

Discourse coalitions and unconventional gas in Scotland: Risky ‘dash for gas’ or vital ‘bridge’ to a low-carbon future?

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Abstract:

As part of the ongoing devolution of powers in the UK, Scotland will soon acquire new regulatory competencies regarding onshore oil and gas extraction. This prospect and the current moratorium on unconventional gas development (UGD) have brought about a vigorous debate that pits two discourse coalitions against one another: a pragmatic pro-UGD coalition in favour an ‘all of the above’ balanced energy policy and an activist-based anti-UGD coalition that warns of a threat to public health, the environment, and Scotland’s ambitious climate and energy targets. The Scottish Government has repeatedly committed itself to an ‘evidence-based’ approach to UGD and has promised further scientific studies and a comprehensive public consultation. But probably by the summer of 2016, a decision will have to be made. This paper uses the framework of Hajer’s (1995) argumentative discourse analysis (ADA) to examine the controversy. After summarising and discussing the main theoretical precepts, the paper explores the make-up of the two discourse coalition and performs a detailed analysis of eight different storylines that currently dominate the debate. The principal findings are largely empirical and relate to the discursive dominance (but not hegemony) of the ‘evidence-based’ approach, tensions within some of the storylines, the complicated issue of socio-cultural resonance, and the emergence of moral narratives alongside economic arguments, and the relationship between discursive power and material interests. Finally, the paper reflects on a small number of broader theoretical implications and considers the relative performance of discursive strategies used by the two discourse coalitions.

Introduction

Ever since US shale gas production accelerated in the mid-2000s, hydraulic fracturing (or ‘fracking’) has grown into a major political controversy. Countries around the world have begun to catalogue their potential reserves, but political responses to extraction have varied enormously. The US has witnessed increasing mobilisation against shale gas. Citing potential health risks, New York State introduced a moratorium in December 2014 and President Obama unveiled new federal laws in March 2015, but many US states remain fundamentally pro-shale and have even overruled local bans. In Europe, France has banned fracking, exploration in Central and Eastern Europe has often been disappointing (compared to estimated reserves), and Germany will only allow fracking from 2019 under strict conditions (Mihalache 2015; Shale Gas International 2015). Other countries are

also gradually scaling up operations: Russia and China have taken an active interest, South Africa is assessing the environmental implications, and even Denmark, a self-proclaimed leader in wind power, permitted the first exploratory test wells in early 2015.

Significant attention has also been given to the UK's plans for shale gas production. Prime Minister Cameron announced in January 2014 that the country was going "all out for shale" (Watt 2014). However, under pressure from anti-shale mobilisation across the country and criticised by opposition parties for his 'gung-ho' approach (Perkins 2015), there has been less progress than anticipated. To date, no commercial fracking has taken place. This dynamic of increasing scepticism also applies to the devolved government in Scotland which imposed a moratorium on all forms of unconventional gas development (UGD)¹ in early 2015 by suspending all relevant planning applications.

This paper explores the Scottish case in more detail – for several reasons. First, as proposed by the Smith Commission (2014), there will soon be further devolution of licensing of onshore oil and gas extraction. The regulatory framework – currently in limbo due to the moratorium – is rather complex and relies on multiple levels of governance and a whole string of regulatory authorities (Cairney et al. 2015: 9). The first application to drill for coalbed methane at Canonbie, Dumfriesshire was made in 2011. A 2014 report suggested that there were moderate reserves of unconventional gas throughout the Central Belt region (Monaghan 2014). Soon after the elections for the Scottish Parliament in May 2016, the Scottish Government will have to make a decision on whether, and under what conditions, UGD can proceed in Scotland. This poses considerable political risks and the decision will undoubtedly be shaped by the scope, content, and intensity of public debate.

Second, the Scottish case represents a microcosm of the wider international discussion on how to best reconcile energy policy with climate change mitigation and expedite the transition to a low-carbon energy system (Vogler and Stephan 2013). Hodson and Marvin (2013: 94) have inquired into whether Scotland could be dubbed "the low carbon Saudi Arabia" and found a promising combination of (1) Scottish ambition for "low carbon leadership" within the UK², (2) a very favourable physical geography for renewable energy, and (3) highly unbalanced settlement patterns whereby the great majority of people live in the Scottish Central Belt region – which is also the area where most UGD would take place.

Third, the Scottish context is marked by a long history of oil and gas production which has generated significant economic benefits. The country's remaining reserves (especially offshore) were at the centre of the Scottish independence debate which culminated in a narrow referendum victory (September 2014) for those wishing to remain part of the UK. When considered alongside the 'Saudi Arabia' metaphor, there are two very different visions of Scotland's energy future and the anti-UGD camp has woven them into a zero-sum narrative in favour of a 100% renewable Scotland (WWF Scotland 2014). By contrast, the pro-UGD camp hails the new onshore reserves as partly compensating for the rapid decline of offshore production. It calls for a realistic and responsible energy policy and a more gradual low-carbon transition (Farquharson 2015), while pointing to two major Scottish reports that confirm the potential opportunities and judge the risk to public health and environment to be low (Scottish Government 2014; Royal Society of Edinburgh 2015).

This paper uses a discursive approach – based on Hajer's (1995) argumentative discourse analysis – to examine the debate over UGD in Scotland. Undoubtedly, the controversy could equally be studied

¹ This paper considers several forms of unconventional gas development (UGD), including shale gas, coalbed methane, and underground coal gasification.

² Claimed to be the "most ambitious" climate and energy targets in the EU, by 2020 Scotland aims to achieve: 30% of total energy consumption from renewables; 100% of electricity from renewables; 10% share of biofuels in transport; 11% of heat demand from renewables; and a 12% reduction in total final energy consumption (Scottish Government 2011).

from a rationalist, materialist, and interest-based perspective. However, following Ockwell and Rydin (2010: 169), our understanding of the debate is enhanced by taking into account not only material interests but also values and identities. Consider, for instance, Farquharson's (2015) observation that, for large parts of the Scottish public, "fracking seems like a throwback to the bad old days." Less tangible identities and values can be uncovered and interpreted through discursive analysis. In addition, they are not merely reflected through language, but also reproduced through repeated discursive practices.

Furthermore, "actors' power is at least in part discursive" (Ockwell and Rydin 2010: 169). Clearly, material resources and political connections will markedly shape the regulatory outcome. But rhetorical skills as well as persuasive, trustworthy, and innovative storylines will equally affect "the dynamics of policy debates" (ibid.). In their efforts to win a 'social licence to operate', industry players deploy a variety of storylines and their opponents do their best to undermine them with their own narrative schemes. "Linkages with prevailing societal discourses" (ibid.), which I later describe as cultural resonance, can translate into considerable discursive power. Such is the narrative force of 'renewables revolution' that the pro-UGD camp certainly does not suggest a return to the 'bad old days' of heavy industry. Instead, UGD relies on low-risk and perfectly manageable technology. But apart from occasional references to future 'clean' coal and gas technology (with carbon capture and storage), UGD remains a 'bridge' to the low-carbon, electrified future.

