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ABSTRACT

This article examines competing political discourses surrounding shale extraction in the United Kingdom. It asks how these meanings are communicated and why certain understandings of the issue gain prominence. Drawing on discourse analysis and framing studies, the article first distinguishes two competing coalitions (pro-and anti-shale) and their shared narratives or 'storylines' (shale opportunity versus shale threat). Through a systematic examination of press reports, websites and public documents it identifies opposing discursive frames used to shape understanding, meaning and debates, and assesses their resonance and power. The article builds on existing interpretive studies by providing a finer-grained analysis of discourse success, and a greater emphasis on the coalition members who shape and deliver the agreed storyline. It argues that the anti-shale coalition in the UK has thus far enjoyed greater discourse success for two reasons: first, because the pro-shale coalition lacks trustworthy messengers; secondly because shale opponents have successfully expanded the debate beyond economic or environmental concerns to include potent issues of local power and democracy.

KEY WORDS: shale gas; fracking; discourse coalitions; frames; UK

Introduction

The extraction of shale gas – particularly through hydraulic fracturing or 'fracking' - is contentious and controversial, not least in the United Kingdom (UK). As elsewhere, UK proponents emphasize the potential economic, security and environmental benefits of shale gas, while opponents stress the incumbent environmental, health and climate risks associated with gas fracking operations. But the way these issues are debated in the UK illustrates distinctive features, including the stark contrast between public and government views of shale, a shifting discourse across time, and a growing focus on issues of local governance and control. How might we understand these shifting debates and what do they reveal about shale discourse in general, and the UK's emerging shale policy in particular? We begin by highlighting key findings from existing studies of shale discourse and explaining how the current study can add value. Next we provide a brief background to shale development in the UK, and introduce the framework applied to identify and track over time the key discursive frames comprising shale discourse debates in the UK. The subsequent section assesses the power or resonance of these frames and suggests the anti-shale coalition has gained the 'discursive upper hand' due primarily to two factors: their ability to expand the shale debate beyond environmental concerns, and the pro-shale coalition's lack of trustworthy messengers. In short, it finds UK debates are now as much about democracy as economy or environment. The conclusion surveys the implications of these findings and suggests areas for further research.

1. Existing Scholarship

As public debates over fracking have increased, scholars have become increasingly interested in how fracking is presented, constructed and understood by stakeholders and the public. Most literature thus far has focused on the United States where scholars have shown how perceptions are shaped by demographic and risk factors (Brasier, *et al.,* 2011, Boudet *et al.,* 2013; Jacquet, 2012; Schafft, *et al.,* 2013), environmental attitudes (Davis and Fisk 2014; Truelove 2012), and media effects (Boudet *et al.,* 2013). Studies of fracking outside the US are also growing. Metze's (2014) study of the Netherlands shows how the contested technology of fracking has become a 'boundary' object, engaging a wide range of actors seeking to frame and re-frame the issue as either an economic or planning problem. A study of news coverage in Poland by Jaspal, Nerlich and Lemancyzk (2014) demonstrates how the Polish media has successfully constructed a highly positive image of shale and portrayed any criticism of fracking

as 'un-Polish'. Tosun (2015) demonstrates how different institutions of the European Union sought to shape the public acceptance of shale by positing competing 'policy images' of shale extraction and its impact.

In the UK, scholars have likewise analysed the words, images and frames used to debate shale policy and their impact. Focusing specifically on the role of UK news media, Jaspal and Nehrlich apply social representation theory to understand how the media 'creates, manages and discards social representations' of fracking (2014, 351). They find representations of fracking in right-leaning newspapers tend to be broadly supportive while those in left leaning papers (especially the *Guardian*) tend to be negative. They helpfully identify rhetorical techniques used to shape public understanding and track how competing notions of threat but also technology have dominated UK news coverage from 2011-12. Hilson's (2015) frame analysis of English planning laws examines the extent to which local environmental or global climate themes are incorporated (or not) into English planning regulations. Cotton *et al.* (2014) adopt an interpretivist lens to identify and analyse competing narratives or 'storylines' (surrounding cleanliness and dirt, energy transitions and environmental justice) dominating UK shale debates. They find that government proponents ignore almost entirely the cleanliness storyline, focusing overwhelmingly on economic benefit. They argue further that opposition narratives have thus far had little influence upon the development of current UK shale gas policy which has neglected activist concerns in favour of the promise of global competiveness, security and profitability (p436).

This article draws on and complements these studies. It remains mindful of US studies while teasing out the distinct debate dynamics and perceptions in the UK. Both Metze (2014) and I examine how and why shale discourse has shifted in public debate, though we do so in different contexts and with different foci. Like Hilson (2015) I am interested in both local and global frames and how they are used to shape debate, but its focus goes beyond planning regulations. Like Jaspal and Nerlich I track changing representations over time and find notions of threat central to shale discourse debates. But whereas Jaspal and Nerlich focus exclusively on news representations and seek to explain how the media shapes that representation, my interest is not in the media *per se* but rather how broader coalitions of actors construct meaning and shape debate, both through news and elsewhere. I thus use news coverage as one indicator of broader shifts in coalitions and their narratives. My analysis also expands the time line beyond 2012. Indeed I find a significant discourse shift occurred after the period studied by

Jaspal and Nerlich. My study is closer to Cotton, *et al* (2014) who identify conteding broad storylines surrounding shale. My study also adopts a discourse analysis to reveal the competing understandings of shale and the political conflict surrounding it. Cotton *et al* and I identify some shared storyline themes (especially those linked to risk, economic viability, and community engagement), though we reach different conclusions about their relative importance and impact. More importantly, I am able to expand Cotton *et al.*'s investigation in several ways. First, I not only identify competing storylines but apply criteria to explain why they vary in their power or 'resonance.' Secondly, I pay more attention to the actors involved in promulgating these storylines and suggest how they may affect the resonance of that storyline. Doing so leads me to reach different conclusions regarding the relative success of the opposing coalitions. Finally, I identify and examine an emerging locally-based 'bad governance' discursive frame under-developed in Cotton *et al.*'s analysis but critical to understanding shifting discourse and debates.

