry creates space for the judgment and recognition of values like 'justice, equality, human rights', necessary for building better societies (2009, p.23). This ties in with the methodological concerns of STS to acknowledge particularity and heterogeneity as a starting point and to craft methods of 'going on well together in difference' (Law 2017, p.49).

I recognise that there are different interpretations of fracking – different ways of enacting it – both between and within campaign, industry, and government. Yet, the anti-fracking imaginary is a relatively stable object – there is little disagreement among those I spoke to that they are part of an anti-fracking campaign attached to specific desires and fears (Jasanoff 2015b). I believe it is a significant contribution to knowledge in STS science communication to take this sociotechnical imaginary and examine it in the context of affect. I do not feel that it requires an equal and balanced examination of a pro-fracking imaginary. An investigation of this imaginary's affective dimensions would no doubt be interesting, but for the purposes of the research questions guiding this research it is not necessary.[30] It is no more selective than the studies of discourse,

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[30] There are many examples of imaginaries scholarship that do not rely on comparative or balanced accounts of multiple imaginaries (Eaton et al 2014; Storey 2015; Felt 2016; Kuchler 2017; Bergman et al 2017; Tidwell and Tidwell 2018).

historical archives, policy, law, or identity which underpin other research approaches to sociotechnical imaginaries.

3.2.2 Affective Practice and Research Design

Affective practices are the unit of analysis in the data collection carried out for this research. But how exactly is affective practice measured? Like data from most interpretative sociological research, the information gleaned here from interviews, participant observation, and visual artefact analysis does not arrive in pre-packaged units of affect. Affective practices only emerge after they go through their own 'formatting' process of interpretation by the analyst (Law 2017). Wetherell provides a clear definition of what she refers to when speaking about affective practice. Following Burkitt, she describes how affect is relational, 'distributed and located across the psychosocial field' (2014, p.24). She states that 'affective practice is the "smallest" or most coherent unit of analysis possible for the social science of affect' (2014, p.24). Affective practices are the ordered patterns and sedimentations in which relations of emotion emerge in a social setting (Wetherell 2015, p.147). This order is semi-structured; it is discernible but contingent, at times becoming routinised in mundane everyday practices, and at others occurring unpredictably with intensity.

Wetherell indicates several 'domains' where affect tends to pattern and become visible for analysis (2014, 2015). Domains of affective practice are those:

> where the body has been more intrusive than it ordinarily is […] where there is notable talk occurring about emotion and feelings, and domains where something personally significant seems to have occurred that someone wants to mark (2014, pp.96-97).

This is the aspect of affect that I am interested in: the social ways in which memories, experiences, feelings and representations of fracking co-produce a sociotechnical imaginary. Identifying these domains is an interpretative task, but Wetherell suggests there are significant crossovers between the everyday conception of emotion and that of affective practice. In contrast to the esoteric and alienating accounts of emotions that one might find in the Deleuzian tradition of affect theory (Leys 2012; Wetherell 2014), Wetherell's practice approach tries to capture the everyday, local experiences of affect. She writes that, 'because we engage in affective practice all the time, every member of

society possesses a wide-ranging, inarticulate, utilitarian knowledge about affective performance' (2014, p.78).[31] A theory of affect needs to involve this intuitive notion of felt experience in order for an account of emotions to be meaningful. This is particularly important for my research as it is committed to illuminating the role that affect might play in public engagement.

I would like to address a tension here with the inductive nature of STS studies. The question might be asked of this research: how can you justify narrowing the study of controversy to affect, thereby cutting off many areas of valuable context? My answer, a little facetiously, is: with difficulty. This has been one of the biggest challenges I have faced throughout the course of the research. I have been worried at times that I have artificially produced the affective dimension and performed a textbook example of confirmation bias. Yet, each time I have paused to consider it, I return to my data-driven decision halfway through this research to focus on affect. In the interest reflexivity, I would like to briefly explain this shift.

My initial point of entry to the fracking controversy was through ANT and Latour's recent work in controversy mapping. I attended workshops, seminars and summer schools to learn more about how controversies could be effectively materialised using beautifully-wrought software visualisations. However, as I started to meet with campaigners, attend talks, and read media articles about fracking I realised something was missing in the controversy mapping approach. The brightly coloured word clouds, graphs and dynamic interfaces didn't seem to convey what I encountered in Leitrim: rain, remote landscapes, warm cups of tea, friendly conversations, noisy public talks, polemical news articles, and an emotive visual culture. After failing to find any satisfactory ways to integrate affect with controversy mapping, I started thinking about other ways I could explore the situated, felt, and meaningful dimension of the anti-fracking campaign.

It was ironically a passage in Latour that convinced me of the legitimacy of tracing the affective dimension in STS. In *Reassembling the Social*, he speaks about the borderline futility of producing a scholarly work of sociology (2007a, pp.122-128). A study like my PhD thesis, he writes:

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[31] Wetherell concedes that this conception of affect is not hugely satisfying but suggests 'it does reflect where we often are in social research, investigating activities that are interesting because of the common-sense ways they have been constructed or could be constructed' (2014, p.97).

is never complete […] most of the things we have been studying, we have ignored or misunderstood. Action had already started; it will continue when we will no longer be around […] Even when we are in the midst of things, with our eyes and ears on the lookout, we miss most of what has happened (2007a, p.123).

It struck me while reading this how right Latour is that we cannot ever expect to produce an entire picture of some social phenomenon. An academic account is always going to be fragmented and partial. But with this realisation comes the freedom to not have to try and attain an unrealistic ideal of universality and wholeness. What I had fallen for with controversy mapping was the visual illusion of a comprehensive picture of a controversy. Of course, lines on a screen cannot hope to represent the experiences of a community faced with shale gas drilling in their area, no more than a 90,000-word written thesis can.

In the place of critique, Latour suggests we focus, normatively, on differentiating 'a good ANT account from a bad one' whereby we flatten out the contours created by sociological concepts like race, habitus, or governmentality (2007a, p.25). According to Latour, these sociological instruments fail to adequately represent the social because they determine in advance what the researcher will find. Theories about race or class are 'panoramas', pre-packaged ideas that fill the gaps of a social reality that is far more complex and messier than the broad sweeps of a single theory could ever detect (2007a, p.188). The panorama is a tool which actors use to convince others of how the totality of things look. For Latour, it is a conceit which replaces the messiness of reality with a fabricated, highly condensed projection of the world.

And yet the actor-network theorist approaches their research with an entire personal biography of panoramas and heuristics through which the world makes sense for them. In Latour's accounts, the God's-eye lens and the ANT lens are switched at will. When the God's-eye lens is attached, Latour can converse with us in conventional everyday discourse about the concerns that matter – truth (1999), politics (2004a), religion (2010b), or climate change (2018). With this lens on we can identify research sites that are interesting for 'down to earth' reasons like wonder, curiosity, desire, or fear (Latour 2018). The God's-eye lens allows actor-network theorists intervene in the intuitive world to see the 'ants' as 'ants', as distinct from carbon atoms, colonies, insects, or life. When the ANT lens is applied the world transforms into a dizzying complex of networks.

The masterwork of translation occurs not in the world of networks, but in Latour's texts. It is here that he transforms the intuitive world we all inhabit into a dynamic realm of working actants. The point where things switch from this intuitive everyday space into actor-networks is Latour's *in medias res* – 'in the middle of things' (2007a, p.28). This is where the lenses are switched with no better explanation than this is where we find ourselves. The startling simplicity of this starting point conceals a few important things, such as how the researcher got there, what panoramas the researcher has brought along with them, and how things have been before "the middle".

The politically-charged intuitive knowledge needed to identify a relevant "middle" worth studying is discarded and instantly replaced with a buzzing interconnection of actants which exist outside of such explanatory frames. Yet can we really expect that they have disappeared? Are STS scholars any less persuaded to do their research by anxiety, pressure, wonder, prestige, or credit than the scientists they so frequently study? Latour certainly doesn't think so (2007a, p.123). Yet still there is the empiricist call to 'just describe' (2007a, p.144) without paying attention to the ripples caused by the intervention of the researcher or the ripples caused by the movements of power in the knowledge spaces we enter (Jasanoff 2010, 2015b; Law 2017).[32]

Where Latour turns to this radical empirical induction, I have decided to follow Jasanoff's co-productive descriptions of the social that trace the contours of power beyond the winners and losers of a networked controversy (Jasanoff 2004b, 2015b, Bowker 2012). It is here, where Jasanoff embeds her analyses with normative values like justice, fairness, exclusion, and equality, that I believe the affective dimension has a place in STS analysis. Jasanoff provides good reasons for paying attention to these aspects of human life, arguing that it is human life which provides the social with its urgency and meaning (Jasanoff 2010). I believe that ANT and other new materialist approaches such as object-oriented ontology tacitly are driven by these reasons too, even if they claim to think politics beyond the human (Harman 2014; Morton 2017). I have never, for example, come across an actor-network account that does not relate to human life in some way. It seems that actor-network accounts of the social world

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[32] Toscano and Kinkle (2015, p.82) take issue with Latour's severing of local panoramas to broader meaning-making frameworks. They argue that the act of representation that the panorama provides is0 an opportunity for actors to make sense of their environment. Latour appears to restrict the travel of actors' metaphysical interpretations of their environment to the local, which, according to Toscano and Kinkle, threatens to arbitrarily curtail the mobilisation of emancipatory narratives.

discard these motivations as soon as they make the magical translation into the middle of things and become an ant-like detective (Latour 2007a).

The case I am making is that the affectively-charged motivations driving us to care about understanding the social world – empathy, wonder, awe, desire, prestige, identity, security, fulfilment – don't simply disappear when we enter knowledge spaces (Law 2017). In fact, they extend beyond our own drives into the motivations, values and imaginations of the people we study (Davies 2014, 2016; Irwin et al 2018; Wetherell et al 2018). This is the enchanted world that Bennett describes when she speaks about knowledge spaces, places:

> where reason engenders, where faculties play, where nature gives hints, where molecules mutate, where tomatoes morph, where files zoom, where curves spiral and fields buzz, where ants swarm and vertigo reveals, and where thinking unexpectedly shouts out from the dutiful litany of thought. That world is not disenchanted (Bennett 2001, p.54).

I am proposing that we use instruments like affective practice which are sensitive to this dimension of sociotechnical reality to illuminate our understanding of imaginaries with rich and vibrant new colours. This is not a cold and impartial world of material embodiment, force, or sheer movement, but something closer to our intuitive understanding of feeling and meaning in all its wonderful and mundane actuality (Wetherell 2014, p.96-97).

Questions might still be raised about artificially restricting imaginaries analysis to emotion and affect. However, I would counter this by suggesting that studies of sociotechnical imaginaries could equally be seen as restrictive in their *failure* to account for emotion. As discussed in the literature review, many of these accounts focus on policy documents, historical records, speeches, legislation, and other discursive formats. There has been little attention to affect despite relations of desire and fear being central aspects of the theory. I would like to think that my exploration of the affective dimension of the anti-fracking imaginary *expands* rather than restricts analysis in that it broadens the knowledge space to include discourse *and* affect (Wetherell 2013, 2014, 2015). This has potential to deepen our understanding of the politics of engagement. As Jasanoff writes, the goal of public engagement 'should be to restore communication between the domains of emotion and intellect, affect and reason, imagination and argument' (2011, p.636). As I will demonstrate, the methods used to capture affect for

this research are sensitive to broader mediations of emotion than just the discursive through navigation of photographs, videos, campaign meetings, press conferences, and public talks and performances.

In the Literature Review (Section 2.1.3), I described how imaginaries can be conceived as collectively held visions of societal futures and that they can be observed in representations of fracking: through talk, text, or visual media. I would like to make a brief note on the methodological considerations of dealing with imaginaries and how they relate to affective practices. Affective practice can be understood as the performative "utterances" of an imaginary, taking place in everyday life, and intersecting and combining to produce more or less settled visions. Whereas imaginaries are conventionally conceived as durable collections of discursive work (e.g., in policy, law, or public debate), I am seeking to interpret imaginaries as encompassing a patterned coalescence of affective-discursive work. This entails a slight shift in the methods normally used to detect imaginaries. Rather than focus solely on discursive texts and the sociomaterial mediators through which they circulate, I also pay attention to affect and its traces across a variety of situations, memories, and images. Discourse is still recognised as a key mediator of affect, alongside more body- and object-centred practices as observed at events, gatherings, drives through the countryside. Imaginaries emerge through patterned modes of meaning making, identifiable as 'collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology' (Jasanoff 2015b, p.4). This definition co-produces relevance, narrowing the selection of research sites to those areas where fracking is navigated collectively, and helping to identify which affective-discursive practices are worth paying attention to. The definition also 'sensitises' (Blumer, cited in Pallett 2018, p.220) the analysis, helping to detect which repetitions and patterns are constitutive of an imaginary. This is supplemented with readings of numerous other works which provide detailed accounts of imaginaries in other settings.

3.3 Research Methods

3.3.1 Multimethod Approach

Taking affective practices as the unit of analysis within the case study requires the use of appropriate methods for their capture. In a personal communication, Wetherell (2016) wrote to me that affective practice 'is about pattern and deciding what kinds of pattern are relevant to research questions and then what concepts you can use to systematise'. Keeping with the inductive spirit of STS (Jasanoff 2015b, Law 2017), I decided to cast a wide net to capture the 'domains of affect' where emotions might be more visible. I wanted to speak to campaigners centrally involved in the anti-fracking movement in north Leitrim to get a sense of their thoughts and feelings about fracking. I wanted to observe public events and talks to get a sense of the atmosphere there. I also wanted to examine the visual culture of the campaign – seeing if other representations of fracking might involve affective practices.

Wetherell's methodological approach to affective practice is a little conflicted. In her theoretical contributions she outlines a wide range of research sites for investigating affect – the personal, the social, the bodily, the inchoate (2013, 2014, 2015). Yet, in practice she remains quite committed to narrow discursive readings of 'affective canons', the corpus of recognisable subject positions and ways an individual can emote in a given society (Wetherell 2013; Wetherell et al 2015; McConville et al 2017). Her theory offers scope for wider applications (Leigh 2017; Broom et al 2018; Viderman and Knierbein 2018). I was keen to use Wetherell's theoretical structure of emotion while broadening out the methodological approach to encompass some of the 'doings' as well as the 'sayings' of affective practice (Wetherell et al 2015). I would like to outline how the research site itself influenced some of my research design choices.

During the scoping phase of the research, I came across several campaign groups associated with the anti-fracking movement in Ireland. Love Leitrim appeared to be the largest and most active according to the frequency of their appearances in the media, website updates, and social media posts. I started to attend public events organised by environmental groups to see if I could set up a contact. I was treated with a little bit of suspicion at first, given my research was funded by the EPA. At a talk by Jessica Ernst,

I recognised a friend of a friend speaking on the stage. I approached him afterwards and told him I was looking for a connection with anti-fracking campaigners in north Leitrim. He gave me a phone number of someone he knew and told me to mention his name. This person would turn out to be Cian, someone I interviewed several times.

From my research I was confident that interviews and participant observation would be suitable methods for recording the various 'domains' (Wetherell 2014) of affective practice that might be present (Denzin 2009; Walkerdine 2010; Parkhill et al 2011; Pink 2013; Thorne 2014; Vannini 2015). With interviews, I wanted to access the ways that affect mediated the fracking controversy: how certain events or memories held salience, what was deemed worth talking about and why. I was interested in engaging in conversations about the ways that fracking was meaningful – identifying patterns and coherences across accounts. I was also interested in less stabilised mediations of affect and their contributions to shared visions of the future. For Vannini, an ethnographer working in the non-representational tradition, a study of affect requires 'greater focus on events, affective states, the unsaid, and the incompleteness and openness of everyday performances' (2015, pp.14-15). While I do not follow many of the proscriptions of non-representational researchers, I believe, with Wetherell, that there is a place for the ephemeral in affective practice. Emotions are dynamic. Wetherell writes, with incredible elegance, that 'stabilised affective practice and affective necessities emerge as fragmented and heteroclite subjectivities form and engage in the plurality and polyphony of shifting social relations' (2014, p.119). To get a sense of the "liveness" of some of these affective practices I wanted to observe public events and spend some time with participants outside of the interview setting. The latter involved a week-long stay with one participant, Alyx, as well as several drives with participants through the areas where exploration licences were being applied for.

To add a further layer of data, I chose to examine examples of Love Leitrim's visual culture. This involved the collection of publicly-available images and videos from the Love Leitrim website and YouTube channel. The idea here was to try and move beyond the discursive to focus on other modes of representation. I was interested in which objects, people, places, and events were tied into affective practices and how they were presented. I wanted to examine what the campaign deemed worth visualising and how this fed into patterned matters of desire and fear. I also took field notes and photographs when possible to supplement data collection. These are referenced throughout the research, providing support for my own memories and feelings I

experienced along the way. I have provided tables in Appendix A, outlining the data captured through these methods. In the next section I would like to provide justifications for each of these methods in more detail and explain how the data was collected.

3.3.2 Unstructured Interviews

Wetherell suggests that separating discourse from affect is 'unsustainable' as it is built on a 'deeply problematic psychology' (2013, p.351; see also Leys 2011). I follow her insight that discourse plays an important role in the mediation of affect. A good place to access these articulations in relation to fracking is through the accounts, memories, and experiences of those living in the community where drilling is planned to take place.

Simons argues that 'the most effective style of interviewing in qualitative case study research to gain in-depth data, document multiple perspectives and experiences and explore contested issues is the unstructured interview' (2014, p.462). Together with active listening and the preparation of foreshadowed issues, unstructured interviews offer a flexible approach to engaging participants in conversation about a subject. Unstructured interviews allow participants to direct the discussion towards issues of interest and meaning through an open-ended conversation while staying tied to an overarching goal. My intention was that by allowing participants more room to explore the issue of fracking themselves it would counteract any potential bias relating to my own foregrounding of affect in the study. This was not an attempt to avoid *any* intervention by me, but an approach that would give participants more room to sound the issue out themselves.

In designing the interviews for this research, I sought out a method which would allow for the constructivist and interpretivist epistemology of STS. Brinkmann's 'interviewing as a social practice' model integrates STS epistemology (Brinkmann 2014, p.286) with Wetherell's discursive psychology tradition (ibid., p.291). Interview as a social practice is 'performative and transformative', working from a 'constructionist, localist, and situated perspective' (ibid., p.295). The goal is not to 'accurately reflect a reality outside the conversational situation' but to attend to what is produced in the interview setting itself (ibid.). This is in keeping with the thrust of my analysis to examine what affective practices *do*. It also aligns with my concerns about the technopolitics of public engagement – understanding how campaigners produce a

powerful anti-fracking imaginary. I have also found inspiration in designing research interviews in other areas of scholarship.

In the early phase of my research I had come across several psychoanalytic interviewing techniques which I found useful for providing containment and direction to unstructured interviews (Wengraf 2001; Lertzman 2009). Their methods converge with the goal of unstructured qualitative interviewing which is to allow participants produce narratives that embody the subjective, lived (and emotive) dimension of their experience (Walkerdine et al 2001). The psychoanalytic approach was helpful for me as it is designed to be specifically sensitive to the affective dimension of interviewing. Lertzman's approach to interviewing – 'dialogic and relational' (2009, p.90) – contributed to the design of an open, but contained, interview technique.[33] She writes of the researcher being 'attuned to her sensations, reflections and responses' while maintaining 'a sense of "presence" and dialog with the participant' (2009, p.102). This was useful in attending to affectively-charged moments of conversations, when bodily responses became more apparent. This was particularly the case while out on drives with Paschal and Cillian. Lertzman also references Wengraf's 'single question aimed at inducing narrative' (Wengraf 2001). This prompt at the beginning of the interview is meant to be sufficiently narrow, but open-ended, to allow participants speak at length about the given topic with minimal interruption from the interviewer. My prompt was generally: 'tell me about your experience with fracking', albeit not always phrased in precisely the same way.

I conducted unstructured interviews with 10 Love Leitrim campaigners (four women and six men), interviewing five participants more than once in the interest of getting a broader sense of their experience (Cartwright 2004). Their names have been anonymised and revealing details have been redacted for the analysis. I took seven trips from Wicklow to north Leitrim. Each participant signed a consent form and plain language statement according to university research ethics committee requirements (Appendix D and E). Data from all research activity was encrypted and stored in a specific location according to university data protection guidelines. The journey from my home town of Kilcoole to Manorhamilton is about 225 kilometres each way; about a 4-hour drive as many of the roads are narrow and rural. Most times I would leave

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[33] Lertzman's psychoanalytic approach meant that some of her methodological concerns such as psychodynamic defence mechanisms and transference and countertransference were not relevant to me.

home very early in the morning, departing Leitrim in the evening. On one occasion I stayed with Alyx for a week, carrying out seven interviews and visiting several sites of importance. In addition to campaigners I interviewed a Teachta Dála (member of Irish Parliament) for Leitrim, a local councillor, and a member of the legal profession involved with the EPA research programme. Surprisingly, I was unable to arrange an interview with anyone from the EPA itself, the organisation funding my research, despite emailing numerous individuals including one senior manager. I was also unable to arrange an interview with anyone from the Department of Communications, Climate Action and Environment, again despite numerous attempts at contact.

My sampling method was largely iterative, in that participants in later interviews were dependent on contacts made during earlier interviews (Goodyear-Smith et al 2003). This was a necessary limitation of studying such a closed group of participants. I had to earn trust with each individual and could not expect to be given a list of all members of Love Leitrim in advance from which to sample. I did however place a few basic constraints on who I wanted to interview. I told Alyx, who was particularly helpful in arranging contacts, that I wanted to interview long term campaigners and to have a gender balance. Organising who to interview was generally done through other campaign members: Alyx and Cillian were arranged through Cian; Linda, Hazel, Lawrence, Kenneth, and Dennis were arranged through Alyx; and Maura and Paschal, I sought out myself. The large distance between my home and Leitrim also placed constraints on who I could interview. There were times when schedules simply wouldn't match up. For example, I had planned to go hill walking with Linda, but we were never able to organise a suitable time either due to work, travel or weather. I borrowed Strauss and Corbin's (1998) notion of 'saturation' to define the limit to interviewing, stopping when no new themes or issues appeared to be emerging. The saturation limit was cross-referenced with the emergence of themes and issues in my participant observations and visual media collection.

The interview sample size is undoubtedly small, but again, the single case study is not aimed at generalising how people feel about fracking or generalising how environmental controversies unfold. The goal with my research is, as Simons puts it, 'to see what we learn in-depth from the uniqueness of the single case itself' (2014, p.465). This follow's Denzin's insight that qualitative research should involve 'purposive (theoretical) sampling', whereby the empirical site is delimited by its relevance to the research question (2009, p.104). My research question sought the

elucidation of affective practices involved in the anti-fracking imaginary in north Leitrim. It was not an attempt to understand anti-fracking movements in general, but to explore this campaign in particular.

In terms of the limitations of unstructured interviewing, my main concern relates to the artificiality of the researcher/participant format. Throughout my time in Leitrim I was engaged in many conversations that were not recorded that influenced my understanding of the anti-fracking imaginary. On numerous occasions I made notes and asked participants about what they had said during a recorded interview, but sometimes the moment had passed or they did not repeat their feelings with the same enthusiasm or passion. In hindsight, I would like to have used a better way of capturing these spontaneous conversations in a more systematic way. At times, too, the interview setting seemed to put participants off. My notes during one of my stays records a conversation with Cillian where he says he 'would be less comfortable and less able to talk freely about the subject [fracking] if he was being recorded'. I also noticed a difference in Paschal during our interview versus when we went on a drive through the mountains. His interview narrative was quite sequential and fact-based. When out on the drive, which was also audio-recorded, the atmosphere was completely different. Paschal was far more relaxed and free flowing in his discussion about the history, beauty, and politics of the area. I believe there is merit to allowing a more informal interaction. It allows the participant more room to say what they feel beyond what they expect I want to hear (Potter and Wetherell 1987).

On this last point I will add one further limitation. After researching interview techniques from psychology and social psychology (Potter and Wetherell 1987; Walkerdine et al 2001; Wengraf 2001; Lertzman 2009) I became aware of a range of concerns regarding defence mechanisms, transference, and emotional containment that I was unable to address with my cultural studies training. This was despite me taking two semester-long Introduction to Psychoanalysis modules to deal with this very issue. It became clear quite quickly that a little knowledge of psychoanalysis is not enough to structure a psychoanalytically-informed research design. To address the issues just outlined would have required a lot more time and training. While a co-productive relational approach to data gathering allows for delimiting the research gaze to particular emergent topics (specific knowledge practices, technologies, groups or sites), it might be noted for future research that the psychological dimension of social

phenomena is a potentially relevant and meaningful aspect of technopolitics, particularly in the context of affective practice.

3.3.3 Participant Observation

Thorne writes that interpretative research is compatible with a range of methods including participant observation, pointing out that it encourages the researcher to think about methodological combinations 'so as to enhance a comprehensive understanding without being overly dependent on the inherent limits of any singular approach' (2014, p.108). I wanted to capture the practices involved at different scales of activity. This was guided by a strong theoretical foundation in affective practice, helping me to become sensitive to the diversity of ways that affect is involved in meaning-making. This theoretical foundation shaped decisions about which sites to research and contributed to an authoritative interpretation of the 'complex contexts within which disciplinary readers deserve to make sense of and understand the expected limits of the conceptualizations being proposed' (Thorne 2014, p.110).

I chose a range of sites where I suspected affective practices would be evident: public talks, drives with participants, campaign meetings, press conferences, artistic performances, and other public gatherings. I was interested in achieving diversity in the kinds of affective data gathered, supplementing discursive mediations with atmospheres, environments, and performances. I chose events pragmatically as I could not attend all Love Leitrim events. I was on a campaign mailing list and regularly checked their social media channels for information about upcoming exhibitions or talks. I attended the No Fracking - Not Here Not Anywhere event as it combined a theatrical performance with a number of talks, thus covering a number of affective registers. I attended the Fractured Thinking sculptural exhibition as it provided yet another material grounding for affect, this time in objects. I was also interested in getting a sense of the everydayness of the anti-fracking imaginary. For this reason, I spent a week with campaigners, attending meetings, and going on walks and drives with them.

The distance between my home and Leitrim limited the number of events I could attend, and work and family commitments made any longer-term ethnographic approaches unfeasible. I still found these short-term, intensive participant observations quite useful. Placing myself in different environments and contexts helped me to capture

something of the multimodal nature of affective practice. Sitting in angry crowds, attending small, lively campaign gatherings, watching theatrical performances, and driving through windswept hills constitute unique and affectively-charged events that can be captured and re-presented through discourse. I understand that these representations are not the same as the original bodily experience. Yet, even non-representational researchers who claim that their goal is 'to do away with the repetitions, the structures, the orders, the givens, and the identities of representation' very frequently use discursive texts to convey these ideas (Vannini 2015, p.6; see also Wetherell 2013).

In designing the participant observations, I drew on experience from attending a week-long ethnographic methods summer school at a neighbouring university. During the summer school I came across Sarah Pink's short-term ethnography framework (2009, 2013). The overarching idea behind this approach to participant observation is to substitute intensity for longevity. This links with Vannini's methodological intervention in affective ethnography which seeks to follow intensive 'events' rather than longer observations where not much happens for the majority of the time (2015, p.7). Pink writes that 'short-term theoretically informed ethnography is emerging as an approach to doing research that is contemporary in both its subject matter and in its use for applied research projects designed to lead to informed interventions in the world' (Pink 2013, p.351).[34] The key point for Pink is the correspondence between sharply composed research questions and theoretically-informed choices of research sites. Pink is aware of the potential criticism that her ethnography is superficial. However, she argues that shorter time periods in the field can be compensated with more intensive data (2013, p.353). Rather than just taking notes, for example, I also took photographs and audio recordings (where ethically permissible). Pink suggests that this depth of data can then be 'brought forth at the analytical stage of the ethnography' (2013, p.353).

The participant observations were essential for getting a broader sense of the anti-fracking imaginary and its affective dimensions. There were moments, such as when I attended the theatre performance, saw the Heart on the Hill, or visited the Fractured Thinking sculptural exhibition where I could *experience* the love, fear, and anger of campaigners in a deeper way than when listening to accounts of these feelings. This seems to be because affect flows in and out of bodily registers, sometimes carried

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[34] Pink emphasises that her research approach 'evolves in dialog with theory rather than being led or structured by theory' (2013, p.357).

through talk and sometimes through direct physical engagement (Wetherell 2014). Such engagement carries the risk of researcher bias, something of which I was keenly aware. There is no doubt that I became close to some of the participants, caring about the outcome of fracking for the community. I wrote about this frequently in my notes, acknowledging as often as possible, my own feelings on the subject. This reflexive approach helped me think critically about the research in order to reveal my own assumptions and position of power (McHugh 2014, p.145).

I follow Denzin's observation that 'it is common for texts to now be grounded in antifoundational systems of discourse (local knowledge, local emotions)' (2009, p.111). He writes that this includes the perspective of the researcher, a central aspect of the interpretivist tradition. I particularly agree with his assertion that 'more than a few researchers expose their writerly selves in first-person accounts, and many are attempting to produce reader-friendly, multivoiced texts that speak to the worlds of lived experience' (2009, p.111). I see myself as participating to some degree in the events and lives of these campaigners, but the research is not designed to directly help them stop fracking. Instead, it seeks to open up the politics of public engagement more broadly to consider the value of the affective dimension. As Chapters 6 and 7 will later suggest, affect is involved in driving and valuating imaginaries, and as such should be engaged with. Reflexively considering my own bias is less about compromising the objectivity of the research than refraining from pushing the research too much towards emotion.

Thinking reflexively also helped me to consider the power held by participants to potentially "pull the wool over my eyes". I thought about whether participants could potentially take advantage of me as a naïve researcher, telling me tall tales or dramatizing situations to get me onside. I made an effort to establish authentic bonds of trust by being honest and open, forging friendships, and setting boundaries where needed.[35] Reciprocity (Wax 1982) was also important; participants were happy that my goal was to improve public engagement processes, particularly around bottom up participation and the politics of uninvited publics. I had many conversations with Alyx about this topic. Of course, openness, friendship and reciprocity does not rule out the

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[35] An example of this is the use of ethics consent forms which signal that I am ultimately there to do academic research.

possibility that someone might still have been making fun of me or being dishonest but reflecting on it allowed me to be more sensitive to the possibility of it happening.

I found the participant observation phases of the research to be particularly rich and fruitful. The only limitation I experienced was in finding enough time to get down to events. There were a number of events I was invited to but could not attend such as the first lighting up of the Heart on the Hill, a movie screening, other Love Leitrim meetings, and several talks. It was hard to justify the long journey there and back for an hour-long event. One aspect of the participant observation that I would do differently would be to include more of the drives or walks with participants through the areas marked for drilling. These trips provided wonderfully rich and varied data about campaigners' experience with fracking (see Appendix A for an outline). The visual landscape prompted thoughts and feelings in a way that interviewing doesn't, offering potential for other kinds of research.

3.3.4 Visual Media Analysis

To further broaden the range of affective media I could study, I examined a selection of Love Leitrim's visual media. I wanted to examine how the anti-fracking imaginary was extended, affectively, through images and videos that were publicly circulated. I was interested in discovering what visual representations of emotion were important to campaigners and what political work they were doing. I focused on the group's website and YouTube channel, analysing images and videos which were publicly available. I compiled a database of every image from the website, screening them for notable affective content. Some images were repetitive, mundane, or irrelevant to the campaign. There is certainly value in tracing mundane affects and the work they do, but this involves a specific kind of analysis which would have demanded more space in the thesis than was available. I had already developed a tacit set of codes from my interviews and participants observations and made a pragmatic decision not to include these kinds of mundane affective practices.

I also used several visual texts that were not produced by Love Leitrim, but which came from the community, or were made for Love Leitrim. I ended up with eight videos and 298 images. The images were divided into themes relating to their content and analysed in batches. The aim was to get a sense of how images functioned within the affective practices of the campaign – how visual culture contributed to the

production of interpretative repertoires of feeling, preferred subject positions from which to emote from, or shared narratives of emotional experience. I wanted to know how visual material performed affect. I wasn't attempting to access emotional content "held" in the text, nor was I seeking to understand how people felt when viewing this material. My goal was to examine what kinds of affective practices were at play; how emotion was done in these images and videos. I believed that this would contribute to an understanding of the social dimension of the campaign's anti-fracking imaginary – how affective practices contribute to the wider meanings made of fracking.

Collier writes that the 'visual field usually contains a complex range of phenomena, much of which is outside our awareness as camera person or subject' (2008, p.35). This suggests that those who made the images or videos were not necessarily consciously embedding emotion in the texts that they produced. Again, this meant that the methodological approach would be interpretative – I would be making interpretations based on what I was seeing in correspondence with affective practice theory and the rest of the data. Given my STS commitment to a relational, co-productive approach to research, the visual domain was not treated any differently to the discursive. I assumed that a given visual text is better understood as a unique and contextual artefact than as belonging to a broader category of the "visual". The images and videos analysed are important because they relate to the specific context of the anti-fracking imaginary in north Leitrim, not because they are visual media (Jasanoff 2001). That is not to say that visual artefacts do not have defining characteristics, but this is only attended to analytically if they *do* something. I am interested in the ways that the visual material I studied involve affective practices which direct, valuate or drive the anti-fracking imaginary in some way.

I am influenced by Burri's STS work with images (2012, 2013) which is explored by Davies and Horst (2016, pp.164-166). Here, Burri resists a symbolic interpretation of images in favour of a material one whereby they are defined as technical 'artefacts' (2012, p.46). In this sense, images produce meaning in sociomaterial contexts; through their material composition and 'the activities and processes through which they are made, shared and used' (Davies and Horst 2016, p.165). This is a theory of practice in that images need to be "activated" by modes of interaction which Burri terms 'visual logic' (2012, p.48). This logic emerges through human-image interaction and is conceptualised according to three dimensions of visual practice. Burri describes 'visual value' which is a material characteristic of images that

allows 'a simultaneous perception of visual information' (2012, p.49). Next, is 'visual performance', which relates to what is visually represented in an aesthetic sense. This is formalised through cultural contexts that guide the composition and interpretation of particular visual arrangements (2012, p.51). This is followed by 'visual persuasiveness', a rhetorical capacity of images which allows them to be used as persuasive or authoritative devices (2012, p.52).

My analysis of visual artefacts sought to explore the second and third dimensions of Burris's visual logic. The first dimension, visual value, was tacitly assumed to be the case across all the images by virtue of the fact they were material images. I felt that as this dimension is simply the case with all images anyway it did not add to the analysis of specific images in context. Visual performance or persuasiveness can be assessed on an image to image basis and thus provide insight into how a given visual artefact might engage in affective practice.

Having provided an insight into the method design, I would now like to turn to an account of how the data was analysed.

3.4 Data Analysis

3.4.1 Interpretative, Iterative, Inductive Analysis

Thorne writes that interpretative research 'always starts with what is already known, believed, or accepted within a discipline about the phenomenon in question, and it seeks some expansion on that prior knowledge for some defensible purpose' (2014, p.109). In this way, my research seeks to expand on the STS understanding of public engagement by paying attention to the affective dimensions of a controversy. Prior, inductive theorising is what provides the foundation for further analysis. What is characteristic of qualitative research in the interpretative mode is that it does not seek replication to enhance credibility, nor even the recreation of the 'precise conceptual structure proposed by another researcher' (Thorne 2014, p.109). The validity of interpretivist research is not verified by its correspondence to a universal and objective reality, but by what Denzin terms 'interpretive sufficiency' (2009, p.123). This involves accounts which 'possess depth, detail, emotionality, nuance, and coherence. These qualities assist the reader in forming a critical interpretive consciousness' (Denzin 2009,

p.123). Here, the trustworthiness of the account is formed at the interface between writer and reader – you and me. Trust is established through the integrity of the empirical data – credible, transferable, dependable, and confirmable (Denzin 2009, p.104) – and a shared commitment to critical analysis. This aligns with Law's insights on method: 'to craft specific but multiple ways of going on well together in difference' (2017, p.49). Interpretation is thus a political intervention. It is not guided by the whim of the researcher, but by rigorous and robust attention to empirical data and carefully crafted theory.

My analysis follows these principles by first paying careful attention to the empirical data. I draw from Thorne's approach here, which 'seeks ways of thinking about and organizing insights that become emergent as one works iteratively with data, such that new insights and possibilities for understanding can be illuminated, considered, and further developed' (2014, p.109). My frame of reference entering the first iteration of analysis was simply affective practice – talk or action which seemed to me to relate in some way to emotion. In particular, I looked for patterns which corresponded with Wetherell's interpretative repertoires, narratives, and subjectivities as key forms of stabilised affective practice (1998, 2014; Wetherell et al 2015; McConville et al 2017). This was an inductive 'descriptive coding' approach, whereby loose, iterative codes are applied to categorise and index the data corpus (Saldaña 2014, p.593).

I went through each interview recording, transcript, all notes, and each image and video. I created documents for the visual material where I noted down any salient features that related to affective practice. Again, I understood affective practice to relate to the conventional sense of emotion that we understand intuitively (Wetherell 2014, p.78). I devised a table in which I placed every example of an affective practice that I encountered across the data (Appendix B). From this, I began to develop 'sensitising concepts' with which to structure further iterations (Blumer, cited in Pallett 2018, p.220).

For the next iteration I went through all data, colour-coding in order of salience. I understood salience to mean that an affective practice was notable in talk by participants or was doing something such as creating an identity or a way of figuring fracking. As I went through the data each time, new issues of relevance appeared and were integrated into a list of overarching sensitising concepts. Sensitising concepts are more flexible than codes in the traditional sense, they can change depending on further

iterations of the data as new issues are deemed relevant. For example, I realised that emotive doings and sayings relating to children were starting to emerge, so I set up a new affective repertoire relating to innocence. Upon further iterations this changed to love of children.

I followed this with a third round of analysis whereby each of the sensitising concepts – largely relating to affects like love, hate, anger, sadness – was colour-coded. There were many unique affects that did not fit easily with common emotions like love, so these were all listed separately. At the end of this round of analysis I had 13 "master code" affective practices that were occurring frequently and which broke down into a further 89 discrete emotional experiences which might only have occurred once such as 'overwhelmed', 'affirmation', 'courage', or 'horror'. Frequency wasn't the only determinant of salience – if an affective practice appeared to be particularly intense and have some influence it merited being a sensitising concept. I also included in the table the form that the affective practice took, usually a somewhat stable form like a narrative ('fracking arrived suddenly'), an identity ('positive campaigner'), or an interpretative repertoire ('hope').

The fourth iteration involved 'bridging the gaps' (Murchison 2010, p.176) between the various affective practices in relation to the research questions (Appendix C). This iteration linked the themes in ways that connected to the overall aims of the work – examining what affective practices were doing and how they contribute to an imaginary in terms of temporal, spatial and social order (Jasanoff 2004b, 2015b). Rather than have one very long chapter outlining all affective practices, I grouped them under the meta-themes of love and hate. This was not an attempt to reduce the diversity of the data to two emotions, but to organise the findings across two chapters for ease of reading.

Love and hate were not arbitrary categories; two reasons underpinned their selection. The first reflected the campaign's central discursive binary of 'Love Leitrim/Hate Fracking'. I encountered it frequently throughout the research process. The aim of using these categories is to help order, for analytic purposes, the variously intersecting flows of affect which correspond more or less to the desires and fears of the anti-fracking campaigners in Leitrim. This leads to the second reason. Sociotechnical imaginaries are defined by Jasanoff as being shaped by a binary structure of positive and negative, as an 'interplay between positive and negative imaginings—between utopia and dystopia' (2015b, p.5). The case of the anti-fracking imaginary with its love

of Leitrim and its hatred (or fear) of fracking fitted this structure well. Attention was paid throughout to maintain the heterogeneity of affective practices. I did this procedurally by holding off on analysis as much as possible in the findings chapters (four and five). I chose to describe affective practices as straight forwardly as possible with brief references to cultural or theoretical context, where necessary, to illustrate how I was inferring meaning from the data.

I chose to write in an informal and readable style which was clear but still capable of communicating complex concepts. I felt that a thesis working in the tradition of science communication ought to put effort into communicating well. STS can be a difficult discipline and there are many ideas which I don't fully grasp. I exercised caution when working with concepts that were challenging for me, ensuring not to "fill in the gaps" of my knowledge with confusing writing. My approach to style is also a matter of taste and preference. I prefer reading material that is informal and sets up an informal relationship between reader and writer. I was inspired by a quote from Denzin that I came across during my undergraduate:

> Things are known only through their representations. Each representational form is regulated by a set of conventions. Factual tales should be objective and conform to certain rules of verification. Fictional tales are regulated by understandings connected to emotional verisimilitude, emotional realism, and so on (Denzin 2009, p.331n).

I tried to reflect something of the emotion and feeling of the anti-fracking imaginary in my account while retaining the rigour and clarity of academic writing.