Rationalist perspectives may assume that stakeholders and the Scottish Government can always stand back from discursive battles and coolly evaluate where their real interests lie. But who can decide with certainty what, for instance, the overwhelming interests of the government or of different Scottish trade unions consist of? Actors' understanding of the policy problem itself, as well as its solutions, has been discursively constructed over many years. Their interests are "incomplete, ambiguous, and shaped by contingent discourses in which they are embedded" (Torfinn 2011: 1882). Which storylines will sway trade union members and sufficiently empower pro- or anti-UGD sections of the Scottish Government remains to be seen. The motivation for announcing the moratorium was, after all, to provide the government with enough breathing space to clarify its own 'interests' and channel the public debate into a less febrile direction. If the government's 'cautious' and 'evidence-based' approach does indeed reign supreme as 'discursive hegemony', it will have considerable leeway to decide how the 'evidence' should be interpreted.

The remainder of this paper is structured as follows. After further elaborating on the context of the Scottish debate and the available literature, I set out the main elements of argumentative discourse analysis in significantly more detail. As much of the discursive struggle revolves around different storylines, these are then investigated empirically, and a concluding analytical section further develops some of the empirical and theoretical findings.

Methods & Context

As one of the first studies to examine the Scottish debate over unconventional natural gas development (UGD), this paper draws on concepts and insights used by analyses of other energy controversies – such as biofuels and wind power – and the politics of climate and energy transitions more generally (Bulkeley 2000; Mander 2008; Lovell et al. 2009; Palmer 2010; Scrase and Ockwell 2011; Bosman et al. 2014). Given the dearth of secondary material for Scotland specifically, semi-structured interviews with key actors (May/June 2015), official documents and extensive media analysis represent crucial empirical ingredients. While empirical work is ongoing, six interviews have so far been conducted. These were complemented by analysis of reports by and statements given to UK broadsheet newspapers as well as regional Scottish newspapers. The narratives and arguments obtained from interviews and documentary sources were used to identify particular storylines and

associated discourse coalitions. Key government documents and records of parliamentary debates were also consulted.

At the same time, there is evidently a close link with the emerging literature on UGD in the UK as well as other European countries. Cotton et al. (2014) have already provided an excellent discursive analysis of the wider UK shale gas debate, and Bomberg (2013) performs an innovative transatlantic US-EU comparison by highlighting the importance of “agenda-setting networks”. Cairney et al. (2015) offer an up-to-date account of UK policy dynamics and interest group formation. Hays et al. (2015) scrutinise the quality and extent of scientific knowledge about hydraulic fracturing technology, while Hawkins (2015) evaluates the robustness of England’s regulatory system for fracking.

However, this paper differs in important respects from most of the existing literature. While there is significant overlap with Cotton et al’s (2014) discourse-analytical approach, the Scottish debate on UGD – with its focus on the Central Belt region and three major varieties of unconventional gas – is distinctive. Bomberg (2013) uses a different conceptual language to identify pro- and anti-fracking mobilisation networks and considers how particular frames are employed for the purpose of agenda-setting. Her attempts to theorise different frames’ resonance nonetheless reveal some common ground with Hajer’s (1995) argumentative discourse analysis (ADA) which I use for my analysis of the Scottish debate.

Cairney et al. (2015) skilfully apply the advocacy coalition framework – a well-established theory of the policy process – and draw on questionnaire data to show how actor coalitions exchange information in order to reduce multiple forms of uncertainty: about potential risks and benefits of fracking, and about a confusing array of multi-level regulations and policy actors. The membership of UGD advocacy coalitions appears relatively similar to the make-up of discourse coalitions, and typically conflict between advocacy coalitions also has a “distinctly argumentative dimension” (Palmer 2010: 994).

But the theoretical precepts of discourse coalitions and advocacy coalitions certainly diverge. While they both depart from narrower interest-based assumptions and champion the cognitive and ideational elements of political struggles, argumentative discourse analysis places a stronger emphasis on the vague and flexible nature of coalitions as well as on discursive strategies of problem definition and persuasion (Hajer 1995; Fischer 2003). Policy change in ADA is more likely to arise from credible and appealing storylines put forward by trustworthy actors than by policy learning or the transformative effects of exogenous events, such as public policy disasters or new scientific information. Undoubtedly, these latter factors can sometimes prove critical, but the way they are framed and communicated determines how policy-makers and the wider public interpret them (Hajer and Versteeg 2005). A case in point here is a recent report by the US Environmental Protection Agency on the environmental impacts of fracking. The study itself found only few cases of contaminated drinking water. Whereas pro-UGD actors welcomed the findings as a vindication of safe business practices and called for the reversal of state-level moratoriums on fracking, some environmental NGOs stressed the limited evidence base, called for further scientific studies, and drew attention to other risks such as wastewater disposal and seismic disturbances (Volcovici and Gardner 2015).

In particular, the role of scientific expertise is complex. As Hajer (1995: 72) notes, “scientific claims are often intermingled with policy claims” and in environmental politics more generally, given the ample provision of “counter expertise” (Fischer 2003: 109), scientific knowledge rarely settles political contests in the short to medium term. Although this applies more strongly to some issue-areas (e.g. climate change, genetically modified organisms) than others (e.g. water pollution), Hajer (1995: 72) is right to say that environmental conflict is ultimately not just about easily recognisable problems and solutions but also about the “meaning of physical and social phenomena.” This appraisal of scientific expertise stands in stark contrast with the Scottish Government’s ambition for

a resolutely 'evidence-based' approach to UGD. It can also be juxtaposed to academic contributions that seek to evaluate regulatory robustness and the effectiveness of harm reduction strategies in the light of available scientific evidence from around the world (Hawkins 2015; Hays et al. 2015).³

It is important to note that Cairney et al's (2015) paper on UK fracking policy does, in fact, go beyond narrow applications of the advocacy coalition framework by putting scientific uncertainty at the core of its argument and by acknowledging that framing and problem definition play a critical part in actors' risk-benefit calculation. They maintain that the fracking controversy is "a fundamental debate about moral choices, in which scientific information only plays one part" (ibid.: 5), but the quest for reducing both scientific and political/regulatory uncertainty remains a major preoccupation of the two advocacy coalitions.

Argumentative Discourse Analysis (ADA)

Scientific uncertainty is also the starting point for ADA (Ockwell and Rydin 2010). As Davidson and Gismondi (2011: 26) argue, environmental politics is deeply affected by "discursive manipulation" whereby both governments and interest groups can downplay "measurable indicators", reduce complexity, and set the political agenda by using storylines to draw attention to "simplified answers" – embodied by motifs such as resource efficiency or clean production. For UGD in Scotland, examples of such shorthand expressions are 'keeping the lights on', a 'balanced energy policy', or an 'evidence-based approach'.