2. Shale Development in the UK

The UK sits on a lot of shale rock. Although geological estimates remain uncertain, one major study by the British Geological Survey (BGS), suggests the UK's shale gas reserve potential is considerable – perhaps as large as 150 billion cubic meters (bcm). By comparison, estimates for onshore undiscovered conventional gas resources are 2-6 bcm (DECC 2012: vi). A BGS study of one north England formation alone estimated it contained 1329 trillion cubic feet. Even if only 10 percent of that were recoverable it would be enough to supply energy in the UK for a generation (BGS 2013). But shale policy in the UK is still in its infancy and not a single well is yet in operation. And its putative development is already marked by intense debate. The UK government enthusiastically promotes the extraction of shale. In 2013 the UK chancellor (economics minister) promised to 'kickstart' the exploration of shale gas (*Daily Telegraph,* 13 Dec 2013); the following month the Prime Minister David Cameron announced its government would go 'all out' for shale (*The Independent* 13 Jan 2014). The 2014 Queen's speech (which sets out legislative priorities of the year) announced further government support, including measures to stimulate investment and a possible change in law to allow the operation of more sites. In May 2014 an all-party group for the House of Lords advocated the promotion of shale exploration as an 'urgent national priority' (House of Lords 2014).

Despite promising geological estimates and strong support from the highest levels of UK government, public support for shale is mixed, and since 2013 has been marked by growing

opposition and protest (see McGowan 2014, Cotton, *et al,* 2014). The frequency and intensity of protest across Britain is considerable, reflected in a series of public demonstrations in the last few years. The largest of these took place in Balcombe, West Sussex in summer 2013 when a wide range of the public, including farmers, environmentalists, church groups, Members of Parliament (MPs), and local residents mobilized to protest energy firm Cuadrilla's plan to drill an exploratory borehole. In early 2015 public protests against proposed shale extraction mounted; demonstrations took place outside Parliament, opposition MPs imposed a series of constraining amendments, and in Scotland the governing party imposed a moratorium on shale.

Growing public scepticism is also reflected in a series of public opinion polls conducted in 2012-14. The academics leading the poll (O'Hara *et al* 2014, p.2) reported a 'turn against fracking' representing an 'increasing sense of unease with the environmental implications of fracking techniques amongst the UK public'. They noted further that a majority of Britons surveyed are *un*convinced that shale gas is clean energy; a majority *is* convinced that shale extraction is dangerous and that it should not be allowed. Meanwhile Stevens (2013) notes the concern of investors reluctant to commit to UK shale, and industry spokespersons complain shale opponents are able to 'move from one scare story to another' in their effort to chase industry away (*Guardian* 12 Jan 2014). In short, despite the UK government's strong support for fracking, the opponents' depiction of fracking as largely negative has taken hold in public debate and consciousness.

3. Framework and Data

A. Framework

To makes sense of these public debates and their impact we turn to interpretive policy analysis which emphasises the process through which meaning is given to physical and social realities. We draw on both discourse analysis and framing literature. We start with a discourse analysis approach (Hajer, 1995; Hajer and Versteeg, 2005) which focuses on how problems are defined, argued and debated, and how through that 'argumentative process' meaning is created (see also Dryzek, 1997, p.8; Feindt and Oels, 2005; Glynos, *et al*, 2009; Cotton *et al.* 2014). In this article we pay particular attention to 'discursive framing' – how actors define, select and emphasise particular aspects of an issue according to an overarching shared narrative and set of assumptions (Bomberg, 2012; Metze 2014; Miller, 2000, p.211). Frames mix empirical information and emotive appeals; they are most often connected to core political values and are

communicated simply and directly to the public. They can be used to draw attention to a problem (or solution), but also to deflect attention away from an issue. In short, frames do not neutrally reflect an issue, they re-construct meaning. The result is an argumentative struggle in which actors frame issues to increase or decrease attention to them, mobilize actors or de-moblise them, and direct policymakers towards solutions.

Hajer (1995) argues that in this struggle discourse coalitions are formed among actors engaged in a particular policy domain. These coalitions are loose, fluid networks held together not by shared beliefs or interests but by storylines, or shared broad narratives surrounding a particular issue (such as shale extraction). Although the precise relationship between framing, discourse and storylines is debated amongst academics (Lovell 2008), this analysis assumes that storylines are made up of the discursive frames described above. A shale storyline thus features a collection of frames that together form an overall narrative or story about shale extraction. This paper uses that framework to identify two broad competing storylines surrounding shale exploration: shale as Opportunity or shale as Threat.