This chapter has outlined how the empirical phase of the research was designed, undertaken, and reported. I have discussed how the multimethod case study is situated in an interpretative qualitative tradition committed to revealing the political terrain of the anti-fracking imaginary. The focus on affect practice is defended as a broadening out of the discursive analyses conventionally used in STS. I have argued that integrates with an STS analysis in its commitment to a relational, practice-based epistemology. Affective practice is also equally concerned with issues of power and the ordering of time, space and society. I have defended the decision to use unstructured interviews, participant observation, and visual media analysis to capture diverse domains of affect. I am convinced that interpretative research methods are best-placed to reveal the

feelings, meanings, and embodied realities of campaigners' encounters with fracking. The inductive, descriptive analysis kept the integrity of the data while iteratively developing broader themes and insights connecting to the theory of sociotechnical imaginaries and STS public engagement.

The aim has been to design a study which can capture the everyday, affective, reality of campaigners' experience of the fracking controversy. I wanted to explore how these affective meanings contributed to the anti-fracking imaginary that had developed in opposition to the official fracking imaginary of industry and government. The research was not designed to compare these imaginaries but to provide an empirical account of an imaginary's emotional-discursive dimension. The goal was to use this insight to theorise about how affect might be relevant to public engagement understood through the STS lens of participation. The next chapter, 'Hate', will present the findings broadly relating to "negative" affective practices.

4

Hate Fracking

> this old god only haunts heaths and hillsides and quaint places
>
> he has been impoverished by cities
>
> he missed his chance to carve out a new nice when he refused grooming
>
> the ordnance survey dealt him a sore blow
>
> his petty revenges range from bog drownings to muddied boots to death
>> from exposure
>
> all are more avoidable than he'd like

—Conor Cleary, 'wild divine' (2018, p.138)

4.1 Introduction

This chapter will detail the affective practices relating broadly to hate, fear and anger encountered during my research in north Leitrim. It is important to reiterate that these are not tightly bounded categories, they are porous, open and related to context. The idea of affective practice is to explore how emotions are "done" by groups and individuals in the unique circumstances of their making. Hate, as an organising theme for the chapter, is not meant to characterise all affective practices outlined here as being hateful. Neither is it a normative judgement. Rather, it is being used to indicate a generally negative valence in opposition to the positive affects associated with love in Chapter 5. More than anything, it is an ordering mechanism for grouping certain affective practices together. As will become clear from the findings, in actual practice, emotions overlap and swirl together, not always appearing distinct or easily ascribable

to positive or negative valences. The findings here will outline how the community became unsettled by the arrival of fracking, responding through emotions of fear, hate and anger. They will demonstrate how this unsettling process gathered the community together through the production of norms, identities and a struggle for agency. Chapter 5 will examine how the community settled an alternative vision to fracking, while Chapters 6 and 7 will examine the political implications of this settling process and how we might engage with it.

The first section of this chapter will examine fear, detailing a range of affective practices including a narrative of shock, interpretative repertoires of a loss of control and contamination, traumatic memories relating to the Troubles, and a lack of trust in once reassuring social institutions. These affective practices generate unsettlement and instability within the community, driving opening a space from which the anti-fracking imaginary can emerge. Within this space a hated other emerges, identities and subjectivities which campaigners feel in one way or another threaten the community through their association with fracking. Hate is, at times, too strong a term to describe the diverse ways that campaigners spoke about and represented these others. As such, it should be noted that hate functions as a loose categorical function to draw these varied negative practices together. The following section will examine anger and its management in relationship to calm and intimacy. These findings reflect campaigners' accounts of how fracking unsettled the community and produced a range of affective responses, explored in more detail in Chapter 5.

4.2 Fear

What are people afraid of? This is clearly an important question in an examination of anti-fracking campaigners' affective practices. Yet, it requires a little teasing apart before describing these practices. At first glance there might appear to be two levels of fear in relation to fracking: "reasonable" fears, based on references to scientific studies and discussions with experts or those who have lived in a community where fracking has taken place, and more "emotional" fears, perhaps based on fear-mongering, dispositional responses to change, or exaggerated reactions to appropriate "reasonable" fears. I am not interested in making such a distinction here, between "rational" or

"irrational" fears. Rather, I am interested in describing how fears were practiced, navigated and performed during the time I spent with campaigners.

That is not to say that emotions cannot be categorised as more or less rational or discursively ordered, but this is not what is of concern here. Conversations of this kind can happen, so long as emotions are recognised in deliberative fora in the first place (Mouffe 2000; Davies 2014, 2016). The descriptions of affect that I am providing here pay attention to the patterned (and sometimes not) ways that bodily meaning-making is articulated and performed, however this does not include *a priori* distinctions between rational and irrational. The affective practice approach taken here considers categories such as rationality and irrationality to be co-produced with the fears that emerge, rather than existing before them. Drawing the boundary between what is rational and irrational involves culturally-informed decision-making which this research argues is the role of the publics and organisations involved. This is beyond the scope of my work. Rather than attempting to ascribe rationality or irrationality to certain fears (or any other emotion), the aim here is to describe how they are shaped and ordered in their context-dependent instances.

4.2.1 Shock – The Arrival of Fracking

A powerful way that fear was practiced by anti-fracking campaigners was through the story they told of fracking's arrival. The narrative, as told by those I spoke to, figured either the sudden arrival of fracking or a sudden realisation of its dangers through a sense of shock and fear. Both of these figurations generate a distinct before and after of fracking and its violent unsettling of the community.

Linda is one of the Love Leitrim campaigners I spoke to. I met her in her home in rural north Leitrim. She grew up in the area and then emigrated, coming back in recent years to set up a business in tourism. She has a deep love for the area and the environment and feels protective of it. As we chatted generally at the start of the interview, we looked out at the rolling hills, visible through the window of her living room. She told me about how she struggled to come to terms with hearing about fracking after moving back: 'And all of a sudden this is the place that they want to come and start fracking on this hill behind me!' Linda is animated and enthusiastic. She has a science background but is sensitive to the emotional impact that fracking has on the community. She described a local public meeting with a well-known anti-fracking

campaigner from Canada named Jessica Ernst. Linda said, '[Jessica Ernst] talked about the effects on farming […] And I could just see… everybody just going "Oh. Holy. Shit"'. Linda expressed the feeling of fear filling the room in her slowed down voice, of the pause at "see" and in how her voice quietened. It indicated that this was an important and emotional moment. Hazel, another campaigner I spoke with, also marked the importance of this moment, saying, 'the Jessica Ernst visit changed things'. Fear emerges in these narratives in temporal terms of a before and after – the shock of fracking changed things.

In some representations, the emotive impact is quite immediate and violent. This is illustrated in a YouTube video of a dance performance called *My Farm I Adore* (Tahany Academy 2012). This dance performance will be referred to several times in the findings. *My Farm I Adore* was created by the local Tahany Dance Academy and plays out the story of the arrival of fracking in Leitrim and the community's response. It appears in two separate video recordings – one of a rehearsal in preparation for the World Irish Dancing Championships 2014, and another of a performance at The Upset Art Exhibition in Drumshambo, County Leitrim, in 2012. The performers, all children, play various roles that are marked out by clothing or props. Those playing animals wear costumes (sheep, chickens); local farmers wear flannel shirts, suspenders and paddy caps and bear 'Farming Not Fracking' signs, pitchforks and guns; and the industry are dressed in slacks, shirts, waistcoats and trilby hats and hold signs with Euro currency symbols on them. A poem accompanying the 2012 video recording reads:

> The cockerel crows — a sign of a new day,
> the farm animals wake and begin to play.
> The local farmer tends to his land,
> When the postman comes by and shakes his hand.
> Gives him his post and as he's on his way,
> the farmer reads it, he begins to sway.

The poem represents the "moment" of the community finding out about fracking. The farmer is shocked and 'begins to sway', drawing a temporal boundary between before and after, constituted by his emotional reaction. As well as indicating the arrival of fracking, it also suggests the end of an Edenic state of Nature which the performance begins with. This natural idyll is disrupted by and unsettled by fracking. This sense of disruption played out in some of the conversations I had with campaigners.

I spoke with Maura over the course of two interviews. She works closely with the anti-fracking campaign in Leitrim and is an articulate advocate for the community. It is clear that she has strong leadership and organisation skills and is involved in numerous facets of the campaign. I got on well with her and liked her up-front demeanour. We met in a community hall not far from Manorhamilton, a bit of a hub for anti-fracking activity. Maura told me how seeing the documentary *Gasland* (Fox 2010) delivered the sudden news of the arrival of fracking. She said:

> That was just so extraordinary as far as we were concerned – we couldn't believe that anything like this could come to an area like Leitrim. There were a lot of people and they were kind of shell-shocked and there was a lot of disbelief and there was total ignorance.

Paschal, another campaigner, also referenced *Gasland*, saying:

> The second very powerful thing was a film called *Gasland* which exposed in a spectacular and popular way just how damaging this industry was. The iconic moment was turning on a tap in a kitchen and putting a match to it and the tap went on fire and this has kind of caught everybody's imagination.

Gasland is described as a 'game changer' (Jaspal et al 2014, p.507) in the movement against fracking, a result, in part, of the 'vivid images of risk, most grippingly the flaming water tap, which, even if unrelated to fracking, flowed into many minds and subsequent stories' (Mazur 2016, p.215; see also Rich 2016; Metze 2017b; Kinchy and Schaffer 2018). Jaspal et al suggest that the impact of fracking arguments lies in the fact that they are 'anchored in an image of destruction, depletion, pollution and contamination affecting the most common natural "elements" that surround people, namely: air, earth and water' (2015, p.511). They argue that 'the image of water catching fire, thus [links] the anti-fracking arguments [to] the fourth of the classical elements known since Antiquity, namely fire' (2015, p.511). In my own notes taken during a viewing of *Gasland*, I wrote that the movie 'makes me think about what the effects could be of this drilling on all the rivers that I've visited [in Leitrim]'. I noted individuals in the movie saying, 'I am terrified, there are no other words for it, I am absolutely terrified' and that they were 'so scared'. I considered that '*Gasland* helps mobilise an affect of fear in the Irish public'.

Cian was someone I interviewed twice and spoke to over the phone about the issue of fracking in Leitrim. He is a member of Love Leitrim and was quite helpful to

me in outlining where the group stood on various issues and why. He dedicated a lot of time to the campaign and was always open and detailed in his discussions of fracking. I spoke to him about fracking's arrival. 'I mean, fracking turned up one day', he said. Explaining further, he told me:

> all of a sudden, a gas company turned up in Carrick-on-Shannon and said, "we're going to be drilling here next year and we're going to be rolling out a huge production of oil and gas" […] No minister beside them, no media – just, "we're here, we're carrying out our duty".

At a public meeting in Dublin involving campaigners from Cantabria in Spain, I noted how they spoke of a lack of information or engagement – a narrative of 'fracking came along one day'. This, they say, came from door-to-door discussions with people from rural Northern Spain.

In these examples, shock emerges through the intersection of current and remembered feelings of fear about fracking and is structured by a narrative of fracking's "sudden arrival one day". We can see here the modality of affective practice in action, as described by Wetherell. She describes how emotions 'are often unarticulated and inchoate senses of the pattern in a relation or in a situation, part of the affective volitional stream of everyday life that moves us, […] to one end or another' (2014, p.24). We can see in the example of shock how feelings about fracking are ordered temporally through discourse to create a sense of before and after. The meaning of fracking is integrated into a local configuration of time whereby it arrives in one single moment, creating a break between before and after. For this community, fracking comes into existence at a meaningful point in their lives and this is marked through the narrative and experiences of shock. Fracking is thus a seismic event in more ways than one, the shock of its arrival unsettling various aspects of the community.

4.2.2 Loss of Control

Fracking is described by campaigners as a kind of monster which grows uncontrollably. Maura told me 'it is the scale of the operation and the impact on the local land […] the impact on health, on way of life'. Paschal described how fracking 'spreads out and out and out […] the longer you're at it the more and more and more wells – you just multiply them to try and get less than you did in the first place'. Kenneth, an older, quiet and

gentle local farmer that I met with spoke in similar terms. He told me that 'once they get started, they don't stop'. In my conversation with Cian, he said 'The thing about fracking is that it is an extreme energy – it's cumulative. It's not about one or two wells but 3000 wells.' Cian comes across as very knowledgeable about how the fracking industry operates. He went on to say 'you become dependent on that. When are you going to stop? What are you going to do when you've used it up?' He spoke about '015 years of drilling: you drill, you frack and then you drill the next one. You're constantly drilling, fracking and moving in order to keep the resource'. Others have reported campaigners' fears of dependence, termed a 'lock in' to fossil fuels, but not with the same attention to emotion or the fear of unstoppable growth (e.g., Bomberg 2017; Metze 2017).

This emphasis on the scale of fracking came up frequently and is illustrated well in a documentary video made by a social justice group named AFRI (Action from Ireland) entitled *The Future for Shale – Fracking in Ireland* (Glynn 2014).[36] AFRI are outspoken in their opposition to fracking. The seven-minute video contains interviews with various people sympathetic to the anti-fracking movement including a well-known investigative journalist, Greg Palast. In *The Future for Shale*, Palast states, 'it's like a web, it's everywhere. Where you see streets now, you will have pipes. Except that for every street that you have and every road you have, figure, 20 pipes. Ok? It's a whole web'. These statements are intercut with images of landscapes extensively covered by what can be assumed to be fracking pads (Figure 4.1). I encountered these kinds of images, demonstrating the scale of fracking, several times (Figure 4.2).

The scale and apparently unstoppable nature of fracking led some participants to describe themselves as helpless or powerless in the face of it. Kenneth told me, 'people – they feel like they're not able to do anything. What do you do to stop these people like? They have so much power'. Here, he is referring to the fracking industry and the success he described them having in the US. Cillian, originally from Dublin but now living near the border in north Leitrim, spoke to me about local meetings held to discuss fracking where there were 'some people raising concerns. They didn't really know what can they do to stop fracking – feeling a bit helpless'. A local TD I spoke to,

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[36] AFRI are a non-profit who campaign for justice in various issues internationally including human rights, conflict, and sustainability. More recently, they have campaigned for environmental issues in Ireland and became involved in the anti-fracking movement, setting up events, sharing information on social media, and producing information content.

Michael Colreavy, told me that the community felt 'abandoned'. A member of Sinn Fein, Colreavy has been very active lobbying politicians about what he perceives to be the dangers of fracking. The dynamic between fear, powerlessness and empowerment is important. Campaigners' fear of fracking is, at times, characterised by a feeling of powerlessness. Elsewhere, as we will see, positive emotions such as love and positivity produce a sense of hope and empowerment.

Figure 4.1 Images of scale of fracking from *The Future for Shale* (Glynn 2014).
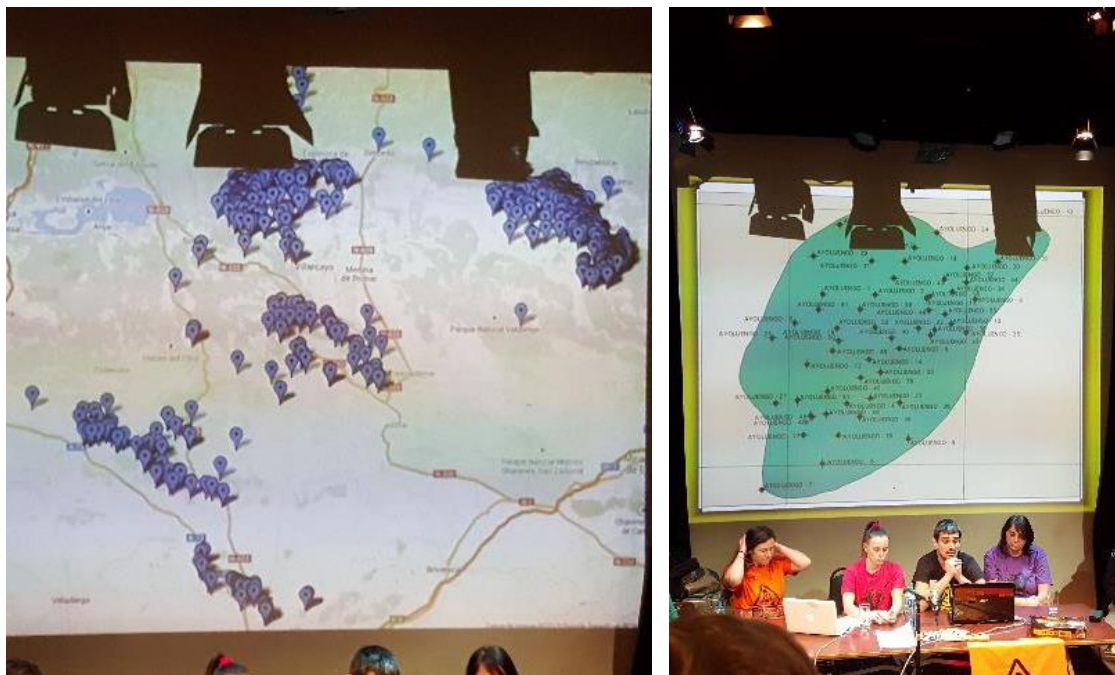
Figure 4.2 Images of density of fracking sites used in a presentation.

Another affective repertoire (Wetherell 2015) mobilised by campaigners was the fear of complete annihilation. The effects of fracking were here spoken about or represented in terms of complete destruction at varying levels: the community, the landscape, or even simply just a sense of things ending. Linda, for example, told me that 'when things go wrong, nobody comes to clean up, so you're left with, sort of, Armageddon'. In *The Future For Shale* (Glynn 2014), one of the farmers interviewed states that 'this part of the country – it's a different way of life. It's peaceful and it's quiet. And if this goes ahead it will be finished forever'. Kenneth said, 'they [the community] are beginning to see the dangers of it now – that there would be no future for anything' and that 'the area would be finished'. Paschal, more narrowly, described how 'tourism would be wiped out'. He spoke of how, 'a farmer in America might rent for exploration but won't be able to build a house in it – it is completely destroyed, forever, it can't be used again'. Hazel, a Love Leitrim member living over the border in Northern Ireland described how fracking 'would mean total disaster'. She explained:

> I just think [fracking] would be so detrimental, I just think it'd be the end. Particularly north Leitrim side, if it happens this side […] I'd be gone anyway – there'd be nothing to keep me now. Well, apart from the kids probably nearly finished school as well but definitely gone and I don't see anybody wanting to come back to it. I mean the roads are… Even the roads and the noise.

We can see discourse and subjectively-felt experiences weaving together to produce an imaginary of annihilation. Threads of fear about the loss of tourism or a local way of life are woven together and patterned by a powerful discursive binary. "Fracking" is opposed to "no fracking" dividing meaning and affect according to these two distinct potentialities. Fracking is equated with annihilation in an absolute sense, while "no fracking" is equated with the flourishing of life. We also see this discursive logic mobilised in many of the anti-fracking road signs and posters made by Love Leitrim, e.g., 'fracking or health', 'fracking or farming', 'fracking or tourism' (see Figure 4.11). The consequence of this kind of opposition is a sense of totality on behalf of each pole and increased affective salience in line with these raised stakes. In the case of 'fracking or health', the process of opposing these terms casts each as a distinct and individual thing which is internally consistent and coherent, and, can thus be said to be *not* the other, or more, to be the opposite of the other. Stuart Hall describes the function of this kind of binary logic:

> identities are constructed through, not outside, difference […] it is only through the relation to the Other, the relation to what it is not, to precisely what it lacks, to what has been called its constitutive outside that the "positive" meaning of any term - and thus its "identity" - can be constructed' (2000, pp.17-18).

In this way, the process of binary opposition creates an absolute and universal term on each side. We can have fracking or health, fracking or farming, fracking or tourism; not both together. As the sign in Figure 4.11 puts it: 'Fracking or farming. Can't have both.' The starkness of this discursive figuration creates the sense that if fracking comes to pass, each of these other things – farming, health, tourism – will be annihilated.

These affective practices are a patchwork of bodily processes, subjective feelings, socially available repertoires of interpretation, discourses, environments, and a range of objects and artifacts. The above example of annihilation illustrates this. While participants describe the total destruction of their community to me over a cup of tea it is not the same phenomenon as someone facing the prospect of imminent annihilation, encountering a tiger, say. Talk about affect and emotion is still affective practice, however, even if it occurs when the body is not so active (Wetherell 2014, p.89). Talk of annihilation still contributes affectively to an imaginary but does not necessarily mean that annihilation is about to take place. It seems to have the effect here of directing

or marking importance and salience rather than representing in any realistic sense what is imagined. One would expect a different affective experience during conversation if that was the case.

The affective practices relating to loss of control assemble images of sprawling fracking pads and feelings of fear relating to notions of an apocalyptic future that are structured discursively through a binary logic of absolute either/or-ism. Loss of control appears to provide a normative dimension to the anti-fracking imaginary, marking it as negative or bad in its association with unstoppable growth and complete destruction. Even if these campaigners don't think the county will actually be annihilated, their affective practices push the imaginary in that direction.

4.2.3 Contamination and Pollution

Fear of contamination and pollution was a feature of campaigners' affective navigation of fracking. It occurred through feelings about, and talk and representations of, breached boundaries and zones, leaks and pollutions; as well as the through the configuration of othered subjectivities and unknown realms and spaces where potential contamination lay. The 'Fractured Thinking' exhibition in the Leitrim Sculpture Centre illustrated this affective repertoire of contamination and breached boundaries.

'Fractured Thinking' was a public sculptural exhibition addressing fracking created by the Belfast-based sculptural artist Brian Connolly. His past work has addressed themes of risk and uncertainty in environmental contexts. Connolly was artist in residence at the Leitrim Sculpture Centre in 2016 when the exhibition took place. In an interview about 'Fractured Thinking', Connolly explains that the idea for the exhibition came from his own experience opposing oil and gas development in Antrim, Northern Ireland (Connolly 2016). The exhibition in the Leitrim Sculpture Centre deals closely with representations of contamination and the breaching of boundaries. According to the project statement, several exhibition pieces are connected to ideas of strata, layers, pressure, flows and mapping. Figure 4.12 is a photograph of the *Frack Test* series of exhibits from the *Fractured Thinking* exhibition and illustrates this point. Described in the Project Statement as a series of 'strata objects', the *Frack Test* exhibits demonstrate the artist's concern with the unpredictability of movement involved in fracking, and the threat it poses: the familiar glass layers can be read as innocent mediators of the sinister sludge, which moves about between them according to its own

unknowable logic. This involves an explicit normative dimension; he describes the piece as producing 'a symbolic form of two things that shouldn't be together' (2016). This corresponds to the idea that these 'natural' layers are unproblematic until they are forced to mediate the 'unnatural' chemical mixtures involved in fracking. Several exhibits involve drawings or markings representing complicated configurations of layers and strata. One piece, *Fracture* (Figure 4.3) shows a complicated network of fissures and cracks where the distinction between the surface and what is below is obscured. One crack is slightly larger and more discernible than the rest, but it is largely absorbed in its environment, suggesting that fracking fissures lead to numerous other openings, or may indeed be their effect.

Fractured Landscape (Figure 4.4) and *Complex Studio Landscapes* (Figure 4.5) both involve intricately presented collages of landscapes, fracking pads, roadways, hedgerows, and cracks and fissures. Again, the complexity of lines and markings makes distinctions between boundaries difficult to discern; determining what is a boundary and what is a threatening crack is hard to make out. Both blend together, suggesting that we cannot know what is safe and what is threatening – problematising calculations of risk. This blurring plays with notions of knowledge and agency: fracking threatens to blur the boundary between intentional fracturing and unintentional fracturing, an idea which has its popular expression in fears that fracking might cause earthquakes. This fear was articulated by Cian through 'a new term – earthquake swarms'. In *Complex Studio Landscape*, surface boundaries and subterranean strata are presented on the same plane, subverting a hierarchy or distinction between over and underground. This subversion can be read as a destabilisation of the certainty which the ground offers us. In its place is a confusing juxtaposition of layers and boundary-lines which might be understood, in the context of fracking, to indicate that shale gas drilling threatens to undermine the temporary stability we currently enjoy (Figure 4.6). Fear of contamination, in this case, is represented in such a way as to produce a visual spatial imaginary interweaving affect and sculptural images and objects.
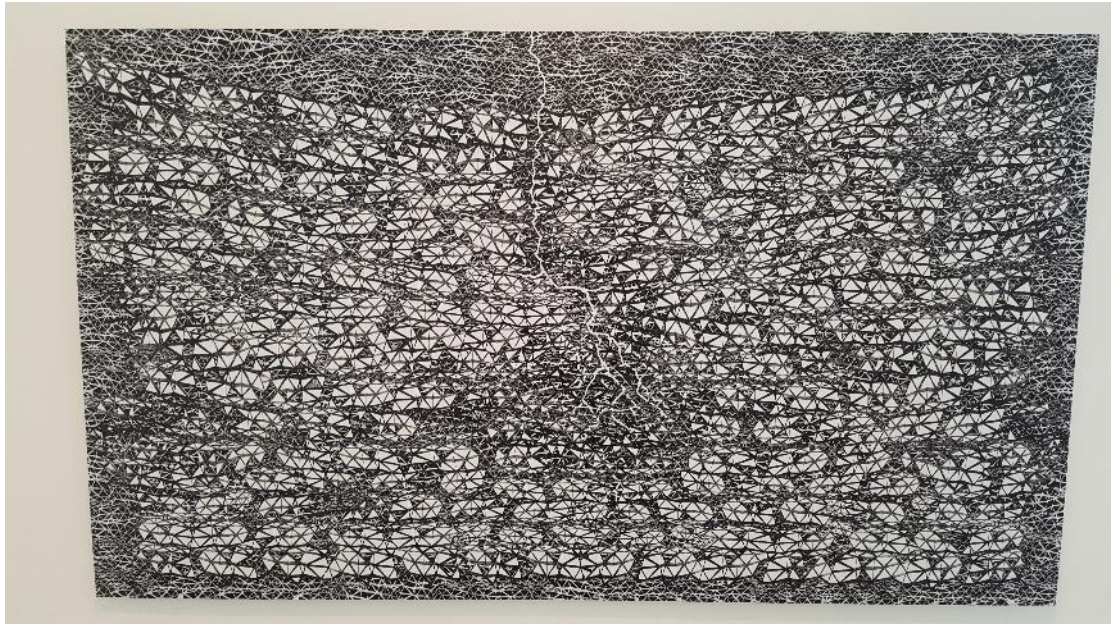
Figure 4.3 *Fracture*, from the 'Fractured Thinking' Exhibition by Brian Connolly.
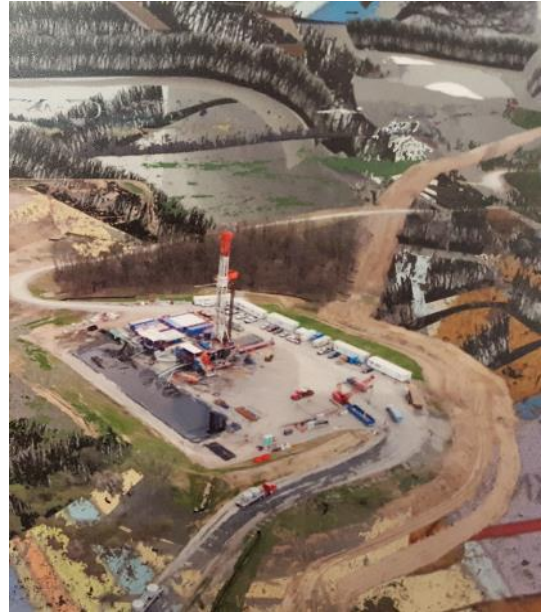
Figure 4.4 *Fractured Landscape*, from the *Fractured Thinking* Exhibition by Brian Connolly.
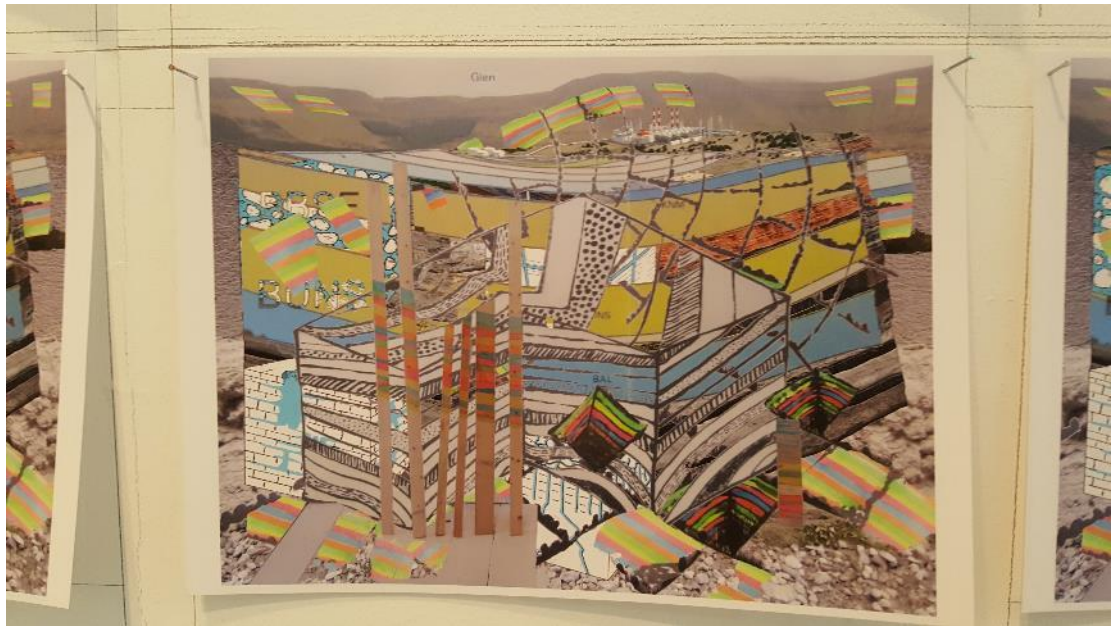
Figure 4.5 *Complex Studio Landscapes*, from the *Fractured Thinking* Exhibition by Brian Connolly.

Figure 4.6 *Walls, Fences, Fields*, from the *Fractured Thinking* Exhibition by Brian Connolly.

This fear of contamination was articulated through discussions I had with campaigners. Kenneth, a farmer, spoke directly about pollution: 'the area they're talking about that's where the Shannon rises - if there's pollution here it'll be down in Limerick in a week's time'. He also referred to photographs from the US 'of spreading waste on land and then ploughed into what is growing. That's the food we have to eat here. That's where your Cornflakes and your Weetabix come from'. Maura told me about water contamination in communities she visited in the US, 'the community around that area was very badly affected anyway because water had become contaminated […] None of the houses can be sold because you can't sell a house with contaminated water'. Hazel, who lives just over the border, also spoke about visible pollution in the form of light pollution, 'was talking to [a local man] from the organic centre – he's into clouds and apparently we get amazing formations of clouds up here because we're so unpolluted […] then he was talking about light pollution from fracking alone'. In *The Future for Shale*, a Leitrim resident spoke of fracking as something that 'contaminates water, that contaminates air, that affects human and animal health, that mobilises radioactive material underground.'

Alongside an encyclopaedic knowledge of the history of Leitrim, Paschal has a background in engineering and spoke frequently in technical terms about fracking. He spoke of contamination below ground:

> The problem with fracking is that you're putting a lot of nasty chemicals down to get the gas. But what comes up is just what you put down, which was nasty enough, but you've now got things which have been there for 300 million years – you've got radioactive substances. You're getting radium up, you're getting copper up – you're getting all sorts of stuff that would be far better remaining where it was.

Fracking is figured as disturbing unknown elements beneath the surface which ought to be left alone. Paschal repeated this idea of a sinister unknown below the ground: 'and you don't know what you put down is going to interact with whatever it is that's down there', 'unknown dangerous cocktail', 'a soup of God knows what', 'sometimes there are things they don't know about – flowback'. He linked it specifically to the Shannon river in north Leitrim, and the intricate network of cave systems and waterways it is connected to beneath ground:

> Now that site is considered to be about three miles of caves. A couple of years ago a German explorer went in, in fact there's 13 miles of caves there, so in other words people just don't know – and that's just under the surface, so people have no idea. And that's connected into Bo, where again, they're proposing to frack, so they frack

> in Bo and within days… We have here a beautiful tourism piece – the Shannon Pot which is a hole about thirty metres across where the Shannon rises, except it doesn't, it is fed by underground streams – there's no surface stream – from the different mountains, from around, I think there's four or five.

He went on to say that 'as a result if you interfered with any of these you would have the whole Shannon system would be corrupted, would be fouled, and there is virtually no way that that could be retrieved'. It is notable how this ties in with the mythic notion of the Shannon as described in Section 5.4.1.

Dennis frequently spoke in technical terms about fracking. He appeared to be extremely knowledgeable about the engineering involved in drilling and its geological impacts. He also spoke of risks coming from beneath the surface, and even here, in an engineering discourse, there is still a sense of an unknown and dangerous "down there":

> The stats are pretty much clear that you get a 5% chance of some sort of problem with the well initially and as the well deteriorates you get migration of gases up along the anulis – not just gases but benzenes and other things that are down there migrating up into the aquifer as well.

He went on to say that 'the EPA report has said that they're uncontrollable things'. Fear spatialises the anti-fracking imaginary – assembling and recruiting a fearful sense of the unknown, the knowledge practices of cavers, engineers and geologists, and a normative value of corruption or pollution to produce a sense of contamination. Fear of the unknown can be a legitimate response even if it is configured in a way that seems superstitious or nonrational. Felt (2014, p.391) points out that figuring worlds that contain monsters captures 'a blend of different kinds of "realities" and allows broader imaginaries and values to "enter the picture"'. She argues that monsters are not necessarily that which must be excluded and pushed aside but can be used to map spaces where there is genuine uncertainty. Felt writes that:

> Addressing monsters from such a broader perspective reminds us that things could always have been different, that making futures—and in particular innovation-driven futures—is a fragile and complex activity, and that we do not only live in a neatly scientized and engineered world. Rather, the world is much more messy and embattled, culturally formed and reformed as well as deeply value-laden (ibid., pp.391-392).

These kinds of fear direct and emotionally charge the imaginary while configuring it spatially, unsettling the community from beneath.

4.2.4 Fear of a Return to The Troubles

County Leitrim is a border county, meaning that it sits on the border between the Republic of Ireland ("the South") and Northern Ireland ("the North"). This border is a contested one and has historically been a site of violent conflict between those (Nationalists) wishing to see the North become part of the Republic, and those (Unionists) preferring to see it remain a part of the United Kingdom. The recent history of this conflict is commonly called "The Troubles" and refers loosely to the period 1968-1998, whereby the majority of the violence ended with the Good Friday Agreement. Most of the people I spoke to came from the border area of north Leitrim, with some living just over the border in Northern Ireland. Fracking is an issue for both communities as the industry have been applying for licenses to explore in Northern Ireland as well. Fracking has motivated communities North and South of the border to work together to oppose it for, as Hazel put it, 'water doesn't respect borders'. However, the violence of the past has not completely disappeared, I observed echoes of it emerge during my conversations with participants. It usually appeared in the form of memories or talk of fear and trauma as campaigners positioned themselves and others in a fearful relationship to the potential for violence to return. Fracking is interwoven in the imaginary with fears of unsettling stability and peace through direct action, fear of a "return" of military-style security forces, and fear of destabilising cultural differences which are currently settled.

Linda explained to me, 'our communities are threatened with fracking - we're six kilometres from the border here, so it has not been easy through The Troubles to be a border town, to be a border dweller, both economically and emotionally and spiritually, that has its challenges'. At a press conference event launching the Love Leitrim-affiliated Concerned Health Professionals of Ireland, the chair spoke about the sensitivity of those living on the border in the context of the Troubles:

> People on the border, now we've always been a strange lot on the border, as you know, we're all very suspicious about what's going on behind hedges. For good reason – I grew up during the Troubles – somebody hoking about behind the hedges, you worry. So now people are thinking, people are hoking about behind hedges – "are these the fellas coming up doing research for this?"

Maura, involved in anti-fracking campaigning with Northern Irish groups, told me that 'there aren't any bombs going off, but the two communities are as separate, really, as they ever were. The reason there aren't outward signs of discord is because they live separately'. This division had a practical impact on the ability for communities to work together in opposition to fracking. Maura explained how:

> in the north it was Arlene Foster, who's DUP [Democratic Unionist Party], she signed the permission, the exploratory, the license, and because she's DUP that meant that the Unionists all supported what she did. So, it inevitably became almost a sectarian issue – that fracking was something that the Unionists supported, and Nationalists opposed.

Anti-fracking organisations were set up North of the border, but as Maura stated, 'the main energy had to go into trying to persuade the Unionists that it wasn't a Nationalist movement'. Despite this obstacle, however, there was sometimes success:

> the campaign was cross-community and it remained cross-community, and even in Fermanagh district council, that it did vote no […] and that was cross-community – now there were some die-hards who voted against the motion, opposed it, you know, but nevertheless it was accepted that it is a cross-community campaign (Maura).

Overall, however, the underlying tension remained. Maura told me that:

> it's just a different world up there, that, you can't escape from it, you know. I mean, as soon as I go over the border – and it's totally kind of, it's automatic, you know – I'm watching who I'm talking to, cause you have different conversations depending on whether they're nationalist or unionist. It's just amazing, you know?

She spoke about how campaigners North of the border struggled to maintain unity, that they emoted from a position of paranoia – that they were 'almost paranoid about involving anybody with a different accent' and that 'they were terrified – paranoid about who could be involved and who couldn't'. Accents are an important marker of difference for Maura. Twice she referred to the fact that she had 'the wrong accent' when campaigning in the North. Campaigning against fracking was a dangerous pursuit as it threatened to bring the tensions of the Troubles out into the open, configured through accents and fracking as a "Nationalist" issue. Maura said that in order to avoid provoking tension, anything which looked like conflict had to be avoided. This meant

'there couldn't be direct action as there would be a big backlash […] Everybody was terrified. Absolutely terrified that there would be a return to that [Troubles violence]'.

Dennis also described the legacy of The Troubles in terms of trauma. He told me that one of the aspects of fracking which is not mentioned is the impact it would have on mental health. He said:

> The other big issue here, in Northern Ireland, I think Northern Ireland has got the highest rates of mental health illness […] because, you know, people here went through thirty years of violence and are effectively trying to adjust. We still live, effectively, in segregated communities, although we're trying to reach out to each other.

Cian told a story where fear of a return to The Troubles emerges through traumatic memory. He spoke about a trip some Love Leitrim members took to the Corrib pipeline in County Mayo to meet with campaigners there who were protesting the transport and processing of natural gas in their parish. When Cian and the rest of the Love Leitrim group arrived at the site a large number of security personnel in high visibility jackets surrounded the car. 'All of these people with sunglasses and handkerchiefs – covered up all their identities protected – I put down the window and I said, "hello," and nobody spoke' (Cian). Cian continued:

> I was like "Oh my God there's more and more and more". There could have been 40 people coming towards the car and still they hadn't responded to "hello". Then they came around the car, they walked around the car, they wrote down the number plate and then somebody opened a tree house – there was a box in the bushes and a big camera came out, a big huge camera, *click* loads of photographs and it closed again. And we're like "Oh my God what's all this" but what struck us, and I don't mean to be flippant about this, was nobody had any gun.

Cian described how this scene was reminiscent of crossing the border during the Troubles when British armed forces would search cars.

> We grew up here on the border and when you went to Enniskillen you met the army and you opened the window and the gun went into the car and it was part of intimidation to stop people crossing the border and everybody around here grew up with that and we didn't pass any heed of it, we just accepted it as part of our lives. But it was the first thing that came into my mind – we were familiar with intimidation (Cian).

This episode made Cian compare the violent Nationalist responses to British intimidation during the Troubles with what he imagined to be a possible violent response to intimidation used by the fracking industry.

> But we recognised immediately the intimidation, but no gun, and I thought to myself […] to try and force a project like this into the border region is madness. It's just staggering to think that they could come and do that here – already I'm familiar with the politics of this area and already we've seen people that are militant that would love to be able to take hold of this project and oppose it (Cian).

Cian underlined his point:

> I remember the first presentation I ever gave about fracking in Cashel […] and a guy down the back of the hall just stood up and said, "just let us know when they're here" and sat back down again […] this will turn into a recruitment zone for paramilitaries if they try to impose a project here.

He told me, 'I spoke to someone from the PAD (Petroleum Affairs Division) and I said that particular thing and he went purple – it was an awful bad decision to try and force a project like this and not tell anybody'.

Fear of a return to Troubles violence was articulated by campaigners through stories, memories and current experiences of fear. It imagines a volatile, but temporarily settled social order ready to descend into violence if forced to acknowledge their differences. The anti-fracking imaginary is spatially figured in the attention it draws to the border between North and South. Temporally, the anti-fracking imaginary is figured through traumatic memories of the presence of the British Army and police forces connected to their potential return in the future. Talk of The Troubles and its relation to fracking positions different individuals and communities as frightened of its return, generating a strong sense of resistance to fracking. Fracking is marked as negative in this imaginary in its connecting to a feared future of reawakened violence.

4.3 Hate

Hate as it is presented here covers a range of affective relations including distrust, resentment, dislike and disgust. At times, it might also correspond to what we might intuitively think of as hate, a powerful aversion or hostility towards people, objects or situations. It should be noted that this level of dislike was rare. Hate as a section heading

is meant to indicate an emphatic negative valence associated with fracking by those I spoke to. If one thing was clear, the community did not like fracking, nor those associated with its development. The first section – 'The Hated Other' – deals with the individuals and groups who the community share a distrust of or dislike. This generally involves actors from the oil and gas industry, the PAD, the Irish government, and the EPA and those involved in the EPA study conducted by CDM Smith (the relevance of these groups is outlined in the introduction). The section gives some background context to Love Leitrim's position (expanded on in Appendix F), but this should not be taken as factual verification of their arguments.

