



Contested Fracking Environments: What's the Stories?

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Introduction

Within the UK there are several areas, including sizeable parts of north-west, central and eastern England, smaller parts of south and north east England, central Scotland and Northern Ireland, which have the potential to produce shale gas [1]. Shale gas is produced by hydraulically fracturing shales, a process popularly known as fracking, which releases the gas and allows it to flow. This process typically involves drilling a borehole down into the earth and then using a mixture of water and chemicals, pumped at high pressure into the shale, to open up narrow fractures, which in turn creates paths for the gas to flow into the borehole and hence back to the surface. The commercial development of these resources involves two distinct stages, namely the exploration phase and the production phase. The exploratory phase involves the drilling of a small number of wells to obtain core samples from the underlying shale formation. If the commercial viability of shale gas resource is established, then companies may apply for permits and planning permission for commercial production.

The first successful planning application for exploration drilling at Preston New Road near Blackpool in the North West of England was granted by Lancashire County Council in October 2018 and exploration began later that month. Since 2012, ten planning applications for individual shale exploration proposals have been submitted and five of these applications have been granted planning permission [2]. These planning applications were spread across Yorkshire and the North East, North West and South East of England. Ineos Shale, for example, submitted a planning application for shale gas exploration at Harthill near Rotherham and though this application was initially rejected by the local planning authority, the UK Planning Inspectorate granted permission for exploratory drilling for up to five years in June 2018. UK Oil and Gas Investments have permission for exploratory drilling at Billingham in the South East of England.

However, the environments of proposed shale gas development within the UK are strongly contested. Contrasting positions on fracking are reflected in debates, political lobbying, government policies, corporate reports, media stories, pressure group campaigns and activities, public protests and direct action. On the one hand, there are political and corporate claims that the commercial development of shale gas could play an important role in the UK's future energy mix, reduce dependency on foreign sources of energy and stimulate investment in new jobs and businesses. The UK Government, for example, believes that the recent discovery of large scale shale gas reserves under many parts of the UK 'has the potential to provide the UK with greater energy security, growth and jobs' [3], though more recent leaked reports suggest the Government has scaled back its expectations of the pace and scale of shale gas development [4]. In a similar vein, the Chief Executive Officer of INEOS Shale which has access to over one million acres of the prime shale exploration areas in England and Scotland claimed that shale gas reserves are an 'incredible potential to provide the UK with greater energy security, growth and jobs, and help the UK's chemical and energy-intensive UK manufacturing industry to succeed, worldwide' [5].

On the other hand, many groups have been campaigning to oppose shale gas development, believing it to have potentially damaging environmental and human consequences. Greenpeace [6], for example argue fracking 'isn't the solution to our energy needs. Investing in fracking will divert vital cash and resources away from

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clean, renewable energy projects' and that 'digging up more fossil fuels, right at the time we need to stop burning them, will only make climate change worse.' Friends of the Earth [7] list a number of arguments against fracking including risks to water contamination, public health and the environment and suggest that fracking will not lead to 'a jobs boom' and that it is 'incompatible with tackling climate change.'

With these two sets of contrasting perspectives on shale gas development by fracking in mind, the aims of this paper are twofold. Firstly, to explore how contrasting positions on fracking are reflected in the stories posted on the Internet by Cuadrilla Resources, one of the principal shale gas companies in the UK, and Frack Off, a grass roots direct action campaign which aims to stop the extraction of shale gas resources. As such the paper illustrates how storytelling can be employed in an attempt to convey what might often be seen as complex and scientific arguments to the general public. Secondly, to offer some reflections on the role of storytelling in current fracking controversies and, in so doing, to explore some of the wider issues in the debates and conflicts about shale gas development by fracking.

The empirical information for paper is from a snapshot review of the stories on the Frack Off 'Fracking Threat to the UK' webpage [8] and Cuadrilla 'Video Gallery' webpage [9] on the Internet on July 4th and 5th 2018. Unless specifically cited, all material and quotations in the remainder of this article are drawn from these two websites. While this approach can be seen to be a selective, rather than a comprehensive, way of capturing stories, it has been adopted by other scholars interested in fracking. Hopke and Simis [10], for example, explored discourse over hydraulic fracking and the shale industry on social media, and over a two-week window Hopke [11] examined how Global Frackdown, an environmental movement, called for a ban on fracking which was centred on a transnational day of action, via social media.