The latter term may even qualify as what describes as a 'nirvana concept' which connotes "an ideal image of what the world should tend to (Molle 2007: 2). Actors find it very difficult to openly disagree with 'nirvana' concepts. Their storylines therefore run the risk of endorsing a hegemonic narrative whose content they do not fully control. In the Scottish case, however, this has certainly not led to a premature 'closure' of the debate over UGD. Both of the two main discourse coalitions lay claim to evidence-based advocacy, but interpret available scientific studies in very different ways. The Scottish Government's insistence on an evidence-based approach seeks to bolster its reputation for just and competent governance. It also provides significant leeway for its ultimate decision on UGD, but the 'nirvana' bonus will only last so long. The political case will have to be made alongside the scientific case. Hence the planned public consultation and the public engagement processes conducted by major industry players such as INEOS (shale gas, CBM) and Cluff Natural Resources (UCG).

The potential impact of 'nirvana concepts' points to the inherent power of discourse. Hajer (2006: 67) forcefully posits that "[l]anguage has the capacity to make politics, to create signs and symbols that can shift power-balances and that can impact on institutions and policy-making. It can render events harmless, but it can also create political conflicts." However, before outlining the main elements of ADA, let me briefly dwell on the meaning of discourse. It is commonplace in ADA to draw on Hajer's (ibid.) definition of discourse as "an ensemble of ideas, concepts, and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices." Or, more concisely, in Dryzek's (2005: 8) words, a discourse is "a shared way of apprehending the world" which enables us to synthesise many disparate pieces of information into a comprehensible account.

Both Hajer and Dryzek offer a broad and flexible definition of discourse, but one core difference between their conceptions has been widely discussed in the literature. Hajer's (1995: 59) argumentative perspective conceptualises politics "as a struggle for discursive hegemony in which

³ In their conclusion, Hays et al. (2015: 39) do, however, acknowledge that values are important because "there are a number of policy issues that science alone cannot resolve."

actors try to secure support for their definition of reality.” Regarding Scottish UGD, one would thus expect one discourse coalition to triumph in discursive terms – and ultimately in regulatory and socio-political terms as well. The achievement of discursive hegemony would, in principle, close down or pacify the debate. While this could potentially happen in the medium term, it seems more likely that discursive contestation will initially continue and that Dryzek’s (2005) understanding of the multiplicity and co-existence of discourses – and as them having both constraining and enabling effects – will be more pertinent.

Yet, this is not say that a weaker version of hegemony, such as discursive dominance, might not be achieved and that many of Hajer’s other conceptual tools are eminently applicable. Given that politics is understood as a discursive struggle, it greatly matters who is able to set the terms of the debate, which issues are emphasised and which ones are downplayed or excluded. Once actors have been compelled to use the “ideas, concepts, and categories of a given discourse”, Hajer (1995: 60) speaks of ‘discourse structuration’. As in the case of the ‘evidence-based’ approach to Scottish UGD, the discursive context for the debate is now in place. To radically depart from it and establish a new problem definition would risk being perceived as illegitimate or unintelligible. Structuration by itself, however, does not guarantee that policy will be shaped by the dominant storyline. The overarching objective of discourse coalitions is therefore to achieve ‘discourse institutionalisation’ (Hajer 1995: 61) whereby a discourse becomes “sedimented into a set of concepts and organizational practices that are taken for granted by social and political actors” (Torring 2011: 1883). For the anti-UGD coalition, this would involve an extension or permanent formalisation of the Scottish moratorium or at least a highly restrictive regulatory framework. It would also imply a winding down of planning applications and speculative investments in UGD. Only once structuration and institutionalisation have both been achieved can one meaningfully speak of discursive hegemony in a particular issue-area (Hajer 1995: 61).

Unlike material incentives or organised lobbying, discursive interventions are, in principle, available to a wide range of societal actors. Analysts have to find ways of appraising their relative power and Hajer (1995: 59) suggests that three factors are especially important: credibility, acceptability, and trust. For him, these elements can still be explained in largely discursive terms. First, credibility requires that discursive positions are internally consistent and communicated in a persuasive manner. For the pro-UGD coalition, it would thus be infeasible to argue that UK/Scottish operations will be textbook examples of good practice, while portraying shale gas operations in the US and Australia as universally problematic. At least a few pockets of good practice abroad (e.g. in Pennsylvania and other US East coast regions) have to be offered. Second, acceptability implies that discursive positions are acknowledged as “attractive or necessary” (ibid.). Here, the issues of financial benefits for individual and communities as well as narratives of energy security and economic development come into their own. Third, trust assumes that actors are believed to be truthful – especially regarding potential risks, uncertainties, remedial capacity, and motives – and that their past behaviour or procedures provide sufficient evidence. Prospective shale gas producer INEOS thus points to a steadily improved safety record since taking over the Grangemouth petrochemicals complex from BP in 2005. In the future, the planned national public consultation (by the Scottish Government) and local community meetings and exhibitions (by industry) will undoubtedly be highlighted as proof of participatory, respectful, and representative decision-making.

This trinity of concepts will be relevant for evaluating various storylines which I discuss later on in this paper. But it would be useful to combine them with additional criteria from the wider literature on framing – such as legitimacy, authority, and resonance. Davidson and Gismondi (2011: 22) observe that actors’ position in the social structure – their recognised status as politicians, university scientists, industry representatives, laypersons, etc. – clearly affect their perceived legitimacy and authority in the debate. Speeches and other discursive interventions will also seek to achieve “rhetorical or symbolic resonance with social and cultural values and norms, or rekindle older traditions and sentiments.” A “background of external parameters” including socio-cultural,

economic and material factors is acknowledged by Hajer (1995: 69), but remains undertheorised in his work. I will return to material and economic variables at the end of the paper, but at this point it is important to emphasise the presence of ideational influences that are not purely discursive. Put differently, although, over the long term, cultural identities, values, and norms are constructed and sustained by discursive practices, they are difficult to deconstruct or reinterpret in the short term, that is, within the space afforded by the debate over UGD. In the terminology of ADA, these ideational factors are the result of discursive institutionalisation (as well as socialisation).

The concept of ‘resonance’ is an attempt to capture the ideational fit between such sedimented identities, values, and norms on the one hand and novel discursive interventions on the other. Resonance is particularly important for analysing the Scottish controversy because the different coalitions are engaged in an argumentative struggle and seek to persuade policy-makers, undecided civil society organisations, and the general public. Indeed, the main reason behind the Scottish Government’s moratorium is to manage the political risk of making an unavoidably controversial decision on UGD. Its dual strategy is to observe and learn from the discursive struggle, while preparing the ground for discursive closure underpinned by an ‘evidence-based approach’.

Research from the social movement literature suggests that the resonance of discursive frames is not only affected by the above list of factors, but also by what Benford and Snow (2000: 621) have labelled experiential commensurability and cultural resonance (or narrative fidelity). Experiential commensurability gauges to what extent discursive frames resonate with the lived, everyday experience of the target audience. When anti-UGD groups speak of a ‘toxic nightmare’ and paint an image of a ‘dirty’ industry responsible for various forms of pollution (FAUG 2015), the public’s cognitive resources include oil- and gas-related accidents in Scotland (relatively few and mostly offshore) and global, heavily mediatised examples of fossil fuels production, ranging from tar sands in Canada to shale gas incidents and oil spills in the US, and coalbed methane in Australia. Any exogenous adverse events with a clear connection to UGD, even if occurring in far-flung places, could be used to boost negative experiential commensurability. Cultural resonance captures the significance of cultural traditions, values, and norms. Here, the discursive contest revolves around two overarching narratives. First, UGD can be seen as a logical and beneficial continuation of the Scottish tradition of oil and gas production, reaching all the way back to the mid-nineteenth century. Second, UGD can be perceived as a diversion from Scotland’s destiny as a pioneer in the global low-carbon energy transition, from it being a ‘Saudi Arabia’ of renewable energy with ambitious targets and a bright future in terms of exporting clean energy and low-carbon technologies.