It is important to understand that the statements or arguments made by participants are not "facts". Neither are they necessarily counter-factual. The statements made by campaigners have not been subjected to objective verification – that is not the purpose of this study. The aim here is to get at how the community feels about and navigates the fracking controversy and how it is imagined within this collective setting.

Another point of note is that Love Leitrim make a collective effort to disavow hatred, emphasising love and positivity instead. As such, participants were slow to talk in personally disparaging terms about groups or individuals. Many times, they would minimise their feelings by saying something along the lines of "in fairness, though", or "I got on well with him personally". Their dislike of groups, organisations and individuals did still emerge, usually alongside quite specific reasoning as to why this was the case.

'The Hated Other' subsection is disproportionately long in relation to other subsections. This is largely due to the contextual information provided at the start to help understand who exactly the community were "hating". It also incorporates two other dimensions of hate, the first examining the aggressive and sexual connotations of "frack" in its contexts of use, and its relationship to the word "fuck". This is followed by a look at the love Leitrim/hate fracking dilemma that was mentioned above in relation to annihilation. 'The Hated Other' is followed by one shorter section – 'Disgust' – which examines the ways in which the anti-fracking imaginary is connected to bodily responses of revulsion.

4.3.1 The Hated Other

As outlined in Appendix F, one of the single biggest points of controversy for campaigners related to the EPA study into the impacts of shale gas development – Joint Research Programme on Environmental Impacts of Unconventional Gas Exploration & Extraction (referred to as UGEE). This research looked at 'the potential impacts on the environment and human health from UGEE projects/operations' (Hooper et al 2016, p.ix). Love Leitrim had four main concerns.

The first involved the awarding of the management of the research to CDM Smith Limited, an engineering and construction firm who campaigners believed to be pro-fracking, and thus biased towards mitigating harm through regulation as opposed to applying precaution through a ban. A second concern related to what campaigners felt was a lack of adequate emphasis on health, public health, in particular.

Another primary concern for the campaign focused on the licensing process itself and three interconnected issues: what kind of environmental assessment was involved, who was directing the process, and how this restricted government involvement. Campaigners were particularly unhappy that a Strategic Environmental Assessment (SEA) was never carried out prior to the awarding of licencing options (Love Leitrim 2015). The group were also concerned that part of the UGEE programme involved work that the industry could use in their applications for licences in place of work they had been unable to complete themselves. In having CDM Smith conduct this work, the campaign felt that the EPA study was developing regulations to mitigate against the impacts of fracking instead of developing government – and thus publicly-mediated – policy to properly assess these impacts. A fourth overriding concern for campaigners related to how decision-makers involved in the research programme dealt with the issue through secrecy, exclusion, and a lack of engagement. Together, these issues channelled much of the community's resentment and anger towards outside actors, marking and positioning them as the other.

Government and industry were configured as the hated other through affective practices of betrayal, distrust, greed and by positioning them as callous. *My Farm I Adore* clearly visualises who is good and who is bad – who is to be loved and hated. As touched on above, the message of the performance is straight forward – farmers live in an idyllic state in Nature (represented by those dressed as animals) which is disrupted by news of fracking's impending arrival. Business interests arrive and offer the farmers

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money – represented by the Euro currency symbols and ABBA's song 'Money, Money, Money'. This is rejected by the farmers who are against fracking, evidenced by their anti-fracking signs. They then proceed to kick the fracking industry out, following this with a celebration (Figure 4.7).

Figure 4.7 Farmers kick out the fracking industry in *My Farm I Adore* (Tahany Academy 2012)

This basic narrative crystallises two contrasting valuation regimes. One centres on the intrinsic value of Nature and the land, represented by the animals and farmers, explored in more detail in the next chapter. The arrival of fracking is seen to unsettle this way of life with its contrasting monetary evaluation of Leitrim in monetary terms. This interpretative repertoire emerged several times. Kenneth, the older farmer, articulated this sentiment during our conversation. He explained: 'It's a different way of life here, never got carried away with money or anything. You don't come back here to get rich – it's just a different way of life here'. This different way of life is echoed in other conversations I had with campaigners.

On my drive around the county with Paschal, I discovered a farmer owned a particularly large amount of land that people had to pass through to get to a mass rock. I asked him about whether people felt it was unfair that one person could own all that land. Paschal responded by saying ''he's local so why not [own it]? {…} They've

owned this for hundreds of years so why not?' The land 'doesn't translate into riches the way it might do in Foxrock [an affluent neighbourhood in Dublin]'. The sense of right or wrong is not predicated on the basis of the same principles as the urban centre. Ownership here is justified by time (owned for hundreds of years) and familial ties (the same family). Paschal also mentioned a practice of humility which added to a sense of legitimacy and ownership. He told me that the landowner travelled around by bicycle despite owning that much land and that the public 'politely' ask permission to go on the land, but it is always granted. There is a sense of community ownership in this.

Cillian reiterated this when discussing the setting up of the Heart on the Hill. He told me that Benbo, the hill overlooking Manorhamilton where the Heart was first installed, is a commonage area belonging to five separate farmers, so Love Leitrim had to get permission to set it up. Cillian explained: 'but they were only too happy to let us put it up there because of what we were standing for, as in, the anti-fracking movement, so they were very happy to see that going up there, and very helpful with it as well'. For the Heart's second outing, on Dua outside Kiltyclougher, they asked a local sheep farmer for permission and 'he immediately said yes without any hesitation he was really happy to see it up there too which was nice'. Others spoke of community ownership in relation to windmills. Hazel stated, 'we have a lot of windmills – companies come in – community has no sense of ownership – might make a donation here and there to local play group or local school – it's not the same though'. After speaking with Maura, I noted her comment that 'there are plenty of wind turbines about the place, but no one has any ownership of them, so they seem out of place'. Participants stressed this unique and defining – according to them – value of Leitrim. This was contrasted with a monetary system of value which, it was felt, others such as the oil and gas industry and the government evaluated Leitrim.

Alyx, someone I have not referenced before now, spoke in these terms expressing how out of touch she felt the government were with economic life in north Leitrim:

> Any solution that comes out of Leinster House [Lower House of Irish Parliament] is doomed because they just don't get it. They don't get the depth and the level of the change that's needed to be made and they're still stickin to their, you know, fairly, you know, capitalist agenda about economy drives everything and the market drives everything, and they haven't understood, I don't think, anything about the whole crash, or austerity or what that meant, or the supposed recovery that none of us are seeing.

In *The Future for Shale*, one of the farmers interviewed states, 'we're getting very annoyed with our leaders, our government past and present, trying to sell off everything over ground: the forest, the water and now they're going to sell of what's underneath. It's all money to them'. This sense of annoyance becomes even more emotionally charged when it is made sense of in the context of corruption. Again, it is important to note that these comments are not to be taken as reflective of any actual corruption or dishonest activity in government, its agencies, or the oil and gas industry. It is also not to dismiss the veracity of the claims – the veracity of these claims is not being tested here. This is an account of how the community in north Leitrim feel about fracking and its divergent system of values.

An historical connection can be made here to what David Lloyd (2007, p.313) terms 'Ireland's tendency to reproduce social formations that were tenaciously recalcitrant to capitalist economic and political transformation' in the 19th century. This resistant coding of the land's use-value, notable particularly in rural areas, can be seen to run through the history of Ireland's cultural relationship with the land. Michael Peillon (2002) describes how the uneven distribution of innovation and wealth across Ireland created a longstanding rural/urban divide. Gibbons writes that this produced a foundational identity associated with the rural West of Ireland, embodying 'agrarian ideals, an aversion to law and order and to the centralization of the state'. He writes that central to the identity of rural Ireland is 'a search for community, a desire to escape the isolation of the self and to immerse oneself in the company of others' (1996, p.13). This can help us understand the powerful sense of community that emerges here and its adherence to a local sense of value in the face of the threat of fracking.

Cian described a conversation he had with a government minister about the process surrounding the EPA research programme during which Cian said to him, 'It's very clear that the EPA research is corrupt: you're answering a question by asking the industry to figure out how to bring the industry in'. Cian contextualised this charge, saying:

> When I use the word corruption – I don't know if anything untoward happened, if anybody was paid, but people were being misled - That's corruption. You can't start a massive project like that without proper assessment or giving people information. Sometimes it's not about people getting paid, it's about people managing a process. Silence is the biggest corruption of the whole lot.

Cian felt that the management of the process involved a group of insiders who were connected and serving their own interests. 'Conor Lenihan [A previous Minister of State for Science, Technology, Innovation and Natural Resources] seems to have signed it [the licence options] as he left, then he went off to work for the oil and gas industry. We don't know, he may be innocent enough'. Cian spoke of the interconnected nature of the geological community, and the involvement of a person who 'is like the grandfather of geology in Ireland. He knows everything […] and he's the person that'd be talking to Pat Rabbitte when Pat Rabbitte was the minister – this'd be the type of personal relationship'.

Cian also connected Tamboran, the Australian oil and gas exploration company, to the geological community. 'It was set up by a guy who was head of the British Geological Survey so, the geology people who understand about fracking and oil and everything are a very small group in Ireland and this guy went off to Australia' (Cian). The fact that this man was Irish seemed to particularly be of interest to Cian:

> he's an Irish man. I think he's an Irish man, he went off, I think he might have been head of the Northern Ireland Geological Survey, but it could have been the British Geological Survey, and he set up Tamboran and then Tamboran came back to develop all these resources. So, the idea that Tamboran is an Australian company that is foreign – it's not. It's a local.

The relationships between geologists, industry and government departments is seen by Cian to be closed off to political access from the public:

> There's a group of people, geologists, and people in the oil and gas industry in Ireland and they seem to be – and you have to remember that the PAD, their mandate is to develop oil and gas onshore and offshore using Irish companies […] and they look after the natural resources and the oil and gas and they seem to operate independently of everybody. And they work with industry. And their job is to keep the lights on and make sure that we've a secure resource […] they're driving everything, they interact – so you've got the Geological Survey of Ireland who is part of the PAD and they're really very close to industry, these people are in and out of industry.

The exclusivity and closeness of these networks, combined with concerns about industry bias in the EPA study, has led campaigners to view the organisations involved with scepticism, distrust, and an overarching feeling of betrayal by public institutions tasked with protecting the community. Again, Cian was particularly vocal about this,

stating, 'it looks like our environmental protection agency are working with them [industry] hand in hand. Rather than protecting the environment or people's health'. He went on to say: 'We were told that the EPA were going to do research and that they were going to answer the questions about whether this could be done safely or not. When that turned out to be CDM Smith the company that are promoting [fracking]…' I noted in my transcript of this passage a 'clear emotion of betrayal in [Cian]'s voice'. It comes across as if Cian can still hardly believe that CDM Smith were awarded the contract to manage the study. 'It'll take a long time to forgive the EPA for that,' he told me, underlining the emotive edge to the experience.

Another framing of the government and industry as the hated other comes from the campaigners attributing to them an affect of callousness or indifference. This is a subject position from which government or industry are characterised as emoting from – one rooted in an absence of empathetic or caring emotions. Dennis spoke of a visit he had taken to Pennsylvania to meet communities there who had been affected by fracking. Whilst he was there, he heard about a local woman's interaction with the fracking industry whereby the industry is positioned as callous and uncaring in their denial of responsibility:

> An old lady farmer from down the road and she had something about 60 goats and the goats kept dying, losing hair, dying and what have you and she copped on it was the oil and gas industry and she was trying to get compensation and trying to do this and eventually the last goat died or what have you and she went out under a tree with a shotgun and she just killed herself. And he just said it was the way that she was treated and what have you. They'll never admit anything, and they'll push you to the limit before they'll admit anything (Dennis).

Paschal spoke similarly about the industry and what he learned on his travels to the US:

> We used to note in America they had large pits for fracking water – up into the air and into the pits. The reason being all the volatiles would blow off and be someone else's problem and not theirs – a lot of the pictures – clear evidence that the sludge had come out and over spilled. They really couldn't care less.

He also referred to a radio discussion about fracking between a campaigner and an engineer where the campaigner:

> pointed out that this particular sand they use to keep the rocks apart, a very fine sand, caused, em, caused asbestosis, or silicosis of the lungs, and this guy, who's been an engineer for fifty years, replied to her that: "well, they better warn the

people in Bondi Beach about this danger". So, this is the kind of triviality you can get from professionals that want to go with a particular view.

Cian described how the Petroleum Affairs Division 'have no responsibility for public health; and, they've no responsibility for the environment. So, their role is very simple: drive it on. And if it's wrong, it's somebody else's job'. When I asked whether 'they are not actually, genuinely concerned about the risk to human health, Cian replied, 'they don't, they don't seem to be'. At the Concerned Health Professionals of Ireland press conference, I noted the chair speak about 'sacrifice zones' in the US. He stated that 'In America they have, actually, some of the politicians admitted that they have sacrifice zones […] It [the community] will be wiped out for the good of industry'.

The identity of the hated other can be discerned in the messages visitors were invited to draw and write upon attending the 'Fractured Thinking' sculpture exhibition at the Leitrim Sculpture Centre. A few of these drawings mentioned Tamboran specifically. One depicted an arrow pointing downwards with 'Tamboran' printed in the middle, surrounded by numerous smaller arrows, also pointing downwards. In another, 'Tamboran' is printed with the word 'BOO!' emphasised in the middle of it. Another, states, 'Tamboran is not TAMBoreing' [referring to boring holes. Other drawings designate their hatred towards fracking more generally, with phrases such as 'frack off frackers', 'frack the frackers', 'we hate fracking', and 'for fracks sake' (Figure 4.8) A note might be made at this point about the relationship between the word 'fracking' and the word 'fuck'.
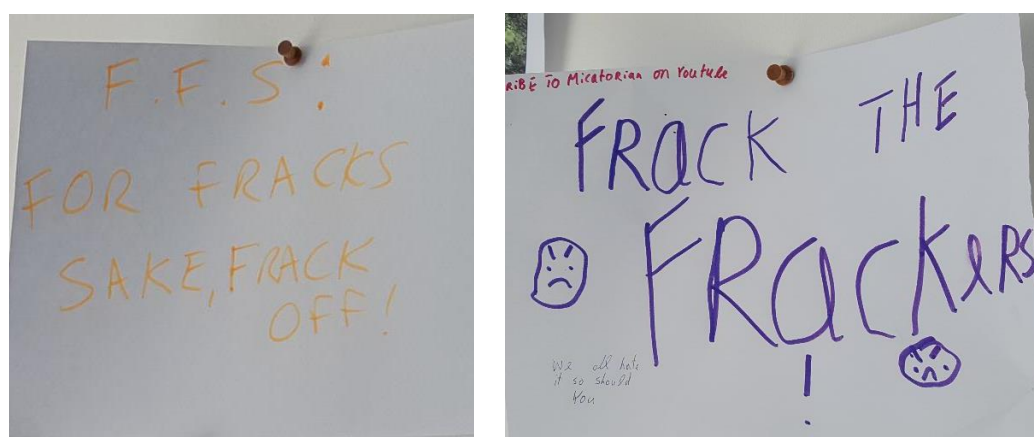
Figure 4.8 Anti-fracking drawings

The word, 'fracking', is similar in sound, when spoken, to the word, 'fucking'. It also bears a visual resemblance when written down. As illustrated in the above examples, 'frack' is used in place of the word 'fuck' in phrases such as 'fuck off', 'for fuck's sake', and 'fuck the frackers'. There are numerous other instances of the campaign using the word 'frack' to stand in in this way. The backdrop of the dance performance, *My Farm I Adore*, is a large hand-painted scene of hills and trees with two signs at each end. One, painted onto a tree, says 'NO fracking Way!'. The performance finishes with the children unfurling a large poster with 'FRACK OFF!' printed across it in large black lettering (Figure 4.9). Posters and road signs also play on the similarity, with one that I saw frequently stating: 'STOP FRACKING ABOUT NOW'.

Figure 4.9 *My Farm I Adore* (Tahany Academy 2012) ends with performers unfurling a banner reading 'FRACK OFF!'

Billig describes how humour 'provides a socially accepted means of breaking taboos' (2001, p.268). When used by campaigners, 'frack' is used playfully to say 'fuck', a way of using the more aggressive term, but circumventing the normal social taboo associated with it. This becomes clear if we imagine the young performers unfurling a banner which read 'FUCK OFF!' instead of 'FRACK OFF', or indeed, swapped frack for fuck in any of the instances mentioned above. Each statement would appear immediately more aggressive with the use of the word 'fuck'. The playful manner in which it is used, however, neutralises the overtly aggressive force of the word while still retaining some

of its affective power. When 'frack' is attributed to the agency of the oil and gas industry, it takes on a different sense of threat and aggression.

Maura relayed this to me when she told me how she first heard that the local community wanted to have a meeting about fracking: 'Wanted to have a meeting about fracking – I actually was – the word was, it was an extraordinary word, because immediately it was emotional and it was a bit like, very like a swear word of course'. The word in its verb form is used by campaigners to indicate an aggressive agency on behalf of the shale gas industry. Cian stated that 'the companies were straight with us – they wanted to frack us'. When discussing a conversation he had with someone in the industry, he reported, 'he said we have to find a place in Europe, frack the life out of it and see what happens. And if it doesn't work out, we can stop. It sounded like a great idea, just find a corner on the edge of Europe and frack it and see what happens'. Paschal spoke about "Hands off our Rocks' signs made by campaigners - 'when they attempted to frack in Belcoo there was signs on every house'. When on the drive through north Leitrim with Paschal, he pointed out areas where fracking had taken place and was proposed to take place, saying, 'half way between where they did frack and they are going to frack'. Maura discussed the role of EPA regulation in the fracking process: 'actually these guys could, in theory, frack at the exploration stage under no or very little regulation'.

The link between fracking and violation will be explored in more detail in Section 6.2.3. At this point it might be briefly noted how the fucking of fracking is opposed to the love-making of Love Leitrim. Each subject position relates to a different relationship of power and control, with fucking/fracking corresponding to the control and agency of the industry and government, and love making corresponding to the control and agency through the consent of the local community. It should be made clear here that this affective opposition between loving and fucking will not be taken for granted on merit of its assertion by campaigners. The local community also have an interest in controlling and exploiting the land for sustainable energy and tourism – just because it is framed as a loving relationship does not mean it does not deserve further scrutiny. The discussion chapters will explore these ideas further, considering relations of power and control over the meaning of the land, alongside issues of consent and violation. For now, it should be noted that the identity of the hated other characterises and marks those who threaten the community.

Another way that hate is figured is through the dilemmatic tension between Leitrim and fracking (Wetherell 2014; Wetherell et al 2015). The figuration of the dilemma holds two ideas in opposition 'constructing the possibility of a back and forth dialogue between "on the one hand" and "on the other hand" (Wetherell et al 2015, p.61). The dilemmatic opposition between fracking or Leitrim is patterned throughout campaign materials, making its way onto t-shirts, hand painted protest signs, event posters, website photographs, and position statements (Figure 4.10). The dilemma presented is: "if on the one hand you love Leitrim, then you must hate fracking". Leitrim is replaced with other positive things valued by the community like farming, fishing, music and football.

Some of the instances of hate do not overtly use the term, instead substituting it for a word like 'ban', or 'not', or juxtapositioning the loved object in dilemmatic opposition to the hated object, as illustrated in Figure 4.11. It is important to note that there is a degree of conscious management of the interpretative repertoire of emotions involved in fracking. Minimising the use of hate serves a political function here. Hazel, for example, explained to me that a musician objected to the 'Love Music – Hate Fracking' t-shirt 'because the word hate was in it'. She went on to say that 'No can be very strong and people don't like to be told no […] so you just kind of have to come around it in other ways'. This might explain why 'Love Leitrim – Hate Fracking' occurs relatively less frequently than the other iterations outlined above. Removing hate from the repertoire of affective interpretations relating to fracking functions to limit the emotions available for the community to take up. This is not completely determining – hate does show up from time to time in talk and actions relating to fracking.

Figure 4.10 Examples of Love Leitrim's Love/Hate dilemma.
Source: loveleitrim.org

Figure 4.11 Examples of Love Leitrim's Love/Hate dilemma using
'not' or 'or' instead of 'hate'. Source: loveleitrim.org

4.3.2 Disgust

Feelings of hate in relation to fracking also emerged through the repertoire of disgust.
Disgust is characterised by talk or feelings about fracking which focused on revulsion.
Sarah Ahmed expands on Charles Darwin's definition of disgust as 'something
offensive to the taste', stating that 'disgust reads the objects that are felt to be disgusting:
it is not just about bad objects that we are afraid to incorporate, but the very designation
of "badness" as a quality we assume is inherent in those objects' (2014, p.82). She goes
on to explain that:

> The question of what "tastes bad" is bound up with questions of familiarity and
> strangeness: here, the proximity of the bodies of others is read as the cause of "our
> sickness" precisely insofar as the other is seeable and knowable as stranger-than-
> me and stranger-to-us in the first place (ibid., p.83).

While fracking is not a body *per se*, it can be read as a figure of the other with the potential to contaminate the individual or community. This is clearly the case in a talk given by a campaigner at the No Fracking – Not Here Not Anywhere theatre event Manorhamilton. This event, organised by AFRI, combined a theatrical performance of the play *Aillilú Fionnuala* by Donal O'Kelly with a questions and answers forum involving local anti-fracking campaigners and campaigners visiting from Spain. During the talk, the speaker referred to fracking in terms of 'disease and symptoms'. The disease was described as a reliance on fossil fuels with identifiable symptoms such as 'tax breaks for shale'. The EPA study was referred to as 'an ailment', the 'cure' for which was to 'cut out the illness', achieved by 'voting out the government'.

Fracking is imagined in bodily terms of sickness and excision. The distinction between self and other is used to designate who is good (the self, communities and politicians who are 'onside') and who is bad (the EPA, fossil fuel companies, the communities and politicians who are not 'onside' and who are 'cut out'). This follows Ahmed's opposition between familiarity and strangeness outlined above. In response to the speaker's presentation, an audience member stated that fracking is 'a very emotive subject' before asking what the alternative was. The speaker responded by stating 'fracking is such a monster it is enough to say no', which was followed by a round of applause. As monster or disease, fracking is represented here as something unfamiliar and strange – separated and apart from the familiar self. It is also interesting to note how one of the strategies mentioned by the speaker – 'make it politically toxic' – weaponizes the emotional experience of disgust, turning it back on its perceived source, the government. In this way, we can see how affective practices can be utilised and managed to serve particular purposes. Affective responses are not mechanical reactions beyond or unconnected to rational planning but interwoven with them.

Disgust emerged in other instances of my research. Kenneth described a trip to his family in Pennsylvania where he visited communities living with shale gas drilling. He spoke of the impact of sound – ''[They] brought me to compressor stations – they're huge, the noise of them!'. The Fractured Thinking exhibition included a visual marker of disgust amongst its pieces. The *Frack Test* series of exhibits consisted of white expanding foam oozing between layers of glass (Figure 4.12). According to the artist statement, the exhibition 'distils across varying scales the causes and affects of risk and uncertainty that occur at the fragile interface of humans and nature'. That 'this fragility

and uncertainty is nowhere more disturbingly encountered than in the process of 'geological fracturing' for the purpose of extracting gas'. We can see this dynamic contrast between human and nature in how the clean, transparent, symmetrical and familiar sheets of glass contrast with the bulging foam as it leaks from between the layers. These pieces might be read as expressing how fracking fluids travel in unexpected ways when pumped through layers of rock. As the artist statement describes it, the works 'dramatize how pressurized liquid pollutants might travel, and pose a threat, to rock strata, water aquifers and surface life-forms exposed to its unpredictable affects'. The "natural" sedimentation process of rock is disrupted by the unnatural or artificial process of fracking – moving and shifting the layers as it proceeds.

Figure 4.12 The *Frack Test* series of exhibits with contrasting glass and foam.

On an even more literal level, the expanding foam looks disgusting, resembling some kind of unidentifiable sludge, particularly in contrast with the clean sheets of glass. An important point to note here, is how disgust is not necessarily an emotional response characterised entirely by revulsion. Ahmed (2014, p.84) describes the 'contradictory impulses of desire and disgust' governing the affective relations of being pulled or repelled by something.[37] Here, what is disgusting is openly exhibited in a way to pull people towards the exhibits. The disgustingness of fracking needs to be displayed and

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[37] Julia Kristeva also famously describes the 'vortex of summons and repulsion' characteristic of abjection, her psychoanalytic theory of identity formation and differentiation (1982, p.1).

expressed so that the community can know about it. Disgust is accompanied by desire in so far as the sculptural pieces are compelling – drawing the audience towards them. As social constructionist theorists of affect might say, without motivation to pay attention to certain objects, we wouldn't care to recognise and be opposed to them when meeting them again in another context (Shuman and Scherer 2015).

Smell was another sense through which disgust was made manifest in talk about fracking. Dennis spoke of his intense reaction to fracking fluids being sprayed on roads in the US, 'I tell ya, the whiff off it, it's just like – it's serious that you're allowed put this stuff on the road'. Kenneth, still speaking about his visit to the US, described a house served by well water which had pipes coming out of the ground to vent off gas – 'and the smell of gas coming up! And the pollution of it!'. We can see the connection between desire and disgust again here. Not in the sense that the participants like the smell or want the smell, but in that they energetically describe the smell to me – it is clear in the way that they speak that this is an issue of note. The emphasis on the smell embeds the memory with salience, alerting the participants to potential contamination. The smells indicate something which is disgusting, but the emphatic manner in which it is described is also compelling and punctuates the conversation with affective valence that is not entirely negative. There is an element of excitement to each participant's voice as they describe just how disgusting these smells are.

Others described the effect that fracking was purported to have had on the bodies of people they had met or heard about. Maura described those she met on a visit to a community in the US. She told me that an 'unfortunate woman came to the door covered in a rash […] every now and again when the pipes were cleaned – she can't prove it, she's only an old woman – she gets this grey dust in her garden and she has a huge reaction to it'. She went on to describe: 'one guy was showing us – skin complaints were very common, respiration, and funny kinds of cancers are now appearing as well – one guy was showing us that for no reason he had lumps on his arm'. Paschal spoke of a story about an Australian community which encountered fracking where 'all the people were suffering from asthma' and 'a nurse who had been dealing with a fracker who had got covered in fracking fluid. And she tore the clothes off him and put him in a plastic bag and treated him and three days later she was in intensive care with multiple organ collapse'.

Hate is articulated through affective practices which characterise, mark, and embed negative values in those believed to threaten the community and the practices

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and values associated with it. The oil and gas industry, the government and its agencies are disliked for their perceived untrustworthiness, corruption, secrecy, betrayal, and callousness. While these charges might not be true and require further reflexive, critical examination if bottom-up participation is to take place, the community certainly responds as if it is. These feelings circulate through their talk, memories, feelings, and shared representations; imagining an other which threatens to destabilise their community and their cherished values. This unsettling is figured in part through the visceral iterations of disgust reported and through the word 'frack' itself, an important affective-discursive device. These affective dimensions form part of the 'doxa' (Wetherell 1998, p.400, see also Wetherell and Potter 1988) of meaning relating to fracking, incorporating a specific view of power and social order. 'Fracking' as a word affectively and discursively draws attention to relations of violation and consent and the different distributions of power each of these political configurations enact. The community attaches value to a specific "way of life" that fracking threatens to violate. The affective practices outlined here imagine a hated other and a loved self and their political ordering through relations of violation, and, as will be examined in Section 6.3.3, consent.

4.4 Anger

When participants spoke about responses to fracking, a pattern emerged where responses were grouped either side of a dichotomous line. On each side sat two broadly consistent subject positions from which people could emote and speak from. On one side – the side of the other – were angry, unreasonable, shouting responses. On the other side – the side of the self – were calm, reasoned, intimate responses. However, these positions are not entirely stable and are, at times, highly managed. While anger is something the campaigners put significant effort into suppressing, there are times, such as at a political hustings, when anger is welcomed. We will see as well how campaigners describe moments of intimacy whereby crucial negotiations occur with politicians in significant positions of power. Again, I would like to emphasise that what is reported by campaigners is not necessarily an accurate account of what took place, but a meaningful narrative that was conveyed to me.

4.4.1 Anger and Intimacy

Maura spoke of how her initial response to the anti-fracking community was quite conservative: 'I thought all this placards, roaring and shouting was dreadful – I'd have nothing to do with it'. She told me about her initial encounter with campaign meetings which she described as 'chaotic' and involving 'a pretty aggressive view that the way forward was direct action […] downfall of the establishment'. Shouting, chaos and aggression are aligned with a seemingly unthinking approach towards direct action with a broader aim of bringing down the establishment in general. Hazel shared the view that some people jumped straight to aggression in their responses, stating that these individuals 'are just straight in with the in your face and the shouting and roaring'. Paschal made a similar point when he mentioned that 'the first people to notice this [fracking coming to Leitrim] were what you might call or what somebody once upon a time might have called hippies'. The implication here is that this group of people are not to be taken seriously in their views about fracking because they will respond oppositionally to things, regardless. This notion is underlined by Paschal, when he remarked that you are less credible 'if for ten years you've been climbing up trees in, say, Westport and protesting'. The identity created here is of those who respond aggressively to fracking and who are motivated by a general desire for the downfall of the establishment rather than the more reasonable ending of fracking. This identity incorporates a subjective position from which people can emote from (Wetherell 2014, pp.90-94; Wetherell et al 2015; McConville et al 2017).

Campaigners viewed themselves as being different from these more aggressive elements of the campaign. Maura said, 'we had the status – respectable if you like, we weren't roaring and shouting'. She went on to describe the campaign's approach using terms such as: 'objective', 'establishment', 'professional', 'scientific', and 'facts'. Paschal echoed this when he stated 'we were very lucky in that in our campaign we had people with credible academic qualifications'. Linda spoke in a similar way, saying, 'I'm a boring old scientist, got as much information as I could – universities, peer-reviewed, researched and then I made my decision and said no, absolutely not'. The calm, reasonable and non-aggressive campaign becomes figured as an identity in contrast to those who engage in 'roaring and shouting'. The term 'campaign' is opposed to 'protest', with the former connected to calm and the latter to anger. Campaigner and protestor become identities with normative attributes that individuals seek to adhere to

or avoid. Commonly, amongst those I spoke to, the campaign was delineated as the calm self and protest as the angry other. This was strategic; campaigners felt that a calm approach would more likely bring about the end of fracking.

This was further illustrated at the press conference held by Concerned Health Professionals of Ireland. This event, chaired by a general practitioner, was held across the street from the Irish Parliament and drew several prominent politicians who were opposed to fracking. The event involved a presentation about the dangers of fracking which the chair, I noted, emphasised was 'good quality information'. This contrasted with what he called 'the tree hugger mad stuff'. This press conference was an opportunity for the campaign to present a seemingly objective and impartial side to the anti-fracking movement, marked by the scientific credentials of the health professionals speaking. Still, however, the occasion returned to issues of emotional relevance such as fear, annoyance, love, fun, and anger. A retired public health doctor spoke of how 'clean safe water is a gift. I marvel at the beauty of water'.

Elsewhere, aggression was described as 'counter-productive' (Cillian, Paschal) and, as such, should be avoided. In its place should be a calm, reasoned intimacy. Paschal remarked that 'some people just want to shout at them [politicians] and abuse them. Others will talk to them, sit down with them and treat them as human beings […] we have used this approach […] extremely satisfactory […] treating politicians as humans'. As humans, their emotional dimension is recognised. Dennis described how protest could serve to alienate certain people uncomfortable with the idea of protesting: 'to them protesting wasn't their thing. It's difficult for some people – they don't want to be seen to be protesting'. As a result, an explicit distinction was made at the level of group identities: between the campaign and protestors.

Paschal explained this distinction:

> We would see ourselves as a community group. We would not see ourselves as a protest group. We are a community-developing group: we're developing walks, we're developing community facilities like the community hall, developing tourism plans.

Cian attributed an affect of anger to those who protest, but in less negative terms: 'this isn't a protest movement. That's the point. We're the campaign, and we're also local, but the local people, when this comes here then you have the anger'. The anger

attributed to the protestors is described as being latent, sitting just below the surface waiting to bubble over and not quite as unjustified as that described earlier.

> One of the things we noticed in Belcoo. People in Belcoo weren't attending meetings. But we had had two or three years to talk to people […] When that threat came at five o'clock in the morning, no consultation, no nothing – you can't do this with consultation – the people just all of a sudden rose up.

Here, an overlap begins to emerge, where aggression and anger are not wholly dismissed by the campaign. Angry responses are figured in the above section in terms of a rising or revolution, something which has positive connotations in Ireland and is used by the campaign to foment support. Anger does have a place within the resistance movement to fracking, so long as it is managed.

Cillian spoke about the screening within the campaign of a film called *Disobedience*:

> Came across *Disobedience* – about effectively using civil disobedience. We had a night showing the film and inviting people along. It's a short film – so we showed it and followed it up with a Q&A and discussion. About 20-22 people attended. Some wanting to know more about fracking, others because of the event which happened last year across the border in Belcoo. People wanted to know how do you protest without getting into trouble with the law, other people just came along to discuss fracking itself. It was a good turnout and great discussion.

Alyx, describing the event, said that 'the two guys [who organised it] managed to get this lovely vibe there'. Cillian explained that the film demonstrated that 'there is a fine line between civil disobedience and aggressive protesting', a line which Love Leitrim tries to manage. Cian recounted a story of managing this anger during the protest at Belcoo:

> And there was one evening I was there, I wasn't a marshal, the marshalling was being done locally by the people who were local to the area […] And a group of guys arrived and obviously they were searched by the police – there was a lot of police, a huge police presence there […] But there was a group of guys there, about 10 or 15 – maybe 10 let's say – and they approached some of the marshals and asked the marshals to move the police. Obviously, there's an issue about policing in Northern Ireland.[38] And the marshals said, "oh there's [Cian], go annoy him". I approached, and this guy – a big burly brute of a fella – he sort of came up and he

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[38] The issue about policing in Northern Ireland refers to the tension between the Police Service of Northern Ireland (PSNI) and those in the Nationalist or Republican movements who view them, historically, as organs of an occupying state, and as colluders with Loyalist paramilitary organisations during the Troubles.

says, "are you involved in what's going on here?" and I says, "I am". And he says, "move them police". And I says, "Yeah we asked the police to move and they're here the same as we are" […] And then he said who he was, he said he was the 32 Counties Sovereignty Movement[39] […] and we had a confrontation and I said, "you're welcome to be here as long as you sign up to non-violent direct action – you know, respect the police, respect the local community" […] Well he was livid with me and I got, we were very angry. He said that he was bigger than the anti-fracking, that the 32 County Sovereignty movement was bigger than the anti-fracking movement. And I said that the anti-fracking movement was bigger than the 32 County Sovereignty Movement […] And he said that four or five times and I said that four or five times and I walked him back into the crowd – the hair was standing up on the back of my neck and we ran them, and they never came back. And we had the same problems in our meetings at that point – when people were angry.

The significance of the involvement of the Republican group, and the threat it posed in terms of a return to Troubles-era violence, was examined earlier in this chapter in section 5.2.3. At this point, I wish to draw attention to Cian's attempt to define acceptable and unacceptable anger. The protest itself, with people gathering at the proposed drilling site, was acceptable; anger relating to a confrontation with the police was not. Cian went on to describe the organisational process which took place within Love Leitrim after this event which further sought to distinguish between acceptable and unacceptable anger. 'We wanted a mandate for direct action, but we wanted to be very clear on what that direct action meant […] So we put forward a proposal and a set of rules that people could follow and we voted on it'. At the vote, a number of people were unhappy with where the line of acceptable anger was being drawn:

> There was 70 people at that meeting and there was about 10 or 15 people at that meeting that wouldn't agree to that, but they stood up and they left. There was seven or eight local councillors at that meeting and that meant that they were happy then to be part of the campaign.

Having local councillors – elected representatives of local government – join the campaign was seen as a strategic success. 'You've got the elected representatives are part of the campaign, and it's on the basis that it's a community campaign and it's not a political campaign' (Cian). The management of anger becomes pivotal to the strategy of Love Leitrim in bringing local and national politicians onside, and ultimately in

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[39] The 32 County Sovereignty Movement is an Irish Republican group created in 1997 by a breakaway group within Sinn Féin. John Horgan (2013, p.185) writes that the group 'is widely believed to be the political wing of the Real IRA, a belief that is regularly refuted by 32CSM'.

working alongside them to achieve a ban on fracking at a county level and at a national level.

During the campaign, a general election was called by the Irish government, meaning that local TDs in Leitrim were looking for re-election. This gave the campaign leverage, as fracking was such an important issue for the community. Love Leitrim decided to ask each candidate to sign a pledge to support a ban on fracking if they got elected. But rather than ask each individual privately to do this, the organisation decided to set up a hustings and have the passionate community confront the candidates face to face. The activation of an intimate, affectively-charged context proved successful:

> Nobody wanted to go to a hustings about fracking without having signed the pledge. That was amazing, that worked. Because everybody was genuinely against and worried and concerned about fracking and disgusted with what was going on with the EPA [because of its controversial study] it was impossible for them to go to that hustings and it was impossible for them not to turn up at that hustings (Cian).

The affective atmosphere at the event had an impact. Cian described how 'that hustings turned out to be an awful, an awful mess. People were shouting and roaring […] the non-political aspect kinda disappeared […] it was a very poor hustings in that it turned into a row between different anti-fracking groups'. But it was this angry atmosphere that persuaded politicians of the seriousness of fracking and what it meant for the local community. As Cian explained, 'the outcome of the hustings was perfect, because it focused the politicians' minds and they all signed the pledge'. This allowed Love Leitrim to contact politicians after the meeting and pressure them to follow up on their pledge. At this stage of the process, the campaign no longer values or encourages anger but affective relations of intimacy, friendliness, and reasonableness.

Cian described to me the key moments leading up to the agreement with the newly elected government to ban fracking in Ireland. I want to focus on the affective practices involved in this process – how anger is replaced by friendliness and intimacy. It is important to remember that this is Cian's construction of events, and as such, does not constitute an objective report of what happened. I'm less interested in the specific series of events, although they are important to the wider story of how fracking came to be banned in Ireland. I'm more interested in how the interaction between Love Leitrim and government is figured affectively. Cian described himself as being closely involved

in negotiations between the campaign and the government to ban fracking. He outlined what happened:

> I said, "look it, the only person that can bring this forward is, is you Tony[40] – you're in government". At that stage, it was becoming clear that it was going to be a minority government, and we were talking about that situation and how the government was going to work and a new type of Dáil.

There are two things of interest here. The first is Cian's use of the phrase 'look it'. This is a colloquial Irish phrase with a fluid meaning. It can stand in as filler in a sentence, be used as an 'attention-grabber' (Hickey 2015, p.27) to indicate significance in what follows it, or to evoke a range of inchoate moods. There is little scholarship on the phrase, aside from Hickey (ibid.) who argues that it is used to 'grab the attention of another participant in discourse or to highlight necessity or obligation'. While this rings true, I feel there is more to "look it" than this. A blog post by Lovin.ie (Harbison 2018) provides a plausible account of the variable meanings of the phrase: as an answer to a rhetorical question, as a way of grudgingly accepting your mistakes, to convey appreciation or disgust, to look back with satisfaction on an event, and as a positive reinforcement when there is no hope left. This final definition comes closest to the meaning I recognise in Cian's use of the phrase. 'Look it' in this context draws attention to what follows while conveying a sense of informal pragmatism, something like: "look, we are where we are, we may as well make the best of the situation". The use of this phrase can be read as an indication of the intimacy between Cian and this TD. Again, that is not to say that this intimacy necessarily took place, but that Cian describes it as such – an affective practice in and of itself.

The second issue of note is the setup of the government at this time. Following the general election in February 2016, a coalition led by Fine Gael and nine independent TDs formed a minority government with the formal support of the largest opposition party, Fianna Fáil, on matters of confidence (motions of confidence) and supply (budgetary votes). The Fine Gael minority government was 30 seats short of an outright minority and as a result needed support from other parties to pass legislation. This also meant that cross-party cooperation was needed for the passing of Bills and that amendments and suggestions from diverse sources outside of Fine Gael would have

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[40] Tony McLoughlin, a Fine Gael TD for Sligo-Leitrim.

genuine weight in the development of legislation. In the case of fracking, the broad local support across opposition parties for a fracking ban meant that Fine Gael would be under more political pressure to listen to campaigners. The political environment made government politicians more open to the approaches of Love Leitrim than was the case prior to the 2016 election. As Cian put it, 'we have a unique position in the Dáil because we have a parliament-led Dáil'. Rather than actions on natural resources being led in private by the civil servants within the Petroleum Affairs Division, they are being led in public by politicians. This changed political context had an impact on the affective relationship between campaigners and government. Antagonism gave way to pragmatic intimacy. Cian continued:

> And I went away anyway, and I had asked the lads [Fine Gael politicians], I said, "look it, I'm here to ask ye, we're asking Sinn Fein, we're asking all the other TDs as well". And I got a phone call then, or an email, about a week or ten days later, and they came and they said, that they wanted to do something, and they said, "what about a moratorium?" And that was pure naivety, because they, I said, "look it – a moratorium, we already have a moratorium. Ok, it's not an official moratorium, but there's a moratorium there" […] They were a bit annoyed with me and they said "What, write, what is it that you want." And they asked me to write it down, you know? And at that point, it was just, I wasn't able to talk to other people because this was me having a private conversation with them, you know? And I didn't speak to too many people about it, I spoke to a few people about it. But, within an hour or two, I wrote down the head of that Bill, which was, "To prohibit the exploration and extraction of petroleum from shales, tight sands and coal seams from the Irish onshore and its internal waters". So that day we agreed to do that, and they said "Ok, we'll do that". And I couldn't believe it, I was delighted to think that they'd do it.