Storytelling and Environmental Research and Enquiry

Storytelling - simply defined as conveying and interpreting events and experiences through the use of words and images - is as old as the human race and has traditionally been used to share, and pass on, knowledge, values, myths, legends, fables and religious beliefs, from one generation to another and across geographical space. Osman [12], for example, argued '*transcending barriers of language and culture, storytelling is one of the oldest art forms in history, utilised to transmit cultural, moral and complex information in a simple, engaging and meaningful manner*' and PricewaterhouseCoopers [13] claimed that '*storytelling is one of the most powerful tools*

available to effective communicators'. Stories have traditionally been told in a variety of ways including pictures and photographs, messages, conversations, letters and presentations but the Internet and digital technology increasingly facilitates storytelling in innovative new ways and the Internet has been described by the author Neil Gaiman as '*a new version of oral storytelling*' [14].

A number of researchers have explored how storytelling can illuminate a number of environmental concerns and conflicts. A few illustrative examples, principally drawn from work on climate change and conservation, provide some indication of this work. Moezzi, et al. [15] edited an issue of '*Energy Research and Social Science*' which looked to examine how stories and storytelling were being used in energy and climate change research and reflected on '*some of the challenges of, and the possibilities for, continuing to develop stories as data sources, as modes of enquiry and a creative paths towards social engagement*'. McBeth, et al. [16] suggested that groups which portraying themselves as losing on a policy issue will use stories to expand the policy issue to increase the size of their coalition, while groups who believe they are winning on policy issue will use stories to contain the issue and to emphasise its specific dimensions. Rose [17] argued storytelling is a useful tool in that '*it presents scientific arguments in an understanding way to nonexperts*' and that '*telling stories is an essential part of influencing the policy making process*'.

Fracking Threat to the UK

Frack Off, which describes itself as an '*Extreme Action Energy Network*', was founded 2011 in Lancashire with a banner drop from Blackpool Tower and the launch of its homepage website. The network's position is that '*fracking is a nightmare! Toxic radioactive water contamination, severe air pollution, and tens of thousands of wells, pipelines and compressor stations devastating our countryside and blighting communities. All this to produce expensive gas that will soon run out using a process that directly accelerates climate change*'.

The '*Fracking Threat to the UK*' webpage offers a range of material which summarises opposition to fracking. The webpage includes the network's position on fracking cited above, short features on '*Extreme Energy*', '*Unconventional Gas*', '*The Impacts of Unconventional Gas*', '*Climate Catastrophe*' and '*The Fracking Timeline*', which is a call to mobile opposition to fracking operations, a map of fracking sites within the UK, a video clip entitled '*Fracking Hell: The Untold Story*' and a schedule of '*Upcoming Events*'.

The material on '*Extreme Energy*', for example, argues '*fracking is just a symptom of a much wider problem. As easier to extract energy resources are exhausted by the*

unsustainable energy consumption of the present system, we are resorting to ever more extreme methods of energy extraction', which in turn leads to 'increasing pollution, more dangerous working conditions, greater greenhouse gas emissions, more land use and less resources available to other sectors of society'. The impacts of fracking listed on the webpage include the volume of water used in fracking, contamination of groundwater, air pollution and the generation of 'vast streams of toxic and radioactive waste' which are 'a nightmare to dispose of while 'attempts to get rid of this waste by injecting it into the ground are causing large numbers of earthquakes'.

In addressing '*Climate Catastrophe*', the claim is that '*at a global level, there are already far more conventional fossil fuel reserves than we can afford to burn without causing catastrophic climate change. As with all unconventional fossil fuels unconventional gas simply adds to this store of unburnable carbon. Widespread exploitation of unconventional fossil fuels could produce enough carbon dioxide to make the planet literally uninhabitable*'. That said, '*while all this may seem very bleak, there are rays of hope within this dark cloud. Unconventional fossil fuels are much more dispersed than conventional ones, meaning that in order to get them many more communities are affected but must at least passively consent to their extraction. If these communities get organised to resist this invasion then it can be stopped*'.

'*The Fracking Timeline*' simply describes the stages in the fracking process from licensing, through surveying, land acquisition, planning application, drilling and appraisal to production, without providing any technical details of each of these stages. More pointedly, Frack Off argued that the ultimate success of fracking proposals are '*vulnerable at every stage. The sooner you get started the better your chance of slowing it down and stopping it in your area and everywhere else*' and advised '*if you want to take action, start planning an effective Anti-Fracking campaign where you live: Get our materials and step-by-step guides*'. At the time of writing the first of the '*Frack Off Guides*', entitled '*Start a Community Group In Your Area*', was advertised on a linked website. This guide was described as containing '*a series of community action guides, resources and a DVD of films designed to help you start/develop an anti-fracking community group in your area*'.