A storyline is successful if it achieves 'discursive dominance' in public debate. Such dominance is reflected in public opinion polls, media reporting, or private firm and government pronouncements.[1] What leads to that discourse success is varied, but writers have developed some common criteria which are consolidated and expanded here. Most writers focus primarily on the discursive quality of the frames themselves. Powerful frames are: *plausible* – they must communicate 'common sense realities' backed up by compelling claims (scientific, moral or emotional). Hajer (1995, p.63) claims powerful storylines are based on a idea that 'sounds right'. Similarly, framing analysts suggest plausibility increases when frames are linked to 'core imperatives' such as economy or security (Baumgartner and Jones, 2009). Plausibility can also be strengthened by reference to experiences elsewhere. Secondly, successful frames are *acceptable* – the claims made must appear relevant to the audience (Nesbit, 2009), as well as 'attractive and necessary' (Hajer, 1995). This criteria is often achieved through linking something abstract or unfamiliar to something everyday or familiar (Jaspal and Nehrlich, 2014). These associations can be either positive or negative, reassuring or threatening. Finally, successful frames are also *trustworthy* – for Hajer (1995, p.59) this means frames must suppress doubts about the 'general truth' of their own claims while contesting counter frames. The ability to debunk opponents frames is thus an important criteria for success. Crucially, trustworthiness also depends on the actors delivering the frames. Metze's (2014) analysis of Dutch fracking

debates, for instance, found that opponents were able to shape debate by creating doubt about the trustworthiness of experts. Examining the impact of coalition actors thus allows us to highlight the role of agency within interpretive analysis (see Arts, *et al.* 2006). For a storyline to become dominant all three criteria must be met. This article provides a closer analysis of these three criteria to help explain why in the UK neither coalition has yet achieved such dominance, but also why one side (anti-shale) is closer to that goal.

B. Data Collection

This study constructs an overview of competing shale storylines by examining systematically a series of websites, news stories and public statements of key coalition members actively engaging in public debate surrounding shale. I first identified possible key actors and issues of contestation through secondary literature supplemented with a preliminary examination of news stories from major UK broadsheets appearing in two periods of intense news coverage: July 2013 and January 2014. This preliminary examination was used to identify the actors and coalitions featured in Table 1. The key actors include government and elected officials, industry representatives, think tanks, newspaper editorial writers, scientists and experts, NGOs, celebrities and local citizen groups. Having identified key players and their coalitions I then analysed the main websites and documents (press releases, government public statements, NGO blogs) relating to that actor or group's communication on shale extraction. The aim was to identify further the core messages or stories conveyed and further identify possible frames.

Table 1 about here

Next I used the Nexis® database to collect and analyse all significant shale-related news stories appearing in three UK broadsheet newspapers, treating them as important 'sites of argumentation' (Cotton, *et al*, 2014). The three chosen UK broadsheet newspapers represented a range of political positions (*Daily Telegraph, Guardian*, and the *Independent*). To discern how coalition members sought to convey their anti or pro shale message I analysed and coded statements in over 100 stories: 21 from 2011, 43 from 2013 and 39 from 2014. The news analysis paid particular attention to three periods of high contestation: initial drilling in 2011; summer 2013 (the time of the Balcome protests), and early 2014, following the announcement of the government's national plans on shale development. From this analysis I was able to

identify key discursive frames used by coalition members to deliver their storyline, as described below. I manually coded the stories to identify key words and phrases associated with the core discursive frames. For example the 'economic growth' frame included the key words of jobs, boost, prosperity; the environmental risk frame included references to water contamination; industrialisation and destruction. I used this documentary analysis to identify the key frames making up the storyline and the reaction to them. I also recorded which type of member was delivering which frames, and when. Examining systematically news articles over time allowed me to identify the prominent players in the coalition as well as track any shifts in emphasis in the core frames and arguments adopted.

4. Shale Coalitions and Storylines

In this section I identify the core frames comprising the storyline and map their relative prominence over time (see Table 2) .

Table 2 about here

A. The Pro-shale Coalition and the 'Opportunity Storyline'

The storyline of the pro-shale coalition is broadly one of Opportunity: shale extraction promises economic growth, reduced energy dependence, and a shift to a low carbon society. The coalition members (see Table 1) come from both the public and private sector and include actors who may not hold common values or beliefs, but embrace the opportunity discourse and seek to persuade others of its merit. This Opportunity storyline is comprised of frames used to construct meaning and shape debates in ways conducive to shale exploration and extraction.

The first frame is the promise of ***economic growth****.* Like proponents elsewhere, the UK pro-fracking coalition presents shale exploitation as a way of boosting the economy, creating profits, and providing jobs. As indicated in Table 2, this frame was consistently prominent across all three time periods (2011/2013/2014). Oil and gas firms (such as IGas and Cuadrilla), industry networks and editorial writers employed it, but so too did key players from the highest level of government. The Prime Minister himself is a primary booster of this message as is his chancellor and energy minister. The Treasury has also voiced strong support of the opportunity storyline. A typical message is provided by the UK high-level business group Institute of Directors (IoD) who underline the chance to exploit 'a really valuable asset right on our own doorstep' (quoted in the *Financial Times*, 2013). Or, as Prime Minister Cameron insisted, shale will bring 'more jobs

and opportunities' for British citizens (quoted in the *Guardian*, 13 Jan 2014). He sought to make that message more plausible by quoting figures of promised jobs (74,000) and investment (£3.5 million). This economic growth frame also underlines the need to avoid missed opportunities as illustrated in the *Daily Telegraph*'s editorial 'We cannot afford to miss out on shale gas'. Similarly the UK chancellor stressed: 'We don't want British families and businesses to be left behind as gas prices tumble on the other side of the Atlantic' (quoted in the *Economist*, 8 Dec 2012), because shale exploitation could bring 'thousands of jobs, billions of pounds of business investment, and lower energy bills' (*Daily Telegraph* 13 Dec 2013). In short, as the Prime Minister noted, the UK government would be 'crazy' not to go 'all out for shale' (quoted in the *Independent* 14 Jan 2014).