This is a remarkable passage for several reasons. First, it figures a close and personal relationship within which the negotiations of the (ultimately successful) Bill to ban fracking took place. This was not a technocratic decision based on objective scientific data (however much this influenced the actions of campaigners or other actors), but an informal process punctuated by affective relations such as intimacy – 'private conversation' – anger – 'annoyed with me' – and joy – 'I was delighted'. It is important to remember that this conversation with Cian might not entirely reflect what actually took place. While I have no reason to doubt his account on a level of honesty, it is possible that details have been forgotten or misremembered or changed to fit a narrative, or that he incorrectly attributed thoughts, feelings or motivations to others they did not have. Issues of veracity, alongside fairness, equality and justice, can and should be introduced into these discussions throughout the engagement process. These evaluative

instruments (Jasanoff 2003b, 2010) are crucial for bridging the scales of science and local meaning. However, this research is not the place for evaluating the veracity or fairness of these claims. Right now, I am interested in uncovering the ways in which affect is practiced and how it contributes to the anti-fracking imaginary. This imaginary is no less subject to critical and reflexive scrutiny than a pro-fracking agenda with its values of economic prosperity, energy independence, and accompanying risk/regulation imaginary (Kuchler 2014).

I think that we can take from Cian's report a sense of the affective register within which these negotiations took place. Dealing with issues of emotion and affect is always a blurry business. However, using the framework of affective practice allows us to see the fuzzy outlines of emotional relationships – in this case intimacy and reasonableness. Again, this can be identified in how Cian uses phrases like 'look it' and the figuring of the narrative so that information is conveyed using one-on-one conversations. It certainly stands in stark contrast to Cian's talk of corruption (see section 5.1.2) from an earlier conversation I had with him, a year previously.

Anger as an affective practice is carefully managed by campaigners. That is not to say that they are in complete control of it, as Cian's confrontation with the 32 Counties Movement member illustrates. However, there does seem to be a keen awareness of how different emotions shape Love Leitrim's relationships with others. Anger is opposed to calm; discursively, in how members describe and position themselves and others, and organisationally, by clearly defining what acceptable and unacceptable anger is and thus who can be included and excluded from the group. Acceptable anger is welcomed when it puts pressure on politicians to conform to the expectations of Love Leitrim, while intimacy and reasonableness are encouraged when these affects are more useful. Again, this is not entirely within the control of Love Leitrim – the atmosphere of intimacy requires a very specific set of political and institutional circumstances for it to flourish and be effective. Anger, calm and intimacy fall into shape through the practices that Love Leitrim engage in – feeling, encouraging, positioning, and interpreting these emotions, and further, talking about them as in Cian's accounts to me.

This chapter has explored the various affective practices relating to a broadly negative imaginary of fracking. For aesthetic purposes of symmetry, these practices have been grouped under the heading of 'Hate'. These practices overlap and interweave with each

other and are also closely tied to the positive affects in the next chapter. Examining the doings, sayings, and representings of affect has uncovered shock; fears of unstoppable growth, annihilation and contamination; traumatic memories of the Troubles; a hated other and technology of fracking; and the management of anger to produce intimacy. These affective practices imagine a community unsettled by the arrival of fracking across temporal, spatial and social scales. Fearful futures are imagined alongside painful pasts, spaces are disturbed and fractured, and identities are privileged and denigrated. Values, norms and relevance are produced through this process, resisting certain imagined futures and directing towards others. Feelings of powerlessness and hopelessness mark a struggle for agency. The next chapter will examine in more detail how the community in north Leitrim have responded to the unsettling effects of fracking, where affective practices produce new identities, norms, and agency in imagining an alternative future. 'Love Leitrim' will explore what alternative future is imagined, what kinds of order this brings, and what affective practices are involved in the process.

5

Love Leitrim

> We did it by engaging the community, through participation and empowerment. We are proud of where we are from. We are proud of Leitrim and Ireland. We wanted to reflect what Leitrim was about, farmers, fishermen, artists, professionals, parents and about sustainability. This is about Ireland. We knew we wouldn't win unless we brought everyone along. We understood that we had to convince everyone. We knew that we had to be non-political. We had to win over hearts and minds
>
> —Love Leitrim Campaigner, *Longford Leader* (2017)

5.1 Introduction

This chapter examines the broadly positive affective practices involved in the anti-fracking imaginary. The separation of positive and negative affective practices is an artificial distinction employed to organise and group emotions. The distinction is not entirely arbitrary. Positive or negative valence is meaningful and will come into play when interpreted in the context of sociotechnical imaginaries. The chapter will explore practices relating to love, positivity, and enchantment, and is divided into sections accordingly. We will look at how these affects work to temporarily settle and imagine a range of identities, values and meanings, producing agency during the process. The chapter will demonstrate how love, positivity, and enchantment open creative spaces for the imagining of alternatives to fracking. Fun, resilient, and loving campaigners, a deeply loved land and community, alongside hope and positivity drive, direct, and value the anti-fracking imaginary, generating unique orderings of time, space, and society. The politics, and potential for engagement, of this ordering will be examined in Chapters 6 and 7.

'Love' investigates the identity of lovers of Leitrim and what this means in terms of how the collective self is understood, performed, and evaluated. It details how this shared subject position of lovers imagines a community in solidarity against fracking. This section also looks at what it is that the community loves and how this is articulated through talk and shared emotional experiences. 'Positivity', the next section, describes the importance of positivity and fun as a kind of energy for campaigners, how it keeps them resilient and produces hope for the future. The final section – 'Enchantment' – looks briefly at moments of enchantment and mystery that I encountered during my research trips. They are rare but vibrant and intense, indicating that meaning can retain power through intensity as well as through pattern and repetition.

Figure 5.1 'The Heart on the Hill' art installation on Benbo Mountain above Manorhamilton, County Leitrim. Photo credit: Joseph Sheerin

5.2 Love

5.2.1 Loving Campaigners

One of the ways in which love of Leitrim is practiced is through the production of the identity of those who love. This is most clearly evident in the title of the campaign

group: Love Leitrim. The name crystallises a core function of the group – gathering together those who love Leitrim. Being a part of this group is an identification with Love Leitrim's opposition to fracking and celebration of what is loved about Leitrim. Hazel explains:

> I remember when we were trying to discuss Love Leitrim and the name of it, obviously Leitrim has to be in it because it's going to happen here and it's a sum of parts – you know, give people that sense of loving, I mean the fishermen love their lake and love their fishing, musicians love their music and there is music you know and there's culture yeah you'd need to see it, you need to see it, it's not just you know… yeah.

As Hazel remarks - one of the functions of the chosen name was to 'give people that sense of loving'. Love Leitrim encapsulates love, not just through an abstract notion of love, but through those who do the emoting – fishermen, musicians – and the object of their love. Hazel hesitates as she explains what love for Leitrim is. It is beyond easy description: 'you'd need to see it, you need to see it, it's not just you know, yeah'. Together with its love heart logo, Love Leitrim's simple name distils this complexity into a single group identity: those who love Leitrim.

The production of an identity of "loving campaigners" is important in terms of understanding how love as affect is practiced. Love, here, involves not just raw feeling, but those who have those feelings. A pattern emerges throughout the data whereby this love is aligned with those who are from the area, or who are seen to be authentically tied to the area, such as the fishermen, noted above. In another example, Linda says, 'But you see, farmers have a love of the land, it isn't particularly good land here, but they could see what would come at the end of it'. Love for Leitrim is made authentic here in its connection to farmers – those who know the land and the area the closest. In *My Farm I Adore* (Love Leitrim 2014), the filmed dance performance of fracking's arrival to Leitrim, the central narrative focuses on 'a rural community led by its farmers standing up to the threat of fracking'. The normative sense of rightness and order is aligned with the farmer's love for the land – an important narrative construction drawing together identity, place and justice through the affective practice of love.

Participants spoke of the type of people who love Leitrim - those who 'loved the area, loved the landscape and the […] traditional way of life'; people who wanted 'to live a kind of a life that you couldn't live in an urban setting' (Maura). Paschal told me that

you would find a lot of people who have adopted this area because they have an appreciation of the surroundings that we're looking at at the moment – the lake, the trees around it, the lack of population, it's relatively undisturbed there's no physical obtrusions [sic] in the area, a few windmills over there and that's about it.

These remarks produce a particular identity – those who appreciate and love the qualities of Leitrim. At times, this sense of identity was expressed in more personal terms as participants described their own feelings towards others in the campaign. Hazel spoke about how she felt about others in the campaign: 'they're great people', '[X] is such a lovely guy […] just sound and solid […] a great bunch of people'. Linda said that there was a 'huge upside' to being part of the campaign, 'all the fantastic people I've met - [X], my neighbour who I'd never met, and [Y], are now really good friends'. This sense of community bonded together through love and love for Leitrim is a notable affective practice – performed through the doings and sayings of the campaign and campaigners.

Events and performances reinforce this identity, notably the Heart on the Hill installation. This art performance involved the lighting up of a heart on Benbo, a hill outside Manorhamilton in north Leitrim. Designed by a local artist and assembled by Love Leitrim, the installation comprised of a number of bright LED lights strung across the side of the mountain in the shape of a heart. It was also assembled for the Stony Woods festival in Kiltyclougher, an event commemorating the lives of people in the area who had passed away at a young age. It was also re-erected in subsequent years coming up to Christmas and to coincide with the celebration event marking the banning of fracking in Ireland. Cillian explained that the idea was 'to get it in a spot where as many people as possible could see it from the area of Manorhamilton'. The illuminated heart was designed to symbolise the community's love for Leitrim – creating a community of those who love Leitrim at the same time as it produced an affect of love. 'it just, it went down really well. It seemed to hit a note with the community,' explained Cillian, 'I think that's it because everybody who saw it felt the same way about it as such, you know, took a liking to it'. He went on to say:

Communities have their differences, but when they all agree on one thing it's always a good thing too, so to try and bring people together in a community, it's nice to have something everybody has in common that they like, as well as living here'.

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The *Leitrim Observer* described the event as 'a truly community effort' (Heavey 2016). The performance of the event as well as how it was talked about created a community gathered around love for Leitrim.

Particular attention has been paid by Love Leitrim to making the "lover of Leitrim" identity open and inclusive within the community of those living in north Leitrim. *Comhrá* (Irish for "conversation"), is an initiative set up by a subgroup within Love Leitrim to address what they perceive to be a marginalising effect within the campaign. Alyx, a lecturer, told me about the project. She is very aware of the kinds of disparities of power that can emerge during campaigns for social issues. Along with other members of Love Leitrim, she wanted to make the organisation more open and inclusive of locals' actual concerns. Alyx explained how 'big monster meetings in the community' were felt by some to be hierarchical and intimidating, with 'a lot of language people weren't sure of'. Inspired by the 'Lock the Gate' movement in Australia, the *Comhrá* subgroup set about meeting with the community on a door-to-door basis, asking them what they want for the future of their county. It is about 'the community discovering what it cares about' explained Alyx. This was in keeping with Love Leitrim's third organisational objective, 'which is to share and express what is loved about Leitrim – what's good about living here' (Alyx).

By going into the community, door to door, *Comhrá* actively sought to build a community of those who care about Leitrim. How Leitrim was to be loved and valued was an open question. Alyx describes the process as 'letting it just move, you know, or flow. Time to reimagine rural Ireland'. Rather than assuming what everyone wanted, *Comhrá* sought to let the people lead. Hazel described it in the following way:

> What are their concerns and what are their visions for their community and how would they like to see? Engage people again. Basically, what we want to do is just lock down the community that there's nobody left behind, and everybody's involved in a decision-making process of where we go from here.

Alyx explained that she didn't want to assume what other people wanted for the area. She made clear that her vision and the vision of Love Leitrim might not be shared by others:

> It could be a completely different thing than I'm thinking, it could be that, you know, it could be anything, all the older generation might be saying "ah no sure we have to

let this place go to hell, we should all move to Manorhamilton, we can't be living like this anymore, that's mad".

Love of Leitrim is shown here to be an active process, requiring work on behalf of Love Leitrim members to co-produce a community of those who love Leitrim and what they love about it.

The lover of Leitrim identity is a powerful mediator of the affective practices surrounding the anti-fracking imaginary – it encompasses a normative authenticity and sense of justice in how it is figured as local and aligned with figures such as the farmer or the fisherman. It is also shared through events like the Heart on the Hill, reinforcing a sense of belonging to a loving community. The identity is not entirely fixed, however. The humility of the *Comhrá* organisers in refusing to determine what love of Leitrim means allows for a certain degree of agency and freedom of choice. Loving campaigners are bounded together but what they love is relatively open, understood in terms of 'flow', allowed to 'move'.

5.2.2 Love for Children

Alongside the lovers of Leitrim, affection towards children and a connected desire to protect them arose in the affective practices of the anti-fracking community. This is visible in some of the videos relating to the campaign that I studied. *Sean Nós ar an tSionann – Love Leitrim* (Guckian 2014) is a seven-minute film made for Love Leitrim by dancer and choreographer Edwina Guckian. The film depicts children engaging in traditional Irish dance in various locations around County Leitrim, each one wearing a 'Love Music Hate Fracking' t-shirt. The lively music accompanying the video, together with the smiling and laughter of the young dancers points towards a sense of joy and playfulness. In seeking to express love for Leitrim (as alluded in the video's title), children are placed front and centre alongside the landscape as what is loved. Children provide powerful normative weight to the anti-fracking imaginary. In mobilising tropes of cuteness, innocence, and vulnerability, affective practices involving children provide clear direction for an anti-fracking imaginary.

This strategy is taken up in other videos. *Christmas Wishes for a Fracking-Free Future in Ireland* (Murphy 2014), put together by a Love Leitrim campaigner, is a short film featuring several children holding hand-drawn signs bearing their wishes for the

future. The film opens with familiar imagery of Leitrim's landscape accompanied by text which reads: 'Irish children have a different wish list for their future from Santa and from the Irish government'. This is followed by footage of Santa Claus walking towards a picturesque waterfall. The next sequence involves seven children standing in front of a Christmas tree, each holding a sign outlining their "wishes" for the future. These include 'I want to be able to farm like my family has before me', 'I want to play in beautiful landscapes that I love', and 'I want to protect the close communities that make us who we are'. The video ends with a slow zoom on a photograph of all children together with Santa. What is immediately striking is how unlikely it seems that the children came up with these wishes on their own. Each child ranges in age from about three to eight, but express wishes that are remarkably like those articulated by adults across the campaign. Aligning children with these sentiments arguably associates these wishes with the myth of innocence and authenticity of childhood desires (Giroux 1998).

We're Better Together (Love Leitrim 2016) features children throughout the short piece, focusing on a group of them cheering alongside the caption 'We're Better Together' at the video's climax. This is followed by what appears to be a woman with her child looking over a gate to green hills in the distance. A sign attached to the gate reads: 'NO $HALE GAS' attached to an image of a skull and crossbones and the phrase 'Dangerous chemicals'. Children feature again in *Frack Off!*, a filmed dance performance of the story of fracking arriving in Leitrim where all of the characters – farmers, animals, industry – are all played by young people under the age of ten. Children also feature in the events held by campaigners from awareness raising and celebratory events like St Patrick's Day parades to protests such as one in Belcoo, showcased on videos on Love Leitrim's website. Participants note when young people attend or enjoy events. When speaking about the Belcoo protest, Alyx noted, 'it was families, kids'. Linda described one event in the following way:

> One of the most fantastic evenings I've ever had, we walked up to the site there was total cross-community groups there Letterbreen band [Protestant] which would normally be out on the 12th, there was a Catholic choir from somewhere else, there was the kids, there was a priest and two ministers […] so they were all just saying prayers of thanksgiving and the kids were singing and the band was – it was just wonderful. For something as negative as this it has been great community building.

Having young people present marks a feeling of wholesomeness – as if children's happiness has a particular value that should be cherished. Cillian marked this out when describing responses to the Heart on the Hill, saying

> kids loved it […] The kids took a liking to it – saw it as something magical to see, something that size. Size of installation is 75m x 40m if you imagine a heart in that shape – it's quite a large thing. So, for the kids they were just amazed that it was there where it came from and all of this.

The presence of children and their families as well as their happiness is an important aspect of how love for Leitrim is navigated. It appears to indicate a sense that things have been done right: if children and families are present then the event is safe and wholesome. This provides a direction and normative value for the kind of future that this community desire – one in which children can be happy and safe.

I recognised this in my own ethnographic notes when visiting several Love Leitrim events. At the 'No Fracking. Not Here. Not Anywhere.' event in The Glens Centre, Manorhamilton I noted that 'on entering the theatre space I see kids everywhere', late reflecting on an atmosphere of 'openness and legitimacy'. At the celebration event for the fracking ban, I wrote:

> For a rural community "full of farmers" there are a lot of young people here – particularly children under 10. They have an energy and spirit about them which lifts the place. People smile as they observe them running about and playing. People throw balloons with them, fuss about them. Children race to their parents before rocketing off again. They bring energy and life to the space.

The involvement of children at the 'No Fracking. Not Here. Not Anywhere.' event further emphasises this point.

After a theatre performance of *Aillilú Fionnuala*, the Kidz from the Glen – a group of local children – sang an anti-fracking song entitled 'Stand Up for Ireland'. As the children performed the song, the crowd joined in, clapping and singing along with the chorus: 'we know the rock, we know the soil, meaning of our mothers' toil'. The lyrics align the children with romanticised notions of Irishness, expressed through tropic myths of sacrifice and martyrdom (Kiberd 1996). These simple but powerful emotive repertoires of what is to be cherished – nation, motherhood, sacrifice – are connected to children; their apparent vulnerability and innocence adding an extra layer of feeling and authenticity to the performance. The song itself was written by a father of one of the

children who performed. He explained to me that these feelings are real for him. He described a mountain behind his house which straddles the border of Ireland and Northern Ireland that he looks at daily and how it could potentially be fracked even in the event of a ban on fracking in Ireland. He linked the song to his child, remarking that 'he has to grow up and live here'. The parent said that local people know that fracking is not going to bring back their children from Australia or provide jobs. Love for children and fear for their future in the event of fracking are strong affective practices ordering the way the community makes meaning of fracking and how it imagines the future.

Hazel spoke about how important providing a sense of place for the community was for the campaign, going on to tell me that 'it is for the future of their children and grandchildren and we are really only here short term'. *We're Better Together* (Love Leitrim 2016) presents an image of young children drawing on a poster depicting Ireland with fracking pads and without fracking pads. It is accompanied by the caption 'For the sake of… their future'. Linda described the aim of Love Leitrim as being 'to maintain our pristine landscape our clean waters, indigenous industries of tourism, and farming. To actually grow those so that there will be employment for young people coming back'. The feeling of love for young people is connected closely to a feeling of sadness about a lack of opportunities for them in the area. Cian said 'there's no money here. All that's left is what's coming back. All the young people are leaving'. Linda explained ''We are missing an age bracket in the county. We all had to do it. Some go by choice, some go because they have to […] Really want to see sustainable jobs for the twenty-somethings coming back from Australia'. Hazel stated that 'Young people want to come home – working on rigs in Australia and Canada so prospect of jobs back home that's in "clean" gas – would like to come home to the jobs'. This notion of providing a desirable future for children is a powerful driver of the anti-fracking imaginary. It embeds it with value and orders it according to desires to protect children and provide them with opportunities. It is because the community cares about children that the issue of fracking matters.[41] The recurrence of affective practices relating to love for children patterns the imaginary, settling it, and giving it a particular order. When we come to the discussion on engagement, we will consider how this imaginary must itself

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[41] Jasanoff writes that 'when it comes to nature, human societies seem to demand not only objectively claimed matters of fact but also subjectively appreciated facts that matter' (2010, p.248).

be held up to critical scrutiny. Next, however, I want to explore how love is practiced in relation to place.

5.2.3 Love of Leitrim

What does Love Leitrim love? This is an important issue – a network of affective practices which help us understand what is valued by the campaigners. However, disentangling affective relations from their surrounding contexts is challenging. By their very relational nature they cannot exist without those contexts, but we must be able to analytically identify them in order to talk about them. To identify the affective relations between the participants I spoke to and the place they live, I have paid attention to notable talk about feelings towards the landscape, or Leitrim more broadly, and how it intersects with established practices of emoting. We can see how loving Leitrim spatialises the anti-fracking imaginary by producing a place under threat, and a space within which the community resides.

One demonstrable way in which campaigners emotionally interpret Leitrim is through a repertoire of love for a landscape that is pure, clean, and pristine. Examples of this patterning of affect occur frequently through conversation and in campaign videos and images. Linda stated: 'for me it was very much about, I suppose, environment and very much about because, em, sort of passionate about food and our clean green image'. Later, during the same conversation, Linda described one the drivers of the campaign being 'to maintain our pristine landscape, our clean waters'. Hazel observed that Leitrim has 'organic food, we've a clean environment, healthy'. She also stated that 'we have a clean, green, healthy environment'. During my drive with Paschal, he made a number of remarks about the untouched nature of the area: 'nobody lives up here […] we're very wild up here, very isolated […] the place is unknown here […] if someone is looking for somewhere that is pretty well untouched, they should come here'.

The Future for Shale pays close visual attention to the landscape and its value to locals. The video presents the greens, browns, hills, and trees of Leitrim's landscape, alongside a farmer explaining that 'this is the area now where they're talking about fracking' indicating what they fear will be lost (Figure 5.2). This is followed by pastoral shots of a farmer feeding lambs. In an interview with another farmer, the man says that 'it's not to get rich you come to this part of the country – it's a different way of life. It's

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peaceful and it's quiet'. Much of the imagery used by the campaign focuses on the areas of Leitrim which are not populated. Rather than choosing images depicting towns, housing estates or industrial parks, campaigners choose images of mountains, hills, and fields.

Figure 5.2 Leitrim as depicted in *The Future for Shale* (Glynn 2014).

In *We're Better Together* (Love Leitrim 2016), a Love Leitrim video calling for solidarity in the fight against fracking, these kinds of images of the Leitrim landscape are frequently used. The opening images shots consist of handheld pans across fields,

trees, hills, sky and clouds, alongside a rousing soundtrack taken from the movie *The Last of the Mohicans*. Visual attention is again paid to landscapes, trees, rivers, and lakes. One piece of text overlaid on screen used to narrate the video states 'A local group with a national aim […] Reminding what's important', moving from a sweeping pan of blue sky and slowly rising hill to footage of traditionally-dressed children bearing signs that say, 'we pledge to cherish our environment' (Figure 5.3).

Figure 5.3 Leitrim as depicted in *We're Better Together* (Love Leitrim 2016).

These are the images associated with love of Leitrim – evoking mythic Romantic conceptions of the West of Ireland as untouched by modernity (Gibbons 1996; Lloyd 2008). Brereton (2006, p.409) writes of the romanticised depictions of rural Ireland in visual culture. He states that 'the dominant myth visualised in Irish cultural narratives is by all accounts a pastoral one which foregrounds an almost Arcadian evocation of the happy swain close to nature alongside the cyclical rhythms of the earth'. This myth has been operationalised for political ends; by British colonists as a means to justify their guardianship of the "primitive" Celtic Fringes (Lloyd 2007); as the 'authentic Irish culture' sought by Anglo-Irish revivalists to support their vision of a distinct and separate nation from Britain (Castle 2001, p.11), and subsequently by the Irish state itself from the 1920s onwards where Irish people were 'living the life God intended them to live by being at one with nature' (Brereton 2006, p.409). The discussion chapters will examine how these images are operationalised by Love Leitrim and what distributions of power this produces.

Beauty is an important part of the interpretative repertoire through which campaigners make sense of and love Leitrim. On our drive together, Paschal describes Leitrim as 'spectacularly beautiful'. *Sean Nós ar an tSionann – Love Leitrim* (Guckian 2014) draws a parallel between dance and what is loved about Leitrim. In the notes accompanying the video on YouTube, Guckian writes:

> You can tell a lot about a person's character by watching them dance; every step, every movement, every beat, every pause radiates their mood and personality. Just like our county...the wildness, the beauty, the people, the accent, the simplicity, the humour, the music, the landscape, the history, the welcome. Leitrim… Not just a county but a way of life!

The video itself features children dancing in various locations around Leitrim, beside picturesque hills, waterways, fields and towns. Presenting the dancers within this context creates an aesthetic symmetry: the innocence and beauty of the children converges with the simplicity and beauty of the setting. A sense of protection spans this convergence – participants frequently spoke of how they felt a need to protect both the environment and their children. Beauty becomes an affective site – charging the imaginary with value and driving it towards a future whereby a certain state of affairs ought to be maintained.

I'm also interested in how beauty is figured through a sense of pride – there is an affective sense of ownership in the connection between Leitrim's beauty and those who live there. Hazel articulates this sense of pride and ownership in a number of exchanges in our conversation. She explained why the name Love Leitrim was meaningful by relating it to how others viewed the area – 'in the very beginning I remember my youngest would say to me "how come everybody in Leitrim knows Dublin but not everybody in Dublin knows Leitrim?"' She went on to say that:

> it did work – a lot of people didn't know Leitrim, didn't know what we have. And it's so good at times I don't particularly want to be telling people about it either – like you know we really really have clean, green, healthy environment and it's the way it should remain.

Pride in Leitrim's beauty emerges through relationships to others – even if it is ambivalent at times. Notably, Hazel articulates the value of Leitrim's beautiful environment as 'what we have', indicating that it is understood as something under collective ownership. She explains in more detail:

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> it's lovely when you come back in through Manorhamilton around the time the daffodils are coming up to know you've the grass verges and they're around the roads – you've a sense of ownership, like "you've planted them". And the kids have a sense of ownership.

As Hazel goes on to say, 'the big thing for the campaign is just to give people a sense of place and that it is their environment and it is their air they're breathing, and it is their ground they're standing on'. Beauty as value is ordered by relations of ownership – those who live in Leitrim ought to control what happens there due to their temporal and spatial proximity to it. It is the community who have lived there all this time and put their work into making it look beautiful. As such, they should have a say in what happens there. The spatial imaginary is thus ordered through particular relations of power which are threatened by the arrival of fracking. This affective interpretative repertoire of pride is articulated within a broader discursive framework of tourism, functioning as a way to negotiate control and ownership, ordering how Leitrim's value and beauty is shared with others.

One of Love Leitrim's three objectives is to 'celebrate positive aspects of Leitrim', or 'to promote all that's good about Leitrim' (Hazel). This central goal suggests that campaigners seek a relationship with those outside of Leitrim, but one that is governed from within. Linda, involved in Leitrim's tourism industry, says at the start of our conversation: 'Who wouldn't want to wake up to that every morning? […] Love the area, always been an ambassador for the area'. Positioning herself as an ambassador connects her love to a sense of responsibility (and hence ownership), as well as a level of authority. Cillian told me, 'Love Leitrim was to set up as a group to promote Leitrim as much as to prevent the environment from being damaged. We wanted to spread the word that north Leitrim is a nice place to be'. He went on to say that Leitrim is:

> under-used, underutilised by tourism, and it's basically people don't know about it but also there is a lack of facilities, so we would like to see both of those things changed, to have more tourism in the area and to have more facilities for tourists in the area. So even though most of our energies are spent on the anti-fracking at the moment because that has come along, we would like to spend more time promoting tourism and setting up places for tourists, facilities for tourists.

Discursively distinguishing between tourism and work was an important way for Paschal to make sense of our journey through the landscape in search of potential

fracking sites. It structured his love for the landscape and drew a boundary between concerns about fracking ('work') and pleasure from the scenery ('tourism'). This drive took approximately two hours and took in old drilling sites, abandoned mines, hilltops, scenic roadways, and places marked for future shale gas development. At one point, after having driven around for about forty minutes, I ask if we have seen anywhere yet that is proposed for fracking. Paschal's response was to say 'no, it has been tourism so far'.

Despite Paschal's discursive boundary work,[42] the meaning of fracking flowed in and out of the beautiful scenery. As we drove around the hilly, treeless landscape, Paschal said at one point, 'we're now going to do some work', referring to the fact that we are heading for a site that 'probably was fracked' some time around 2002. This wasn't horizontal fracking in its current form, but an older version of the technology. However, as we discussed this earlier iteration of fracking, Paschal said: 'just while you're here – see the island? That's Inishmagrath Island, it's beautiful […] the story about that – again we're back on tourism – is that they used to do burials on the island and the people were floated over on a huge stone'. The discursive opposition between tourism and work allowed Paschal to mark out and communicate with me areas of Leitrim's beauty, while maintaing control over that meaning. He was the tour guide, bringing me through these areas of aesthetic and political significance – he was happy to share them with me but he maintained control over the narrative. The drive simply wouldn't have worked if it were me talking the whole time telling him what was beautiful about the area. In this way love of Leitrim and its beauty imagined particular relations of control and order. This issue of control over the affective-discursive meaning of the area will be addressed in more detail in Chapters Six and Seven.

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[42] Boundary work is a term used by Gieryn (1999) to describe the work done by social groups in the drawing of boundaries around a particular epistemic authority in the interest of forming or maintaining its claim to authority.
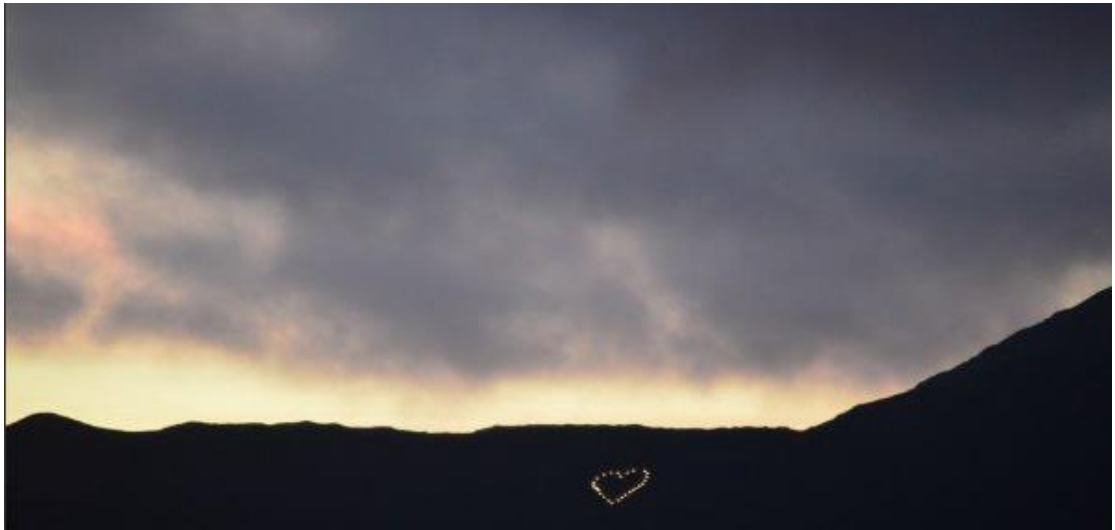
Figure 5.4 The Heart on the Hill sculpture. Source: loveleitrim.org.


Figure 5.5 Locals react to the lighting of the Heart on the Hill sculpture. Source: loveleitrim.org.

One major articulation of love for Leitrim was produced and situated by the aforementioned Heart on the Hill installation (Figure 5.4). The event constituted a novel affective practice for those living in north Leitrim, producing a material site for the

convergence of love, community, and resistance to fracking. Images of people's reactions show faces smiling widely, reacting with delight (Figure 5.5). They appear cold but warmed by the light. When I asked what the community's response was to the Heart on the Hill, Cillian, involved in putting it together, replied:

> Well, really just that they love to see it. There were people who said they were travelling to and from work every day, they'd come back from Sligo after a busy day of work and it was just nice to that on their way home to see the Heart on the Hill nearby to where they live.

The affective practice of love mobilised by the Heart on the Hill was woven into daily practices of commuting and being in the environment. The placement of the Heart in a position of visual prominence seemed to produce feelings of love for the place. Questions might be raised at this juncture about what degree of agency the locals had in this scenario. One reading of the Heart on the Hill might suggest a panoptic, disciplining power behind the sculpture – requiring locals to fall in behind a normative feeling of love for their community. Regardless, participants believed that the community responded positively to the Heart on the Hill. Hazel explained that:

> It was beautiful, and it worked out really, really well and it went on the side of the hill and it got, it was brilliant, it really was brilliant and it really gave people a sense of love and place. And the time of year that it was and the dark evenings coming up to Christmas.

Cillian remarked:

> Even to hear people in the community say to each other "it's lovely isn't it?" or "it looks great on the hill" sort of thing, it was nice to hear that but you know - communities have their differences, but when they all agree on one thing it's always a good thing too, so to try and bring people together in a community, it's nice to have something everybody has in common that they like, as well as living here.

From this perspective, the Heart on the Hill appears to have drawn people together through their mutual appreciation for the sculpture, closing down a sense of community and shared love for the area.

As well as imagining a space of love, the Heart on the Hill also converged with powerful feelings of sadness and loss. Cillian told me about how the Heart on the Hill was re-erected to coincide with the Stony Woods Festival in Kiltyclougher in north Leitrim. He explained that it was

a remembrance festival particularly for young people who have died from around this area. It just happens that over the last 12 years there have been five, six young people have died in this area – under very different circumstances – unexpectedly with a heart failure, a car accident, various other things, so. In particular, one of the boy's own, his father, decided he wanted to put something in place to remember his son, so he set up the Stony Woods Festival because we live in Kiltyclougher which is 'stony woods' in Irish.

After having been moved by the installation of the Heart on the Hill outside Manorhamilton, the organisers of the festival asked Love Leitrim to install the heart near Kiltyclougher the following year: 'they asked, would we consider as Love Leitrim, putting the Heart on the Hill somewhere around here'. They chose a local hill – Dua, which overlooks Kiltyclougher – to set it up. Cillian recounts that:

> Again, it went down very well – especially with the people who had lost family members – they kind of felt it was significant for them so, and the final part of that particular festival on the Sunday night was a lighting of sky lanterns, the candles, they sent up one of them for each person that had been lost and it was a nice way to end the festival. That they did that with heart on the hill in the background.
>
> Other people, [a neighbour] for example here, who lost a son, she used to see it regularly travelling the road and she just said it used to lift her spirits, she'd always think of her son when she saw it on the hill so. Just very meaningful and moving things came back to us from different people

More than a symbol of love for those living in Leitrim, the Heart on the Hill can be understood as a material and spatial practicing of love where individual and shared feelings are embedded in lights and mountains and made durable. As Jasanoff writes, 'dreams and aspirations take hold and acquire collective force only when key actors mobilize the resources for making their visions durable' (2015, p.25). The mountain, solar-powered LEDs, the figure of the heart are all mobilised to generate material significance. This 'embedding' (ibid., p.326) of love in the land spatialises the affective practice of love while making the ideas and feelings associated with it more durable. As Cillian observed, people were reminded of their love for Leitrim as they went about mundane routines such as commuting. Keeping the heart lighting in a position of visibility like the mountainside kept affects of love circulating while tying them to a physical place. Love is not just felt – it becomes a situated, spatial relationship, practiced through looking at the distant mountain which overlooks the town of Manorhamilton. It also gathers the community – marking out a special domain within which they can

inhabit and share love for the area. In this way, it provides a closed space of intimacy in which the "self" of the community is gathered. Hazel said that 'it really gave people a sense of love and place' – creating a spatialised affective community. In Wetherell's words, space 'becomes organized and figured, as a particular potential field of action' (2015, p.62).

There are historical connections here to Irish cultural practices of Bealtainne and the Samhain Fire Festivals where fires were lit on high to mark the contrast between brighter and darker times of the year (Butler 2009). In 'Neo-Pagan Celebrations of Samhain', Jenny Butler (ibid., p.75) makes the connection between

> the lighting of fires at Samhain nowadays [Halloween bonfires] and the ancient pre-Christian pagan practices of lighting of fires on hills of the Irish landscape. For instance, connections are made in early Irish literature between the feast of Samhain and the Hill of Tara.

Samhain is 'a "Fire Festival" and as such is an affirmation of life and vibrancy in the face of the coming dark and harshness of winter' (Butler 2009, p.69). This resonates with the Heart on the Hill in the affective context of fracking, both in that it was erected during the winter before Christmas and in that it acted as a beacon of hope for the community. These beacons acted as a confrontation of physical dark as well as 'personal metaphorical darkness, sometimes confronting challenging emotional issues' (ibid.). Butler writes that Samhain is 'a time to honour the dead […] take time to remember dead loved ones' (ibid, p.70) and 'commemorate dead ancestors' (p.74). This connects again with the Heart on the Hill, this time to the Stonywoods festival where the Heart was used as a 'a remembrance for young people who have died in the area' (Cillian). The request from members of the community to use the Heart for such a deeply emotional event underlines the affective power of the Heart on the Hill. The anti-fracking imaginary mobilises and is mobilised by these powerful affective practices and the loved spaces that are produced. "Love" in this case, is embedded in the mountain, the figure of the heart, and renewable LED technology, materialising it, spatialising it, and making it more durable. The lighted heart visible from all around Manorhamilton invites the community to imagine Leitrim as somewhere that is loved within the context of resisting fracking.

Somewhere between the identities, interpretative repertoires, discourses, bodies and sites, a meaningful anti-fracking imaginary emerges and settles. Love of Leitrim is figured through interpretative repertoires such as purity, cleanness and pristineness, and a shared sense of pleasure in its beauty. Along with this meaning of beauty comes a feeling of pride – a sense of ownership of place – ordering relations between those who live in north Leitrim and those who come from outside of it. The discourse of tourism further helps to configure these feelings, marking who has access to and control of the meaning and beauty that Leitrim offers. This is reinforced with powerful subjective feelings about Leitrim's beauty, and a shared sense of love for the Heart on the Hill – a symbol and collective way of performing the community's feelings of unity and togetherness. I met a fraction of those involved in the campaign and spent a fraction of time with the issue compared to those who live it. However, I believe there is still value in exploring the affective dimensions of the anti-fracking imaginary, however slight and fragmented this representation might be. As has been demonstrated so far, there are rich and valuable insights into how the public has responded affectively to fracking in even this small intervention. Being a lover of Leitrim and loving Leitrim as a place seem to be important in resisting fracking.

5.3 Positivity

5.3.1 Positivity

Love Leitrim campaigners greatly value positivity. After love, it is the clearest affect practiced. Positivity, in this context, refers both to a sense of wilful affirmation towards things that are good or beneficial, and in opposition to the negative stance of being anti-fracking. While some of the interpretive repertoires we've encountered so far might not be characterised as consciously constructed and taken up by campaigners – love for children, for example – the mobilisation of positivity was an active choice. While it is closely linked to love, positivity is characterised by campaigners as a more general direction of attitude towards happiness and hope, and away from negative feelings such as anger, hatred, or despair. We can see through positivity, hope, and resilience more of the settling and closing of a distinct anti-fracking imaginary.

Figure 5.6 *We're Better Together* (Love Leitrim 2016) figures positivity.

We're Better Together (Love Leitrim 2016) represents positivity by placing the phrase, 'Promoting the positive', over footage of a woman wearing a 'Farming, not Fracking' high-viz vest at a St Patricks Day Parade (Figure 5.6). She is dancing and accompanied by others, one person holding tricolour balloons representing the Irish flag. Positivity is associated here with public performances of joy, laughter, fun, happiness and dance. It is also something which Love Leitrim sees itself as actively promoting. Hazel explained how solidarity among the community was achieved, in part, through this kind of affective practice: 'it's the positivity, the positive way of dealing with stuff'. Participants described it as an important aspect of their identity – 'our continuous positivity, our love, our funny, our humour, our way of doing things have really stood by us' (Hazel). Discursively, the repertoire of positivity is figured clearly against the negativity of fracking, with positivity privileged as a favourable emotion, and that is aligned with the self (Love Leitrim). In my ethnographic notes, I wrote that Cillian 'shared that Love Leitrim was very much about loving the place and the community and wanting to express something positive in a situation which seemed to focus so much on a negative: <u>not</u> fracking'. Linda told me:

> We didn't want to be anti-anything – we are anti-fracking, but we didn't want our name to be associated with something negative. So, we do love Leitrim, and there, sort of, a song – 'Lovely Leitrim' – that everybody quotes, so it seemed to fit well, Love Leitrim, and it's about pushing the positive. And I suppose, for me […] the

> idea of saying no to fracking, well then we have to say yes to something else […] [X] has set up the north Leitrim Sustainable Energy Committee, and this is an offshoot of Love Leitrim […] and we're looking at setting up an energy co-op, as in: "right, we're not having fracking, but we're using energy, we all drive cars, we all use electricity so what can we offer" […] I really believe if you're saying "no" to one thing you need to offer an alternative and that we're doing, which for me completes the circle of Love Leitrim.