Cuadrilla Video Gallery

Cuadrilla is a privately owned exploration and production company founded in the UK in 2007. The company is focused on discovering and recovering natural resources, primarily natural gas, from shale rock and at the time of writing in July 2018, the company currently had onshore exploration licences in the North and South

of England covering some 240,000 hectares. At that time, for example, Cuadrilla had 8 operational sites in its Lancashire Bowland shale gas exploration license area and reported its belief that '*at least 200 trillion cubic feet of natural gas is trapped in the shale rock in our license area*' [18].

Cuadrilla's Video Gallery contained 23 video clips, with running times of between 48 seconds and 58 minutes and was prefaced with the invitation '*have a watch to find out what we do*'. The video clips covered a range of themes including exploration geology and the Bowland shales, the characteristics of hydraulic fracturing, geophysical and seismic surveys, site lifecycle, visual impact, environmental protection, working on site and public relations within the community. In the video clip entitled '*Cuadrilla's Rockstars*', two of the company's geoscientists emphasise that exploration geology is at the heart of what the company does as they visited a number of sites and sampled rock formations on the surface of the Bowland basin.

The '*Hydraulic Fracturing*', '*Site Lifecycle*' and '*Well Design*' clips rely on computer generated sequences, with voiceover, to tell their stories. The first one describes hydraulic fracturing as '*the temporary processes carried out after drilling has taken place to help the gas flow out*' and outlines how a rig site is assembled, the nature and time scale of the exploration process, how non-hazardous waste water is removed from the site and taken to a waste treatment facility and it emphasises how the operations are closely monitored at, and below, the ground surface to check for any seismic activity. In the '*Natural Gas*', and '*What's Fracturing*' clips, the voices of some of the company's geoscientists accompany a number of simple animated graphics, which outline the way natural gas accumulates over geological time and the drilling and fracturing process.

Five video clips, all entitled '*Preston New Road*' and all hosted by Jim Hancock, former political editor of BBC North West, were filmed at one of the company's drilling sites near Blackpool. In the first of these clips, Jim Hancock describes Cuadrilla as '*a Lancashire based company specialising in the search for the hydrocarbons we need to keep our homes warm and our industry going*' and said the aim of the video was '*tour the site, see what's going on, bust a few myths and answer any questions you may have*'. The first part of the clip, for example, focused on environmental protection measures on the site, and included a number of questions submitted by members of the public. These questions covered the removal of waste water, radio-active contamination, air quality and methane leaks. In his response to these questions the company's Well Services Director looked to allay concerns by outlining specific measures undertaken to protect the environment.

In 'Life on the Rig', one of the company's rig manager and its Chief Operating Officer provided a number of illustrations of working on site and here there was particular emphasis on the measures to ensure a safe working and operating environment. The company's employees also stressed the variety of the work, and the excitement being involved in the search for new gas resources, company support, the positive work ethic fostered by the company, the importance of team working, training employees to work with the specialist equipment, and recruiting employees from the local area.

Commitment to the local community and economy is the theme of four of the video clips. In one of these clips Jim Hancock interviewed a member of the 'Lancashire for Shale' organisation, which is looking to encourage local businesses to prepare for the opportunities that the commercial development of shale gas could bring to the area. Francis Egan, Cuadrilla's Chief Executive Officer, features in two video clips which highlight the company's investment in the community. One of the clips is based at AFC Fylde, where the company funds the 'Train like a Pro' soccer development programme for local children between the ages of 8 and 12.

Reflections

The two sets of stories were created independently by the Cuadrilla and Frack Off and while there are overlaps in the issues they raise, they do not directly map on to each other, and as such they can be seen to reflect the priorities of the two organisations. These priorities are very different and a number of issues merit reflective commentary. The Frack Off home page and the Cuadrilla Video Gallery undoubtedly present two very different sets of stories about fracking.

On the one hand, for example, many of Cuadrilla's stories are site specific and are focused on how the company are managing operations at a local level. Where the stories introduce a wider context they emphasise the importance of the company's work in looking to harness shale gas resources to help to meet the UK's domestic and commercial energy requirements. On the other hand, Frack Off effectively employed global perspective to set the context for its local opposition to fracking by emphasising that the commercial exploitation of shale gas by fracking was part of the wider problem of pursuing the development of unsustainable energy consumption policies.

There are also differences in the tone of the two sets of stories. In many ways the stories on the *Fracking Threat to the UK* webpage are stridently assertive and some are clearly confrontational, almost apocalyptic. This is illustrated, for example, by the statement '*the present system's addiction to massive amounts of energy is driving this*

headlong rush towards oblivion and unless something is done to stop it we will all be dragged down into hell with it'. Cuadrilla's stories have a more reassuring tone and look to reflect a more consensus model of society in which the company's is working with, and for, the general economic and social good and its operations are part of its contribution to social and economic development.