Analysis of this frame illustrates how coalition dynamics can shape frames and the broader storyline over time. In this case, the pro-shale story was expanded at the behest of certain pro-shale coalition members. Whereas government leaders' statements on shale in 2011-13 emphasized primarily national economic growth, other members – especially the Institute of Directors and the Department of Energy and Climate Change (DECC) – soon pushed for a heavier emphasis on economic gain for communities (IoD 2013). The news analysis showed that by 2014 DECC's and government officials' emphasis on community economic gain had become central to core government pronouncements on shale. For example, following a suggestion made by the IoD, Cameron promised that gas firm revenues could be paid directly to homeowners near fracking wells. He also announced that councils in England can now keep all of business rates raised from shale sites (quoted in *Guardian* 13 Jan 2014).

A more recently promoted frame expanding the Opportunity storyline is that of **security** and, especially, the opportunity to free the UK from foreign energy sources. Oil firm representatives and industry networks promoting shale regularly compare the promise of shale to North Sea oil, presenting both as a source of domestic energy and security. For instance the chief economist at the Institute of Directors underlined shale extraction as a way to 'maximise the potential benefits of a new domestic energy source….shale gas could be a new North Sea for Britain' (quoted in the *Guardian* 13 Jan 2014). A Cuadrilla representative stressed shale as a domestic source energy: 'This isn't Cuadrilla's gas. This is the country's gas' (quoted in Brooks 2013: 4).

 Our analysis demonstrated that this frame has become a more prominent element of the storyline since Russian incursions into Crimea in 2014 (see Table 2), and particularly

prominent amongst members of government. These coalition members, in other words, sought to stretch the storyline as concern over Russia mounted. This shift is seen, for instance, in the comments by the chair of the House of Lord's economic committee which publicly endorsed fracking in May 2014: 'The current situation in Ukraine and the urgent need to strengthen Europe's energy security have given our conclusions importance way beyond the economic impact alone' (member quoted in the *Daily Telegraph* 8 May 2014). The Prime Minister went so far as to claim Britain had a 'duty' to embrace fracking in the wake of the Ukraine crisis (*Daily Telegraph* 26 March 2014).

The **_reassurance frame_** is the third core frame identified under the Opportunity storyline. At its core this frame seeks to convince the public that the opportunity for extraction need not be marred by fears of environmental degradation or danger. (Other scholars have identified a similar frame; for instance in her study of the Netherlands, Metze (2014) identifies what she labels a 'business-as-usual' discourse.) Shale extraction in the UK would be based on caution, sound science and robust regulation. For instance, Cuadrilla's chief executive sought to minimise the danger of extraction by comparing it to 'keyhole surgery' (*Guardian* 24 Sept 2011), and later insisted the firm had 'robust safety measures in place' (*Daily Telegraph* 19 July 2013). Similarly, Conservative minister Michael Fallon urged firms to deal with 'some of the myth-peddling and show people it is safe' (*Daily Telegraph* 4 Aug 2013). Another Cuadrilla spokesman sought to underline the UK's shale governance structures and principles by comparing UK's robust regulation favourably with its laxer US counterpart, where incidents have been caused by 'bad practice' (*Daily Telegraph,* 19 July 2013).

Proponents sought to further strengthen this frame by underlining UK's safety record. Such reassurances increased over time as local concerns mounted (see Table 2). A DECC spokesperson noted: 'The UK has more than 50 years experience regulating onshore oil and gas' (quoted in the *Guardian* 14 Jan 2014) and 'there are regulations in place to ensure on-site safety, prevent water contamination, air pollution and mitigate seismic activity' (DECC spokesperson quoted in the *Guardian* 17 Jan 2014). Of particular importance are reassurances from the UK's Office for Unconventional Gas and Oil (OUGO) which was set up in 2013 to simplify the regulatory process, but also to regulate it. According to its website the OUGO (2014) will only promote the 'safe, responsible, and environmentally sound recovery of the UK's unconventional reserves of gas and oil'. Similarly, Cameron's description of shale gas pads as 'relatively small – about the size of a cricket pitch' (quoted in the *Daily Telegraph*, 26 March

2014) was an attempt to equate shale sites to a familiar and non-threatening object. Finally, experts in the pro-shale coalition also reinforced this reassurance frame. A group of petroleum engineers and geoscientists from UK universities emphasized their own expertise in making a case for exploitation:

> As geoscientists and petroleum engineers from *Britain's leading academic institutions*, we call on all politicians and decision-makers at all levels to *put aside their political differences* and focus on the undeniable economic, environmental and national security benefits on offer to the UK from the responsible development of natural gas....' (*Guardian*, letters, 4 June 2014, emphasis added).

The message here is two fold: first, leading academics and scientists support the practice, and secondly what hinders development is not scientific doubts but 'political differences.'