Several things are of interest here. Firstly, the existence of what appears to be a force encouraging the campaigners to move towards something positive – it is not enough for them to be anti-fracking, an existence of an alternative is required in order for the absence of fracking to be meaningful. We can see, again, how the arrival of fracking opens up the space for a counter-imaginary within which love and positivity are embedded. Settling and ordering this imaginary is what these affective practices are working towards. Secondly, this requirement of a positive replacement creatively imagines an alternative vision in the sustainable energy co-op. Thirdly, positivity and negativity are evaluated on an intuitive level – Linda refers to the negativity of fracking as inherently undesirable and the positivity of the alternative as inherently desirable. It is interesting that the way in which it is reported here suggests that being negative about fracking is negative beyond the fact that fracking might be harmful, in that simply having a negative view of something is always already undesirable and ought to be supplemented with a positive. Lastly, again, positivity is referred to as something which is actively 'pushed'.

5.3.2 Positive Campaigners

Positivity in opposition to the negativity of fracking also produced a stable identity. Positivity as an affective relation is greatly valued and promoted and encouraged by the group. Being positive as a group is something which the campaigners hope other members of the community will be attracted to and identify with. Cian explained it to me as follows:

> I think, after we had a win in Belcoo there was so much energy that time and so many people involved we kinda felt, OK well, what are we going to do with all these people you know? So, we said we'll try and focus on something positive. It was by no means finished but people were engaged at that time, but we just kind of – I remember Belcoo had happened at that time and they had set up a little solar panel on a roof somewhere and it looked tiny, you what I mean. But still, the effort was there and I think it just was like a little switch – OK what are we going to do to progress the

alternative […] There was a lot of people who wouldn't get involved in anti-fracking that would love to be involved in renewables. So, it's a lot easier to try and sell community energy or renewable energy than it is to try and get anybody to stop something. Stopping something is fighting.

Positivity, as an affective force, attracts people to the campaign. Linda, who was here during this part of the conversation joined in:

If we're saying no, and I was saying that to Stephen, you have very vulnerable people in debt and then we were saying "no" to those jobs – that didn't really exist anyway – but we had to offer something else and we're now at that stage.

Positivity is spoken of as a relation between groups of people and certain material practices such as setting up renewable energy devices. People are grouped together as those who are unwilling to be involved with the negative anti-fracking campaign but are attracted to more appealing – and hence, positive – projects like renewable energy. This is understood by those I spoke to, and actively capitalised on – 'it's a lot easier to try and sell community energy or renewables energy than it is to try and get anybody to stop something' (Cian). The positivity of renewable energy projects, or their appeal to certain groups, is an important affective relation – particularly in the use it is put to by campaigners in bringing people on board the anti-fracking movement. Knowing how people identify emotionally with the campaign – positively or negatively - allows campaigners to promote certain practices and align these with the campaign while continuing with "negative" fighting in other arenas. It helps to settle and order social relations.

I am interested in how positivity shapes and settles the anti-fracking imaginary. It is spoken about in terms of a kind of energy which can be managed and organised. Participants spoke about how the community are 'engaged' and have produced 'so much energy' that some positive goal needs to be imagined to control and direct it. It is as if the positive energy calls out for an imagined future for it to realise. Dennis spoke of 'that energising of people' in the context of civic political engagement which he felt is particularly unique to Ireland as a consequence of the history of civil war and identity politics in the North. Maura spoke about some members of the campaign joining the Environmental Pillar, a network of Irish environmental NGOs, in an effort to promote something positive – '[it] wasn't good enough to just be against fracking – you had to have a more holistic view of things'. This involved a push to 'support renewable or

sustainable energy sources and uses' and the recruiting of some volunteers. 'That was the, kind of, start', Maura explained, 'and when I realised, when we all realised, the potential of this – it's an amazing source of young people, young energy, young skills, you know, it was great'.

Alyx, in particular, mentioned this energetic subject position a number of times. During a discussion about a local screening of a documentary, *Disobedience*, Alyx said, 'it was that event then that sparked [Campaigner Y] and [Campaigner X] to think we have to grab *this* part of the campaign as well and this energy and this way of working and use it to the same aim of banning fracking'. She went on to say that

> I think if we had something more immediate for them at home in their own communities you know, "do you want to get involved in that?" that might do it. And there just seems to be a lot of talent and energy and commitment out there that maybe we could mobilise or they'd mobilise themselves or whatever, you know?

Later, describing the potential of *Comhrá* – the community-led project to develop a joint vision of north Leitrim's future – Alyx stated:

> But it did just occur to me that there might be another way to recruit all those people who are not involved in the public part of the community here, they're not on the council, they're not running stuff, they don't have positions or whatever, but they certainly have opinions and they certainly have energy that we could maybe use, so if we could recruit that and give it, give the power back to that flattened hierarchy.

The members of the community are figured as being full of energy – a resource which can be channelled into the aims of the campaign. This affective energy is aligned with positivity and hope – emotional relations that are highly valued by the campaign:

> I see it as having great longevity. If we can recruit a few more people […] and mine a bit of that energy I have that feeling that it'll answer a lot of things or at least it will provide a possibility, you know, that kind of, you know, having a voice is a powerful thing as well, having somebody listen to you, what you want is inclusive and we might get a few more people recruited to do stuff that they're interested in.

The energy which Alyx is describing powers an alternative imaginary to fracking. The positive energy of the campaigners produces a sense of agency – 'it will provide a possibility'. This energy is aligned with 'having a voice' while producing a sense of momentum behind the campaign, coupled with legitimacy – 'having somebody listen to you'. Agency is figured in the campaigners as a performative relational energy: the

performance of campaigning generates energetic campaigners, who, in turn, experience agency through 'having a voice' and 'having somebody listen to you'. This positive energy can also be captured by the campaign and put to work in order to settle the anti-fracking imaginary. The next section will explore how this figuration of positive energy intersects with a sense of hope.

5.3.3 Hope

Alyx outlines how agency is experienced through the figuration of energised campaigners. This acknowledgment of agency – the belief that the campaign can change something – is performed through, and co-produces, the affective practice of hope. Alyx explains, 'I just have this feeling that we actually do have a voice and we could say what we want and we could make changes, you know, and make our lives the way we want them even if not everybody's you know'. Hope intersects with agency – itself experienced as the capacity to make change and make decisions about the future. Hope, in this sense, is connected to visions for the future. Paschal spoke to me about how 'there's no industry here. One of the hopes for the future would be tourism'. Hazel takes up this hopeful vision for tourism:

> In a time when everybody's in a frenzied world of thing I think we have done very well as a group to promote the idea that we have a kind of peaceful, quiet, generally good community of people around it and they have a nice place to promote and live in and hopefully that will stand – you know it's a nice place to come on holidays.

Linda also spoke about hope in opposition to a sense of chaos and unpredictability:

> Everything we believed in has fallen apart, and I think this is very much the success of Love Leitrim – if you look at the church, it has fallen apart. The banks have fallen apart. What have we, you know? […] At the end of the day you can't rely on any of these things and this is the country that was colonised in the past. It's as if we can't use our own independence – we hand over from, sort of, the British Empire to the church and then we handed our souls to the banks and none of it has worked. So, I really feel it's our own resilience and community resilience that we're back to and that is a very stable foundation for any group.

The grounds for hope are independence and a taking back of control over the community. Hope is figured here as a shared affect – something which the community

feels together alongside a sense of agency. Linda goes into further detail about this vision:

> For us as members of the community, to be stakeholders in an energy company where we are employing and getting a dividend […] to get that mill wheel back up and running and build a sustainable living centre there where people can come and train […] so, more of that happening and communities and villages taking control of their own lives to some extent and not be answerable to the banks or the church or to anybody else […] that means that, I suppose, that people have supports because, you know the banks turned on everybody, so that would be my hope for the future.

Hope for a community-owned sustainable energy company replaces the uncertainty caused by fracking and what are seen to be failed institutions such as banks and the church. Hope involves an alternative vision, but also a sense of belief in, and commitment to, that vision. The desire for an alternative to fracking involves imagining a future where that desire is possible, providing legitimate circumstances for hope while at the same time being sustained by it. Hope is practiced in a way that drives imagination while also drawing legitimacy from it. Hope both enables agency – by providing a feeling of possibility – and is a product of agency – belief in that possibility sustains hope. Alyx spoke about one of the ways in which the campaign sought to materialise hope through the *Comhrá* initiative. She described how they worked with a video artist to create a sculpture which would allow people to express their hopes for the community. The artist provided:

> a little alder in a pot and we made a hundred labels and people were to write what they wanted – their wish for 2016 or their new year wish or whatever and they hung those on [a] real tree […] that's sort of where we need to get to, what do people want? So instead of going in and telling them "what about fracking?" Or "this is fracking and of course you're opposed to it aren't you?" That we'd sort of, to say, we'd do it a bit more qualitatively and a bit more of an enquiry rather than presentation.

Alyx acknowledges here that hope requires a connection to agency – a sense that the community's wishes cannot be dictated to them, that there must be an element of openness in order for their wishes to be hopeful. In this way, the autonomy of the community's desires and visions are valued and preserved.

It is important to note again that these affective practices are not universal and unchanging. Hope is not a blanket feeling experienced by the community at all times in relation to fracking. Rather, it is performed and enacted through the context-dependent

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nature of subjective experience and the navigation of shared group repertoires and identities. Affective practices are also contradictory – they can change depending on who is doing the emoting, in what context, and in response to on-going changing conditions. Now, I would like to turn to the link between positivity and resilience.

5.3.4 Resilience

Another aspect of the affective practice of positivity is its figuration as resilience. Talk of positivity, alongside positive feelings, produces a hopeful alternative to the negative of fracking. On-going positivity also generates a sense of resilience in the face of that negativity, something which has mythic ties to the history of that part of Ireland. Resilience is spoken about as a feeling of bodily resolve or endurance despite surrounding negativity or suffering. Linda explained, 'That's where we have been successful – most people burn themselves out […] We're still goin' […] Really hard work and really stressful most of the time'. Hazel said, 'Yes I think we have [been successful] – don't have a ban on fracking but we have not rolled over and played dead which is hugely important'. Elsewhere, she explained:

> We've kept ourselves up. There's times when you feel like there could be only three or four available to do anything and it's the same three or four again and it's the same three or four faces and you wonder whether people are going to get tired looking at you and seeing the same people – "is that all that Love Leitrim's about?" But you'd be amazed once you start doing something like that [campaigning at local markets and events] that people are willing to give you an hour or to come or wear the t-shirt or grab somebody that's willing to take a photograph. But it's the positivity that – you know it's the positive way of dealing with stuff.

Resilience allows campaigners to imagine themselves continuing into the future, stabilising and settling their imaginary. Resilience is also nourished by a mythic identity of resistance tied to the area of north Leitrim.

My drive with Paschal involved numerous stories tying the landscape to narratives of resistance, from tales of Brehon Law courts to histories about the secretive masses which took place during the time of the Penal Laws. These stories lent significance to the places we visit—the places matter because of the myths anchored in them—providing intersecting affective flows to the pleasure of the tour. Many of the

stories, such as those of the Beara-Breifne march[43], the settlement of the Ulster refugees, and those of the secretive masses and Brehon Law courts just mentioned, centre around themes of justice and political resistance. As Paschal brought us to a mass rock (Figure 5.7), he explained: 'we had the penal days here when the Catholic religion was prohibited by law and the people fancied going to mass anyway […] which would mean the execution of the priest'. Paschal tells me that the rock is still an important site for people in the area. Masses are still held there, with a few hundred people attending. 'You'd want to see the age of people walking up from the village,' he remarked. This important ritual of commemoration anchors meaning and significance to place. The site of the mass rock, the discursive memories inscribed in it, and the rituals performed around it sustain the community and their resistant imaginary.

Figure 5.7 A mass rock used as an alter for secret masses during the time of the Penal Laws.

Historical resilience also surfaces in the videos I studied. *Sean Nós ar an tSionann – Love Leitrim* (Guckian 2014) includes a scene of a young girl dancing in front of an abandoned-looking site in a field, marked by an Irish flag and a sign stating: 'Site of Pearse Connolly Memorial Hall. In memory of Jimmy Gralton, Leitrim socialist deported for his political beliefs'. Gralton famously organised socialist meetings in his dance hall in north Leitrim, a response to the conservative forces involved in creating

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[43] The Beara-Breifne march refers to the O'Sullivan Bere clan's historic escape from royalist enemies in the beginning of the 17th Century. The route took them from Beara in West Cork to County Cavan (Byrne 2008).

the newly developing Irish state. Dance, in relation to Gralton's hall, as well as *Sean Nós ar an tSionann*, connects with a broader cultural history of Irish resistance.

Wulff (2005, p.59) argues that dance movements 'communicate stories about their societies' and that in Irish dance, 'these stories often come out as memories of displacement, longing and resistance'. Dance has a political history in Ireland, it was a central tool of the cultural revival, where "traditional" cultural practices were promoted to establish a sense of Irish identity in opposition to British colonial rule. The stiff upper bodies, with the hands pinned by the sides has numerous potential origins but is popularly understood to have developed as a type of resistance, either to the British, or to priests (Meyer 2001, p.67; Wulff 2005). Wulff claims that the mobility of Irish dance, particularly *sean nós* [old style], 'produces new connections and meanings of place, indeed new power structures' (Wulff 2005, p.59). *Sean Nós ar an tSionann – Love Leitrim* (Guckian 2014) deploys this dance technique to generate an affective point of convergence whereby the viewer kinaesthetically empathises (Leigh Foster 2011; Thrift 2008; Wetherell 2014) with the moving bodies of the children as they dance through affectively-charged spaces in Leitrim drawing together beauty, joy, innocence and defiance.

We're Better Together (Love Leitrim 2016) mobilises the history and emotions of the 1916 Irish Rising through Leitrim's connection to Sean McDiarmuida, one of the rebellions' leaders and a signatory on the Proclamation of Irish Independence. The film shows an image of McDiarmuida's birthplace, a small cottage situated in remote scrubland near the border, overlaid with the text: 'And have a legacy to be proud of'. This is cut with an image of a memorial stone in Kiltyclogher, north Leitrim, bearing the inscription: 'I die that Ireland may live. Leitrim men and those who have fallen in Leitrim since 1916'. This is a phrase attributed to Sean McDiarmuida and is inscribed above a list of names including James Connolly, another well-known figure involved in the Rising. The McDiarmuida birthplace is an important site for this community. It has been carefully maintained and is open to visitors. Cillian and Alyx brought me there on my first visit to Leitrim, and it serves as the setting for an interview with a group of farmers in *The Future for Shale*. I returned to the cottage during one of my stays. In my notes, I wrote: 'As one of the paternalistic figures of Irish independence, it seems so plausible that communities here would resist what they see as an outside force threatening to take their identity, health, and landscape. The story seems to write itself from this vantage point, looking over the vulnerable misty green hills'.

Positivity is an important affective practice for anti-fracking campaigners. It is consciously drawn upon as a way to mobilise the community against fracking by powering something desirable to hope for and work towards and as a way of sustaining commitment and maintaining resilience. Positivity is experienced by campaigners through feelings of hope and an optimistic charge to thoughts of the future. Positivity is closely tied to a feeling of agency – a sense that hopes and desires are realizable – and is maintained when there is uncertainty about the future. This resilience, working in solidarity against adversity, is tied to mythic narratives of historical resistance against an external oppressor – be they the imperial forces of the British colonizer, or the conservative forces of the Irish metropolitan centre. That narrative generates an identity of resistance which structures the affective relations between anti-fracking campaigners and the threat of fracking. The next section will deal with a closely related affective practice that performs a similar role in drawing the community together and sustaining their anti-fracking vision: humour and fun.

5.3.5 Fun campaigners

In addition to a general sense of positivity, the corpus of affective practices performed by anti-fracking campaigners includes humour and fun. It is regarded as a central part of the group's identity. Fun is figured as part of the local identity. Despite how serious the possibility of fracking is for the community, these campaigners point out the importance of humour in how they navigate it as a group.

Hazel referred to this at a number of occasions during our chat: 'Even with our banners and our signs and all that, we try to do everything with a bit of love, a bit of humour a bit of fun'. 'Is that important?' I ask, to which she responds: 'it is, yeah. You know, people need to laugh, even if it's a very serious event, if it's a very serious thing […] Like, you're angry and you're really annoyed but people just go laugh and then you know people just… it's worked I think'. Later, she spoke about engaging the community through the conversations of the *Comhrá* group: 'get people sitting around and talking and have a bit of craic, have a bit of fun. Give people the forum to talk, voice their concerns, be able to say I don't know'. Linda described the importance of including a component of fun in Love Leitrim events to help engage the community – 'Even the events that we did – the fundraising events, or the *fun*draising events, were also *fun* events and awareness raising'. She told me:

> We had a tractorcade – mix of south and north and it was fantastic because we got the guards to escort us, here we are protesting [laughing] didn't want to annoy people or upset people and we had the road lined with "is feidir linn" because Obama was coming.

The campaigners' fun- and craic-centred approach indicates humility and suggests that they are a relatively small and non-threatening group. The idea of them protesting is treated with humour – they are more concerned about annoying people than causing disruption. Playfully involving a powerful figure such as Obama casts the relatively small size of the campaign into sharp relief. The sense of fun with which the campaigners engage with protest can be read as a signalling of their benignity and trustworthiness. This might be seen in contrast with the seriousness of large organisations such as the government or oil and gas industry, who, while not explicitly described as such, are implicitly figured through their absence. The seriousness of the division between north and south – with its connection to The Troubles – is also eased with the humorous approach to protest.

5.4 Enchantment

Enchantment is the term I am using to refer to those strange, unusual, or mysterious experiences and knowledges which fall outside of 'disenchanted modernity' (Weber 1970). Nigel Thrift describes these bodily practices as 'those delegates and intermediaries which might appear to be associated with forces of magic, the sacred, ritual, affect, trance and so on' (2008 p.65). It is important to recognise, as do Thrift and others such as Blackman (2012), that enchantment is very much a part of modern life despite its epistemological relegation to the fringes. Focusing on enchantment here is not an attempt to separate rural Ireland from modern Western societies but to explore those affective practices which have arisen during the course of my research. Enchantment is a way of categorising the strange and uncanny aspects of anti-fracking campaigners' feelings and practices relating to fracking. Importantly, they are strange to the participants as well and not simply from the rational perspective of the academic gaze. It is important to note the possibility that these moments of enchantment were staged performances for me, the outsider, to make my experience more "authentic" and

enjoyable. While I did not feel that this was the case, others have read my account this way.

Examples of enchantment will be presented here as affective relations of intensity rather than the more patterned examples of repertoires, narratives, or identities. Most of the examples come from my drive with Paschal where our conversation was closely interwoven with a journey through the landscape. Thrift notes how practices of enchantment are closely aligned with constructions of nature in how they 'constitute a background within which nature is apprehended and which provides quite particular experiences of what nature is' (2008 p.67). In this section, I want to focus on how affective meaning-making ties together nature and ideas, and feelings about fracking.

5.4.1 Mysterious Leitrim

Alongside beauty in the set of affective practices conveyed to me during the drive with Paschal was a sense of mystery or unknownness relating to the land. At a number of points on the drive, Paschal conveyed the notion that the landscape was unknowable in some sense, that it contained secrets and mysteries beyond rational understanding. The first that I will describe relates directly to fracking, and concerns the traditional source of the Shannon river, the Shannon Pot (Figure 5.8).

Figure 5.8 The Shannon Pot – The source of the Shannon, Ireland's longest river.

The Shannon Pot sits on the tourism side of Paschal's boundary between knowledge and pleasure. He asked, 'so your tourism activity is going to extend to the Shannon Pot or not?' before answering himself to say: 'what do you look forward to? I mean, I think you're here, it's a nice day, it's not raining—go and see the Shannon Pot […] you *should* see the Shannon Pot, you don't know about, whatever, Mass Rocks, you should see the Shannon Pot.' As the next excerpt from our conversation demonstrates, the Shannon Pot is not simply an object of tourism, but also crosses over into concerns about fracking. As we approached it, Paschal informed me that 'we have so many legends concerning the Shannon Pot'. He went on to say that:

> I think it's still a mystery as to where the actual water from the Shannon Pot comes from. But if something gets fracked it won't stay a mystery too long, except it will be too long if the oil companies and gas companies are gone by the time the bad results surfaced.

This mythology includes the 'many legends' about the Shannon Pot. Most prominent amongst these legends concerns a woman named Sinann who visits a well in search of the Salmon of Knowledge (Jestice 2000, p.86). According to the story, she is 'headstrong and irreverent' (Branigan 2016, p.86) and violates the correct protocol for approaching the well (Butler 2004, p116). Angered by Sinann's disrespect, the Salmon of Knowledge causes the waters of the well to rise and overflow the area. Sinann is swept away and drowned, condemned to live her afterlife in the river 'created by her insolence' (Branigan 2016, p.87). The Shannon is thus named after her.

There is an intriguing parallel figured between this story and the way that Paschal frames the fracking issue. Both concern the Shannon and an inherent mystery that shouldn't be tampered with, punishable by powerful destructive forces. In both figurations, a lack of knowledge about the river is something which ought to be respected and actions that ignore that lack of knowledge have disastrous consequences. The humility of the local epistemology which accepts the unknowability of the Shannon is contrasted with the arrogance of Sinann and the oil and gas industry who do not respect this lack of knowledge. Paschal remarked that attempts to frack in the vicinity of the Shannon 'gives an idea of the foolishness and damage and carelessness with which this whole industry would approach the area'. The mythic (and gendered) trope of tampering with Pandora's Box is imagined through the affective meaning-making of the Shannon and its relationship with fracking.

What the example of our visit to the Shannon tells us is that there is respect for the mystery and unknownness of the river. This kind of humility is further illustrated in another example, where Paschal recounted to me the healing properties of the lackey lizard.

As we pass along the Lackey Road, Paschal recounted an anecdote:

> This is the Lackey road, which is, in the Irish, the muddy road. *Lathach*. And that's quite interesting because, if you get a severe burn in this area, skin burn; you can treat it in the usual way, but on one occasion that I know of personally, the actual hospital advised the person who was burned to get in touch with the person who has the cure. And the person who has the cure, can, by certain methods, they'll heal the burn which he did in this case according to the woman who was burned that I spoke to. I was then told by another neighbour that the way you get the cure of the burn is call this man, who has the cure of the burn, and the way you get, in quotes, "cure of the burn" is you lick the Lackey Lizard. So, it took me some time to find out what the Lackey Lizard might be, but the lackey I think is the same as this, it's the muddy lizard. And the muddy lizard is a kind of a freshwater crayfish that lives in mud and ditches. And I've met a man who's seen them in his ditch, recently, so they do exist; however, I don't know about the burn.

I asked Paschal how these crayfish cure the burn and he responded: '[t]hey lick you, the person that has the cure will lick the burn and it cures it, and without scars, and I can tell that it's without scars because I've met the lady'. This conversation is significant because Paschal prided himself on being scientifically minded. In our earlier interview at his house, Paschal's discourse was overtly scientific – describing the process of fracking and its risks in factual terms; logically reasoning why fracking would be a bad idea for the area. He was frequently at pains to distinguish facts from speculation, not wanting to be seen to have an irrational view of fracking. On our trip he reminded me that he was 'from an engineering background' as he told me about a meeting between campaigners and Cavan County Council and the 'technical background that we have'. However, once out in the landscape with Paschal, I discovered that there were many more complex meanings made of the area and that he appeared intrigued by mythic stories of what were seemingly magical cures.[44] That is not to say that he believed them outright, he did express some scepticism – 'I don't know about the burn' – but he certainly seemed to find the idea somewhat credible, having witnessed the healed burn

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[44] Tom Inglis (2015, p.198) has written about the prevalence of magical belief and practice in faith healing in Ireland, where a number of illnesses including burns could be treated by people who 'had the cure'.

on the woman, having spoken to people who have seen the lizard, and having heard the story about the hospital recommending people be treated in this way.

This chapter has looked at the various figurations of love and desire as revealed in the data I have captured. Again, this is not a universal or generalisable set of observations, but observations-in-context, observations of specific affective practices relating to the anti-fracking campaign in north Leitrim over a particular period of time. Love, as this chapter has conveyed it, is multiple and complex, intersecting at various scalar levels from identities and subject positions to discourses, interpretive repertoires and subjective experiences. Love and desire are performed through affective practices of love for the land and children, as being a lover of Leitrim, positivity, hope, resilience, fun, and enchantment. Chapter 6 and 7 will examine the findings from this chapter and the one previous, asking what these affective practices do and how we might engage with them.

6

Unsettling/Settling: The Time, Space, and Social Order of Affective Technopolitics

> When the blackbird betrayed nature to follow humans into their artificial, unnatural world, something changed in the organic structure of the planet
>
> —Milan Kundera, *The Book of Laughter and Forgetting* (1996, p.268)

6.1 Introduction

The previous two chapters have outlined the affective practices involved in the emergence of the anti-fracking imaginary in north Leitrim. That is, the emergence of a shared, normative, vision of the future which imagines the absence of fracking technologies and processes in Ireland. This chapter will discuss in more detail the various ways that this imaginary has been brought into being through processes I have identified as settling and unsettling. It will examine how affect contributes to the production of imaginaries while at the same time ordering them across temporal, spatial and social scales. The argument developed here is that emotion is an important part of why and how this community imagines the future. Affective practices drive, direct, and value the anti-fracking imaginary as they order time, space, and community through political processes such as violation and consent, ownership, and healing. Unsettled and

opened by shock, fear, and hate, the anti-fracking imaginary is subsequently settled through affective practices of love, hope, positivity, intimacy and healing; ordering time, space, and community in the process. The chapter will outline how the processes of settling and unsettling are connected in that unsettling can be seen as a painful opening in thought from which the creative imagining of alternatives emerges. As the final chapter will suggest, this affective imaginary must itself remain open to resettling through reflexive engagement.

6.2 Unsettling

6.2.1 Fractured Times

Jasanoff writes about the important role that the temporal dimension plays in the production and maintenance of imaginaries. She observes that:

> Past and future connect in a complex dialectic that is widely acknowledged. The past is prologue, but it is also a site of memory excavated and reinterpreted in the light of a society's understanding of the present and its hopes for what lies ahead (2015b, p.21).

The affective practices of Love Leitrim campaigners produce temporalities as they respond to fracking. Felt writes that 'time is an essential feature of social life that not only enables us to structure and order our worlds but also to create and sustain the feeling of stability and belonging' (2016, p.178). The timescale of the anti-fracking imaginary shapes the shared vision of the Leitrim community – providing a past, present and future within which phenomena related to fracking exist. From my observations it seems that emotions are deeply involved in the ordering of time. To begin, I will explore the narrative of shock which participants used to figure their initial response to fracking, how it created a painful temporal break for the community and opened new possibilities for the future.

Campaigners reported how fracking seemed to come from nowhere. It 'arrived one day', producing a temporal break in their lives, a clear before and after of fracking, and a sense that "things will never be the same again". This is not a response to fracking actually taking place, but a response to imagining fracking taking place in the future. The temporal break – the suddenness, and sense of before/after – is closely connected

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to a spatial one. Fracking 'arrives' from some*where* to Leitrim, described as 'turning up' with a violent suddenness. This temporal break is spoken of as shocking; a visceral and deeply felt experience. Regardless of how "shocked" each participant was the first time they heard of fracking, this is the shared affective repertoire used to make sense of the issue in temporal terms. Memories of, or identifications with, experiences of shock embed the arrival of fracking with salience and meaning, while producing a relevant timeline. Wetherell outlines this function of affect. She writes that:

> A central part of affective practices consists of accounts and narratives of affect, past, present and future. In learning how to perform affect in socially recognisable and conventional ways, people also learn how to talk about and evaluate affect (2014, p.93).

The shock narrative temporally positions a shared "before" as an Edenic whole, in harmony with nature, which is then shattered by the arrival of fracking. This is largely visualised through romantic pastoral images of what campaigners fear will be lost. *My Farm, I Adore* embodies this idea, depicting the farmer, occupying a space of Edenic bliss, violently rocked with a message about the arrival of fracking. There is a sense that the stable temporal realm of Leitrim fractures at this point, represented along the fault-lines of modernity, where a schism is produced between the natural rhythm and timescape of life of the land, and a rationalised, industrial future of fracking (modernity). The feelings of shock, and subsequently fear, produce an affectively-charged time and space within which the rhythms of daily life, and the unstoppable growth of fracking are imagined as violently unsettled.

The community's fear of losing particular ways of life – farming, fishing – with the introduction of fracking is connected to the loss of a particular way of experiencing time. As the narrative of shock figures a traditional past which is being left behind, so it opens a feared future in which fracking poses grave threats to the community and the land. The production of such a trajectory is precisely what Felt argues 'enables us to imagine that we can', and here she cites Giddens, '"colonise the future"' (2016, p.187). The fracture in time that is imagined through the shock of fracking's arrival violently opens up a frightening future. This painful opening produces fear, but, as we will see, it also opens a space for resistance and hope and a re-settling of the imaginary. Importantly for my purposes, the temporal imaginary is shaped, in part, by affective

practices. It is shock and fearful visions of the future which produce a temporal imaginary of fracking.

We might understand the shocking opening as a kind of wound. Rubenstein (2008) argues that wonder has as its origin the notion of the wound. She writes that 'the word *wonder* derives from the Old English *wundor*, which some etymologists suggest might be cognate not only with the German *Wunder*, but also *Wunde*: cut, gash, wound' (2008, p.9). Rubenstein (ibid., p.11) claims that:

> wonder opens an originary rift in thought, an unsuturable gash that both constitutes and deconstitutes thinking as such. To open the question of wonder, then, is to open thought not only to the fantastic and amazing, but also to the dreadful and the threatening.

Wonder – as wound – can be understood as the opening of thought to imagination. The "wound" of fracking opens a painful future for the community, but in the same instant allows for the possibility of an alternative future through wonder. In this way, we can see how the imaginary is not simply a discursive articulation, but also an affective one, emerging from shock, pain, and fear. I will examine the importance of wonder in more detail in section 7.3.4 of the next chapter. For now, however, I just want to mark its role in imagining the future.

Viewing emotional responses to fracking as a wound shows us how affective practices unsettle thought, creating an opening for imagination. This allows new practices to emerge and circulate, becoming patterned and settled in a newly imagined and organised time, space, and social order. Unsettling, and its associated emotions, are characterised by violence, creativity, and powerlessness, generating a painful opening to an imagined fracking future. Settling is characterised by order and control – driving, directing, and valuing an alternatively imagined future. However, as the chapter will go on to demonstrate, order and control are accompanied by openness and the potential for engagement. *Comhrá*, the Heart on the Hill, and the Hate Wall involve formations of power which might produce justice; however, they require the application of principles like humility and reflexivity to fully realise this potential. What is important to note at this stage, is that settling and unsettling both involve affective practices which play a key role in producing the imaginary.

Walkerdine talks about how important the containing function of a community is for its members and how a traumatic event (such as the "arrival" of fracking) can

disturb or unsettle this containment (2010). In the case that she describes – the closure of a steelworks – the traumatic event brings 'overwhelming anxiety and threat of annihilation to the fore' (2010, p.98). This ordering of time carries a powerful normative force, clearly delineating between *good* and *bad* times. As Wetherell observes, in the shared negotiation of affective narratives, groups learn how to 'evaluate affect' (2014, p.93). Affect is not just a series of disconnected feelings but sets of practices which produce meaning in their patterns, repetitions and contexts. Shock and fear, circulated through talk, images, memories, and feelings, attaches a clearly negative valence to fracking within a temporal context of (idyllic) before and (apocalyptic) after in which the feared effects of fracking are imagined taking place.

6.2.2 Fractured Spaces

As described in Section 4.2, fracking is imagined in spatial terms as consisting of landscapes and spaces which are fractured, cracked, and opened up, creating division, instability and uncertainty. Fears about earthquakes, openings and seismic movement spatialise the anti-fracking imaginary, figuring an unstable ground which can no longer be relied upon. The community is unsettled. Images on signs, posters, websites, t-shirts, and stickers frequently depict threatening cracks and fissures, producing a fearful imaginary that is dominated by concerns about porous boundaries and breached thresholds. The 'Fractured Thinking' exhibition further illustrates this with its depictions of openings, breached strata, and manifold fracture lines, dissolving contexts and reproducing uncertainties about cause and effect and predictions about what direction fractures will travel. The fracture in time, explored in the last section, produced by an affective practice of shock, is mirrored in the spatial fracturing figured through fears of violated borders and unstable foundations.

The arrival of fracking opens up a future that provokes emotional responses. Talk and representations of a "fracking future" mobilise affective repertoires of fear and doom focusing on a loss of control. The radical openings produced by fracking threaten the stability of the communal self both through the unwanted arrival of the other and contamination from drilling and unknown substances lying beneath the ground. This latter imaginary is figured through the fearful repertoire of "what lies beneath": a vast unknown threat lying beneath the surface, threatening to emerge with the advent of fracking. Kamash (2008, p.224) historically traces this idea of 'what lies beneath' in a

paper on the ontological paradox of water. This paradox suggests that water 'is ambiguous and transmutable. It is a single substance that is both vital and deadly'(2008, p.224). The ambiguity produces 'attitudes towards it [which] are caught up in an intricate network of associations and negotiations where life and death and being in this world and being in other worlds collide' (ibid.).

The fearful imaginary mobilised in the 'Fractured Thinking' exhibition reflects this. The artist statement reports that the artist is 'trying to imagine how fracking might affect deep rock strata and how pressurized liquid pollutants might travel and pose a threat to water aquifers', while also remembering 'natural balance and the dangers of forgetting how much we rely on the natural environment, particularly water, the base of all life on the planet'. Many participants spoke about their fears of contaminated water, emerging, polluted, from beneath the ground. This underground space is a realm of the unknown and the monstrous, kept at bay in this imaginary by the solidity of the earth. Campaigners imagine that cracking open this protective boundary through hydraulic fracturing will unleash a range of threats. Participants spoke of chemicals like benzenes, while others spoke of radioactive materials. Jasanoff and Kim describe radioactive imaginaries where these materials demand 'effective *containment*' (2009, p.121, emphasis in original).

Campaigners talk fearfully about pollution and contamination coming from beneath the ground, causing chaos and destruction to wildlife, the environment, and the community. At times, this is figured as general harm, at others it is represented as complete destruction. This lack of containment produces a radical openness that prompts fears of annihilation. Talk of gas dependence, an unstoppable monster taking over or images of drill pad openings spreading across the landscape are assembled and recruited in this affective practice. Participants described feelings of powerlessness and helplessness when confronted with this scenario, describing insurmountable odds in their resistance of the government and oil and gas industry.

Another way in which fear spatialises the imaginary is through its relationship to the border separating Northern Ireland and the Republic of Ireland. According to David Lloyd (2008, p.134), this partition:

> is a settlement imposed under the threat of continuing violence; the border it establishes represents the suspension rather than the end of violence. The border in partition remains shadowed by the expectation of violence, violence that perpetually

subtends the borderline as a fissure rather than a suture, antagonism rather than hybridity.

Fracking is imagined as both violating and reinforcing the border, generating fear, in both configurations, of a return of violence. In the first sense, the invisible border provides temporary stability, allowing the continued internal coherence of each community established through their mutual difference (Hall 2001). Fracking threatens to open the border up by drilling into waterways and gas fields which stretch across it, pulling and pushing communities across political lines. In the second sense, the border must remain invisible. This way, the community can act "as if" it was not there, thus allowing them to ignore the violence of its constitution. According to Lloyd (2008), however, the spectre of this violence always remains, forever haunting the border and threatening to return.

In this way, fracking threatens to draw attention to this spectre – provoking animosity and rivalries as the dimension of the political is brought into view. The stability of the invisible border is unsettled as publics are 'sparked into being' (Marres 2005) along prior fault-lines whereby Nationalists and Unionists confront one another over the future of fracking. As Maura outlined to me, when it comes to the border, everything becomes about unmarking fracking in an attempt to make the border invisible again. It cannot be seen to be a "southern" or "nationalist" issue and as such, accents are managed, involvement of well-known campaigners is managed, and language is managed, down to the erasure of the word "fracking" itself, as the naming of the 'Stop the Drill' campaign attests. This is also the case with anger, which had to be managed and controlled so as not to provoke and unsettle tensions any further. I observed how humour was used to navigate the border, minimising the anger sometimes associated with protest. Linda told me about the '*fun*raising' protest that coincided with Obama's visit and its 'mix of north and south'. Linda stressed the innocuous and non-threatening nature of these gatherings.

And yet the border can't remain completely closed. It must remain, for now at least, a spectral border that separates the two countries and allows people to move back and forth. It needs to stay partially open, but in doing so can point towards a reordering and reimagining of identities as they come together. Linda described 'one of the most fantastic evenings I've ever had' where cross-community groups came together for an event to oppose fracking. She also spoke of a 'tractorcade – a mix of south and north'

bringing together the community, in difference. The next section will examine the idea of fractured identities a little closer.

6.2.3 Fractured Identities

Social order is disrupted along with the orders of time and space in the community's imaginary of fracking. An idyllic way of life, imagined as homogenous and historic, is under threat in campaigners' talk and representations of fracking. This fear relates to a violation of the self by the other, figured as those from outside trying to enter and harm the collective self. Ahmed describes the twin function of imagination and emotion in her description of the dialectic of love and hate (2004). These interpretative repertoires 'imagine a subject […] that is under threat by imagined others whose proximity threatens not only to take something away from the subject […] but to take the place of the subject' (2004, p.26). Ahmed suggests that this threat is necessary for maintaining a fantasy of the self as pure. She writes that the other threatens 'to violate the pure bodies; indeed, such bodies can only be imagined as pure by the perpetual re-staging of this fantasy of violation'. Ahmed's argument is that love and hate are closely connected and reliant on each other, dependant on 'a responsiveness to and openness towards the worlds of others' (2004, p.28). This will be explored further in the following section.

In the community's view, this opening to the other – along with the meanings and values accompanying the other – is a violation. Violation is a painful experience – it is deeply felt, not just reasoned. It also carries considerable cultural significance in its capacity to draw and locate boundaries (Ahmed 2004). For Ahmed, violation serves a double purpose, both alerting the self to a threat and producing the barrier between self and other itself through the pain of transgression. 'Pain', she writes, 'involves the violation or transgression of the border between inside and outside, and it is through this transgression that I *feel* the border in the first place [my emphasis]' (2014, p.27). In this way, violation again sparks a public into being, drawing a boundary around the community through the sense that it has been transgressed, while alerting the community to the presence of the other in the self. There is a logic of the abject (Kristeva 1982) at work here, whereby the self and other are in danger of collapsing in on each other, by virtue of the acknowledgement that the border between them is porous and not uniformly closed.

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This came up several times during the course of my observations, notably in talk and representations of disgust and an uncertainty about the distinction between the self and other. Abjection is the othering process through which the self establishes difference from the other (Kristeva 1982). However, the abject both protects and challenges the integrity of the self, 'harrying the ego incessantly from where it has been cast out' (Navaro-Yashin 2009, p.6). We see this emerge through talk and expressions of feeling about contamination, pollution, and bodily responses to fracking. Smells, sounds, rashes, and cancers speak to a concern with transgression of the boundaries of the body, with the outside coming in. I noted a concern with hand-painted signs and the use of maps to represent the locations and zones of fracking, an attempt, in this context, to recuperate some power in the face of a threat to the boundaries of the self. These concerns are apparent in a wider sense, too, with fears about the identities of those who are promoting or pushing fracking.

Talk of the government and the EPA is phrased in affective terms of betrayal and corruption, indicating that these agencies are both outside (of the community) and inside (Ireland), but have betrayed their position, leading to feelings of distrust. The community is left feeling uncertain about where the borders of their identity lie. This extends to talk of the oil and gas industry as well. Cian spoke to me about how they were working with the PAD and with Irish geologists, even claiming that Tamboran, one of the firms looking to develop shale gas in Ireland, was Irish in a way: 'he's an Irish man. I think he's an Irish man, he went off […] and he set up Tamboran […] So, the idea that Tamboran is an Australian company that is foreign – it's not. It's a local'. This opening of the community, created by the arrival of fracking, allows the other to travel into the self, both undermining and threatening the self's integrity, further leading to feelings or anger, hate, and fear.