Storylines and Discourse Coalitions

The narrative components just identified are the building blocks of broader anti- and pro-UGD storylines. Storylines are crucial tools for “the clustering of knowledge, the positioning of actors, and [...] in the creation of coalitions amongst the actors of a given domain” (Hajer 1995: 63). Many actors, and especially the general public, do not tend to draw on carefully reasoned philosophies (Fischer 2003: 86) to justify and motivate their positions. At their best, storylines offer a “short, condensed, and often metaphorical expression” (Torfing 2011: 1884) of policy problems and appropriate solutions. An example from UK energy policy is the oft-used phrase of ‘keeping the lights on’. It exudes pragmatism, appears “anchored in common sense” (Molle 2007: 7), ‘sounds right’ to uncritical ears, reduces ‘discursive complexity’, and creates an opportunity for ‘discursive closure’ (Hajer 1995) by delegitimising more radical proposals for a speedy low-carbon energy transition.

There are currently no comparable shorthand expressions with regard to UGD in Scotland, but the anti-UGD coalition – in Scotland, the UK and beyond – occasionally draws on the ‘keep it in the ground’ campaign against fossil fuels. The ‘dash for gas’ is also becoming more popular and may prove to be an influential metaphor. However, as shown in the later analysis of relevant storylines,

these can project considerable discursive power even without recourse to rhetorical one-liners. In their entirety, storylines can be seen as “discursive packages that include a plot, a set of characters, and a set of devices that move the characters through the plot” (Davidson and Gismondi 2011: 23). The apportion blame and responsibility and they convey a sense of urgency or a need for stability and business as usual (Ockwell and Rydin 2010). Storylines seek to include supportive evidence, exclude countervailing information, and while they are relatively resilient (Fischer 2003), storylines are potentially vulnerable to contestation (Palmer 2010) – be it through new empirical evidence, exogenous shocks, or cultural symbols and resonant frames.

The scope and complexity of individual storylines varies across the literature. In this paper, I take storylines to represent the overarching discursive frames that promote a pro- or anti-UGD position while simultaneously responding, to some extent, to critical arguments. Storylines are at the very heart of ADA because they do not only help to ‘cluster’ knowledge and position different actors, but they also serve as the ‘discursive cement’ of discourse coalitions (Hajer 1995). These coalitions are constituted by actors who consider that their own narratives, beliefs, and interests are served by one or more associated storylines. Among policy network configurations, discourse coalitions are arguably the most fluid and flexible constructions. Their defining features are a shared understanding of the policy problem as well as common concepts and narratives. Importantly, neither beliefs and worldviews nor interests need to be shared for a coalition to be formed (Bulkeley 2000: 734). Actors can drift in and out of different discourse coalitions over time. On the question of wind power, for instance, the Scientific Alliance and the Adam Smith Institute are united in vigorous opposition and are both supporting fossil fuels and nuclear power (Aris 2014). But on broader questions of energy policy, the expert- and science-driven Alliance will not always see eye to eye with the decidedly free-market Adam Smith Institute. Their affinity may thus be issue-specific.

In principle, actors do not even have to be aware of their coalition partners when the initial decision is taken to adopt a particular kind of language and take reasonably similar policy positions in the ongoing argumentative struggle. Typically, however, actors quickly become aware of potential discursive allies and interlinkages and exchanges can be based on discursive, cognitive-informational, and material resources. Discourse coalitions tend to be more cohesive, effective, and long-lived if ‘discursive affinity’ (Hajer 2006: 71) is high among coalition members. Hajer uses the example of pollution to explain that it can be criticised with the help of different storylines – moral, scientific, and economic. While evidently distinctive, these storylines still have enough ‘affinity’ and shared purpose (as well as reasonably similar policy solutions) to enable the creation of a discourse coalition. When actors begin to learn from each other’s narratives, when “discursive elements not only resemble one another but flow over into one another” (Hajer 1995: 67), we can even speak of ‘discursive contamination’. In addition to the factors discussed earlier, the relative strength and success of discourse coalitions has often been related to their degree of discursive affinity (e.g. Ockwell and Rydin 2010: 192).

Membership of Discourse Coalitions

In the Scottish debate over UGD, we find a typical configuration of two major discourse coalitions. There are also a few actors that are still undecidedly hovering in the middle ground between the coalitions. The pro-UGD discourse coalition assembles major industrial players with economic interests in shale gas & coalbed methane (INEOS, IGas) and underground coal gasification (Cluff Natural Resources, Five Quarter Energy), at least one large trade union (GMB), the Scientific Alliance (a ‘sound science’-based campaigning NGO), the Scottish Conservative Party, a number of academic experts, and arguably the energy- and economy-related sections of the SNP-led Scottish Government. The anti-UGD discourse coalition includes around two dozen local activist organisations (collectively using the label of the ‘Broad Alliance against Unconventional Gas’), several Scottish environmental NGOs (Friends of the Earth Scotland, WWF Scotland, RSPB Scotland, Scottish Wildlife

Trust, Scottish Environment Link), some trade unions (UNISON Scotland, Scottish Trade Union Council (STUC)), a few academic experts, and the Scottish Green Party.

Given the mutability of discourse coalitions, membership can still change over time and active cooperation is patchy. The Scottish Government professes neutrality and remains an extremely cautious and almost imperceptible actor in the pro-UGD camp. In the face of significant risks from UGD in the UK or sustained public pressure, it could still extend the moratorium or even ban particular forms of UGD indefinitely. In fact, the government's hesitancy and the moratorium (announced in January 2015) has been heavily criticised by academic members of the coalition. Prof Rebecca Lunn of Strathclyde University (Civil and Environmental Engineering) called its policy "ill-informed, short-sighted and ethically appalling" (Linklater 2015). Prof Paul Younger of the University of Glasgow (Energy Engineering), a member of the Scottish Government's (2014) Expert Panel on Unconventional Gas, criticised the government's justification as "completely feigned" and complained about the panel's work being treated as a "political football" (Johnson 2015).

Extremely guarded support comes from the Scottish Labour Party and the Scottish Liberal Democrats. Major industrial players such as INEOS (shale gas and coal-bed methane) and Cluff Natural Resources (UCG) are not currently collaborating and have placed their bets on distinct extractive technologies. In fact, Cluff Natural Resources (CNR) regularly highlights the vastly superior reserves of coal and allegedly fewer hazards and disruption associated with UCG technology. It is also noticeable that INEOS – conscious of the limited size of Scottish reserves of onshore unconventional gas and the strength of local opposition – qualifies its predictions more thoroughly and regularly points to the need for systematic exploration. In that sense, CNR's hyperbolic language could signal that it has a greater need for eliciting political and public support. As for the trade unions, some might still be persuaded to join the UGD proponents, as happened recently with the GMB.⁴

A few actors (National Farmers Union Scotland, Church of Scotland, Rural Policy Centre, and many other NGOs) have not yet taken a position on UGD, but may do so after consulting their members and talking to some of the other key players.