A final frame in the Opportunity storyline is that of shale as a ***'bridge'*** to a low carbon future. For its supporters shale provides the opportunity for environmental progress and is promoted as a 'transition' fuel: cleaner than coal and therefore a step towards a more sustainable energy future (see also Cotton *et al,* 2014). Speaking before the Commons committee, Cameron insisted 'if there's an opportunity to extract clean, low cost gas from shale in the UK we would be making a great mistake if we didn't enable this industry to develop' (quoted in the *Guardian*, 14 Jan 2014). Cameron's climate minister invoked this frame to address environmental opponents head-on, claiming they should back shale because it had lower carbon emissions than coal. Although this frame remained steady over time (see Table 2), it is far less visible than the other frames.

In sum, coalition members infused the Opportunity storyline with images of promise and opportunity for the economy, security and the environment. The examination across time suggests how the economic promise frame remains the dominant message, with security featuring later, reassurance claims increasing, and the 'bridge frame' remaining secondary.

B. The Anti Shale Coalition and the 'Threat' Storyline

The membership of the anti-shale coalition is diverse and shows sign of expanding. While the most prominent members (according to our analysis of news articles over three periods) were initially national environmental NGOs and champions of renewables, local protesters and community members became increasingly visible and vocal. All these members unite around an

overarching anti-shale storyline of Threat: to human health, environment, landscape, climate and even democratic governance.

Framing an issue begins with the labels chosen. The entire process of shale production and extraction is overwhelmingly referred to by this coalition not as shale extraction or even hydraulic fracturing but as 'fracking' – a cruder term conveying a harsher, slightly obscene resonance. More generally the use of metaphors or images connoting harm, destruction and greed are central to this storyline. The first and initially most prominent frame was one of ***environmental degradation and risk*** – including risk to water, air, landscape and human health. Frack-Off UK - the main network of anti-fracking protesters, dedicate an entire website tab specifically to environmental risks (Frack Off, 2014). More importantly the list is accompanied by powerful threat images, such as reference to 'disastrous gas leaks'; 'unsafe' practices, and land contamination. The study of news reports also underlined members' use of disaster imagery to convey the message that both the environment and human life are subject to threat. *Guardian* editorial writers and bloggers in the anti-coalition featured images of 'toxic waste floods' (*Guardian* 4 October 2013) and 'fracking hell', or specific threats to health including 'nausea, headaches, nosebleeds' (*Guardian* 13 Dec 2013). Other coalition members effectively linked this frame to everyday practices and concerns by their reference to 'water is life' (Frack Off's sign slogan during the Balcome protest; see *Guardian* 5 August 2013) or images of village children pleading with drillers: 'don't frack my future' (*Guardian* 19 September 2014).   This environmental threat frame was the most dominant in the first two stages studied (see Table 2).

A second frame comprising the Threat storyline is that of **'fossil fuel lock-in'** which expresses the concern that shale will nudge out investment in renewables, *slow* the transition to a sustainable, low carbon economy, and 'lock-in' damaging fossil fuel dependency. This frame, which was most evident in the early periods studied, is expressed primarily by environmental NGOs, who voice profound concerns about fracking's impact on global emissions, and the national environment. Their focus on climate effects highlight especially the risk of escaped methane, a greenhouse gas more potent than C02. But the more general message is the threat of 'gambling away' a 'cleaner' future. An example is offered by Friends of the Earth's Helen Rimmer (2013):

> The reality is we do not need to gamble on fracking. Investing in clean energy from the wind, waves and sun, along with a major energy-saving drive, would create hundreds of jobs, boost energy security and keep the lights on.

Sympathetic editorial writers sought to strengthen the plausibility of this lock-in frame by citing scientific sources. A *Guardian* editorial (24 January 2014) quoted chief scientific advisors warning that the global impact of shale extraction is likely to be higher overall carbon emissions because coal will simply be shipped and burned elsewhere. Members regularly use metaphors to strengthen the acceptability of this frame. Joined by renewable energy firms, NGOs present shale not as bridge but as 'rickety pier' to a fossilised future (FoE 2012). These NGOs invoke notion of 'fugitive emissions' to convey the secretive, illicit release of underground methane which could leak into atmosphere when gas is extracted, especially when combined with the risk of earth tremors (Frack Off in *Independent* 3 November 2011). While still a major concern to environmental NGOs, the prominence of this frame has weakened recently (see Table 2).

The final frame has become increasingly prominent as more coalition members, from a variety of backgrounds, invoke its core message. (Our news analysis showed a three fold increase in references to 'local control', 'community' or 'citizen'.) This ***'bad governance' frame*** invokes threats not to the environment but to democracy and accountability. It highlights a lack of transparency, democracy and citizen input. The critique is levelled not at fracking itself but at the process surrounding its regulation and development. Some coalition members, including environmental NGOs, invoke the frame when accusing oil firms of a campaign of obfuscation, or when accusing the UK government of 'acting as an arm of the gas industry' (Greenpeace UK campaigner, quoted in the *Guardian* 17 Jan 2014). Similarly, Green MP Caroline Lucas warns of a 'creepily cosy relationship between DECC and big energy' (ibid). Yet this frame is seized upon by others who may not share environmentalist concerns but do worry about issues of local democracy and accountability. To illustrate, the Balcombe protest in summer 2013 was marked by a mix of seasoned environmental protesters but also community groups, church groups and local residents specifically protesting development in their particular area and what they viewed as an accompanying lack of transparency and control. As one local resident complaining of new planning guidelines put it: 'The Government has removed key democratic controls in its race to harness unconventional energy resources' (quoted in the *Independent* 23 July 2013).