This section has discussed the various ways in which affective practices contributed to the ordering of time, space and social relations in the anti-fracking imaginary. It has suggested that this can be understood through the figuration of the unsettling effect which fracking's arrival had on the community and the consequences their emotional responses had in imagining a future with fracking. The imaginary, as outlined here, is not an abstract conception produced through words, but is intimately connected to feeling bodies – frightened, disgusted, angry, hating, betrayed, shocked, suffering individuals. Certainly, discourse plays an important role in mediating and ordering these feelings, but the power of emotions in directing, colouring, valuing, and

making relevant specific aspects of the imaginary should not be overlooked. Above, we can see how fracking is imagined in temporal terms through narratives and memories of shock. This affective charge figures fracking as causing a painful break or opening in the temporality of life in Leitrim, dividing an idyllic past from an apocalyptic future. In this way, the anti-fracking imaginary is co-produced by the arrival of fracking alongside the community's emotional response to it. We see, also, how fear spatialises the imaginary of fracking – producing frightening openings below the ground and threatening to violate the invisible, but durable, border between the North and South of Ireland. It is fear of the unknown beneath, of contamination, of a return to violence which, at least in part, drives and orders the anti-fracking imaginary, directing it away from a future involving shale gas extraction. Painfully experienced feelings of violation mark a sense of transgression and a consequent threat to the identity of the self. The idea of the other coming to north Leitrim is experienced and articulated through affective practices of fear, disgust, and resistance.

Interwoven with this unsettling and openness are affective practices functioning to settle the future by re-ordering time, space and social relations. The next section will examine how violation, hate, anger, and fear also open up security, love, intimacy, and healing and an alternative sociotechnical imaginary. We will see how issues of identity, violence, agency and trauma undergo affectively-charged settling practices producing new figurations of the relationship between self and other, past and future, and North and South.

6.3 Settling

The literature review examined the creative dimension of affect – its capacity to imagine the future and imagine alternatives. Looking at the work of Morton (2013), we can see how emotion is a central component of imagination itself. He argues that it is through sensing and processing the world via our nervous systems that we respond and act in various ways. Newer work by Damasio (2018) interestingly posits the idea of 'cultural evolution' which functions alongside biological evolution, whereby the values and beliefs which emerged from our bodily responses to the world produced a superstructure-like realm of checks and balances according to which we respond and contribute to, emotionally. Damasio argues that the function of this cultural

superstructure is similar to biological homeostasis in that it drives social life towards a certain kind of order. Power, in this view, is an effect of homeostatic force – it is nature's will towards efficiently functioning systems that generates change. Envisioning politics in this way arguably attributes little power to agency or the conscious action of collectives. Recognition of the need for change and the desire to make it happen occur outside of human choice in the natural realm. Wetherell, alternatively, connects affective practices to order in their relational capacity to shape social formations and 'imagine' nations and communities through a combination of biology, subjectivity, and society (Wetherell et al 2015). Agency is distributed across these sites, at times individuals have the power to act independently, at others they are swept along with the crowd (Wetherell 2014). The case being made here is supportive of this view, arguing that there are times when campaigners are largely reactive to what is happening – unsettled by the arrival of fracking – and times when they actively organise time, space, and community – settling the world around them. The affective impact of fracking created an opening, an imagined future of fracking, which the community attempted to settle and close according to its own desires and fears. This section will examine the affective basis of this settling, and its role in the ordering of time, space and social relations. To begin, I want to look at the settling of time.

6.3.1 Settling Time

Earlier, I spoke about the shock of fracking arriving to north Leitrim as a kind of wound which opens up the possibility of alternative futures through wonder. I want to return to this idea, focusing on the relationship between trauma and time, both in the context of the future enabled by the trauma of fracking and in its connection to the future of another trauma, namely, The Troubles.

I showed in the last section how the unsettling effect of fracking's arrival produced fears about a disruption of the spatial border separating Northern Ireland and the Republic. I discussed how participants connected this disruption to affectively-charged memories relating to the Troubles. Maura memorably remarked that 'Everybody was terrified. Absolutely terrified that there would be a return to that [Troubles violence]'. In thinking about the impact of these feelings on the temporality of the anti-fracking imaginary, I want to turn briefly to some recent theorising on trauma in the context of Irish cultural memory.

Recent scholarship in trauma studies (Antze and Lambeck 1996; Leys 2000; Radstone 2007; Blaney 2007; Noakes 2015; Alcobia-Murphy 2016; Dawson 2017) is beginning to look at trauma from a practice perspective, not unlike that mobilised by Wetherell in her theory of affective practice. This scholarship views trauma as a kind of practice which produces identities and subjectivities while situating them within relations of time, space and power. Recently, Dawson (2017) has called for trauma to be thought of performatively as a result of its capacity to open up and shape futures. Situating his argument in the context of The Troubles, Dawson argues that trauma theory in cultural studies has exhausted its capacity to usefully represent the legacy of conflict in Ireland. Excavating unresolved histories, he argues, relies too heavily on psychoanalytic theories which homogenise diverse traumatic experiences (2017, p.82) or resort to a 'vocabulary of closure' (2017, p.88) which contradictorily exhorts Troubles victims to keep in line with peace-building efforts while simultaneously letting go of a traumatic past. Instead, Dawson makes the case for utilising the theoretical insights from the history and sociology of emotions. Using this framework, Dawson moves away from a focus on individual experiences of trauma to ask what these emotions *do* (2017, p.94). In doing so, he locates the primary activity of trauma in the present, considering how reworkings of the original emotion can involve 'the making of new meanings, namings, and interpretations of experience, including states of feeling, that subjects produce retrospectively, possibly many years later' (2017, p.96).

In viewing trauma as affective practice, Dawson sees space for political agency where individuals can 'seek transformation of conflict-related emotions through future-oriented efforts' (2017., p.90). He points to the 'new horizon of the future' opened up by Brexit and the threat it poses 'of a restored "hard border" in Ireland that reawakens emotions "of the past"' (2017, p.97). In connecting these emotions of the past to an imagined future, they can be reworked in the present. This reworking is not about closure – they are still connected to the future – they allow the channelling of traumatic experience towards positive outcomes. Dawson cites Bryant (2017, p.96), to argue that the shaping of the future by trauma establishes a 'radical reorientation of the present', bringing with it new political possibilities.

The affinities here with fracking are clear – in the eyes of campaigners, fracking also threatens to undermine the temporary stability and awaken emotions of the past. However, rather than focusing on the past and attempts to silence or close it, Dawson argues that drawing attention to what trauma *does* allows us to understand how it might

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be reworked to shape the future. With this inversion of perspective, trauma is no longer seen as suffering in the present which keeps the past open but suffering in the present which opens up the future. The difference being, of course, that the future can be acted upon – offering agency to those suffering through it.

This understanding of trauma alters its temporality, changing the orientation of suffering from the past to the future – there is a fear of a 'return' to The Troubles, but in the future. Fracking is imagined as unsettling the "forgetting" of violent conflict, reawakening traumatic memories, and threatening to provoke violence in the future. Fracking forces the community to remember the violence of the past, but in doing so opens up a future which campaigners can act on. We can see this reworking at place when Linda told me: 'there was years and years of money ploughed into the border area through the peace programs - the threat of fracking did far more to bring us all together'. In imagining an alternative to fracking, the trauma of the past is reoriented to visualising a hopeful future for the border area. This connects with the idea of the wound as a painful opening which provides space for wonder and imagination. Here, that opening is temporal – projecting a future within which alternatives to shale gas extraction might take place.

The opening of a future, caused by the trauma of fracking, creates a space for other future-oriented affective practices to flourish. We can see this in the repertoires of hope and positivity which campaigners shared with me. Alyx illustrated this idea when she said 'I just have this feeling that we actually do have a voice and we could say what we want and we could make changes, you know, and make our lives the way we want them' – the result of campaigning against fracking. Other visions of hope materialised in response to the threat of fracking – tourism, sustainable energy projects, and 'communities and villages taking control of their own lives […] and not be answerable to the banks or the church or to anybody else' (Linda). The fearful future that campaigners imagine in response to fracking where they are powerless exists alongside another one that is filled with positivity and hope, where the community has agency. The setting up of *Comhrá* – the grassroots organisation established to encourage community involvement in imagining a non-fracking future for Leitrim – occurred as a direct consequence of fracking. That is not to say that these futures might not have been imagined in other circumstances, but that fracking, and the affective responses and imaginaries which arose in response to it were central in *this* instance. The feelings produced by the unsettling of fracking are practiced alongside other emotions which

imagine a future that campaigners set about filling with alternative visions to shale gas extraction. This imaginary involves its own unique temporality.

David Lloyd (2008) talks about the figure of the ruin as a way of understanding Irish temporality. 'Ireland's is a history in ruins', he writes, 'a history of ruins' (2008, p.131). These ruins, 'which literally scatter across the landscape' are the consequence of the destructive forces of colonial modernity and its incapacity to 'subdue and absorb a recalcitrant culture' (ibid.). Lloyd problematises the distinction between tradition and modernity as a way of understanding the various ways of life in Ireland, where the West is viewed in backwards-looking terms as 'another country' (ibid., p.1). Instead, he encourages us to look on Irish temporality as scattered with ruins of the past that haunt the present. He argues that these ruins offer 'ways to live on in transformation, counterpointing modernity critically by representing, however weakly or even self-destructively, alternative ways of living (ibid., p.3). Lloyd points out that this is not about nostalgia or a Golden Age of Irish life, ruins are not Romantic truths but openings to be explored and contested, if necessary. They gesture to ways of life that are unavailable in modern capitalism while simultaneously testifying to the oppressive ways in which these ways of life have been silenced.

We see these ruins not only in participants' talk of the trauma of the Troubles, but also in affective practices of love, hope and resilience. Those I spoke to reference a 'traditional' way of life (Maura and Kenneth) that was loved and cherished, as well as the particular kind of love that fishermen, farmers, and musicians have for Leitrim (Linda and Hazel). This is reflected in parades and protests involving 'tractorcades', and boats hung with hand-painted signs that say, 'Fishing No Fracking'. Videos such as *My Farm, I Adore* and *Sean Nós ar an tSionann – Love Leitrim* use traditional Irish dance to articulate their feelings about fracking and the community. A history of resilience and resistance is referred to frequently. The ruins of Jimmy's Hall, and the memorial stone and homestead of the Irish rebel leader Sean McDiarmuida feature in each video. Their connection to the Irish revolution and the struggle for freedom is deeply felt by campaigners and offers a source of strength and resilience. These ruins of tradition, history, and myth, Lloyd argues, are 'not the manifestation of failure' but 'a refusal to admit the closure of possibilities' (2008, p.132). As such, they seek a justice that addresses the lack of justice which their ruination bears witness to. The future imagined by Love Leitrim – where the ruins of tradition and the innovations of modern

technoscience stand side by side – articulates this sense of justice by giving voice in the future to a past that has been silenced.

Like the ruinous landscape that Lloyd describes, the imagined future in Leitrim weaves together multiple temporalities – a traditional way of life with "older" practices such as farming and fishing, *sean nós* (which translates as "old style") dancing, and histories – existing amongst new technoscientific developments such as solar, micro-hydro, and wind energy. In this way, we can identify the kind of time that Latour describes in *We Have Never Been Modern* (1993). Latour exhorts us to forget about revolutions and paradigm shifts, 'it would be better to say that modern temporality has stopped passing', he says (1993, p.74). Latour encourages us to envision time according to 'a spiral rather than a line' (ibid., p.75). In this model of time:

> we do have a future and a past, but the future takes the form of a circle expanding in all directions, and the past is not surpassed but revisited, repeated, surrounded, protected, recombined, reinterpreted and reshuffled. Elements that may appear remote if we follow the spiral may turn out to be quite nearby if we compare loops. Conversely, elements that are quite contemporary, if we judge by the line, become quite remote if we traverse a spoke. Such a temporality does not oblige us to use the labels "archaic" or "advanced", since every cohort of contemporary elements may bring together elements from all times. In such a framework, our actions are recognized at last as polytemporal (1993, p.75).

Within this understanding of time, Latour debunks the notion of tradition as belonging to the past. Tradition is "done" in the present – it is something that is actively constructed: 'one is not born traditional; one chooses to become traditional through constant innovation' (1993, p.76). Building on the ruins of alternatives to capitalist modernity is not to "go backwards" but to '[sort] out elements belonging to different times' (1993, p.76). In doing this sorting, Latour argues, 'we will rediscover the freedom of movement that modernism denied us – a freedom that, in fact, we have never really lost' (ibid.). Taking this into consideration, we might argue that Love Leitrim imagines an alternative temporality to the backward/forward linear time of capitalist modernity with its focus on constant innovation and presence.[45] Love for tradition, the past, and an appreciation for aspects of life incompatible with the modernist values of

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[45]Heidegger (1976) discusses the role of technology in our relationship to the world, expressing concern that scientific thinking and its application in technology threatens to obscure everyday existence with an ontology founded on instrumentality and 'productionism'. Michael Zimmerman describes Heidegger's belief as one in which 'the objectifying scientific view of objects, transforms tools of the environing world (*Umwelt*) into objects disconnected from lived experience' (1990, p.20).

innovation and production which power the pro-fracking imaginary (Chen and Gunster 2016; Rich 2016; Kuchler 2017; Metze 2017a) imagines an alternative ordering of time. Through fear, suffering, hope, love and resilience Love Leitrim imagines a temporality that includes the traumatic ruins of the "past" alongside hopeful technologies of the "future", existing side-by-side in the same time-space, the spatial dimension of which, I would like to explore in the next section.

6.3.2 Settling Space

Affective practices of love for Leitrim – The Heart on the Hill installation, talk of Leitrim's pristine natural beauty, images of green hills, fields and mountains – create a space for the anti-fracking imaginary to unfold in. Wetherell et al (2015, p.62) outline how affective practices '"settle" national space through their very particular formulations of the emotional character, proximity and distance of the groups populating [a place]'. They argue that this settling process involves 'reinforcing established patterns of privilege and disadvantage', and as such requires close attention to relations of power (2015, p.62). Spaces materialise and develop in different ways depending on how they are configured, for example, 'as sites for family fun, or as official sites for solemn and reverential remembering, or as sites for expressing conflict and senses of injustice' (ibid.). This section will examine how space was settled and organised affectively in the anti-fracking imaginary. Firstly, I want to turn to love and how Love Leitrim made sense of the landscapes and boundaries of the community.

I encountered affectionate talk and representations of mountains, trees, fields, soil, skies, and waterways frequently when researching fracking in north Leitrim. This was used both as a marker of what was under threat, but also what campaigners hoped to protect and maintain into the future. These spaces provided the background within which fracking, or its absence, was imagined. This spatial imaginary fits into a broader historical picturesque aesthetic associated with the West of Ireland (Cronin and O'Connor 2003). Gibbons (1996, p.85) argues that this myth of the West involves 'idealizations of rural existence, the longing for community and primitive simplicity' largely produced by the urban centre to justify the uneven distribution of wealth and technological development. Peillon argues that the cultural production of an 'uneven modernity' (2002, p.40) opened a space of resistance in the rural cultural imaginary. The 'sense of security, anchored in forms of communal cooperation and strong familial

solidarities, sustained, established mores and *discouraged innovations*' (2002., p.41, my emphasis). He writes that 'cultural orientations in Ireland did not harmonise with the requirements of industrial development that was pursued by the major economic forces' (ibid., p.43).

This ties in with the community's commitment to a 'different way of life' distinct from the metropolitan centre and its focus on riches and economic value. Participants frequently spoke of the poor quality of the land. Linda stated, 'farmers have a love of the land, it isn't particularly good land here', Hazel described that land as 'worth nothing anyway […] it's just a field of rushes', while others spoke about the enjoyment of a 'different way of life' as an alternative to 'riches'. This is in opposition to an economic 'production-based sociotechnical imaginary of energy' (Smith and Tidwell 2016, p.344) which makes meaning of a place in an entirely different way. Those I encountered in Leitrim did not value the land productively, in Heideggerian terms (1976), but rather through emotive ties to family and a traditional way of life.[46] In this way, tropes of the residual culture such as 'a different way of life' or 'traditional way of life' are powerful because they connect to a broader history of rural disruption of innovation and capitalist logic, an imaginary which values the land in terms of energy reserves and monetary worth.

Love of Leitrim was also spoken about by the participants I spoke to in terms of pride. As described in Section 1.2, one of Love Leitrim's three main objectives is to 'celebrate the positive' aspects of Leitrim (Love Leitrim 2017). It was set up, according to Cillian 'to promote Leitrim as much as to prevent the environment from being damaged. We wanted to spread the word that north Leitrim is a nice place to be'. This 'pride of place' (Hazel) and desire to promote and share it speaks to a sense of ownership over the area by the community. Hazel connected pride and ownership explicitly when she talked about the sense of achievement she felt about flowers that the community planted in Manorhamilton, 'you've a sense of ownership, like "you've planted them". And the kids have a sense of ownership'. Pride can be understood in this way, as a social emotion, whereby the individual feels pride in the context of a group (Salice and Sanchez 2016). 'Seeing yourself as a member of a group, the actions and/or achievements of the other members acquire relevance when it comes to assessing your

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[46] It is important to point out that, while Heidegger might approve of this pastoral sensibility as an antidote to the ontology of productionism, such a view is not shared here.

social self' (2016, p.7). Feelings of pride bring Leitrim within the domain of the social self, producing a shared space occupied by the community who wish to promote it to others. How relations of control and ownership are figured in this context are important.

In Section 5.2, I outlined how several participants described values of ownership in connection to place. Paschal spoke about the farmer who owned large tracts of land, but which was acceptable because he was poor and humble – travelling into town on a bicycle. This ownership by individuals was not a major concern for locals as they knew they had a tacit right to make use of the land through routines such as walking or the ritual of mass rock worship. Permission was asked, but this was seen as largely perfunctory as permission was always expected to be granted. Returning to the point just made, participants also made it clear that the land was valued differently by those who lived there. This way of life is marked out and spatialised through affective practices of love and pride for the area, and the relations of control and ownership which are coproduced alongside them. This intersects with the production of the community itself – who is inside and outside is reinforced through a spatial imaginary. This spatial imaginary is sustained and held together by the affective practices such as the familial ties of inheritance which are used to explain why the land is valuable. Another farmer in *The Future for Shale* remarks that 'it was given to us […] my grandfather bought the land. My mother gave it to me […] it would be nice to hand it on to your grandchildren'. These emotive bonds give meaning and value to land outside of its economic value.

The Heart on the Hill installation also produced a spatialised sense of community. Its position above the community on the side of Benbo mountain located the campaigners' sense of love, providing a point of convergence for the assembling and recruiting of powerful emotions of joy, hope, mourning and belonging alongside everyday practices such as gathering and commuting. A question might be asked at this point (as touched on in Section 5.2.3) about the flow of power in this instance. The Heart on the Hill might be read as a disciplining technology which functions panoptically (Foucault 1991) to constantly make the community aware of their duty to love Leitrim. The question might be asked as to what choice they have or what agency they have in this affective practice.

For Wetherell, the question of individual agency is an important consideration when thinking about affective practice. She speaks of how people 'navigate' (2014, p119) the patchwork of socially available subjectivities and interpretative repertoires of feeling, 'customising it for their own purposes'. She is keen to work individual agency

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into a social theory of affect which can, at times, become too deterministic, or threaten to make any understanding of agency become barely intelligible in the intuitive sense of the term.[47] Wetherell avoids a nondiscursive or nonrepresentational (Thrift 2004, 2008) entirely bodily (Massumi 2002) conception of affect where a person 'becomes a kind of semi-intelligent, hormonal ape – already kitted out with basic emotions and drives […] – non-consciously reacting, their preconsciousnesses doing most of the work; rarely, it seems, talking to each other or negotiating' (2015, p.149). Rather than accepting this nonsubjective negotiation of power which operates on a pre- or non-conscious bodily level, Wetherell encourages paying attention to the affective-discursive negotiations which happen in practice, looking to sites and moments where affect is reinforced, contested or reworked with the active involvement of participants. In this vein, I would look to the request to Love Leitrim by the organisers of the Stonywoods festival who actively wanted the Heart on the Hill to be involved in their celebration of young people who had passed away. I would also look to the community request that the Heart on the Hill be reinstalled at Manorhamilton the following year, and its subsequent installation for the event in Glenfarne celebrating the banning of fracking in Ireland by the Irish government. These examples provide enough of a basis to believe that the affective practice of Love, as performed through the Heart on the Hill was consciously accepted and publicly reperformed by the community in Leitrim.

The spatialising practices of love and pride function in a complex way in relation to the hated other. This is owing to the fact that the "outsider" in this case is also the insider in a national sense; many of the agencies of the other involved in developing shale gas include Irish organisations like the EPA, the PAD, the Irish Government itself, or Irish people such as the founder of Tamboran. Managing the hated other was organised not so much through the delineation of a stable space in which the other was placed, but rather in the production of particular affective environments. As discussed in Section 4.4.1, anger and intimacy were used to particular effect in the creation of environments in which encounters with politicians took place. Campaigners can be seen to use the affective space of the hustings to communicate their anti-fracking imaginary to politicians beyond the informational. Sarah Ahmed describes this 'organization of social and bodily space' as consisting of histories of '*what sticks*, of what connections

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[47] As discussed in Section 2.3.1, this is the danger of affective theories in the Deleuzian tradition which prioritise nonconscious movement or vitalism over conscious awareness.

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are lived as the most intense or intimate' (2004, p.33, emphasis in original). It is in these affectively-charged moments that the history of fracking in Ireland is made, that the imaginary becomes embedded in networks of power and made durable. This process continues in the second affective environment produced by campaigners, this one even more intimate, involving just one campaigner and one important politician. During this encounter, the intimacy structured by the discourse of 'look it' – a friendly, pragmatic relation – produces an agreement to ban fracking in Ireland. A spatial environment of anger gives way to one of intimacy in which the encounter with the other is navigated. While this is certainly a tactical decision, the space of intimacy is also one of vulnerability, demanding openness. As Ahmed writes, 'whilst love may be crucial to the pursuit of happiness, love also makes the subject vulnerable, exposed to, and dependent upon another, who in [citing Freud] "not being myself", threatens to take away the possibility of love' (2014, p.125). While this affective environment is managed, it also opens the possibility for an encounter with the other.

6.3.3 Settling Identities – Self/Other

Love and positivity settle an imagined community who are bounded and ordered temporally, spatially, and by relations of power. The identities of the loving campaigner and the positive campaigner in opposition to the callous "fracker" mark and value different groups of people. Love of Leitrim is contrasting with the Hate of fracking. The community is privileged because of their loving and positive nature. They are imagined as repudiating negativity, preferring to embrace the positive. The community is associated with the youth and innocence of children and the maturity and wisdom of farmers and the 'traditional way of life'. These borders are policed through affective practices, delineating between those outside and those inside the community: joyous celebration events such as the Heart on the Hill and the gathering to mark the banning of fracking, the shared humour and craic uniquely associated with resilient campaigners, the pride for, and sense of ownership over, the landscape, and the emotive histories embedded across north Leitrim marking out sites of continual resistance to threatening outside forces.

In this way identities are closed down and settled. However, as Ahmed argues above, the boundary between self and other and love and hate is not so easily maintained. For her, it is through the *feeling* of the intrusion and violation of the other

that the self is constituted: '*because we love, we hate, and this hate is what brings us together*' (Ahmed 2014, p.43, emphasis in original). According to Ahmed, the connected affects of love and hate are boundary-defining. It is through the 'surfacing' and 'impressions' made by emotional experiences that the contours of different social bodies are imagined and defined (2004, p.25-27). The affective practices of fear and hate alongside love, positivity and pride produce a collective self and collective other which are navigated in a particular way. The necessary inclusion of the other in the self is settled in a way that the community retains a sense of agency: through a relation of consent.

If the other arriving to fracking Leitrim is felt as a violation, the invitation to the other to visit as a tourist can be understood as consent. Love Leitrim are happy to share what they love about the county with others – indeed it is one of their primary purposes – however, this must be done on their terms. In this way, the necessary intrusion of the other is controlled and managed. Tourism was frequently mentioned by those I spoke to and became a central part of the anti-fracking imaginary. Tourism, alongside sustainable energy projects, are the two main ways that campaigners imagine alternative revenue streams to shale gas. Consent grants the community notional control over who is included and excluded from their space and on what terms. Tourism can be seen as the manner in which the community is happy for "outsiders" to come "in".

This is evident through the talk and visual practices produced by the community – using images associated with touristic ideals of unspoilt natural beauty and talking about a 'different way of life'. However, there is an important relation of ownership here. As Maura told me: 'there are plenty of wind turbines about the place, but no one has any ownership of them so they seem out of place'. Hazel reiterated this sentiment: 'We have a lot of windmills, companies come in, but the community has no sense of ownership, you know?'. Section 5.2.3 outlined the importance of tourism to the imagined future of Leitrim from a cultural and economic perspective. It also demonstrated how important it was for Paschal in how he navigated my research work, discursively drawing a boundary between work (fracking) and pleasure (tourist sites).

The 'tourist gaze' (Urry and Larsen 2011) is a useful way of making sense of the visual practices connected to tourism and the cultural impact they have had historically. Urry and Larsen argue that the discourses underpinning these visual practices, alongside the modes and technologies which mediate them, have contributed to the erosion and privileging of ways of life in touristic destinations. They claim that

local populations "play up" to the visual expectations of tourists for economic rewards, hence reinforcing those cultural practices that conform to those expectations and dropping those that do not. The authors claim that the production and circulation of images, in particular, generate relations of power-knowledge that are closely related to affective processes of desire: crafted images 'produce desires for bodily travel, and they script and stage destinations with extraordinary imaginative geographies' (2011, p.173). In imagining Leitrim as a seductively beautiful space through its imagery and talk, the community flexes power. Jorgensen (2003, p.145) writes about how, in tourism discourse, 'Ireland is presented as a place of unspoilt natural beauty'.

'When "locals" enter the scene their function is to signify authenticity, induce romanticism and bring life to the scene' (Urry and Larsen 2011 p.175). I think here again of Paschal bringing me on a tour of fracking sites and pointing out all of the places of interest along the way. This position of the tour-guide is important – as Jorgensen (2003, p.143) writes, it is 'the tour guide who has the power to speak, not the tourists and not the locals' and thus the tour guide can produce power-knowledge of a space. This traces power in more granular terms, pressing us not to assume that all locals have the power to produce the meaning of Leitrim. Rather, it is at those points of convergence – such as the institutional level of Love Leitrim – where power accumulates. Other literature has referred to this power of the 'gazee' (Urry and Jorgensen, p.15) to negotiate power and meaning. Stone (2015, p.166) describes how community-based ecotourism might be perceived 'in terms of community participation and empowerment', while Afenyo and Amuquandoh (2014, p.179) state that community-based ecotourism produces 'personal and communal' economic benefits.

The affective practices outlined in Chapter 5 power and sustain this imaginary. Love traces the fluid boundaries connecting the where to the who and the what, co-producing a place that is loved, the people who love it, and the things that are loved. In so doing, particular forms of life and those who live them are privileged – farmers, fishermen, locals – alongside places of emotional saliency – Benbo, north Leitrim, Ireland – and its objects – landscapes, rivers, lakes, mountains, fields. Pride underwrites the sense of joint ownership and the desire to protect and maintain what has been collectively achieved emerging through relations of consent and violation – imagined in tourism and fracking, respectively. The drive I took with Paschal was clearly marked in this way – discursively divided between tourism, which he had control over, and

fracking, which was feared and potentially uncontrollable. Tourism was thus a form of consent, while fracking a type of violation.

This chapter has discussed how affective practices contributed to the production of an anti-fracking imaginary through the twin processes of unsettling and settling. The suggestion here is not that the sociotechnical imaginary is simply a matter of affect and emotion. But that affective practices do matter. The community's response to fracking navigates fear, anger, hatred, shock, love, positivity, resilience, and hope. This is combination with technical knowledge practices drawing from scientific studies, policy documents, legislation, and technical reports and assessments. While these important aspects of the anti-fracking imaginary fall outside of the scope of this study, they are important and interwoven with affective practices. The purpose of my research is not to disentangle affective practices from knowledge practices once and for all, but to do so temporarily with the aim of indicating the important contribution that they make. This contribution comes in the form of value, meaning, and direction, adding rich qualitative layering to our understanding of how imaginaries operate. Narratives of shock, feelings of disgust, relations of hate, angry atmospheres, positive campaigners, love for the community and landscape, joy, humour, and hope are deeply involved in the ways that campaigners imagine fracking and their relationship to it.

I have detailed how the sociotechnical imaginary relating to a feared fracking future is opened, in part, through emotional responses of shock, fear, anger, and hate. This unsettling imaginary reverberates through collective visions of time, space and social order. In this affective imaginary time is fractured, space is fractured, and identities are fractured. I have suggested it is helpful to consider this opening through the figure of the wound, both for how it accommodates the painful affective dimension of fracking's arrival and how it figures a capacity for an opening to creativity, established through the imagining of alternatives. The trauma of fracking can be understood in this way to open the community to the possibility of healing in the future, where the ruins of the past are collected and combined with valued ways of living in the present and into the future. Additionally, the violation of the other produces a loved self to be protected and maintained as the community moves forward. In this way, the imaginary can be seen as becoming settled and ordered across time, space, and the social in a way that is deeply felt.

Unsettling and settling hang together as political processes which generate change through affectively shaped imagining. Unsettling and settling operate here as figuration devices which help us to make sense of the political movements of the imaginary. They trace the flow of power from an unsettled reaction to more organised and creative patterns of settled order. As the analysis suggests, however, these flows of power are not static or linear; they circulate between the present and the past, inside and outside of spatialised boundaries; and across the barriers between self and other. Indeed, it is the dynamic, relational modality of the affective imaginary which defines its political value. The interwoven temporalities of Love Leitrim, imagining hopeful alternatives in the future; the spatialising ordering of a uniquely-valued place alongside the production of shifting affective atmospheres; and the navigation of self and other through a politics of violation and consent provide campaigners with capacities to order and organise their environment, according to locally-defined conceptions of justice. The dynamic nature of power in these scenarios also opens possibilities for a re-settling of affairs, providing opportunities for engagement. The next chapter will examine this idea in more detail, seeking to address how the affectively-charged anti-fracking imaginary might be engaged with.

The suggestion here is not that the sociotechnical imaginary is simply a matter of affect and emotion. But that affective practices do matter. The community's response to fracking navigates fear, anger, hatred, shock, love, positivity, resilience, and hope. This is combined with technical knowledge practices drawing from scientific studies, policy documents, legislation, and technical reports and assessments. While these important aspects of the anti-fracking imaginary fall outside of the scope of this study, they are important and interwoven with affective practices. The purpose of my research is not to disentangle affective practices from knowledge practices once and for all, but to do so temporarily with the aim of indicating the important contribution that they make. This contribution comes in the form of value, meaning, and direction, adding rich qualitative layering to our understanding of how imaginaries operate. Narratives of shock, feelings of disgust, relations of hate, angry atmospheres, positive campaigners, love for the community and landscape, joy, humour, and hope are deeply involved in the ways that campaigners imagine fracking and their relationship to it.

The times, spaces, and social orders imagined by campaigners intersect with important issues such as agency, control, identity, justice, and fairness. These are central concerns for sociotechnical imaginaries scholarship. I suggest that paying attention to

affect will help us to understand in richer detail how certain orderings come to be made instead of others. From this evidence, affective practices can be seen to drive, valuate an imaginary that makes fracking meaningful and worth acting on. The next chapter will examine the affective technopolitics of the anti-fracking imaginary in more detail, considering what engagement might mean in the context of the unsettling and settling practices just outlined.

7

Resettling: Engaging with the Affective Imaginary

> The age of affluence lies immediately before the dark times from which our present global civilizations are still emerging. It was a brief period lasting only some two or three centuries but a crucial time in human history. This was the time when humans caused catastrophic climate change: the age of the breaking of the world.
> […]
> In a physical sense, of course, the necessary actions were possible. The affluent people could have *done* what needed to be done. But could they have *imagined* it?
>
> —Tim Mulgan, *Ethics in a Broken World: Imagining Philosophy after Catastrophe*
> (2014 p.1)

7.1 Introduction

The last chapter examined the times, spaces and social orders produced by affective practices, revealing how trauma, fear, hope, love, hate, and other emotions created distinctive and defining aspects of the anti-fracking imaginary in north Leitrim. This chapter seeks to explore the affective dimensions of the imaginary further by inquiring how they might be engaged with. It asks why, in the first place, should we engage with this imaginary at all? What kind of politics does this kind of engagement require? And, what might this engagement look like in the case of the fracking controversy in north Leitrim? Having addressed these questions, an answer to the overall question guiding the thesis – What is the value for science communication of considering the role of affect in the anti-fracking imaginary in Ireland? – will then be considered.

The suggestion I make is that openness is critical for engaging with the anti-fracking imaginary. This openness is not unidirectional. Engagement is not to be

imagined in linear terms with the only degree of freedom being backwards and forwards or upstream and downstream. Returning to the idea of participation examined in the literature review, I will consider how affective practices produce a dynamic imaginary that has multiple potentialities for the future. Engaging on the level of affective practice allows for the imagining of multiple future possibilities and ways that things could be otherwise. I will suggest that this allows for a continual process of resettling according to principles of openness, humility, reflexivity and critique. In paying attention to the insights of those working in the co-productive vein of public participation, we can work towards a model of engagement that allows for 'unruly' and 'uninvited' publics to makes sense of controversial issues according to the everyday, affective, processes of meaning-making and the imagination of futures they believe worth attaining.

Examining the affective unsettling and settling processes of the anti-fracking imaginary indicates how this meaning is organised across unique iterations of temporal, spatial, and social order. These orderings are significant and should be acknowledged and responded to. The anti-fracking imaginary cuts across issues of trauma, violence, sustainability, control, ownership, identity, violation/consent, and tradition. How the community feels about fracking is relevant to many of these issues. They are powerful and meaningful social relations which require sensitivity and attention if we are to talk about public engagement.

I will suggest that these emotive aspects of the anti-fracking imaginary are not to be valorised simply because they are meaningful to the community. This would be an asymmetrical analysis of power. As the literature in co-productive public participation advises, *all* meaning-making practices ought to be scrutinised critically and navigated through reflexive practice. The campaign's mobilisation of children, their management of angry and intimate atmospheres, and their control of affects like positivity or energy deserve critical examination as much as the governing practices of the EPA, the Irish government, or the PAD. This involves an openness to resettling – to keeping the dimension of the political open. There are examples of this too in the campaign, both in the *Comhrá* initiative and, to a more radical and speculative extent, in the enchantment and humility shown towards the unknown. The chapter will be divided into two main sections, each with their own subsections. The first section will return to the idea of engagement, considering why we might engage with affective imaginaries. The second section will address what this engagement might look like and what kind of politics are required.

7.2 Why Engage with the Affective Dimensions of a Sociotechnical Imaginary?

7.2.1 Affect, Meaning, and Public Participation

In 'A New Climate for Society', Jasanoff (2010) makes a distinction between the specificity of human experience and the abstraction of scientific knowledge production. She writes that 'scientific facts arise out of detached observation whereas meaning emerges from embedded experience' (ibid., p.235). For Jasanoff:

> Durable representations of the environment [..] do not arise from scientific activity alone, through scientists' representations of the world as it is, but are sustained by shared normative and cultural understandings of the world as it *ought* to be (ibid., p.248, emphasis in original).

Making decisions about what shared courses of action we should take requires an understanding of the world and an understanding of the ways in which that world is made meaningful. By remaining sensitive to the 'ought' of social order, a sociotechnical imaginary can reveal the 'topographies of power' involved in making it durable (2015b, p.18). This, Jasanoff argues, returns crucial normative issues like equality, justice, and fairness to analysis of science and technology.

These topographies are accounts that make visible the ordering functions of power. They illustrate how social life is shaped by power relations – relations of domination, resistance, control, and governance, among others. It is the typically uneven distribution of power that is of interest here – a consideration of who gets to imagine or have their imaginaries endure. The analysis has outlined how the anti-fracking imaginary has been produced through processes of unsettling and settling, where affective practices have directed, driven, and valued temporal, spatial and social order. Within these flows of power, we see the emergence of agency (hope, energy), identities (loving campaigners, callous frackers) and normativities (the positivity of sustainable energy and the negativity of hydraulic fracturing). These are powerful devices, configuring and reconfiguring social relations, generating change through processes of spatialization, temporalisation, and society-making.

Revealing how power functions in the anti-fracking imaginary provides opportunities for engagement, where engagement is understood as a shared negotiation of power. How we approach this negotiation depends on our ethical standpoint. This research is interested in figuring engagement as an exercise in justice, fairness and equality. To be sure, justice is not a predetermined universal constant – it is socially constructed in context. As this research demonstrates, this construction involves embodied meaning-making: fear, hope, love, anger, and enchantment. Attending to this embodied dimension of justice produces a politics that is distinctive. It grants legitimacy to the emotional ways that we navigate issues of concern, revealing the part they play in the imagining of desirable or feared futures, while offering new openings for engagement. Where studies of discourse point to writing and debate as mediators of justice, an exploration of affect indicates embodied modes of engagement where hate, positivity, and shock, among other emotions, can be negotiated through play, performance, and participation (Davies 2016).

My understanding of justice follows Jasanoff's concern with the 'fundamental questions of democratic politics […] Who is making the scientific and technological choices that govern life? On whose behalf? According to whose definitions of the good?' (2005, p.190). In a democracy, she argues, it is crucial to take on board the desires and concerns of those who will actually have to live with the futures that are enacted. In this way, the focus of public engagement with technoscience shifts from the abstract realm of information exchange to the messy, local, contingent, and hence political, reality of society. Political, here, refers to the fact that things could always be otherwise: fairer, more equal, and more inclusive.

Paying attention to these aspects of public participation means being sensitive to the ways in which people produce meaning. This includes the role played by affect (Davies 2014; Chilvers and Kearnes 2016b; Davies and Horst 2016; Irwin et al 2018). In this understanding, deliberation should go beyond the discursive dimension of meaning to 'incorporate the expression of emotions and materialities implicated in particular technological presents and futures' (Davies p.167). I believe that Wetherell's convincing account of the role of affect within these future-making practices offers further subtlety and richer detail to our understanding of how some worlds get made over others. As Jasanoff puts it, sociotechnical imaginaries reveal not only 'matters of fact' but also 'facts that matter' (2010, p.248). They do so by showing us how science and technology is interwoven with the futures that diverse publics imagine are worth

attaining. Addressing this requires a better understanding of what *matters* – what people care about and how they feel about the future.

My research in Leitrim demonstrates that affective practices are part of Love Leitrim's navigation of the fracking controversy. The analysis indicates that affect is present in a powerful and meaningful way. It is in keeping with the findings of Davies (2014, 2016, 2017; with Horst 2016) who has revealed the deeply affective ways that publics negotiate scientific issues and engagement events. In a sense, the fracking controversy has been one long public participation event, albeit one that it is bottom-up, playing out in real time, and which overflows the boundaries of official engagement processes like consultations, hustings, or freedom of information requests.

This is the kind of unruly participation mentioned before, where meaning is already affectively charged. It is an example of resistance – the production of a counter-imaginary – but resistance alone does not guarantee justice or inclusivity. Engagement that seeks justice rather than the singular achievement of an objective requires continual negotiation, particularly in the case of a controversy. The campaign can engage with policymakers, other community groups, industry, and government agencies in relation to any of the issues identified in this research: sustainable energy, tourism, employment, border politics, or other environmental issues. If nothing else, Love Leitrim could follow the deficit model and simply impart what they've learned to other groups facing a similar situation. Engagement could be more than this, though, particularly if we pay attention to the anti-fracking imaginary's affective dimension. What is distinctive about Love Leitrim's own engagement activities is the prevalence of affective practice. Not only have these practices contributed to the achievement of a ban on fracking in Ireland, they also reveal opportunities for unique kinds of engagement that might have been performed.

Importantly, as the next section will discuss, it is not enough to feel, we must also factor in reflexivity, openness, and humility if we are to adequately address the political. This involves stepping out of the local and bridging with the universal. The following section will examine what kind of politics are required for engaging with affective imaginaries and what this might look like in the context of fracking in north Leitrim.

7.3 How to Engage with an Affective Imaginary?

7.3.1 Recognition

As the findings chapters have indicated, the fracking imaginary had a profound impact on the community of north Leitrim. It produced a wide range of affective-discursive responses and alternative visions of the future. Dismissing these visions as irrational or emotional, and hence not worthy of public deliberation, would be to lose out on a corpus of important meanings and values which can only be negotiated in correspondence with affect (Damasio 1994, 2018; Morton 2013; Ahmed 2014; Wetherell 2014; Campbell et al 2017). These include hopes for community ownership and management of sustainable energy production, fear of the unknown, the avoidance of Troubles violence, the protection of a traditional way of life, the protection of the visual landscape, the promotion of tourism, and the continuation of a community. As mentioned previously, this does not mean that each of these issues are *a priori* valid simply because they involve an affective dimension. The suggestion here is that they should not be *a priori* dismissed. The nuances of how emotive issues are engaged with is important.

It is not enough to produce a relativistic account of affect which is governed by a positivist politics. This occurs in instances of public engagement whereby emotions are considered as being "real for them". In that formulation, the emotional dimension of public responses is recognised but it is contained and separated from rational judgements of truth. This separation cuts emotional responses off from claims to normative validity, side-lining them as subjective responses that, while real and experienced, carry little argumentative power. This positioning of emotion allows for their simultaneous recognition and dismissal. In the case of north Leitrim, approaching the emotional dimension in this way would mean acknowledging that affect plays a role in the community's response to fracking but separating it, relatively, as "for them". The emotions are real and felt but are cut off from the logic governing the deliberation space. Anger, fear, love, and disgust are acknowledged and brought to the table, but the space of deliberation is not open to a logic of the 'passions' (Mouffe 2000). Rather than granting negotiating power to 'matters of concern' as well as 'matters of fact' (Latour 2004b), emotional issues are relegated to one object amongst many which ought to be considered. They are not granted the power to decide outcomes in and of themselves.