Pro-UGD Storylines

Pro-UGD discourse is primarily focused on instilling a sense of opportunity (as well as necessity), demonstrating tangible benefits of unconventional gas, and on downplaying potential risks associated with extraction. Significantly less attention is given to direct responses to or even rhetorical attacks on opposition groups. The 'evidence-based' approach of the Scottish Government is interpreted as a reliance on sound scientific knowledge and cost-benefit analysis. UGD technologies are seen as proven and manageable, while potential risks are constructed as contextual and site-specific in terms of geology and regulatory frameworks. The main storylines are as follows:

(1) Economic development & risks

The storyline of economic development is combined with an implicit threat of deindustrialisation if UGD were not allowed to go ahead. At the broadest economic level, UGD is inscribed into the project of 'rebalancing' the economy and boosting manufacturing. When used as feedstock, shale gas is needed to manufacture many desirable, 'high-value' consumer products as well as innovative materials for wind turbines and solar panels and for construction, such as steel, glass, and cement (INEOS 2015a). Special emphasis is placed on the accelerated decline of Scotland's North Sea oil and

⁴ Though it is not yet entirely clear if GMB Scotland is bound by the UK's Central Executive Committee's statement.

gas production and the closure of most remaining coalmines. UGD is praised for being able to make up for the loss of well-paid jobs and tax revenues (Bradley 2014; CNR 2015a; INEOS 2015a).

For the Grangemouth area alone, INEOS expects that around 3,000-4,000 new jobs could emerge in shale gas extraction and the wider supply chain⁵. Crucially, INEOS will also offer more tangible economic benefits to communities across the Central Belt of Scotland. Going well beyond the industry-wide commitment to an £100,000 upfront payment (plus £20,000 for each new drilled well), the company will also share 4% of shale gas revenues with relevant landowners and a further 2% with the wider community. Over the lifetime of shale gas wells, this may generate significant economic benefits, with headlines figures quoted as £375m for a 10m²x10m² development area and £2.5bn for the entire project's benefits for local communities (INEOS 2015c).

National and local economic opportunities are often accompanied by a low-key warning about the risks of rejecting UGD or moving too slowly. INEOS' Grangemouth plant only avoided closure in October 2013 after an acrimonious fall-out with the UNITE trade union and a government-backed loan to build a new terminal for shale gas from the US. Initially, INEOS reacted to the moratorium by warning that its gas cracker would not have a long-term future "unless we can develop an indigenous source" (MacNab 2015). But well aware of the reputational damage of the 2013 episode, INEOS has moderated its language and now submits that UGD "can help to protect manufacturing and jobs by securing competitive secure energy and raw materials" (INEOS 2015c).

Slow decision-making could also affect fortunes of the emerging UCG sector and lead to missed opportunities and collateral closures. This applies to the soon-to-be-closed Longannet coal-fired power plant in Fife, which might obtain a new lease of life through UCG (The Courier 2015). The industry needs a reasonable degree of investment certainty to finance exploration and eventual extraction. As Cluff Natural Resources (2015b) warned in a letter to the Energy Minister, "[e]ven a temporary delay until 2016, and the uncertainties this would cause, would set us back considerably (maybe fatally) for the future." Moreover, the industry evokes a sense of urgency by pointing to major competitors in the UGD business, such as the US, China, and Germany (UKOOG 2014; INEOS 2015a).

Pro-UGD discourse is very much weighted towards economic opportunity when communicating with the general public, but the message of economic risk is not lost on Scottish politicians. Reminding the Scottish Greens of the all-party consensus on saving the INEOS plant at Grangemouth, MSP Murdo Fraser, Conservative spokesperson on energy, argued that

"[t]he Ineos plant depends on shale gas as its raw material. The gas is shipped in a fleet of Chinese-built tankers across the Atlantic from Pennsylvania. It is not surprising that Ineos is keen to see a domestic supply of shale gas as a feeder product. On every level, that must make sense" (Scottish Parliament 2014: 30632)

(2) Energy security

Energy security can be defined as "access to secure, adequate, reliable, and affordable energy supplies" (Bordoff et al. 2009: 214). This storyline is often closely linked to the economic development, especially when it comes to the issue of affordability. The Scientific Alliance Scotland (2015) concludes: "As 85% of the UK uses gas for heating this internal source can only help to reduce fuel poverty." The GMB Union (2015) highlights that the manufacturing sector needs "stable and affordable energy prices" to effectively compete in global markets and thus requires "gas to be part of that energy mix." And Murdo Fraser MSP insists that "increasing the domestic supply of gas is bound to have a beneficial impact on energy prices" (Scottish Parliament 2014: 30632). However, the

⁵ Interview with senior manager (INEOS), 19 May 2015.

majority of pro-UGD actors now eschew the affordability argument because the integrated nature of European and global markets for natural gas is likely to act as a price equaliser. CNR has given this storyline an innovative twist by asserting the distinctiveness of syngas from UCG vis-à-vis shale gas. The company claims that “syngas is independent of world natural gas prices, which are sure to rise in the longer term” (CNR 2015b). But given the versatility of syngas and an emerging global market for it (TechNavio 2014), this view will not necessarily persuade policy-makers.

The storyline’s main focus thus lies on security of supply. Much is made of the fact that the UK’s dependence on imports of natural gas (from often volatile countries) will likely be more than two thirds of domestic consumption by 2020. Murdo Fraser MSP puts the geopolitical argument bluntly: “In future decades, I do not want us to rely on Mr Putin’s Russia for our gas supplies” (Scottish Parliament 2014: 30632). INEOS (2015a) predicts serious consequences for the domestic gas market if Europe continues to rely on Russian gas: “the UK will be exposed to shortages and price volatility over the next few decades.” Due to the successive closure of large power stations, even electricity imports may be necessary on days when renewables are flagging. INEOS attempts a mild identity-based appeal to the Scottish public by promising that – with the help of unconventional gas – Scotland “could play to its strength, securing its position as an energy exporter.” The link with Scotland’s long history of fossil fuel extraction and export is palpable here.

Pro-UGD actors thus paint a rather bleak picture of the UK’s and Scotland’s security of supply and suggest that import dependence could be significantly reduced by developing indigenous resources of unconventional gas. Given the uncertainties involved, they are cautious about giving precise estimates. But the potential amount of reserves seems all the more staggering. INEOS (2015a) estimates that only 10% of the UK’s total reserves – which might be a reasonable assessment of extractability – would provide enough gas for over four decades. And Algy Cluff forecasts that abundant coal reserves harnessed by UCG could produce “enough gas to fuel Britain cheaply and efficiently for hundreds of years” (Alexander 2013).