Government efforts to reassure and assuage local concerns by offering councils local incentives (such as allowing them to keep 100 percent of business rates from fracking operations) were quickly seized upon by the anti-shale coalition as undermining councils' role as protector of landscape. A Member of Parliament claimed local governance would become 'skewed and contradictory', while a local No Dash for Gas campaigner put it more vividly: 'David

Cameron's so–called sweetener is actually poisonous. It flouts democratic processes, attempts to bribe communities and councils and ultimately serves the interests of industry' (*Guardian* 13 Jan 2014). And a Green party member accused the government of resorting to 'bribes' while 'snatching' money from public services already under huge pressure due to government cuts' (*Guardian* 13 Jan 2014). This frame also appears to have affected Britons'views of fracking. By January 2014 a clear majority of the public believed compensation by firms was merely a means 'to get the community's support for fracking in their area' and only 13 percent felt it was to benefit the community (O'Hara *et al* 2014, p.9). In sum, although the environmental risk and lock-in frames remained visible throughout, the most striking development was the emergence and growth of the 'bad governance' frame.

5. Assessing Frame Resonance

This section assesses frames' relative 'discursive success' by reference to both the quality of the frames (see Table 3) and the members delivering them.

Table 3 about here

A. Assessing Pro-Shale Frames

The **economic frame** has become deeply embedded in pro-shale discourse; the study revealed a heavy emphasis on the economic promise across all three periods examined. It is potentially powerful for several reasons. First we know the plausibility of frames is greatest when linked to core imperatives of growth (Baumgartner and Jones, 2009). Its plausibility is arguably strengthened further when delivered by members centrally involved in job generation or economic policymaking (in this case, government officials in the Treasury, the chancellor, or oil firms). Its acceptance (relevance) was underscored by repeated reference to citizens' everyday economic and energy concerns. Yet public and press reaction suggests this frame is viewed neither as plausible nor as acceptable as it is in the US where more economic actors are involved (including a range of service industries) and where evidence of economic gains of fracking are already present (see Rabe and Borick 2013). The UK public is not yet convinced that shale will bring widespread economic benefit (poll cited in the *Guardian*, 19 May 2014). UK proponents could not point to actual economic benefits, only to the promise thereof. As the chairman of the government's energy and climate committee Tim Yeo conceded: 'It is still too soon to call whether shale gas will provide the silver bullet needed to solve our energy problems' (BBC news

26 April 2013). Opponents, meanwhile, challenged this economic frame by repeatedly highlighting stark differences between shale prospects in the US and UK. Moreover our analysis also found many challenges to the *trustworthiness* of this frame. For instance, investigative journalists challenged the job creation figures cited by Cameron, noting they came not from a government study but from an IoD report paid for by Cuadrilla (*Guardian* 13 January 2014).

The **security frame** is resonant because of its plausibility (its link to the core imperative of security) as well as its acceptability (through repeated comparisons to North Sea success). Unlike other frames its trustworthiness was not questioned in the period examined. It appears to be gaining public acceptance with a clear majority (58 percent) of surveyed public now associating shale gas with energy security (compared to 20 percent who did not) (O'Hara *et al* 2014). But our analysis of news stories indicates this frame was not prominently featured by proponents (see Table 2) and has only recently emerged (it was barely mentioned in 2011).

Examining the quality of the **reassurance frame** again underlines the importance of considering coalition members as well the messages themselves. One might expect this reassurance frame to be powerful, plausible and convincing; its prominence has certainly increased over time. It draws on extensive scientific expertise. And as the OUGO (2014) notes, the UK process of obtaining permits is amongst the most rigorous and laborious in the world. Any would-be fracker must gain approval from multiple agencies at multiple levels of government. Yet public trust remains low as does the belief that shale can be safely extracted. One reason is that UK pro-shale coalition *members* are not effective messengers of reassurance, and their weaknesses were well highlighted by the opposing coalition. Environmental NGOs and MPs in the anti coalition claimed the government's watchdog role was compromised and unconvincing, in part because the office set up to regulate shale (OUGO) is also charged with promoting it; it was thus accused of excessively cosy relations between industry and government (see also report by House of Commons 2013). Secondly, reassurance claims made in 2013 were marred by the media's investigative reports of lax regulation in other spheres such as food scares (Brooks 2013). Even the potentially more credible source of scientists and academics who signed a letter celebrating shale opportunities was in this case weakened. Opponents, including academics against shale, were able to cast doubt on their neutrality by underlining putative links between researcher grants and oil industry funding (*Guardian* letters 9 June 2014). The objective validity of such claims is not the point here – what it does illustrate is that the messenger (or storyteller) and his/her credibility can be as important as the storyline.

Shale proponents attempted to use the **bridge** frame to challenge the trustworthiness of the anti-coalition by downgrading environmentalists' 'kneejerk reaction to fracking' which was based on 'ideology' rather than 'science' (Cameron's climate minister quoted in The *Guardian* 27 January 2014). By referring often to experiences in US, where domestic use of coal has dropped, proponents such as representatives of Shell also sought to make this frame more plausible. But, as above, opponents effectively weakened the trustworthiness of this frame by pointing out it was delivered by executives at Shell or other oil firms who rely on the extraction of fossil fuels.