More specifically perhaps, the importance of what is 'natural' is interpreted differently. For Frack Off, fracking is part of an '*Extreme Energy*' scenario, and as such might be seen as the antithesis of the natural, as might be seen to be characterised by a stronger emphasis on the development of renewable energy resources. By way of contrast, one of the Cuadrilla stories focuses upon the natural processes responsible for the formation of shale gas over geological time and uses images of upland landscapes in Northern England which can be seen to suggest that its operations were in harmony with the natural environment. Another story describes how the company's operations were helping the gas to escape.

The two sets of stories reveal very different positions on the impact of fracking on the local environment and on associated impacts on local communities. The *Fracking Threat to the UK* webpage asserts that fracking causes a wide range of damaging local environmental impacts and is a problem per se, with no attention given to how such impacts might be mitigated or minimised. This is illustrated, for example, by fears about the contamination of water resources and the release of radioactive waste and toxic and carcinogenic vapours, associated concerns about breathing difficulties for those living close to fracking operations and reports of neurological and reproductive problems in humans and animals. For Frack Off the only way forward is to stop fracking and thus to eliminate these impacts. In their stories Cuadrilla, acknowledges public concerns about environmental impacts and potential associated health hazards but emphasises how the company is monitoring a range of environmental impacts and the measures the company is taking to minimise and eliminate these impacts.

While the Frack Off stories are largely presented as printed narrative and the Cuadrilla stories as video clips, there are also differences in the way in which the two sets of stories are told. The Frack Off homepage essentially provides a series of stories told, effectively anonymously, from the organisation's perspective. Many of the stories in Cuadrilla's Video Gallery are presented by, and feature, a range of company personnel, and in the case of the '*Preston New Road*' videos, by an experienced and well known former local television political correspondent. In pursuing this approach Cuadrilla can be seen to be looking to lend scientific and political authority to their stories.

From a political economy perspective, the *Fracking Threat to the UK* webpage might be seen to be an expression of fundamental opposition to the current dominant capitalist global business model. While Cuadrilla's stories characterise their proposed operations as making a positive contribution to current UK economic policy, arguably more controversially, these stories might be seen to reflect the claim by de Leeuw, et al. [19] that 'stories become calculated devices to corral the thinking of large groups' and to reflect the 'increasing use of storytelling for corporate agendas for capitalist propaganda'.

At the same time, the stories hint at a number of issues without developing them in any detail. The issues of property prices and ownership, for example, may prove to be a major issue for many communities where approval is given for shale gas development and serves as an illustration of the wider and often complex social and economic dimensions of such development. There are concerns, for example, that shale gas development may have an impact on property values and on potential purchaser's perceptions. On the one hand anecdotal evidence [20] suggests residential property values may have fallen by between 3% and 70% at a range of locations across the US. On the other hand research undertaken at Duke University [21] suggested that houses within a one mile radius of fracking developments had experienced an increase in value, due to lease payments, but more generally properties that depended on ground water resources had witnessed a decrease in their value. While the main weight of current evidence about property issues is from the US there are signs of growing concerns about such issues within the UK and there have been warnings that 'house prices could fall by as much as 30%' [22] and there are concerns about the availability of mortgages and home insurance.

More generally, in reviewing the impact of shale gas development by fracking on property values, it is important to recognise that the development of new types of energy resources may pose challenges for property valuation. In a study of coal seam gas extraction in New South Wales, Australia. Fibbens, et al. [23], for example, suggested that such development 'poses a challenge for the valuation profession in that valuation theory has yet to be developed in this emerging sphere of practice'. Dent and Sims [24] emphasised that in such circumstances the valuation of properties 'is partly affected by the perceptions of risk and stigma of the various stakeholders in the buying/selling process'. The authors further argued that the effect of stigma on property values is related to 'the type of structure'; 'the proximity of the structure to the property'; 'visibility/audibility'; 'prevailing market sentiment'; 'ongoing media attention'; and 'the current state of the property market' [24]. At the same time, Sims, et

al. [25] suggested that while a variety of factors can 'influence property stigma' ... 'the effect of stigma damage is difficult to quantify'.

Conclusion

The stories reviewed here are but a small element in the much wider process of storytelling surrounding the proposed development of shale gas within the UK by fracking. Nevertheless, the stories featured on the *Fracking Threat to the UK* webpage and in the Cuadrilla Video Gallery, look to inform, and to challenge, and they can be seen to have lively, emotive and potentially powerful human appeal. As such, they can be seen to provide valuable and accessible insights into the debate about fracking and into how the issues are being contested.

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