(3) Reassurance

What Bomberg (2013) calls the ‘reassurance frame’ can also be rendered as a storyline. It has gained particular importance due to the scale of activist opposition to UGD and primarily targets the many undecided members of the public and concerned policy-makers. The storyline sometimes begins by emphasising the value of public consultation to obtain the necessary ‘social licence’ for UGD (e.g. INEOS 2015a). For INEOS, this part is covered by a series of public exhibitions and community meetings, while online information leaflets and video clips engage in rather standard, unidirectional science communication.

An initial strategy involves downplaying the novelty of unconventional gas technologies. The industry association UK Onshore Operators Group (UKOOG 2013) draws attention to the UK’s first instances of fracking in the 1960s and estimates that 10% of the country’s 2,000 onshore wells have been hydraulically fractured. CNR (2015a) similarly point to a first domestic UCG project in the 1950s and detailed scientific research commissioned by the government since the late 1990s. A second step is to acknowledge good and bad applications of the relevant technology in other settings abroad, while emphasising the specificity of British geology and the ‘world-class’ regulatory frameworks that are already in place. INEOS (2015b) points to “rare instances” of pollution events in the US caused by “poor practice and inadequate regulation” and insists that these issues would be “straightforward to avoid in the UK” – not least because UK operators can learn from and avoid such “teething problems.” Furthermore, the company’s information leaflets methodically summarise some of the scientific literature on the main public concerns (radioactive waste, seismicity, contaminated water, greenhouse gas (GHG) emissions, water consumption, and property prices) and draw attention to broadly supportive reports written by “respected authorities” (e.g. The Royal Society and Royal Academy of Engineering 2012). CNR equally maintain that there are “no inherent risks” associated

with UCG and that any comparison to major problems observed in Australia can be discounted due to geological reasons (eight times deeper coal seams in Scotland) and greater regulatory stringency (CNR 2015a; Warrander 2015).

Finally, in an effort to boost the credibility of the storyline and prepare for potential future problems (if UGD were to go ahead), the two main industry actors have also recognised that despite their rejection of ‘inherent risks’, UGD is not an entirely risk-free enterprise either. INEOS (2015b) maintains that “the risks are manageable and comparable to other practices”, whereas CNR speaks of “negligible risk” and proposes to further develop the evidence base and “proceed in a cautious manner with a small pilot operation with rigorous oversight” (Trimble 2015). The narrative of reassurance is combined with a science-based, cautious approach that fits rather well with the Scottish Government’s dominant discourse.

(4) Social and environmental responsibility

This storyline constructs UGD as contributing to a rational and balanced Scottish energy policy. It demonstrates that UGD is not merely beneficial for companies, workers, and local communities, but also represents an ethically sound collective endeavour. Moreover, the storyline seek to respond to and delegitimise the powerful counter-narrative of a renewables-driven low-carbon energy transition. The pro-UGD vision of a practical yet ethical energy policy can be mapped onto the so-called ‘energy trilemma’ which simultaneously considers geopolitical, socio-economic, and environmental aspects (security of supply, energy costs, and GHG emissions) (World Energy Council 2014). As with energy security, a basic element of this storyline is to assert the ‘reality’ of the energy situation while taking into account Scottish and UK climate change targets. As the GMB Union (2015) puts it, “[w]ithout an adequate supply of gas being maintained in the decades to come, as Britain seeks to develop a viable low carbon economy, the future faced by the people of this country is a massive increase in expenditure running into many thousands of pounds.”

A second discursive move involves the environmental rehabilitation of natural gas as a ‘bridge’ to a low-carbon world and a significantly cleaner fossil fuel in its own right. INEOS (2015a) argues that it will “take a couple of decades [...] to fully transform how the UK generates electricity and heat, so in the interim we will have to use fossil fuels to meet our energy needs.” Murdo Fraser MSP points to the US where greater reliance on natural gas has enabled marked reductions in carbon emissions (Scottish Parliament 2014: 30632). INEOS (2015a) talks about meeting “the UK’s energy needs in the most environmentally responsible way” and is forthright about the special status of natural gas, evoking an “environmental duty to use gas rather than coal.” Algy Cluff takes up the ethical challenge and hails CNR’s offshore UCG projects as a new form of ‘clean coal’ and claims that they have “significant environmental, safety, and when combined with carbon capture and storage, climate change benefits compared with coal mining and coal-fired power generation” (Scottish Energy News 2015). The major uncertainty here is how quickly (and at what cost) carbon capture and storage (CCS) can be deployed at the requisite scale, but this concern is frequently excluded from pro-UGD discourse. On the other hand, Dr Harry Bradbury, CEO of energy company Five Quarters, estimates that even without CCS his company’s advanced technology would only result in 20% of the carbon emissions generated by conventional coal mining (Anderson 2014) – which could make it even ‘greener’ than shale gas and CBM.

A third discursive strain extends this line to a broader ethical responsibility for society’s energy choices. As the GMB Union (2015) argues, “[t]he issue for Britain isn’t [...] whether we will use gas or not. [...] The real issue is where we will get our gas from, and who should take the moral responsibility for extracting and supplying the gas we use.” In this assessment, the broader economic benefits play a role, but also the social and environmental advantages of extracting unconventional gas in a regulatory context with stringent rules, regular monitoring, adequate salaries, extensive

workers' rights, and significant benefits for affected communities. Domestic UGD is being reframed as an issue of justice.

Finally, a fourth move entails the delegitimisation of the anti-UGD vision of a future based entirely on renewable energy. The sometimes uncompromising language employed for this, however, sits uneasily with claims of social and environmental responsibility. The rhetorical vigour betrays the importance of this effort in undermining the credibility of those arguing for precaution (uncertain health and environmental risks) and a fossil fuel-free energy system. INEOS' (2015a) conclusion that "[w]e will need gas for at least 15 years for electricity, 35 years for heat, and forever as a raw material" is broadly in line with the UK's and Scotland's climate policy. But other statements target the pro-renewables narrative directly. INEOS (ibid.) warns that, by 2020, renewables will only account for 31% of UK electricity and natural gas still for 29%; that 100% renewable electricity would require a total of 200,000 wind turbines; that the intermittency of renewables would lead to "power cuts, blackouts and shortages" unless backed up by significant fossil fuel powered generation⁶; and that electric heating would cost three times as much as gas-powered central heating. There is a tension between these two different positions which might be resolved by explaining which technologies would come to dominate beyond the medium-term gas-powered scenario (cf. INEOS 2015b). But that would arguably risk opening up discursive space for anti-UGD storylines.

Given a strong discursive commitment to engagement with local communities, another tension emerges from direct criticism of oppositional groups. They could be accused of having a 'knowledge deficit' or harbouring irrational fears, for instance by the Scientific Alliance Scotland (Trewavas 2015): "Hundreds of thousands of world-wide investigations have shown underground coal gasification using deep seams and fracking using deep shale are entirely safe technologies that provide enormous benefits to the communities that use them." A second line of attack centres on activists' legitimacy and their motives. The CNR's Andrew Nunn has described local opponents as "increasingly extreme groups [who] oppose practically all forms of energy development in Scotland and do not represent the vast majority of the population" (BBC News 2015). And Dr Harry Bradbury (Five Quarters) criticised the "anti-fossil fuel stance" as being tantamount to "anti-manufacturing and anti-employment" (Edwards 2015).