Focusing on our three criteria (plausibility, acceptability and trustworthiness) highlights the potential strength of the Opportunity frames but also their potential vulnerability. The frames themselves are potentially robust but have often been undermined not just by counter frames, but by the pro shale coalition members and their own [un]suitability. Moreover our analysis of news stories and polls suggested that the practices intended to support the Opportunity storyline – such as repeated reassurances of compensation and local consultation - backfired. They were depicted by opponents, and subsequently interpreted by locals, not as positive practices but attempts at buying-off and bribery.

B. Assessing Anti–Shale Frames

The risk frame is not (yet) linked to core imperatives such as economic growth or security which have provided the Opportunity storyline with powerful plausibility. However, this risk frame does particularly well on the acceptability (or relevance) criteria. Coalition members were able to increase acceptability by relating environmental risks directly to an individual's or local community's experience such as possible contamination of local wells or landscape. Water contamination is now by far the most serious fracking-related environmental threat perceived by the public; in the Nottingham YouGov survey a clear majority identified a direct association between fracking and water contamination (O'Hara *et al* 2014, p.5). Secondly this risk frame falls on receptive ears in the UK where the public display greater scepticism towards regulatory efficacy in general, especially the ability of governments to protect citizens from health risks (Shin and Choie, 2014). But what makes this frame particularly strong (or relevant, in Hajer's term) is that it is delivered not just by members of environmental NGOs, or seasoned protesters, but by 'non-environmentalists'. As a local organiser of protest meetings in an English village noted: "It's not just people who have been involved in the green movement before. We're

seeing farmers, landowners, parents, health workers, and church groups expressing interest and concern (quoted in the *Guardian*, 13 March 2013). These 'accidental activists': farmers, local citizens and even celebrities (such as Vivienne Westwood) not normally involved in environmental protests can imbue this frame with a wider acceptability arguably not obtainable by more regular demonstrators.

The **fossil fuel lock-in** frame, which was expressed primarily by environmental NGOs, was initially highly visible. Its plausibility was regularly underlined by scientific data provided by NGOs, scientists and editorial writers, and its acceptability was strengthened by potent images of damage and rickety piers. But the prominence of this climate-focused frame dipped sharply over time (see Table 2), voiced by a dwindling array of coalition actors and crowded out, in part, by the next frame of governance.

By early 2014 the **bad governance** frame became the most dominant amongst the anti-coalition, outstripping the risk and lock-in frames. While it encompasses wider fears of business-government co-optation or greed, the most prominent claims have concerned local governance, especially a lack of accountability, local democracy and representation. Its relevance and trustworthiness was boosted by those communicating the frame: 'local guys' and average citizens. They strengthened the acceptability of the bad governance claims because the idea of 'ordinary' local, law-abiding citizens threatened by the intrusive fracking plans of a non-accountable government is a message well delivered by locals not usually engaged in anti-government or environmental protest. Moreover, by adopting this frame, the threat coalition successfully expanded the debate beyond the substance of policy, to its processes. This threat is proving harder to dispel than are substantive claims about environmental or climate risks. Through this expansion the threat coalition has begun to achieve the discursive upper hand.

6. Conclusion

This article has identified several key frames comprising opposing shale storylines, and the coalitions delivering them. It has tried to go beyond existing studies by also assessing and explaining the resonance of those frames. An overall examination of each storylines' frames suggests neither storyline is entirely dominant. The pro-shale coalition's frames are potentially both highly plausible and acceptable, but are viewed as untrustworthy. On the other hand, the anti-shale storyline also falls short of full discourse dominance. The plausibility of their threat frames is not yet linked to core imperatives, and the relevance of some of their frames

(especially that of fossil fuel lock-in) appears to be fading. But compared to the pro-shale storyline, this anti-shale storyline is stronger overall because its coalition has been able to exploit the weaknesses of the pro-shale coalition (especially on the criteria of trustworthiness) and they have been able to expand their support by invoking a new locally-based 'bad governance' frame.

By taking an interpretivist approach this study has identified deeper meanings and debates surrounding shale. In particular, our case revealed that behind debates about economy or environment lie conflicts about (local) accountability, power and democracy. This finding illustrates how interpretive studies are able to uncover the political conflict sometimes hidden in discursive frames. It also suggests several fruitful avenues for further discourse research. First is a call for country comparisons. While this study has highlighted the distinctive features of UK debates, the broader themes uncovered – including explanations for shifting discourse, the importance of coalition members, the possible emergence of new frames – are all applicable to cases elsewhere and could offer a basis for useful comparative insights. A second line of inquiry is the need to further track discourse not just over time, but also across space (e.g. why and how do debates shift from the global or national to the local level, or *vice versa*). Also needed is more research examining coalition members and their role. This study has underlined the importance of members as messengers of a given storyline. It also suggested members might be important in other ways. While they do not pre determine discourse as might be suggested by positivist accounts, they are not without influence (Arts *et al* 2006). For instance, we found the threat storyline shifted in both emphasis (more about governance), and geography (more local) as more community groups and citizens joined and became more vocal. Research which pays more explicit attention to members could tease out the nature of this complex interactive relationship between discourse and actors.

This study also raises several possible policy implications. We revealed that the growing dominance of more parochial frames (local democracy, local governance, citizen power), was accompanied by a weaker emphasis on the wider possible dangers of shale, especially its possible national and global impact. Similarly Hilson's study (2015) of English planning regulations identified a marked decrease in references to global climate change frames. That local emphasis could help explain, for instance, why public support for national fracking in general, while low, is significantly higher than support or permission for fracking locally (Natural Gas Europe, 2014; *Economist* 24 August 2013, p.27). Put another way, storylines that are

successful discursively may provide a specific – in this case quite parochial - constraint for policy development or decision making.