That power is restricted to a utilitarian positivist logic which calculates benefits and harms (Jasanoff 2016a).

Recognition as it is understood here follows Chilvers and Kearnes in their distributed and relational basis of participation whereby recognition involves 'multiple ways in which publics, public issues, and political ontologies are enacted in both formal and informal settings' (2016b, p.34). This is not an acknowledgement of values or concerns "for them", but recognition which allows the setting of valuation regimes right from the beginning. In the case of fracking in Leitrim, there is good reason for doing this. The suffering and trauma experienced and remembered in relation to the Troubles; the continuation of a way of life with its traditional/modern temporality; aesthetic values of wildness, pristineness, and naturalness; relations of violation and consent; fear of the unknown; and love for the community, its children and those who have passed away are powerful and meaningful drivers of the imaginary but not adequately navigated by conventional public engagement instruments like surveys, technical public consultations or opinion polls (Chilvers and Kearnes 2016b, p.35). Davies (2014, 2016) outlines how STS-informed scholarship in science communication has addressed the need for better engagement instruments and measuring techniques, adding that a gap still exists in relation to the navigation of the affective dimension. I would follow Davies in calling for greater attention to relations of emotion and affect. As my research has indicated, they play an important role in the assembling, directing and valuating of the time-spaces that constitute sociotechnical imaginaries, the very structures which guide decision-making about which futures ought to be realised.

The first step, then, is recognising the value and importance of affective relations. It is to acknowledge the role played by emotion in the choosing of some futures over others. Politics is understood here as particular configurations of relationships of power – how they are settled and how they may be resettled. This requires a reconsideration of the methods and instruments used to explore public responses to technoscience and an openness to alternative visions of innovation configured in temporally, spatially and socially distinct ways.

7.3.2 Creative Engagement

My research has indicated that affect played a defining role in the production and maintenance of the anti-fracking imaginary. Fear, love, shock, anger, positivity, hope,

intimacy, trauma, hate, and humour produced unique and resistant responses to fracking and the imagining of alternatives. As discussed earlier, it was the unique character of affective practices which drove, directed, and valued a reimagining of community, environment, and temporality. I have suggested it was the unsettling created by the wound of fracking's arrival that allowed the community to reimagine and settle an alternative vision for the future. If, indeed, we are to value unruly public engagement of this kind, and open it further to resettling, it is worth considering what kinds of engagement would be effective. This section will look at how engagement might function in this context, with the following sections examining the political implications of these approaches.

Thinking in a similar vein, Davies (2014, p.103) writes that 'we should try to incorporate the emotional, creative, aesthetic and embodied into our engagement practices'. I would agree, believing that opening participation up to these aspects of technoscience will bring us closer to the 'bridging of scales' between local meaning and universalising knowledge practices which Jasanoff (2010) argues will help give society a greater voice in sociotechnical life. It will help address the longstanding political concerns of STS science communication scholars about science-society relations which involve the convergence of politics, culture, materiality and knowledge and the production of worlds that we live in and care about. Extending these concerns to the roles of embodiment and feelings will arguably further illuminate the normative dimension of this caring and mattering.[48] I also agree with Davies's suggestion that scientific citizenship be developed 'in sites and encounters beyond the categories of invited and uninvited participation' (2016, p.173). As discussed in the literature review, this can be extended to 'unruly' publics (de Saille 2015), those who have taken it upon themselves to produce a political space of articulation for sociotechnical issues without the consent of official bodies. Love Leitrim can be seen as this kind of organisation. They have produced their own terms of reference for the consideration of fracking, one that assembles and recruits affects like love and positivity alongside technoscientific knowledge practices.

This requires a radical restructuring of our understanding of public deliberation to accommodate the bottom-up emergence of concerns, issues, relevance and value that

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[48] This is not to be confused with Barad's (2010) concept of 'mattering' relating to a Derridean reading of ontology in the context of quantum entanglement.

accompany affective responses. Davies (2016) has suggested using the notion of 'deliberative moments' to navigate this kind of public engagement. This involves eschewing the search for a unitary, ideal mode of engagement where all aspects of an issue are accommodated. This 'ecosystem' of deliberation is open to varying scales of engagement that involves diverse modes of participation (2016, p.173; see also Chilvers and Kearnes 2016b). A single issue such as fracking has many facets to it. Technoscientific knowledge practices are certainly important, but, as my research suggests, so are affective practices. These are not separate realms but interwoven practices that rise and recede at different times and at different locations, with different collectives. Engagement and participation take different shapes depending on the context. Davies suggests that our approaches to participation take an equally flexible and adaptable form. There are certainly times when mathematical calculations are required in navigating the effects of fracking, but equally there are times when intimate conversation or shared public expressions of love or fear are needed.

Where technical issues demand certain instruments of measurement and frames of verification, affective relations require their own kinds of instruments and measurements. Davies follows Dryzek in articulating a range of creative activities which can produce '"valid" participation in deliberative and participatory processes' which include: 'the use of rhetoric, storytelling, protest and disruption, humour and aesthetic, and creative expressions of position or perspective' (2016, p.172). Each of these 'creative expressions' (ibid.) has emerged in the bottom-up navigation of fracking in north Leitrim generating a realm of deliberation in which imagination can flourish. It is in the Heart on the Hill, the 'Fractured Thinking' exhibition, the No Fracking – Not Here Not Anywhere theatre event, *Future for Shale*, *We're Better Together*, the Love Leitrim logo, and the many other talks, gatherings, conversations, visualisations, protests and parades that much of the anti-fracking imaginary is developed and 'extended' (Jasanoff 2015c). As an affective imaginary, it provides opportunities for further engagement through participation, play, and performance. The anti-fracking imaginary offers points of intersection where affective engagement might take place, potentially bridging the scales of local meaning and universal knowledge.

One site of the affective imaginary is the Heart on the Hill. Here, love for Leitrim and its community is spatialised and woven into everyday routines (Section 5.2.3). Hope emerges at the intersection of place, love, memory, community and imagined futures. Engaging with the community's hope and love might involve, first and foremost,

visiting Manorhamilton and looking upon the Heart on the Hill. Simply viewing the installation in place is to participate in it. Looking at digital or printed images of it, like those presented in Section 5.2.3, does not provide the same performative experience as standing on a roadside, in the middle of nowhere, peering at it sparkling vividly in the distant darkness. The installation's scale or significance do not carry across in images, their 'visual persuasiveness' (Burri 2012, p.52) pales in comparison with the affect produced by a situated viewing. The scale indicates the effort that went into its construction, tying it to the urgency with which the community treats the fracking issue. The Heart's brightness, contrasted with the surrounding dark, and its visibility from numerous places conveys a sense of shared hope. I couldn't help but be moved by how much campaigners cared about this issue – willing to make an expressive plea to the night sky through lights and a figure of love and hope. Participating in this spectacle could facilitate empathy with campaigners – producing a kind of situated understanding of how fracking matters to the community that image and discourse alone might struggle to convey.

The 'Fractured Thinking' exhibition offer another opportunity, this time through an engagement with the (hated) other. The exhibition kept a space on one wall for messages and pictures that visitors were encouraged to make about fracking (Section 4.3.1). Every depiction of the imagined other was negative, clearly oppositional to those involved in fracking, but they were also playful. As that section described, many of the phrases played on the homophony between 'frack' and 'fuck' or used some kind of ironic wordplay. The use of humour addresses the violation caused by fracking but creates distance from its violence. Humour and play provide scope for the affective negotiating of violation in a way that is not overwhelming (Parkhill et al 2011). An ironic and humorous approach to engagement might take place in the form of something like a 'Hate In'. Anti-fracking campaigners and pro-fracking members of the community could gather for a Hate In where they are encouraged to express everything they hate about the other group. Humour and irony should be emphasised, possibly through excess: encouraging participants to be as ridiculous or crazy as possible. Each "side" gets a chance to describe what they hate about the other group. The idea would be that the physical proximity to others alongside the deferring and containing effect of humour could provide an atmosphere which fosters empathy and sensitivity. Further, being open to the criticism of others, through play, could lead to humility and the acceptance of that criticism, thereby opening pathways for action and change. This is

an experimental engagement concept and would undoubtedly need extensive planning and care in its execution.

A third possibility relates to affectively charged ordering of time. Future-building that brings resilient memories of the past together with positive imaginings of the future could potentially be engaged with through caring actions in the present. Comhrá – the initiative established to encourage community involvement in imagining a non-fracking future for Leitrim – offers a point of intervention here. Comhrá was designed to channel the positivity and energy of the campaign towards wider issues of relevance for the Leitrim community, bridging memories of past resilience with hopes for a positive future. There is much that activists in other contexts can learn from this process – particularly the importance of keeping open a space for critique in imagining the future, vital for the recognition and embracing of difference. Trust is also key here. The complex history and politics of the border together with fearful memories of the Troubles have produced, in Comhrá, an engagement approach that seeks to build trust while accommodating difference through the performance of reflexive critique. Past trauma of the Troubles brings sensitivity and care to navigations of the future – those who grew up in the border areas have been well-sensitised to the violence that difference can generate. Comhrá makes an effort to bring the conversation to the domestic sphere, approaching participants in their home, providing a friendly atmosphere and making them feel safe. Tea, biscuits, chat, and reflexive future-making sensitised by memories of the past offers a performative outlet for directing and valuing collective visions while keeping open the space of the political.

The new temporal, spatial, and social orders imagined by campaigners generated their own agency as the anti-fracking imaginary became durable at a local level and began to extend across time and space, assembling powerful new allies and mediators. This eventually extended to Dáil Éireann (Irish Parliament) resulting in the *Petroleum and Other Minerals Development (Prohibition of Onshore Hydraulic Fracturing) Act 2017*, legislation providing for 'the prohibition of the exploration and extraction of petroleum from shale rock, tight sands and coal seams' in Ireland. This is a significant outcome. Granted, not the result of affective practice alone, but certainly shaped by it. As a campaigner remarked. 'We did it by engaging the community, through participation and empowerment […] we had to win over the hearts and minds' (*Longford Leader* 2017). Engagement, however, is not about simply transferring power to the public to allow groups do with it what they see fit. Openness must be symmetrical

– communities also have a shared responsibility to be reflexive and remain open to critique.

7.3.3 Reflexivity, Openness, and Humility

This discussion has been suggesting that relations of emotion and affect be taken seriously in approaches to public engagement with environmental controversy. I have looked to STS-informed public participation to provide a framework for exploring how this engagement might take place. The previous section has shown how this framework views the bottom-up affectively-charged practices of Love Leitrim as genuine time-spaces of participation and citizenship. It is important to remember that these time-spaces are connected to dynamics of power, involving relations of violation, consent, ownership, and healing.

Affective practices produce power - the identities, subjectivities, norms, and agency generated by love, hate, anger, shock, disgust, and positivity mould and shape the broader anti-fracking imaginary. The production of love/hate relationships based on who is included and excluded, how past and future are valued, which spaces are inside and outside resist a pro-fracking national agenda while settling a new collective vision of the future. However, this analysis seeks to do more than simply describe the topography of power relations – it seeks to intervene by speculating on how these relations might be done better. As previously stated, better is understood in terms of justice. Justice is not deployed here as a universal category of the Kantian Enlightenment type, but rather as a kind of 'ethos' or 'attitude' which emerges through practice (Foucault 1984, p.50). This ethos is one that resists the domineering aspects of governmentality and seeks to achieve, through critique, alternative futures which are deemed worth living in. It involves 'critique of what we are' and 'analysis of the limits that are imposed on us and an experiment with the possibility of going beyond them' (ibid., p.50). Resistance is an important dimension of this ethos. However, so is paying attention to our own limits and the politics they produce. In keeping with this idea, I would suggest campaign groups also turn this Foucauldian Enlightenment inward, illuminating their own limits by practicing reflexivity, openness and humility.

The analysis has revealed several areas where power accumulates with, and is wielded by, the campaign. The first I would like to examine critically is the relationship between Love Leitrim and children. The argument might be made that using young

people to advance a political cause is manipulative and exploitative. Manipulative, in that it leverages *general* feelings of affection that people might have for children to persuade them of the *particular* threat of fracking. This can be seen in the use of children in dance performances, parades, protests, events, public photographs on campaign websites, and discourses of vulnerability and purity aligning Leitrim with youth. The critique does not relate to specific concerns that the campaign has about the potential harm that might come to children as a result of fracking. The relationship could be seen as exploitative in that children are frequently aligned with innocence, obstructing them occupying a more dynamic role. This can be seen in the use of children in dance performances, in photographs, and in comments by participants whereby the presence of young people embeds an event with an added authenticity or wholesomeness. The example of the Kidz from the Glen singing 'we know the rock, we know the soil, meaning of our mothers' toil' stands out in this respect, articulating adult sentiments but through the medium of "uncorrupted" youth. Giroux (1998, p.265) argues that 'the myth of innocence' often portrays children as inhabiting a world protected from the pain and difficulty of adult life. He suggests that this myth:

> not only erases the complexities of childhood and the range of experiences different children encounter but also offers an excuse for adults to ignore responsibility for how children are firmly connected to and shaped by social and cultural institutions run largely by adults (1998, p.265).

Questions might be asked about the degree of agency allowed to children to respond to an issue like fracking which is so passionately mediated by their parents. Equally, it might be asked if fracking, with its requirement to understand large amounts of technical information involving environmental impact assessments, geology, planning, licensing, and engineering, alongside frightening representations of apocalyptic futures, is suitable terrain for children at all.

A second area of concern relates to how Love Leitrim produces "good" and "bad" campaigners through the creation and normative weighting of identities and subject positions such as loving, energetic, angry, calm, or positive individuals. This kind of positioning can have a powerful impact on a person's freedom to respond emotionally to a given issue (Kenway and Fahey 2011; Wetherell et al 2015; McConville et al 2017). Campaigners explicitly distinguished between angry campaigners, 'hippies' who 'roar and shout', and positive campaigners, who 'do

everything with a bit of love'. Kenway and Fahy employ Hochschild's notion of 'feeling rules' to describe 'those shared latent social guidelines or "affective conventions" that construct understandings of emotional propriety' (2011, p.190). The production of normatively-weighted identities could arguably inhibit the wider community's ability to respond freely to the arrival of fracking.

A third site for critical analysis involves the campaign's reported management of anger and intimacy. These important affective practices – the production of angry and intimate atmospheres of engagement when dealing with political decision-makers – deserve further scrutiny. Cian spoke about how the angry atmosphere at a hustings organised in preparation for a general election was 'perfect' as it 'focused' the minds of the politicians. Further, Cian described the intimate meeting between himself and a TD in which key wording was produced for the legislation to ban fracking. As discussed earlier, if this version of events is accurate, it constitutes a powerful moment in the campaign. It involves the convergence of campaign and government at the site of an intimate conversation between a single campaigner and politician. One might argue that this is neither democratic nor open in how it condenses deliberation into an encounter between two individuals.

These points are not meant to be read as a dismissal of the campaign. Rather, they should be considered as openings for making the process of public participation more open and reflexive. These are important principles. Chilvers and Kearnes describe how they can be interwoven with participatory practices. Their analysis, while using quite complex language, is relatively straight forward: reflexive participation involves becoming aware that the ways in which we intervene in the world (both in scientific activity and social engagement) simultaneously articulate 'how the world *ought* to be' (2016c, p.266, emphasis in original). This is the insight of Jasanoff's co-production (2004b) shone back onto the work of STS itself. It applies the symmetry of co-productive political analysis to the knowledge-making, world-making practices of public engagement itself. Chilvers and Kearnes state that the basic requirement for reflexivity is 'being aware of, responsible for, and accounting for the ways in which participatory experiments frame and produce particular versions of the objects (issues), subjects (participants/ publics) and procedures (philosophies) of participation (2016c, p.267)'.

This is important also for ensuring that counter-imaginaries, themselves, do not become reified, reducing communities, and their potentials, to the concerns of one

campaign. Flexibility in imagination allows for continual experimentation with politics and greater scope for inclusivity. This requires maintaining openness and humility when considering the position of the self. Instead of privileging the self as universally right and thus capable of justifying anything as a means to an end, the reflexive participatory approach outlined by Chilvers and Kearnes requires remaining open to critique. In the case of the unsettling and settling practices of Love Leitrim, this would involve remaining open to *resettling*. This openness allows for change and the redistribution of power as new publics or groups emerge with concerns of their own. For Chilvers and Kearnes this brings about a more 'systemic and "ecological" perspective on participation' (2016c, p.267) distributed in a fairer, more just way as new issues and publics materialise. We can see this kind of openness already at play in certain parts of the campaign.

7.3.4 Resettling

So far, I have indicated the importance of openness both in terms of allowing, through affective practice, the creative emergence of imagination, and in terms of humble reflexivity, whereby the self remains open to further critical scrutiny. Openness can be understood as both the form and the politics of engagement – allowing imaginative affective responses to flourish whilst remaining open to critique. This is a radical departure from conventional notions of innovation development which prize continual novelty and value creation. The kind of innovation process detailed here is slower, and more porous, generating more friction as different views and ways of making meaning are allowed to intervene (Felt et al 2013). In the case of fracking, it meant that the innovation ground to a halt completely, resulting in a ban on the technology in Ireland. This is an important political achievement. That is not to say that it is the "right" achievement, but it indicates that the views and feelings of divergent publics can generate flows of power which push back against innovation and extend their imaginary across time and space to the national scale. It is critical that the principle of openness follow here too, keeping the settling process open to further resettlement as new publics, ideas, or feelings form around the issue, or not as the case may be.

Power patterns and forms in a variety of ways. Not all of the ways it shapes social life are aligned with justice, fairness or equality. The key is to identify which identities, subjectivities, and norms; which affective practices; which orders of time,

space, and community fashion ways of 'going on well together in difference' (Verran, cited in Law 2017, p.45). This does not rule out conflict, antagonism, or the creation of adversaries (Mouffe 1999). It can, however, create an ethos (Foucault 1984) and a means of engagement which prizes openness. This research has demonstrated that the affective dimension of the anti-fracking imaginary shapes the kind of politics it produces. Here, that is an imaginary which seeks to settle issues of violation and consent, the threat of Troubles violence, and a uniquely valued landscape. At the same time this affectively charged imaginary offers new opportunities for engagement, ones that are structured through care, trust, sensitivity, reflexivity, and empathy (Section 7.3.2). I would argue that engaging with the affective dimension of an environmental controversy enables a more even distribution of power. Through creative and open processes like play, participation, and performance, which stay with affective practice, power relations can be reconfigured, and collective visions reimagined and resettled. Care, trust, sensitivity, reflexivity, and empathy all function through openness and the accommodation of difference, each seeking to work things out for the better. This has the potential to reach various actors.

Campaigners can learn where they, themselves, configure power in ways that are exploitative and repressive or that employ positive modes of governmentality to advance a particular end. Communities outside of the campaign might engage more readily with activities that embrace 'feeling differently' (Gammerl et al 2017). Nations might benefit from a more sensitive approach to connected political issues such as those relating to land, territory, and identity constitutive of the Troubles. Governments, and their agencies, could forge better relationships with their citizens, built on trust and mutual learning. Policymakers could develop more nuanced approaches to controversy, acknowledging the power of the affective dimension of shared visions for the future, recognising how affective practices contribute to the ordering of time, space, and community. Engagement professionals can widen their engagement and communications approaches, changing outcomes to reflect the importance of affectively mediated processes like care and empathy.

All of this requires humility – an openness to learning and vulnerability which is acceptant of the inherent limits to knowledge (Jasanoff 2011). We are never going to know everything; knowledge is always partial – we cannot occupy an all-seeing position from which to wield universal reason (Haraway 1988). Reality is messy, complex, contingent, and operates at endless intersecting scales. We will always rely on the

heuristic gestalts of emotion to direct us, drive us and to tell us whether something feels right or not. So long as this is how we know, and that the ways in which we know the world are inseparable from the ways in which we choose to live in it (Jasanoff 2004a, p.2) a commitment to justice requires us to be open to the partial knowledge of others. Comfort with the unknown affords comfort with difference.

I touched on this in Section 5.4.1 in relation to the enchantment of the Shannon Pot and Paschal's story about the Lackey Lizard, as well as a more general fear of the unknown relating to underground waterways, distributions of chemicals, and geological layouts. It might be argued that the enchanted landscape at the Shannon Pot opens up a space of possibility that is missing in disenchanted rational claims to the world, providing a hybrid third space within which another political reality is possible. Bennett (2001, p.17) describes the 'enchanting effect of interspecies and intraspecies crossings' and considers the implications of such enchantment for ethics. This kind of encounter occurred when Paschal described the healing cure of the Lackey Lizard to me. The anecdote about this mystical cure offers an interesting insight into the local nature of knowledge and how it is entangled with medical knowledge, the land itself, and cultural tradition. The cure involving a healer who licks the lizard and then licks the patient who is burned is an example of just such an interspecies crossing.

For Bennett (2001, p.17), the power of the hybrid crossing lies in how 'metamorphing creatures enact the very possibility of change; their presence carries with it the trace of dangerous but also exciting and exhilarating migrations'. The ability to cure beyond the disenchanted gaze of modern medicine provides a sense of empowerment and hope, one that relies on the mystery and unknowability of the material world. There is comfortable pragmatism in the magical properties of the cure – nobody needs to know why it works, it just does. The gap left by knowledge is filled by the land itself and the material practices accompanying it. There is humility in not knowing, and a respect for what is unknown or mysterious. The local epistemology is underwritten by intuition and a feeling for what is right based on experience. Place, and its materiality has a powerful influence on what is known and what should be left unknown. The stories of Sinann and the Lackey Lizard might conflict with a rational, scientific view of the river or how human anatomy functions, but they nonetheless carry a powerful force of enchantment; a normative power in that it guides and directs the meaning-making of the landscape. Enchantment, together with recognition of the

validity of dissenting opinions constitute another kind of humility which is open and reflexive.

This chapter has explored how we might think about public engagement in the context of affectively-charged imaginaries. I have looked to scholarship in STS-informed science communication to suggest that bottom-up participation approaches fit best with imaginaries that are driven, valued and ordered by affects like love, hate, shock, fear, anger, positivity, and hope. Participation in this mode best encompasses the diversity and contingency of emotive responses to controversy while offering opportunities for ongoing political negotiation which factors in principles of fairness, equality and justice. In recognising the legitimacy of 'unruly' publics such as Love Leitrim together with their affective concerns, we are given access to important and meaningful matters of political consequence such as violation/consent, ownership, and healing.

I have suggested how the affective imaginary provides opportunities for engagement structured through care, empathy, sensitivity, and trust. I have discussed how humility and reflexivity are important components of engagement processes, with openness the single most important factor to consider. This is the realm of the social, co-produced alongside technological innovation, that STS has consistently drawn attention to. It is not the space for technocratic expert-led decision-making, but deliberation and negotiation. Here, in local, messy, overdetermined, value-laden, affective imaginations of what kind of future is desired or feared that *meaning* is produced. Public participation produces times and spaces where this meaning can be woven with universal scales of knowledge-making such as geology, epidemiology, fluid dynamics, environmental science, or seismology.

In the case of Love Leitrim, it involves making space for the affectively-charged anti-fracking imaginary together with its fears of the unknown, traumatic memories of the Troubles, anger towards politicians and government agencies, love for the beauty, history, and mystery of the landscape, and hope for community-owned sustainable energy projects that can coexist with traditional forms of life. These affective practices, among others, have driven, valued, and directed the anti-fracking imaginary, opening new possibilities for the future with the absence of fracking. The arrival of fracking opened up a space for wonder and the imagining of a loved community existing in its own time-space that is projected into the future. For participation to function, however, this opening is not enough – settling the imaginary once and for all according to the

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wishes of one group is not participation. Engagement, in the sense outlined above involves, continual openness and humility, like that demonstrated in the performative learning of the *Comhrá* project, the humorous play of difference on the Hate Fracking wall, the participatory empathy of the Heart on the Hill, and the vulnerability of enchantment in the face of the unknown. It involves remaining open to critique and to the unknown – to the wound of wonder – from where new imaginaries and publics emerge. New affective practices like care, empathy, humility, trust, and grace – produced through engagement – offer opportunities for moving flexibly and adaptively to new emergences where universal reason struggles. Instead of constant paradigm shifts, there are continual resettlements as the affective community shifts and changes their visions of the future.

We are now in a position to see the value of considering the role of affect in the anti-fracking imaginary in Ireland. I have shown how affective practices like shock, love, fear, and hope were involved in driving, valuing, and directing the powerful imaginary which resisted the innovation of fracking. This is an important insight. It indicates that feelings, and their navigation, play a significant part not just in responding to the world but in imagining its future. It is this creative contribution of affect which is most valuable here, the recognition that the imagination of alternative futures – that things could be otherwise – requires the dynamism and power of emotions in order to guide and sustain collective visions of the future. It suggests that if we are to engage with imaginaries we must also engage with emotions. Doing so provides unique opportunities for navigating relations of power through an ethos of justice in which difference is embraced. However, as the analysis has suggested, it is not enough merely to recognise affective practices. They require careful, reflexive negotiation that must remain open to the continual emergence of new feelings and ideas about the world.

Paying attention to the affective dimension of the anti-fracking imaginary in north Leitrim sheds light on why fracking was resisted and how alternatives were envisioned. It illuminates the emotive roles played by traumatic memories of past violence, visions of apocalyptic futures, "corrupt" government agencies, images of cracks, leaks and contamination, positive campaigners, wild and pristine hills and rivers, stories of revolution and resistance, and a cherished community. Recognising this dimension of the imaginary allows us to see the 'topographies of power' of responses to fracking, exposing them to normative critique. As discussed earlier, this critique is not something which should happen "outside" but occur through reflexivity and

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openness to dialogue with the other, even if that other appears monstrous. By embracing humility, and the enchantment and grace that comes with it, our conceptions of engagement are broadened. It opens new terrain for the negotiation of controversy, recognising and granting legitimacy to the emotions responsible for driving and colouring the values which make these issues matter in the first place. In the context of north Leitrim, this involves acknowledging the affective technopolitics of time, space and social order in the imagining of a form of life that resists the linear progression of modernity in its continuity of tradition alongside new forms of sustainable living. It involves paying attention to traumatic memories of the Troubles and how responding to fracking opens new possibilities for healing in the future. It also involves recognising feelings of violation and the production of consent in the imagining of new forms of encounter between the self and other.

Understanding the affective dimension of the anti-fracking imaginary provides more than an insight into the desires and fears of a community, it offers a fine-grained and richly-detailed account of what is meaningful, what matters, and what is worth acting on. It also uncovers new pathways of engagement that operate through care, empathy, and trust. This is worth engaging with, even if we do not agree with everything that we encounter. With openness, humility, and a reflexively critical approach, we can structure these encounters in productive ways. As the quote at the beginning of this chapter suggests, we live in a broken world, but our capacity to care about it, to be open to imagining a different future, offers us hope that we can do something about it. I believe that this constitutes a better kind of communication, one which reveals the depth and nuance of public feeling while granting it legitimacy at the same time.

8

Conclusion

'The Celtic Movement', as I understand it, is principally the opening of this fountain, and none can measure of how great importance it may be to coming times, for every new fountain of legends is a new intoxication for the imagination of the world. It comes at a time when the imagination of the world is as ready as it was at the coming of the tales of Arthur and of the Grail for a new intoxication.

—W.B. Yeats, 'The Celtic Element in Literature' (1993 [1898], p.199)

8.1 Introduction

This thesis has sought to consider what value an understanding of the affective dimension of the anti-fracking imaginary might have for science communication. My response is that engagement with the affective dimension of imaginaries provides opportunities for novel kinds of play, participation, and performance which maintain openness to a politics of resettling and difference by fostering care, trust, empathy, and sensitivity. The research has arrived at this conclusion by asking three interrelated questions: What affective practices are evident in the anti-fracking imaginary? What do they do? How can we engage with them? I have used Wetherell's affective practice to explore the affective dimension, looking at how emotions have contributed to the campaign's visions of Leitrim's future. I discovered that affect is very much a part of the meanings and experiences driving the imaginary; shaping it, ordering it, driving it, and providing it with meaning and value. I have shown how affect is interwoven with discourse, creating meanings which are situated, felt, relational and emergent. The knowledge space (Law 2017) I have produced with these participants is also emotive. Yes, I have had to make compromises to satisfy the institutional requirements for producing a PhD; converting affectively-charged images, audio recordings and

experiences into codes, themes and scholarly narrative. But I hope that the story I have told somewhat reflects the passion, love, anger, urgency, hope, fear, and resilience that Love Leitrim impressed upon me.

I have suggested that this vibrant dimension of the anti-fracking imaginary has produced a uniquely ordered vision of the future for Leitrim. This future was brought into being by the arrival of companies seeking to drill for gas in the remote and sparsely populated northwest of Ireland. The shock of their arrival and the fear of what they would bring opened a terrifying future of fractured, scarred, and contaminated landscapes, powerlessness, and the return of a violent Troubled past. This painful opening also created space for an alternative imaginary, equally impassioned, but structured by hope, love, positivity, and resilience. It allowed for the production of a powerful anti-fracking imaginary that was driven not just by thoughts and ideas, but also by felt, situated, and culturally-negotiated meanings. These meanings were produced and sustained by affective practices – embedded in artworks, public gatherings, conversations, writings, and performances.

These insights inspired me to argue that public engagement that values participation ought to become sensitive to the affective component of imaginaries. Practices which produce identities, repertoires of interpretation, subject positions, memories and narratives ought to be acknowledged in the context of engagement. It is here that embodied, situated, and felt meaning becomes visible. In attending to affective practices, we can see how imaginaries are not only produced, but also valued, directed, and driven. Campaigners feed off the energy and humour of others, are attracted by positivity, and gather around issues of mutual concern or love. Thinking about fracking is not enough, an imaginary that inspires action requires navigation of the body, and its power to attract, compel, desire, fear, or perhaps most importantly, to care about things being otherwise. Much space has been given over in STS to thinking about matters of fact or matters of concern. Acknowledging emotion arguably allows us to better understand why people care about what they do and how visions of sociotechnical futures emerge.

This last point brings us to the issue of politics. Power has been a central part of the analysis here. I have not been looking to provide a description of affective practices, only then to leave the reader to work out why they are relevant or significant. I have tried to pay attention to the ways that love, hate, anger, and hope have been ordering time, space and collections of people, and how this has consequences for agency and

justice in deciding what futures are worth inhabiting. This requires paying close attention to the local, context-dependent, and richly textured affective practices mediating the imaginary. It is here, at this level, where love, anger, disgust, fun, intimacy, and other emotionally-charged relations are visible that, I argue, we can see, with greater clarity, 'some of the biggest "why" questions of history' that are 'left unaccounted for by the bare idiom of coproduction' (Jasanoff 2015b, p.3). Affective practices drive, direct, and value the anti-fracking imaginary, unsettling and settling time, space, and social order through a politics of violation and consent, ownership over the meaning and value of the land, and historical violence, I locate the creative potential of imagination – that things could be otherwise – in its affective dimension. I have found that emotional responses contribute to a sense of powerlessness (through fear) and to feelings of agency (through hope). Imagining that things could be different is supported by feelings of hope which have the power to generate change. Imagining the absence of fracking involves the creation of loving and loved communities, cherished landscapes, and traditional and possible ways of living that deemed worth protecting and attaining.

The generative, productive dimension of affect creates opportunities for positive change through resistance that seeks to overcome the limits set by a domineering governmentality (Foucault 1984). As discussed in Chapter 7, this ethos of resistance is not to be thought of as a universal, unchanging principle, but rather as an ethos which is nurtured through experimental forms of engagement. As mentioned previously, new orders have the potential to become equally repressive and unjust. To counter this, imaginaries must remain open to processes of resettling where techniques of production and control linked to contemporary formations of innovation are replaced with approaches valuing care, trust, sensitivity and empathy. Doing so requires humility and reflexivity – the continual application of critique. It here that an ethics of justice emerges.

Engagement with affective practices is about connecting meaning to the local. It is the connection between the imaginary and the local context. One bank of the bridge that is connected to broader scales of meaning making (Jasanoff 2010). It is here, in the emotionally-charged meanings that the imaginary emerges, and it is here that it ought to be engaged with. It is here that Leitrim becomes figured as a beautiful, cherished landscape where a bounded community envisions traditional ways of life merging with new sustainable technologies like micro-hydro, wind energy, and solar. It is here that memories of a violent past are redirected towards hopeful visions of a cross-border

absence of fracking. At the level of affective meaning-making – desire, fear, care, hope, affection, distrust, anger, positivity – the community imagines and produces a future where fracking is absent and is replaced by tourism and sustainable energy projects. This is what matters for the community in north Leitrim and paying attention to affective practices help us to see how it is done. The rest of the chapter will outline in a little more detail what the findings of the research have been, what contribution these findings make to STS science communication, and what broader implications the research has produced. The chapter will close with an examination of the limitations of the study, further questions which have arisen, and where future research might go.

8.2 Key Findings and Contribution to Knowledge

8.2.1 What Affective Practices are Evident?

The first research question sought, rather simply, to identify what affective practices were at play in the anti-fracking imaginary. It involved examining the doings and sayings which marked relations of situated, felt, bodily meaning-making, how they were figured, and what they were connected to. This was an inductive task, looking to the empirical data and pulling out whatever examples of affect were present, identified through the theory of affective practice.

The main finding here is that a number of affective practices co-produce the anti-fracking imaginary. As this is an exploratory research question, treading relatively new ground in paying attention to the affective dimension of sociotechnical imaginaries, the findings involve a descriptive catalogue of the evident affective practices. This is not a universal typology, but an outline of the practices at play in the unique and particular context of the anti-fracking campaign in Ireland. The affective practices are grouped together under two headings – love and hate – which correspond to positive and negative affects. The analysis demonstrates that the practices grouped under each heading overlap and connect to each other. Fear of fracking gives rise to the hope of an alternative, sustainable, future, for example.

Starting with hate, we encounter fear, hate, and anger. These affects are not to be understood as closed, internally consistent "units" of feeling, but rather as emergent meanings that mark relations of bodies, talk, environments and context. Fear is found

to involve narratives and memories of shock at fracking's "sudden" arrival, a sense of losing control in the face of an unstoppable industrial process that threatens to expand at an ever-increasing scale. It involves the interpretative repertoire of annihilation whereby Leitrim is imagined to be completely destroyed in the future. Fear relates to a shared concern about contamination, figured through talk and images of cracks, leaks, fractures, and openings to a monstrous, unknown realm. Fear is articulated through memories of The Troubles and fracking's potential to unsettle peace to bring about a return to violence. Hate relates to the production of the identity of the hated other, opposed to the loving self of the north Leitrim community. Connected to beliefs about the other's corruption and callousness, the relationship between the community and the government and industry is underwritten by distrust and anger. The other is associated with an economically-driven valuation of the land which clashes with the community's own vision of a place that combines a traditional way of life alongside sustainable energy technologies. Hate borders on disgust, at times, as campaigners focus on bodily responses to fracking. The anger which arises amongst the community is carefully managed. There is fear that displays of anger will destabilise border peace and concern that angry groups of people resemble unthinking "hippies" who protest just for the sake of it. Anger is approved when it focuses politicians' minds, however, and quickly gives way to friendliness and intimacy when important diplomatic work gets underway.

The affectively-textured terrain of the anti-fracking imaginary also involves love, positivity, and enchantment. Love includes the landscapes, histories, community and forms of life that go on in Leitrim. Community and environment are thrown into consciousness with the arrival of fracking, motivating campaigners to go about settling an alternative vision to fracking where all that they love is protected. Love emerges through the identities of loving campaigners: members of the community who come together to oppose fracking. Performances like the Heart on the Hill or *We're Better Together*, help establish an affectively-bounded group of people who are committed to a shared cause. Children are pushed to the forefront of activities – powerfully emotive examples that re-mind and re-body everyone why resistance matters. Love produces a sense of pride, connected to a sense of shared ownership, further establishing community identity. Illuminated by the threat of fracking, all that is loved and cherished is imagined and represented in collective settings, provoking action and determination. Positivity is an important affective practice for the campaign – it is through a relentlessly fun and optimistic appearance that others are attracted to the movement and

those that have been there from the beginning gain resilience. Emotive stories and memories of past resistances contribute to this end. Hope emerges in the spaces where the community comes together to imagine a future for Leitrim and to remember what they have achieved before and what they believe they can achieve again. Outside of these intuitively-identifiable affective practices one might expect to see in an environmental campaign are less-patterned, yet no less intense, emotional responses. One example that deserves mention is a general sense of enchantment articulated through an openness to mystery. This emerged during my travel to the Shannon Pot – the humble and mythically-infused source of the Shannon river, and in the story I was told about the magical Lackey Lizard. While these are narrow strands amongst the dense knots of affective relations constituting the anti-fracking imaginary, they have affected me, and stayed with me, and as such, deserve inclusion.

These findings satisfy me that, yes, affect is at play in the anti-fracking imaginary. This contributes to scholarship in sociotechnical imaginaries by demonstrating how emotions are integral to imagination and that they extend beyond desire and fear. The next question I sought to answer was, what, in this context, do they do?

8.2.2 What Do They Do?

Having identified a range of affective practices, I then set about analysing what role they play in the anti-fracking imaginary. This involved examining how affective practices produced a shared normative order across time, space and community. It involved examining how affective practices gain and retain power and how this contributes to campaigners' collective visions.

I have found two primary processes connecting affective practices to a shared normative order – unsettling and settling. The arrival of fracking unsettles the community, producing dynamic affective responses that co-produce visions of the future alongside judgements about those visions. These are not linear cause and effect responses; ongoing affective practices are involved in the very constitution of the meaning of fracking. The arrival of fracking is figured through a narrative of shock which creates a temporal break for the community. Time before fracking is imagined as a homogenous idyllic bliss which gives way to a future of destruction, pollution, and out-of-control industrial growth. This temporal break is experienced as a traumatic and

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painful event, opening a fearfully imagined future, unsettling the tacit background assumption that the future would have continued on like the unremarkable present. It is only with the introduction of fracking, and affectively-mediated responses such as shock and fear, that time is refigured, and a terrifying future produced. Alongside temporal unsettlement is spatial unsettlement whereby the protective function of the ground is no longer trusted. Talk and representations of cracks, fissures, earthquakes, and openings speak to fears about porous boundaries and threats below the ground. Feelings of instability are figured spatially as the future of north Leitrim is imagined as being overcome by monstrous contaminants underneath the surface. Fears of unreliable boundaries and unstable foundations extend to the national border separating the Republic of Ireland from Northern Ireland. The delicate political stability of the border is vulnerable to the unsettling movements of fracking, threatening to awaken the ghosts of violence which continually haunt it. The reverberations of fracking also unsettle social order. A division is drawn between self and other through the painful experience of violation, as the community comes to terms with the potential loss of control and ownership over the meaning of their surrounding landscape. Attempts to imagine an opposite and internally coherent hated other are accompanied by anxieties of further transgression as the crudely drawn boundaries of identity threaten to break down.

The unsettling and painful affects of fracking also produce a creative space for the imagining of an alternative future without fracking. Here, affective practices function to settle temporal, spatial and social order in ways that corresponded to what kind of future the community believes worth attaining. It involves a refiguring of temporal experiences such as trauma, whereby the source of pain, repositioned in the future, allows action in the present. In this case, fear of a future return to The Troubles allows the setting up of cross-border anti-fracking activities which have healing potential. Fear of a return to violence opens space for imagining alternative social arrangements. The trauma of fracking also opens other possibilities for the future, such as the *Comhrá* initiative, whereby the community gets together with the explicit purpose of imagining what kind of future they want for their county. The temporal order within which these imaginaries are organised contrasts with the teleology of modernism with its endless production and striving for newness. "Older" forms of living and ways of valuing the landscape and community coincide with "new" modes of sustainable energy production that generate alternative political arrangements to those found in neoliberal capitalism. Community ownership, shared control of energy distribution, and the

protection of traditional practices like fishing and farming emerge in affectively-charged visions of the future.

Love of the land and the community directs these visions, giving them salience and urgency, while motivating action to realise them. The close relationship that campaigners have with the landscape – their appreciation of its beauty, its involvement in their everyday routines, its involvement in their sense of identity – performed through installations such as the Heart on the Hill, generated a sense of pride and ownership over the area, and a desire to protect and maintain it. The future of Leitrim is imagined in these spatial terms, as a *place* to be protected, visualised in maps, and marked by signs warning of the threats of fracking. The shared practices of love imagine a bounded community that is connected to the land through familial bonds that value place in ways that extend beyond the economic. Children are often imagined as the future inhabitants of the area, providing a further emotional connection between place and family. Space is configured also through affective atmospheres, whereby anger or intimacy guide interactions with the other. Anger gives way to intimacy and friendliness when it appears that progress can be made in realising the anti-fracking imaginary. Imagining a relation with the other is also figured spatially as the community figures interactions with the other through tourism. Here, power lies with the community in the form of consent, as outsiders are invited to share in the landscapes, so beloved of the community.