Anti-UGD Storylines

Of course, similarly vigorous and even more frequent criticisms of their opponents are made by members of the anti-UGD discourse coalition. These actors interpret the Scottish Government's 'evidence-based' approach as an appeal to the precautionary principle whereby preventive action should be taken even in the absence of scientific consensus (i.e. reversing the burden of proof). The overall discourse is best summarised by Friends of the Earth Scotland's (FOES 2015d) indictment of unconventional gas as "unsafe, unnecessary, unwanted."

(1) Uncertainty and potential risks

Descriptions of potential risks to public health and the environment are typically peppered with selective excerpts from scientific studies and with evocative metaphors. An event leaflet by the local group 'Falkirk Against Unconventional Gas' (FAUG 2015) refers to the prospect of a "toxic nightmare" caused by substances that are present in rock formations, the shale gas itself, or fracking fluids, such as radioactive matter, radon gas, heavy metals, airborne chemicals. Examples of incidents from the US and Australia are mobilised to show that there is "real evidence" of serious issues, and the UK experience with UGD is portrayed as a "catalogue of problems" (FOES 2015c). Particular ire is aroused by the fact that proposed buffer zones for shale gas could be as little as 400m, whereas anti-UGD groups have demanded 2km. This would also make unconventional gas extraction unviable

⁶ Nuclear power would be a medium-term alternative, but is only mentioned by the Scientific Alliance Scotland.

across much of the densely populated Scottish Central Belt region. UCG technology is described as “largely untested”, “experimental”, and “frightening” (Argo 2015; Trimble 2015).

While in agreement that much stricter and interventionist regulation is vital to avert adverse consequences, not all coalition members agree with FOES (2015c) that “key risks are inherent to the industry” and cannot be completely eliminated. The Scottish branch of the Royal Society for the Protection of Birds, for instance, shares the main concerns and adds to them the fragmentation of natural habitats (RSPB Scotland 2014). But the organisation has also set out ten policy recommendations for more “a robust regulatory framework” across the UK which should be “regularly tightened in line with best practice” (RSPB 2014). Anti-UGD groups try to insulate themselves from the charge of not-in-my-backyard (NIMBY), self-interested opposition, although concerns over the degradation of landscapes and amenities are sometimes voiced. But more prominent are the three additional storylines (see below) as well as references to selected Scottish and UK-wide opinion polls – most of which show that the majority considers is against fracking and does not trust the government to adequately regulate unconventional gas (YouGov 2014; Drill or Drop 2015; Survation 2015).

(2) Undermining the low-carbon energy transition

An equally important storyline depicts UGD as a threat to Scotland’s climate targets and to the renewable energy ‘revolution’ which promises affordable and clean domestic energy sources. UGD produces fossil fuels, relies on ‘energy intensive’ processes, and give rise to additional fugitive emissions of methane that cancel out some of the GHG advantages over coal (FOES 2015c). Furthermore, focusing on reports by organisations such as the Intergovernmental Panel on Climate Change (IPCC) and the UK’s Committee on Climate Change (CCC), UGD opponents underline limited duration of a natural gas ‘bridge’ to a fully decarbonised energy system. Assuming that environmental and health impact assessments will have to be carried out for “years, if not decades”, FOES (2015b) concludes that unconventional gas will by that point have missed its brief window of opportunity as a lower-carbon fossil fuel. Similarly, a Sunday Herald Editorial (2015) notes that “[t]here has always been a touch of cognitive dissonance, when climate chaos is threatening, over the opening up of new fossil fuel frontiers.” What has been labelled as the “dash for unconventional gas” – a term reminiscent of the UK’s (anti-coal, pro-gas) privatisation of the energy industry in the early 1990s – is billed as a “serious distraction from badly needed investment in clean renewable energy” (FOES 2015d). Studies from Deutsche Bank and the International Energy Agency (IEA) are referenced to lend additional credibility to this interpretation.

Commenting on proposed UCG projects, WWF Scotland calls the schemes “nothing short of irresponsible”. The organisation argues that UGD “just keeps us on the fossil fuel path” and warns that “fossil fuels are probably too precious for us to be burning” (Bradley 2014). This is also one of the very few statements that consider the use of fossil fuels as feedstock. The overwhelming thrust of this storyline is, however, to portray fossil fuels – including efforts to render them cleaner or lower-carbon – as dangerous. Green MSP Alison Johnstone draws attention to Scotland’s world-leading climate targets and invoked the scientific authority of the IPCC: “Just a week after the Intergovernmental Panel on Climate Change warned that we need to urgently phase out fossil fuels, we have a company preparing to drill for yet more” (Bradley 2014). ‘Distraction’ and ‘waste of money’ are also terms used for CCS as a potential solution to UCG’s carbon emissions. Reacting to a research project on a potential coal gasification power plant (with carbon capture and storage (CCS)) at Grangemouth, Richard Dixon, director of FOES, argues that “[a] carbon capture facility is perhaps useful in somewhere like China, which produces a vast amount of carbon pollution, but here in Scotland, where renewables are the single biggest source of energy and increasing all the time, we really don't need one” (Glackin 2015).

Thus, the pro-renewables discourse is firmly in place and does not dwell on more complex aspects such as industrial feedstock (see Gumbrell 2014 for an exception). It has, for some time, dominated the debate over Scottish energy policy, is backed up by many opinion polls showing considerable support for renewable energy, and has been institutionalised in the form of highly ambitious climate and energy targets (see Introduction). However, the anti-UGD discourse still has to respond to influential pro-UGD storylines and generate its own narratives. The role of taking up this challenge has almost exclusively been assumed by Friends of the Earth.

(3) Energy security

The starting point for delegitimising UGD as a major contribution to energy security is to take Scotland's climate and decarbonisation targets for granted – as an institutionalised discourse with considerable support across society. According to FOES (2015c), it would likely take a decade for significant onshore gas production to come on stream, and recovery rates could well be lower than anticipated. This means that today's investments would become 'stranded assets' by the late 2040s, once the zero-carbon targets looms on the horizon (Scottish Environment Link 2014). Likewise, UGD's contribution to the 'energy crisis' over the next decade would be minimal (FOES 2015c).

Having reframed the 'energy crisis' in this way, with reference to the wider UK debate Friends of the Earth (FOE 2015b) insists that the main question for carbon-constrained energy policy should not be 'where can we get our gas from?' but 'how much gas do we need?'. By concentrating on demand reduction and renewable energy, a 'Climate Safe' approach would reduce natural gas imports in 2030 by 30% compared to today's figures, while sufficient security of supply would be ensured by a diversification of sources and greater reliance on Norwegian gas. This package of measures is described as 'triple win' delivering energy security, climate change mitigation, and lower energy expenditure.