Finally, what does our research suggest about the future of UK shale policy? The focus of this study has been on current discourse dominance in British shale debates. But it is early days for shale policy in the UK, and we have noted how discourse and coalitions can change over time. Battles for discourse dominance may shift further as coalitions and storylines strengthen or weaken. Once - or if - fracking begins and benefits are realised, membership of different coalitions may expand or contract and the frames and resonance may as well. But the trajectory mapped here – a growing emphasis on local issues, local concerns and local needs - suggests that opposition to fracking will most likely increase before it diminishes. That means the UK (or any) government's emphasis on national economic prosperity, security, reassurance, or low carbon bridges is unlikely to gain prominence or 'stick' in the wake of this growing local concern.

Notes

[1] Hajer (1995, p.61) also introduces a more entrenched success, what he terms 'hegemonic discourse'. The latter implies institutionalization of frames and into concrete policies or processes. This article, however, focuses on the earlier stages of policy and does not examine possible later stage of institutionalization

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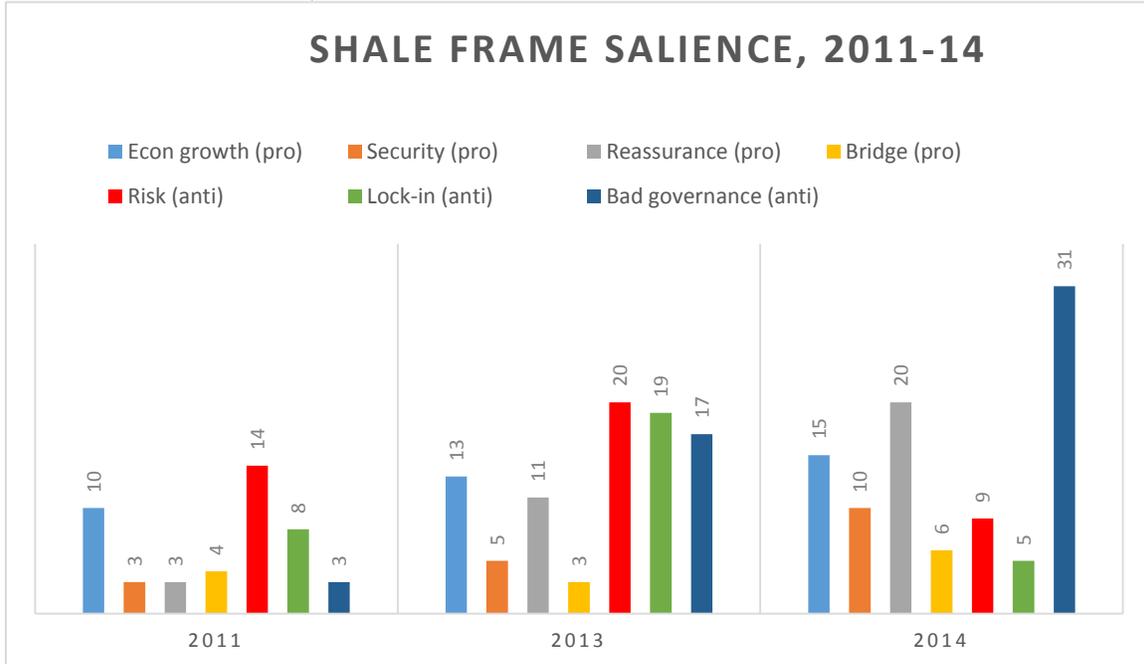
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Table 1: Shale Discourse Coalitions (representative)

Discourse Coalitions	*Storyline*	*Member Types*	*Member Examples*	*Frames*
PRO-SHALE	Shale as opportunity	Oil & gas firms; industry networks; government supporters; experts and media	Cuadrilla, IoG; UK prime minster and energy ministers; geoscientists; *Daily Telegraph* editorial writers	Economic growth Security Reassurance Bridge
ANTI-SHALE	Shale as threat	Local residents; environmental & health NGOs; renewables firms; experts; MPs; media; celebrities;	Balcombe resident groups; Frack Off; FoE; MP Caroline Lucas; *Guardian* editorial writers; Vivienne Westwood	Risk (environmental and health) Fossil fuel 'lock-in' Bad governance

Table 2: Shale Frames, salience over time

SHALE FRAME SALIENCE, 2011-14

Econ growth (pro) | Security (pro) | Reassurance (pro) | Bridge (pro)
Risk (anti) | Lock-in (anti) | Bad governance (anti)

2011: 10, 3, 3, 4, 14, 8, 3
2013: 13, 5, 11, 3, 20, 19, 17
2014: 15, 10, 20, 6, 9, 5, 31

Key: figures represent number of time frame was invoked by coalition members (by direct or indirect quotes) in press stories at three points: 2011 (21 stories identified); summer 2013 (43 stories); winter 2014 (39 stories)

Table 3. Assessing frames: criteria*

Plausibility – frames are backed up by compelling scientific, moral or emotional claims. Plausibility can also be strengthened by reference to experiences elsewhere, such as the USA.

Acceptability – (or relevance) - the claims must appear relevant and applicable to the audience's everyday experiences or lives. Strong frames link object or idea to something familiar

Trustworthiness – the source of frames (agent or practice) must be seen as credible and/or reliable. This criteria also includes the ability to contest counter frames.

*adapted and expanded from Hajer 1995