These findings are useful in helping us consider how to theorise affect within scholarship on sociotechnical imaginaries. My research suggests that affective practices are involved in the opening of imagination and in directing, powering, and sustaining them. Communities are drawn together not just through shared ideas but shared and continually performed feelings about technoscience. The practice-based nature of affect means that they can always be otherwise – open as they are to resettling. My findings suggest that affect has a powerful role to play in imagining.

8.2.3 How Can We Engage with Them?

This research question was an open one, dependent upon the previous findings and organised in correspondence with theories of relational, co-productive public participation (Jasanoff 2010; Felt et al 2013; Chilvers and Kearnes 2016c; Davies 2016; Irwin et al 2018). The previous findings suggest that affect contributes to the anti-

fracking imaginary by opening up spaces within which the imaginary can unfold, ordering time, space and community according to a shared normative sense of how things ought to be. Affect is involved in the creative genesis of the imaginary by marking, directing, and powering what matters, injecting meaning with salience, relevance and value. The reasons why shale gas is rejected, and the landscapes, children and community of Leitrim embraced, are interwoven with the affective practices mediating the everyday lives of campaigners. This is a shared, negotiated, continually-updating process of settling. As the connotations of the term 'settling' suggest, the vision of the future mapped out by the community unfolds in a contestable political space. The idea is not to substitute the universalism of reason for the universalism of the affective. In the spirit of STS analyses that seek to establish how we can 'go on together well in difference' (Verran, cited in Law 2017, p.45), I believe we must attend to the terrains of power as they emerge in order to organise that difference in better ways. This involves remaining open to resettling, to other imaginaries and the possibility that things might still be otherwise. It means keeping the dimension of the political open for continual difference, and the hope that each difference can be better.

I have suggested that affective practices do not produce imaginaries that are static and unchanging – what Wetherell (2014, p.119) describes as 'singular and coherent belief systems pre-dumped in people's heads'. Rather, they provide dynamic, felt interpretative backgrounds which are navigated and can be contested, populated by a colourful range of emotions. Certainly, power flows through these practices – shaping them according to certain interests. But they can be resisted and reformed to suit collective ends. For this reason, I suggested that the affective practices involved in the anti-fracking imaginary might be repurposed to reflexively enact modes of engagement which are powered by their openness. I argued that, in doing so, we can see the unique character of affective practice in its capacity to generate unique encounters operating through care, sensitivity, trust, and empathy which produce the kind of open, humble and reflexive engagement needed for just, fair, and equal kinds of public participation. A commitment to emergent, co-productive participation involves a specific vision of the political of this kind. This vision emphasises openness, diversity, and reflexivity. My findings suggest that an insight into the affective dimension of imaginaries can help us navigate these values in engagement settings, embracing difference and 'going on together well' with it.

My findings have suggested that affect has a unique capacity to open spaces of imagination and allow for the reordering of social life in new and better ways. This is helpful both for theory and practice in helping us choose 'deliberative moments' (Davies 2016) that might improve democratic participation and lead to the production of better worlds. Factoring affective practices into engagement activities opens up participation to new groups, ways of knowing and ways of doing politics.

Affective practice is a useful way of factoring emotion into STS science communication scholarship. It bears enough ontological and epistemological resemblances to function within a relational, co-productive approach to public engagement. Affective practice also contributes to our understanding of how values are established within imaginaries, shedding light on what guides and powers shared public visions. This is relevant for affective practice scholarship. Research in this area can turn its analytical gaze towards science and technology, one of the most powerful cultural forces operating in society (Jasanoff 2004a, 2015b). Rather than stick to the conventional terrain of societal analysis where human emotions might most clearly be seen – cultural identity, art, literature, advertising, marketing – affective practice can examine in more depth, and with greater political acuity, the multimodal relationships between human bodies, meanings, feelings, and technoscientific artefacts (Lupton 2017, 2018).

8.3 Implications

This research was funded by the EPA with the intent of finding out how to better communicate environmental science to the public. Taking my lead from science communication scholarship, I have flipped that question to ask how the EPA can better learn about environmental science from the public. The reason for this, as I have shown, is that environmental science does not begin and end in a textbook, a lab report, a policy document, or a research project. A technological innovation like fracking, when imagined in a community, intersects with any number of social, cultural, and political concerns. Many of these concerns involve emotions and these emotions mark out what matters to us, what is worth protecting, what is worth caring about. This is what we value, and science, carried out in society, is full of values. As Irwin and Michael (2003,

p.43) have correctly observed, in a democracy, the public is best-placed to decide which values matter.

The key takeaway from this research is that the affective nature of the anti-fracking imaginary provides opportunities for novel kinds of engagement which foster care, empathy, sensitivity, and trust. This has implications for scholarship, policy, communication practices, and activism. The research indicates that more attention needs to be paid, in STS science communication scholarship, sociotechnical imaginaries theory, and in public engagement practice to the affective dimension of environmental controversies. The literature review outlined how science communication scholarship has begun calling for more research to be conducted on the affective aspects of public participation, but as of yet few studies have explicitly done so (See the work of Sarah R. Davies in the Bibliography for an exception) The findings here demonstrate that, more than ever, attention needs to be paid to how publics emotionally respond to and navigate technoscientific issues. There are real political issues at stake: if affect contributes to how communities engage with innovation then it should be properly understood. Precisely how affect converges or diverges with knowledge practices, how affective practices are understood by diverse communities themselves, and what kind of politics they produce in different contexts are all questions worthy of further research. For those interested in co-production and sociotechnical imaginaries, this research provides insight into the "why *these* particular imaginaries" questions that have so far proved elusive. Conducting empirical research on the affective layers of imaginaries could illuminate how certain innovations are embraced and others are resoundingly rejected.

Public engagement policy could stand to benefit from a greater understanding of the role played by affect in a community's choices of certain sociotechnical futures over others. I am thinking specifically of European policy like responsible research and innovation (RRI). Here, the goal is to align research and innovation with the expectations and requirements of diverse European publics. Again, a better understanding of how publics navigate alternate sociotechnical futures through affects like anger, fear, hope, and love can better serve those communities by recognising, at a deeper level, why certain futures are desired over others. The research also suggests how experimental affective approaches to communication could generate new kinds of interaction based on reflexivity and openness which generate care, trust, sensitivity, and

empathy. RRI policy can be extended across the social space to include government agencies, NGOs, businesses, and research institutions.

The research indicates how other activists might employ affective practices to resist innovations (and the futures they create) that they deem destructive or unjust. Innovation processes are built on the premise of constant production and novelty, working constantly to realise their technoscientific networks (Felt et al 2013). Slowing innovation down, critiquing it, or as is the case here, completely stopping it, is hard to achieve in societies where the creation of new commodities, processes, and services is of primary importance. Affective practices – through performance, play, rhetoric, and aesthetics – are shown in this research to open critical spaces of engagement where communities can work together to resist innovation. As I also indicate, it is important to remain open to further change and resettling and to create ongoing engagement experiments in order to maintain a just distribution of power.

With issues like climate change, population growth, resource scarcity, and wildlife extinction demanding changes to our ways of living, creative solutions are required. These might be found in the dynamic drive of affective imaginaries where fear, love, hope, positivity, trauma, and resilience push and direct us towards action. Openness, diversity, and reflexivity are still key, helping to organise and structure affective responses, ensuring that we stay committed to shared normative values like justice, fairness, and equality. Local and particular affective practices offer creativity and imagination but broader scales of knowledge, meaning, and morality are also important. This involves knowledge of global climate patterns, responsibilisation of nations for carbon production, and a global sense of climate justice. The bridging required to bring the local to the global can take place through the kinds of relational, co-productive public participation approaches that are sensitive to these varying scales of knowledge and meaning-production and can adapt to suit unique deliberation moments (Jasanoff 2010; Chilvers and Kearnes 2016b; Davies 2016). My contribution is that, in paying more attention to the affective, we can better take account of the local and the ways in which its meanings and matterings are formed and practiced.

Public engagement in this mode would be more open to the values and meanings underpinning public responses to technoscience. These are local, embedded in everyday routines, and connected to bodies, sites, feelings, and values. Public engagement becomes more open to diverse publics and a wider range of concerns in a more richly detailed mode. From a political perspective, we can see with greater clarity *why* certain

societal routes are imagined, again opening spaces for engagement through deliberative moments. Sensitivity to affect also generates creativity in responses to controversies. Affective practice suggests that emotions are not simply ready-made packets of ideology dumped into people's heads but go through continual negotiation. Engagement would mean intervening in this process and sharing the negotiation of imagined futures. As discussed throughout, this requires an ongoing commitment to difference, reflexivity, and critique.

8.4 Limitations, Further Questions, Future Research

During the course of this research, I have employed methods that are sensitive to identifying affect. While much care has been taken to not shear affect from its material, discursive, and social contexts, a certain amount of reification of emotions has taken place. One cannot do a study which simultaneously takes into account all facets of a phenomenon. Even the emergence of an emotion in a given instant is overdetermined and could be analysed from any number of standpoints. This could never have been a psychological study as well as a cultural study that also took account of the scientific and policy dimensions of the fracking controversy. This is a methodological problem which STS sometimes faces, in flattening out the world to accommodate science and society in one analysis, we are flooded with many practices, meanings, artefacts, and representations. Deciding what is relevant is a pragmatic operation, achieved by fashioning clear and precise research questions (Jasanoff 2015c). The direction of this research – to explore the affective dimension of imaginaries and their value to public engagement – narrowed the scope considerably of what I was investigating. By channelling the research questions through key STS epistemological concerns – what affective practices are present in the imaginary (Jasanoff 2015c) what affect practices *do* (Law 2017) how we can engage with them (Davies 2016) – the final thesis was able to draw a usable provisional boundary around affect in the context of fracking in Ireland.

From one limitation – the thesis is quite narrow in focusing solely on affect – to a second – its scope is quite broad in attending to differing scales of affective practice. This is justified, I think, in that this research is exploratory in nature and as such, seeks to illuminate new theoretical terrain. The intervention is broad – the affective dimension

of imaginaries – so the methodological instrument needed to be broad – affective practice. Affective practice, in its commitment to a multimodal, relational account of emotion does not restrict bodily meaning making to the psychological or to narrowly-defined theoretical structures like habitus. It is open to the context-dependent locality of the investigative site. As there has been little research done on the emotional dimension of public responses to fracking, I was not sure what to expect. As such, my approach has been inductive and iterative, taking broad sweeps of the data, locating instances of affective practice and grouping them together through sensitising concepts and in correspondence with the theory. This allowed for the crystallisation of smaller, more specific and thus more useful (rather than vague) accounts of affective practices in the anti-fracking imaginary. This is not a reflection of reality. It is a reflection of the form that the PhD structures on the kinds of stories we can tell in social science research situations. My next point addresses this more broadly.

Another limitation of this research is the lack of creative methods and presentation to match the content and types of affectively-charged meaning I have been working with. While I had planned more walks and drives with participants, they were ultimately disrupted by time, budget, and work constraints. I would like to have engaged in more of these activities as they offer vibrant and colourful accounts of affective practice that exist outside of formalised interview settings (no matter how informal I tried to make them). I had also intended to include audio clips of interviews and other recordings in the body of the thesis, but due to institutional constraints this was not possible. Future research could benefit from creative and experimental presentation techniques to try and capture some of the diversity of affective practice (Vannini 2016).

Lastly, in a thesis examining the value of affect for science communication, it has not tested any science communication practices. Time and budget, again, restricted my ability to organise these kinds of events. Public engagement was instead considered theoretically, exploring how affect might contribute to STS-informed models of public participation. There are many avenues for future research of this kind. I have already been in contact with artists to consider ways of designing public participation events that take into account affectively-charged imaginaries, particularly in the context of responsible research and innovation.

There have been many issues and questions that have arisen during the course of the research that I have not had the space or the time to address. One of them is the impact that the *Comhrá* initiative has had on the community. This was the informal

door-to-door engagement event organised by Love Leitrim whereby the community was asked what visions they have for the area's future. I would like to see what has happened with this initiative, to investigate whether it has been maintained or whether, with the threat of fracking subsiding due to the legislative ban, the drive to imagine has also faded. This would be an interesting finding and relates to a second outstanding question. I have suggested that affective responses to the arrival of fracking sparked the community into being alongside a shared vision of the future for north Leitrim. While there have been "positive" outcomes to this imagining – cross-border healing, feelings of love, unity, and togetherness, empowerment, hope and the positing of alternative forms of life – the question remains as to whether this required the painful threat of fracking to come to life. I have speculated that this is not the case, that affective practices might provide the creativity required to imagine alternative ways of living to create positive change, but more research might be done to establish whether this is the case.

I am also interested in how an analysis of the affective dimension of imaginaries might be translated to other controversial sociotechnical contexts. I have been paying attention to the vaccination controversy in Ireland, particularly resistance towards uptake of the Human Papillomavirus (HPV) vaccine. I note that the chief executive of the Health Service Executive (HSE) – Ireland's provider of public health services – has referred to organisations opposing the HPV vaccine as using 'emotional terrorism' (Ring 2017). I believe that research into the affective dimension of anti-vaccine imaginaries might contribute to a better understanding of how we might engage with the emotional nature of the controversy without *a priori* dismissals of emotion performed through terms like emotional terrorism. This is particularly salient given that the HSE's own promotional material for the HPV vaccine includes a highly emotive video emphasising the love between mothers and daughters (HSE Ireland 2017).

In relation to work on sociotechnical imaginaries and co-productive public participation more broadly, I believe that my findings demonstrate the value of increased sensitivity and attention towards the affective dimension in future research. I join others (Davies 2014, 2016; Chilvers and Kearnes 2016b; Groves 2017; Irwin et al 2018) in calling for wider recognition of the role that emotions play in the production of values and meanings, and the potential for deliberation and action.

8.5 Closing Thoughts: Affect and Imagination

Fracking is an emotive issue. This much is clear from the findings presented here. The question is what value this knowledge brings to science communication theory and practice. I believe that insight into the affective dimension of imaginaries helps us to better engage with the meanings underpinning the collective visions that those like the community in north Leitrim establish. This is because we all have the capacity to feel; an intuitive sense of what it means to care about something, to fear something, to want something to change, or to seek justice. What we respond to – what we engage with – is surely not just abstract reason but affective practices which rise and recede as the body becomes more or less involved and meanings become more or less salient. Surely, crucial aspects of engagement like justice, care, love, fear, humility and healing are interwoven with bodily sensations, memories, shared experiences, representations, environments, artefacts, situations, biographies, dispositions, and contexts. Surely, there is more to engaging with technoscience than abstract calculations of risk, quantitative measurements of materials, and logical processing of utility. This research suggests that there is. It suggests that communities care about what it is that they talk about and that there is potential value in what they have to say. For it is here that publics imagine a future in which they want to live. This is not the work of scientific prediction but what feels right. Emotion is central to this: it is the spark that lights the imagination and the fuel that keeps it burning. Certainly, knowledge is crucial – reliable representations of the world that we inhabit are important for structuring those imaginaries. But they exist alongside how we feel about that world and how we would like it to be. For these reasons, I join others in STS science communication scholarship's call for a public participation that acknowledges the emergent, co-produced, value-laden, and *felt* nature of science/society relations. Much work has been done in STS to make this point. Now it is time to start engaging others with it.

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Appendix A – Data Tables

Interviews

Code	Participant	Relevance	Data Capture	Date
I01	Cian (Telephone)	Love Leitrim (LL) Campaigner	Notes	31/07/15
I02	Alyx and Cian	LL Campaigners	Audio Recording, notes	04/08/15
I03	Michael Colreavy	TD for Leitrim	Notes	04/08/15
I04	Seadha Logan	Local Councillor	Notes	04/08/15
I05	Legal Professional	Involved in EPA study	Audio Recording, notes	17/05/16
I06	Paschal	LL Campaigner	Audio Recording, notes	27/05/16
I07	Maura	LL Campaigner	Audio Recording, notes	16/08/16
I08	Maura (2nd)	LL Campaigner	Audio Recording, notes	29/11/16
I09	Cillian	LL Campaigner	Audio Recording, notes	29/11/16
I10	Cian (2nd)	LL Campaigner	Audio Recording, notes	30/11/16
I11	Linda	LL Campaigner	Audio Recording, notes	30/11/16
I12	Kenneth	LL Campaigner	Audio Recording, notes	30/11/16
I13	Hazel and Lawrence	LL Campaigners	Audio Recording, notes	01/12/16
I14	Dennis	LL Campaigner	Audio Recording, notes	01/12/16
I15	Alyx (2nd)	LL Campaigner	Audio Recording, notes	02/02/17

Participant Observation

Code	Event	Data Capture	Date
PO01	Jessica Ernst and No Fracking Dublin Talk	Notes	11/03/13
PO02	Drive through Leitrim with Alyx and Cillian	Photographs, notes	04/08/15
PO03	'No Fracking Not Here Not Anywhere' Public Talk	Notes	27/11/15
PO04	'No Fracking Not Here Not Anywhere' Theatre Performances, Music, Public Talk.	Photographs, notes	28/11/15
PO05	Concerned Health Professionals of Ireland Press Conference	Photographs, audio recording, notes	18/05/16
PO06	Drive through Leitrim with Paschal	Audio Recording, notes, photographs	27/05/16
PO07	'Fractured Thinking' sculptural Exhibition	Notes, photographs	16/08/16
PO08	Week-long stay with Alyx	Notes, photographs	28/11/16 – 04/12/16
PO09	Visit to Sean McDiarmuida homestead	Notes, photographs	02/11/16
PO10	Love Leitrim meeting	Notes, audio recording	03/11/16
PO11	Global Frackdown Fracking Ban Celebration	Notes, photographs	14/10/17
PO12	Heart on the Hill	Notes, photographs	14/10/17

<u>Love Leitrim Visual Media and Other Material</u>

Code	Title	Description	Medium
VM01	*The Upset: No Fracking* (Tahany Academy 2012)	Dance performance	Video (04:44)
VM02	*Christmas Wishes for a Fracking-Free Future in Ireland*	Christmas-themed film presenting young children's wishes for the future	Video (01:26)
VM03	*Future for Shale* (Glynn 2014)	Mini-documentary about fracking in Leitrim	Video (07:23)
VM04	*Happy St Patrick's Day* (Love Leitrim 2014)	6 videos of LL participating in parade	Videos (approx. 00:20 each)
VM05	*My Farm I Adore* (Tahany Academy 2014)	Dance performance rehearsal	Video (06:38)
VM06	*Sean Nós ar an tSionann – Love Leitrim* (Guckian 2014)	Dance performance	Video (06:59)
VM07	*We're Better Together Love Leitrim* (Love Leitrim 2016)	Anti-fracking campaign video	Video (01:56)
VM08	*Happy St Patrick's Day*	6 videos of LL participating in parade	Videos (approx. 00:20 each)
LL1-LL298	Love Leitrim website images	Various photographs and images from the campaign	298 Images
VM10	'A Short Briefing Note on the Ireland/Northern Ireland JRP into UGEE'	LL briefing document	Document (4 pgs)
VM11	'Fracking: The Harms and Risks to Health'	LL briefing document	Document (9 pgs)
VM12	'What is Fracking?'	LL briefing document	Document (2 pgs)
VM13	'Who is CDM Smith?'	LL briefing document	Document (3 pgs)
VM14	*Gasland* (Fox 2010)	Documentary about fracking in the US	Video (1:42:00)
HOTH01	Heart on the Hill Image	Landscape Pan	Image
HOTH02	Heart on the Hill Image	Artistic Shot	Image

HOTH03	Heart on the Hill Image	Daytime Shot	Image
HOTH04	Heart on the Hill Image	Over Roadway	Image
HOTH05	Heart on the Hill Image	Newspaper Photo	Image
HOTH06	Heart on the Hill Image	Construction 1	Image
HOTH07	Heart on the Hill Image	Construction 2	Image
HOTH08	Heart on the Hill Image	Construction 3	Image
HOTH09	Heart on the Hill Image	Construction 4	Image
HOTH10	Heart on the Hill Image	Happy Faces	Image

Appendix B – Descriptive Coding Table (Sample)

Salient Emotion	Research Site (Code)	Doings/Sayings [How it was recorded]	Relations – Sayings, Doings, Connections, Sites, Navigations, Objects	What is Practice Doing?
Love – Desire, hope, pride, solidarity, empathy, belonging, positivity, adoration, passion, care, communal joy, compassion, lifting spirits, moving, magical, amazement, cherish, forgiving	Glenfarne Community Hall (PO11)	Holding of the event itself [photos, notes]	Community hall, musicians playing lively upbeat music, people dancing and laughing. General chatter, flowers arranged on separate round tables like a wedding. Cake is produced.	The interaction of objects and its siting in a community hall generate a celebratory 'atmosphere' – 'like a wedding'.
		Singer onstage addressing crowd [notes]	Next song is an anti-fracking song – 'I didn't think in 2017 that I'd say this, but I hope this is the last time I sing it'.	Narrative/structure – performance of communal joy marks a sense of catharsis – performs this meaning.
		Conversation [notes]	P4 – 'what a happy night'.	Marking the event. Expression of joy – intensity.
		Children play [photos/notes]	Brightly coloured balloons, excited bodily movements.	Intensity – unmanaged. Playful urge.
		Subjective experience [notes]	Being in the carpark – tyres crunching on the gravel – sense of excitement. Community event. Like a wedding.	Repertoire of communal joy.
		Jessica Ernst addressing crowd [notes]	Mentions the 'love' and that 'you did not let them divide you'.	Repertoire of community bounded by love – love is what holds them together. Creates an identity.
		Kila playing music [photos/notes]	Music is full of energy – 'rapid, thundering bodhran, violin is quick and melodic – racing along'. People sway and move together. The sound creates a powerful environment to gather people together in a feeling of love.	Music creates a time and space for love to emerge – creates an environment for the affect to take place amongst people.
	Interview (I07)	Discussing fracking engagement [audio recording]	'Now there was an awful lot of people who did work to get people together to publicise it to talk one to one, put out signs, placards, huge amount of work.	Solidarity is created through person to person affective contact – develops 'personal' involvement.
		Narrative of fracking arrival [audio recording]	People that moved to the area who 'loved the area, loved the landscape and the […] traditional way of life […] to live a kind of a life that you couldn't live in an urban setting'.	Discursive formation binary opposition – traditional way of life and land that is opposed with urban setting. Identity – outside people who love Leitrim.
		Narrative of fracking engagement [audio recording]	P1 'built up a relationship' with Ciaran O'Hobain and 'met him a few times'	Affective relationship – belief that people will be more reasonable if personal contact is made.
	The Upset Video (VM01)	Dance Performance [Video/Notes]	Businessmen frackers are booted out by farmers sparking a joyous celebration. Farmers and animals dance side by side.	Subject position – local farmers who have succeeded in defeating fracking and rejoicing.

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Appendix C – Themes Table

Salient Emotion	Affect	Practice	What does it Do
Hate	Dislike, disgust, no!	Repertoires – visual/discursive, subjective experience and bodily reactions	Unites in opposition. Creates monstrous other
Energy	Buzz, excitement, success, winning, momentum, passion, stimulating, untapped potential, pleasure, enjoyment, courage, resilience	Attributed to others. Subjective experience.	
Love	Desire, hope, pride, solidarity, empathy, belonging, positivity, adoration, passion, care, communal joy, compassion, lifting spirits, moving, magical, amazement, cherish, forgiving	Managed. Repertoires.	Creates community. Provides meaning - normative power and justification. Imagines a positive future.
Anger	Uproar, hostility, aggression	Bodily responses in crowds - spontaneous uprising when discourse not working,	Marks out the feared future. Marks a threshold of action.
Fear	Intimidation, trauma, mental illness, helplessness, powerlessness, horror, distrust, concern	Repertoires, subject positions, identities.	Marks lack of control and an object to be protected.
Shock	Violation, sudden realisation	Discursive ordering through narrative. Change in orientation, perspective, attitude.	Formulates a beginning. Marks a point in the narrative.
Calm	Level-headedness, professionalism, quiet, mild-mannered, humble, friendly	Identity – quiet traditional people, calm in opposition to hippies/activists.	Legitimates citizen science as reasoned.
Uncanny/Enchantment	Mystery, strange, awe	Personal feeling – unknown.	Allows for the unknown – humble epistemology
Harmony	Clean, healthy, purity, rightness, spiritual connection, peaceful, justice	Repertoire, situated, identity	Sacred. Justification for local meaning-making and sustainable future.
Craic	Humour, fun, positivity, not-serious, laughter, cuteness, playful.	Repertoire, subject position, bodily/felt, ephemeral	Attracts people, encourages creative thinking, relief.
Sadness	Despair, dispossessed, loss, mourning, mental illness, trauma, personally upset, abandoned, grief, broken, overwhelmed, ah sure look-it, exhaustion, worn out, stressed, burnt out.	Bodily, navigation,	Rare. Emigration. Stonywoods festival.
Gratitude	Relief, affirmation.	Subject position, identity, repertoire, feeling	Reward from community.
Callous	Emotionless, indifference	Repertoire, identity	Marks out other – industry

Appendix D – Plain Language Statement

DUBLIN CITY UNIVERSITY PhD RESEARCH – PUBLIC ENGAGEMENT WITH ENVIRONMENTAL CONTROVERSIES – PLAIN LANGUAGE STATEMENT

Introduction to the Research Study: I am Stephen Hughes and this research is a PhD study about engaging the public with environmental controversies. The thesis is entitled, 'Love Leitrim/Hate Fracking: Steps Towards Emotional Engagement with Controversy'. The research is funded by the Environmental Protection Agency and is being conducted at the School of Communications in Dublin City University. The Principal Investigator (supervisor) of the research is Dr Padraig Murphy.

The study is investigating the controversy surrounding hydraulic fracturing or fracking, a type of gas extraction technique. The aim of the research is to understand the range of public concerns relating to fracking, and how these might be engaged with in order to allow the public to have greater participation in the resolution of the controversy. You are free to decide whether to be involved and to choose the level of your involvement at any time.

Details of what Involvement in the Research Study will Require: Your participation will involve conversations and interviews with me. It will also mean allowing me to observe you and make notes. If you agree, I will record our conversations and interviews on an audio recording device. If you are not comfortable with this, I will simply take notes by hand. You are also welcome to tell me not to record or take notes at any time. During the interviews, I will ask you to talk about your experiences with the fracking issue in Ireland. These will actually be very conversational in style: I will ask you some questions and conversation prompts, but you will be encouraged to talk freely, elaborating or not on areas of discussion as you like. I might also accompany you on walks or drives or sit in on meetings or other group activities. This will be at your will and convenience and you should feel free to decline at any time without worrying that it would offend me or put me out.

I expect interviews to last between thirty minutes to two hours; again, that will be up to you. Other less formal conversations and my observations will take place for different periods of time during my visits. This will be over approximately two weeks, and is, again, at your will. I hope your involvement will provide me with a better understanding of the range of concerns the public has about fracking. My thesis will be housed at Dublin City University Library and will therefore be accessible to others. As well, my findings may be used in future research presentations at conferences or in journals.

Risks and Benefits: There are no foreseeable risks associated with taking part in this research. I believe participants may find my research useful to their efforts at expressing concern about fracking by shedding light on the wide range of social and cultural issues which the controversy raises. I believe my research will contribute to the field of science communication and may offer steps towards better public engagement with environmental controversies.

Data Protection: Participants of this research will be anonymous so that it will not be possible to identify you from the data collected here. Participants will be given a false name or labelled as 'member of the local community opposed to fracking' in all materials relating to this work. The sound recordings may be accessed by Padraig Murphy of Dublin City University, the supervisor of the PhD, as well as an external examiner, yet to be appointed. Beyond this, the

recordings will not be shared with anyone. The results of the research study may be published, but your name and other uniquely identifying information will never be published or associated with you in any way. The audio file and transcription file will be encrypted and password protected to safeguard the data. The data will be held for two years, at which point it will be fully deleted. It should be noted that there are legal limitations to data protection under Irish law. These relate to the need to investigate crime effectively, and the need to protect the international relations of the State.

Participants may withdraw from the research study at any point.

For further information, please feel free to contact me at any time: by email - stephen.hughes25@mail.dcu.ie or phone - 00353872227143

If participants have concerns about this study and wish to contact an independent person, please contact: The Secretary, Dublin City University Research Ethics Committee, c/o Research and Innovation Support, Dublin City University, Dublin 9. Tel 01-7008000

Appendix E – Informed Consent

DUBLIN CITY UNIVERSITY PhD RESEARCH – PUBLIC ENGAGEMENT WITH ENVIRONMENTAL CONTROVERSIES – INFORMED CONSENT FORM

<u>Explanation of the Research:</u>

This research is a PhD study that seeks to understand how best to engage the public with environmental controversies. The objective of the research is to understand the range of public concerns relating to fracking (hydraulic fracturing), and how these might be engaged with in order to allow the public to have greater participation in the resolution of the controversy. The research is funded by the Environmental Protection Agency and is being conducted at the School of Communications in Dublin City University.

<u>Participant – please complete the following (Circle Yes or No for each question)</u>

I have read the Plain Language Statement (or had it read to me)	*Yes/No*
I understand the information provided	*Yes/No*
I have had an opportunity to ask questions and discuss this study	*Yes/No*
I have received satisfactory answers to all my questions	*Yes/No*
I am aware that my involvement will be audiotaped	*Yes/No*
I understand that I may withdraw from the Research Study at any point	*Yes/No*

<u>Data Protection:</u>

Participants of this research will be anonymous so that it will not be possible to identify you from the data collected here. Participants will be given a false name or labelled as 'member of the local community opposed to fracking' in all materials relating to this work. The sound recordings may be accessed by Padraig Murphy of Dublin City University, the supervisor of the PhD, as well as an external examiner, yet to be appointed. Beyond this, the recordings will not be shared with anyone. The results of the research study may be published, but your name and other uniquely identifying information will never be published or associated with you in any way. The audio file and transcription file will be encrypted and password protected to safeguard the data. The data will be held for two years, at which point it will be fully deleted. It should be noted that there are legal limitations to data protection under Irish law. These relate to the need to investigate crime effectively, and the need to protect the international relations of the State.

I have read and understood the information in this form. My questions and concerns have been answered by the researchers, and I have a copy of this consent form. Therefore, I consent to take part in this research project.

> Participants Signature:
> Name in Block Capitals:
> Witness:
> Date:

Appendix F – Context of a Controversy: The EPA Study

One of the biggest problems campaigners had with the arrival of fracking in Ireland related to how it was handled politically. This can best be seen with the issues they had with the EPA study into the impacts of shale gas development, research ostensibly looking at the environmental and human health impacts of unconventional gas exploration and extraction (which involves fracking). The first, of several concerns the campaign had with the study was the awarding of its management to CDM Smith Limited, an engineering and construction firm. The campaign argued that CDM Smith is a pro-fracking firm based on its past involvement in fracking operations in the United States and Poland, as well as comments by the company's Vice President criticising the decision of the Governor of New York State in the US to ban fracking (Love Leitrim 2015). In response to an *Irish Times* request about its track record on fracking, CDM Smith replied 'Since our founding in 1947, CDM Smith has served both public and private clients with excellence, objectivity and integrity. We stand behind our work and reputation and that of our staff as professional and ethical consultants to our clients' (McGreevy 2015). The EPA defended its decision to appoint CDM Smith at a hearing of the Oireachtas Joint Committee on Transport and Communications on the 10th of June 2015.[49] Addressing the EPA, Senator Paschal Mooney[50] stated:

> There is serious concern about the involvement of CDM Smith in the
> research project. The note on the company's activities fails to
> acknowledge that it has been heavily involved in fracking in the USA and
> Europe, most particularly in Poland, as well as Ukraine. I have read the

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[49] A Joint Committee of the Oireachtas is a committee comprised of members from both houses of the Irish Parliament – the Dáil and the Seanad. The purpose of the committee is among other things to scrutinise the work of Government Departments in a more detailed manner than would normally be possible in either the Dáil or the Seanad.
[50] Not to be confused with the pseudonym Paschal being used here for one of the participants.

contents of its website and comments made by its CEO and it seems that the company is, at best, in sympathy with the concept of fracking. In that context, serious questions must be asked about its independence (Joint Committee on Transport and Communications Debate 2015a).

In response, Dara Lynott of the EPA stated:

The Senator referenced CDM Smith, which is a very large consultancy firm. Like many large legal and accountancy firms, it has a lot of clients and provides advice on a wide range of issues. It is part of a much wider consortium which includes the Geological Survey of Britain, University College, Dublin, the University of Ulster and Philip Lee Solicitors, among others. In our tender we deliberately went looking for experience in this realm. The tender document stated: "The proposed project team is expected to include members who have comprehensive understanding of geology and hydrology, as well as an in-depth knowledge of a range of legal, environmental, health, socio-economic and technical issues, as well as knowledge of mineral and fossil fuels (preferably unconventional gas) extraction practices and technologies". We looked for people with experience in this area, but we went through an open tender process which involved 27 people from 14 or 15 organisations in assessing six bids from various consortia to conduct this very important research valued at €1.25 million. That independent group came to the view that CDM and its consortium was the best. All the consortium members were required to sign a conflict of interest form, which they did. We are happy that the group conducting this research is eminently qualified to carry it out and will do so in a peer-reviewed, independent manner and that the research will be fit for purpose.

A second concern related to what campaigners felt was a lack of adequate emphasis on health, public health, in particular. The scope of the research programme, as stated in its terms of reference (Department of Communications, Energy and Natural Resources *no date*, p.5), was distilled into two research questions:

1. Can UGEE projects/operations be carried out in the island of Ireland whilst also protecting the environment and human health?
2. What is 'best environmental practice' in relation to UGEE projects/operations?

While the EPA included health as a leading aspect of the research, the campaign argued that the study did not properly address it. The EPA were questioned on this during another hearing of the Oireachtas Joint Committee on Transport and Communications, this one on the 2nd of December 2015. The following exchange took place between Deputy Richard Boyd Barrett (a TD sympathetic to anti-fracking campaigners) and Dara Lynott from the EPA:

> **Deputy Richard Boyd Barrett** - There will be no health impact assessment completed. Therefore, at the end of the process, Mr. Lynott will not be able to tell us whether there is a risk to health.
>
> **Mr Dara Lynott** – No. What we will be able to state is the environmental impacts. This work will not recommend in favour of or against fracking but will start to put together the science that will allow others, including the EPA, to evaluate whether fracking should go ahead in Ireland. This includes policy-makers and legislators. It will also provide for an assessment of what has worked well in other countries to develop a health impact assessment (Joint Committee on Transport and Communications Debate 2015b).

According to Cian, 'At that the point, the research, kind of collapsed, you know?', such was the importance of the public health question and the EPA's admission that they could not address it with this research programme.

Another primary concern for the campaign focused on the licensing process itself and three interconnected issues: what kind of environmental assessment was involved, who was directing the process, and how this restricted government involvement. Campaigners were particularly unhappy that a Strategic Environmental Assessment (SEA) was never carried out prior to the awarding of licencing options (Love Leitrim 2015). According to Cian, an SEA was never carried out because the Petroleum Affairs Division (PAD) – the

government agency tasked with promoting the exploitation of natural resources – never informed the EPA:

> In fairness to the EPA […] they are responsible for making sure that SEAs are done, OK? So, when the Petroleum Affairs Division wanted to bring this industry into Ireland, I think in 2009, they set up this competition, and they invited companies to come in here – they should have informed the EPA. And then the EPA then, had a duty then to make sure there was scoping done to see if an SEA was done. But the EPA say, "well nobody told us, so we never did".

The campaign argue that fracking was being rolled out without a political mandate, using a 'silent policy' (Cian) to go proceed with licencing. So-called "options licences" constitute the first stage of exploration and allow companies to do desktop and seismic studies and carry out shallow (but not deep) drilling. They do not permit deep drilling (beyond 200 meters) or hydraulic fracturing. On completion of the necessary work accompanying the options licence companies then have first option to apply for a full exploration licence. Part of the work companies must carry out is an Environmental Impact Assessment (EIA) where the firm propose a phase of development and write an Environmental Impact Statement which is assessed by the EPA. The issue the campaign had with this process was that EIA's involve small, project-led environmental impact assessments rather than a high level Strategic Environmental Assessment; and that this process itself was bypassing the political process within which campaigners could have been involved. An SEA, the campaigners argue, can take account of the cumulative impact of thousands of wells[51] in a way that the smaller, industry-led, project-based EIA does not.

In any case, according to the campaign, Tamboran were unable to complete their EIA as they needed to have a Petroleum Prospecting Licence to undertake the types of drilling an EIA required. Without this part of their work completed they would be unable to obtain an exploration licence. However,

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[51] Love Leitrim (2015) claim that Tamboran Resources obtained an exploration option licence with the intention of drilling and fracking between 3,000 and 9,000 wells. Aside from the lack of consultation in awarding the options licence, campaigners were concerned at the lack of assessment of the shale gas basin.

according to campaigners, the baseline work involved in these EIAs – which were never completed by the industry – would now be carried out by the EPA research programme, effectively allowing the industry to complete their work and apply for an exploration licence. 'EPA research was really facilitating industry to complete their environmental impact research to allow them to complete their applications for a licence' (Cian). The fact that this research was being conducted by so-called 'cheerleaders' (Cian) of the industry such as CDM Smith was particularly alarming for campaigners. Cian put it this way: 'You're answering a question by asking industry to figure out how to bring the industry in'. Campaigners point to the second research question included in the Terms of Reference for the EPA research programme, which they argue follows a regulatory logic rather than a protective one: 'What is "best environmental practice" in relation to UGEE projects/operations?' (Department of Communications, Energy and Natural Resources *no date*, p.5). In an information document about the research programme, Love Leitrim (2015, p.1) stated:

> this research will inform its [the government's] future policy regarding the
> use of high volume hydraulic fracturing. The result is that we are using
> research with regulatory objectives to inform policy on fracking in Ireland
> that presumes no need for high level assessment.

Cian explained to me that the campaign felt that the EPA study was developing regulations to mitigate against the impacts of fracking instead of developing government – and thus publicly-mediated – policy to properly assess these impacts. 'The research isn't about the political decision [to stop fracking]' he said, 'it's about how to proceed – what's the next step'. Further, given that the scope of the research programme was 'projects and operation with minimum cumulative impacts' the campaign believed the study was unable 'to consider cumulative impacts of many projects or the entire development of the shale basin' (Love Leitrim 2015, p.2.). Cian summed up their take on the situation in the following way:

What it all boiled down to was that they were going to answer questions on public health, because that's what they were telling the public, so the public– politically, the research was going to answer the questions about whether it could be done safely and people believed that included public health. So, what was actually happening was the industry was being allowed to answer the question about whether there was impacts on public health and also to answer the question about how those impacts could be mitigated against.

A fourth overriding concern for campaigners related to how decision-makers involved in the research programme dealt with the issue through secrecy and exclusion. They claim that the decision not to publish interim reports obstructed their knowledge of what was going on. Participant 4 told me that the draft terms of reference 'said there would be interim reports published and now that's pulled. Nobody's being told what's going on'. Maura pointed out that nobody from the community was represented on the steering committee for the research:

We asked that the steering committee would have at least one person to represent the community. Nobody. No. Not only that but we weren't given the names [of the steering committee members]. We still don't know the names. Yeah, it's been very secretive.

Cian described the decisions which led to go down the path of fracking as having 'happened somewhere in private without anybody knowing'. He mentioned to me that when a TD – Michael Colreavy – asked the EPA to provide him with an interim report on the research, 'they wouldn't, they gave him a progress report which was: "the research is happening", and that's as far as it went'. I met up with and spoke to that TD in his office, taking notes during our conversation. He also described the research programme process as being shut off from people. I noted him saying that it is 'difficult to get information', that in particular there is 'no information' on why it was thought of doing fracking in the first place. This seemed to be a point of interest for him, something he returned to several times during our meeting. I noted him saying 'there are cover

ups' and a 'lack of real engagement with [the] community'. Cian echoed this point about engagement:

> They're [The EPA] very defensive – the language – the only meetings we've had with the EPA – now there are some meetings going on between the pillar – the pillar is a process that they do engage with people, but they're very careful about what's on the agenda […] that meeting will probably be a few hours long, there's several different things on the agenda and it's really – it's not engagement, it's just picking someone that they can deal with and have an engagement and then say "we did that"'.

Participant 4 said, 'you're kept at arm's length', while Cian stated that 'when we talk to people – we don't talk to the EPA – kind of feel that you're not allowed talk to the EPA'. Some campaigners also feel cut off from industry. Hazel said, 'Tamboran came along with gates and razor wire and said "this is what we're going to do"' – physically keeping people away from their activities. Cian explained that 'They're grand, they don't have a problem talking to me but I have to fight hard with them for a while to get them to talk to me' while pointing out that when it comes to examining the industry's finances 'your access to that information gets blocked off very quickly because of Cayman Islands and different groups – a lot of this stuff happens that you can't follow it'. Paschal held a different view:

> They were very open, Tamboran, they had public meetings that were attended by 300 people […] They were quite open – they answered all our emails and everything in great detail. So, Tamboran were very, very open about it. That was in the early days.

However, the message from the campaign appears to be that fracking "arrived" with the granting of licenses with 'no information or consultation with the public' (Love Leitrim 2015, p.1). This led to feelings of anger and hatred towards government and industry and the feeling that they were possibly corrupt.