(4) Economic development

The argument of lower energy prices through unconventional gas production does not command widespread support in the pro-UGD camp and is given short shrift by anti-UGD actors. Moreover, "substantial job creation" is also claimed as one of the benefits of a 'Climate Safe' approach (FOE 2015b). Creating discursive space for this argument first requires a radical critique of pro-UGD claims regarding employment. FOE (2015a) refers to US studies which found industry estimates to be seven times higher than realities on the ground. The group also juxtaposes relatively short-term job opportunities with long-term risks from drilling. Specifically discussing INEOS' plans in the Central Belt region, FOES (2015a) argues that the numbers of workers for each drilling site would be around 30, that they would be "itinerant", and would have to be balanced against jobs lost in other sectors, such as tourism.

A similar zero-sum perspective is applied to new employment generated by renewable energy and energy efficiency. It is emphatically stated that an 'all of the above' energy policy based on fracking, renewables, and energy efficiency is impossible because the former two compete for investment in construction, innovation, and supply chains (FOE 2015a). The preferred approach is therefore to create genuinely 'green' jobs in larger numbers. Green MSP Alison Johnstone has declared that "[o]ur renewables industry already provides 12,000 jobs and could be far larger with the right support in place. Energy efficiency measures to make our homes less leaky could easily create nine thousand jobs" (McLeod 2015).

Finally, the anti-UGD camp also addresses the local economic consequences of decisions about unconventional gas. The financial benefits promised by INEOS are questioned on economic grounds (assuming high production rates per well or many wells per square mile) and on moral grounds because some compensation to landowners would necessarily be due by law (FOES 2015a). A rather

candid message is presented to employees of INEOS' Grangemouth site. They will have 15 years of job security thanks to shale gas deliveries from the US, but that should be "long enough to plan for a low carbon alternative future for the site and a just transition for workers" (ibid.).

Concluding Analysis

This paper has summarised and partially applied key concepts from the literature on argumentative discourse analysis (ADA), with a particular focus on insights gained from other energy controversies. It has also provided a detailed analysis of the main storylines used by pro- and anti-UGD discourse coalitions in Scotland. Given the intensity of public debate over UGD, ADA has proven to a highly relevant and productive approach. Rather than restricting the analysis to material-economic interests and policy networks, ADA emphasises the dynamic nature of policy debates where ideas, values, credibility, and persuasion can help to challenge and sometimes redefine a given set of interests. Carefully constructed storylines can be key tools of persuasion and begin to shift the balance of power in both the public debate and the policy-making process. In Scotland, the anti-UGD discourse has gained significant potency over the last few years and has been institutionalised through a temporary moratorium. Theoretical analysis will be expanded in future drafts of this paper and I briefly sketch its general direction here below.

The interaction of discourse and argumentation with structurally embedded economic interests

Against the background of declining oil and gas reserves in the North Sea and the economic importance of INEOS' Grangemouth site, it could be argued that – regardless of which storylines carry the day – the Scottish Government will necessarily decide in favour of UGD. Dryzek et al. (2003) have theorised the 'core imperatives' of states as the maintenance of domestic order and state survival, economic growth in a capitalist global economy, and legitimacy through democratic institutions and welfare provision. One would therefore expect that discourse institutionalisation (beyond the temporary moratorium) can only happen if storylines are constructed in a way that appears to support core imperatives, especially economic growth. Hence the importance of the argument about green jobs and a dynamic low-carbon economy based on renewable energy. But it is quite possible that the discourse of a pragmatic 'all of the above' energy policy – including UGD alongside renewables and energy efficiency – could blunt the appeal of the renewables 'revolution'. It is difficult to guess to what extent the sizeable Scottish renewables industry is lobbying the government on UGD, but they are certainly not intervening in the public debate. If anti-UGD economic and security storylines are not sufficiently compelling, this would leave the option of public mobilisation and delegitimisation (of the government) as an alternative avenue for political pressure. Thus, it will be very important how the government handles the planned public consultation. Will the Scottish public in general be won over by the pro-UGD storylines? Can local communities be appeased by prospective financial benefits from unconventional gas extraction or will local discontent spill over into a broader wave of political disaffection?

Will the discursive dominance of the 'evidence-based' approach endure?

Both camps have bought into the cautious, 'evidence-based' approach championed by the Scottish Government, not least because it has certain qualities of a 'nirvana' concept. The government's hand is strengthened by being able to act as the ultimate 'gatekeeper' with respect to what counts as sound evidence and what does not. But this gradualist approach is not merely a strategic discursive move. As Cairney (2015) outlines,

"The Scottish Government is proud of its reputation as a government that makes policy through consultation, to gather evidence, seek consensus when it is there, and (when

possible or appropriate) ‘co-produce’ policy with a wide range of people and organisations.”

The salience of UGD means that consensus or even a broad-based compromise will probably not be possible. This also explains the government’s extreme caution and its responsiveness to both sides of the debate. Although I have provisionally placed the government into the pro-UGD discourse coalition, its own perceived interests can still be shaped by powerful discourses, widespread public mobilisation, and exogenous shocks such as new scientific evidence or the changing fortunes of low-carbon energy technologies. For now, these influences are pointing in a pro-UGD direction. For instance, the UK Government’s decision (in mid-June 2015) to phase out guaranteed feed-in tariffs for onshore wind power one year early may have shifted the balance slightly in favour of UGD.

Overall, the dominance of the ‘evidence-based’ approach will likely endure. But hegemony and discursive closure are less probable in the short term, since other storylines – about Scotland’s moral responsibility for domestic energy production or, conversely, its low-carbon leadership by example – may well become increasingly significant.

The future of discourse coalitions

Amid the focus on storylines, it is easy to lose sight of the significance of discourse coalitions. Apart from assessing the credibility, authority, and resonance of individual storylines, the identity and range of organisations and individuals associated with a coalition matter immensely. Overall numbers and access to the media ensure that particular storylines are repeated more often than others. The perceived trustworthiness and credibility of actors makes the audience more or less receptive and determines the resonance of different storylines. The argument about ethical responsibility, for instance, is more effective when uttered by academic experts and trade unions than by industry. The ‘Joint Charter on Shale Gas’ by UKOOG and the GMB Union (2015) has been an important step to boost the discursive power of the pro-UGD coalition. Dislodging additional Scottish trade unions and councils (UNISON, STUC) from the anti-UGD coalition and convincing others that are currently undecided (such as the National Farmers’ Union Scotland) would be another major achievement.

Conversely, the anti-UGD discourse coalition will have to increase their efforts to retain members and recruit new ones. Concerted attempts to increase discursive affinity – the deliberate sharing and diversification of storylines – will also be prove to be important. In the absence of firm scientific information about serious adverse incidents (especially in the UK), environmental NGOs have been circumspect on the question of risks to public health and the environment, demanding instead that the precautionary principle be applied and that the burden of proof should be placed on the developers. By comparison, the discourse of local activists has undoubtedly been ‘contaminated’ by NGO-driven storylines about the prospects for ‘green’ economic development. In the pro-UGD camp, the tension between different technological pathways – shale gas and CBM vs. UCG – has also weakened discursive affinity.

The next few months may yield some answers to these questions.

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